

SAT® SUITE OF ASSESSMENTS

Teacher Implementation Guide

SAT®

PSAT/NMSQT®

PSAT™ 10

PSAT™ 8/9



Contributions

Jim Patterson | Lead author and editor; Reading and Writing content development

Rashida Savage | Coeditor

Dona Carling, Tiffany Ellison, Juliette Cabrera, Sonia Wilson | Additional Math content development

Carly Bonar, Amanda Groves, Michael Kirpes | Additional digital SAT Essay content development

Special thanks to Rinav C. Mehta, Central Piedmont Community College, and Lindsey Gallas, Math Medic, for their feedback on Math section skill-building strategies

About College Board

College Board reaches more than 7 million students a year, helping them navigate the path from high school to college and career. Our not-for-profit membership organization was founded more than 120 years ago. We pioneered programs like the SAT® and AP® to expand opportunities for students and help them develop the skills they need. Our BigFuture® program helps students plan for college, pay for college, and explore careers. Learn more at [cb.org](https://collegeboard.org).

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CHAPTER 1: The Digital SAT Suite of Assessments

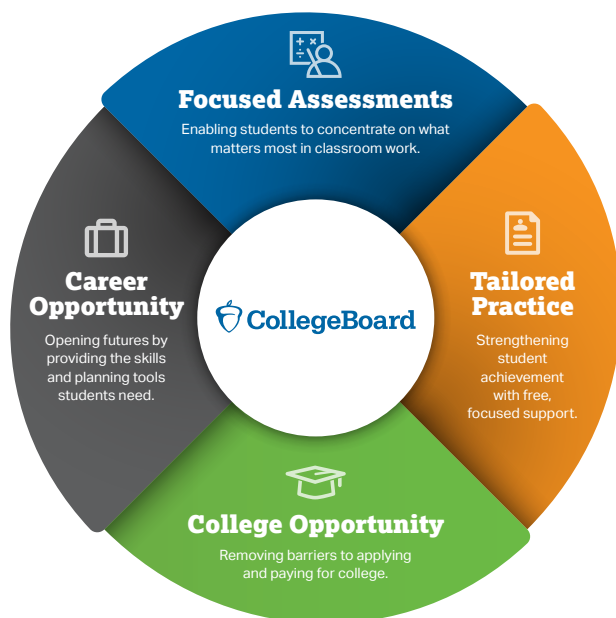
Overview

College Board was created to foster equity and excellence and to provide students with opportunities to succeed in college and careers. Our goal is to ensure that all students have access to resources that help them prepare for and make a successful transition to college. In response to growing need, we have committed to an agenda focused on propelling high school students into opportunities they have earned—and the digital SAT® Suite of Assessments is a major component of this agenda.

Opportunity for All

It's the responsibility of the education community to ensure that all students have the learning and life skills they need to meet the challenges they'll face after high school. To accomplish our mission in spirit and in fact, College Board has gone beyond delivering assessment to delivering opportunity. Our primary focus is getting students into college and career training opportunities, ensuring they have the tools they need to successfully complete postsecondary work and to access opportunities for the rest of their lives.

FIGURE 1. OPPORTUNITY FOR ALL.



How the SAT Suite Works

The digital SAT Suite includes assessments at multiple grade levels, all vertically aligned to provide you and your students with actionable feedback about their college and career readiness from eighth grade through graduation. College Board offers the SAT, PSAT/NMSQT®, PSAT™ 10, and PSAT™ 8/9 as grade-appropriate assessment options for your middle school/junior high and high school students. Combined with focused practice activities and resources about college and career planning, the digital SAT Suite makes it easier for students to navigate a path through high school and beyond.

Table 1 provides a high-level overview of the tests of the digital SAT Suite.

TABLE 1. DIGITAL SAT SUITE OF ASSESSMENTS OVERVIEW.

| Assessment | Grade Level(s) | Assessment Timing | Description |
|------------|---|--|---|
| SAT | 11th and 12th grades (juniors and seniors) | Administrations throughout the school year | Anchor of the digital SAT Suite of Assessments. Scores indicate college and career readiness. Over 2,000 colleges and universities in every state use SAT scores in admission decisions. |
| PSAT/NMSQT | 10th and 11th grades (sophomores and juniors) | Fall only, during designated testing window | The nation's largest and most representative precollege assessment; most junior test takers will be eligible to enter National Merit® Scholarship Corporation competitions. PSAT/NMSQT opens doors for improved instruction, identifies students who need to get back on target for college and career readiness, expands access to challenging coursework, and, ultimately, helps ensure a more successful transition to college and career. |
| PSAT 10 | 10th grade (sophomores) | Spring only, during designated testing window | Covers the same test content as PSAT/NMSQT, offers flexibility in test administration as well as a check-in on student progress. Test takers are not eligible to enter National Merit Scholarship Corporation competitions. |
| PSAT 8/9 | 8th and 9th grades | Spring and fall, during designated testing windows | Entry point for establishing a baseline for college and career preparation. |

College Board strongly encourages the use of grade-appropriate assessments. Working together, College Board assessments provide benchmarks (minimum scores indicating whether students are on target for college and career readiness) and consistent feedback for measuring student progress over time—allowing teachers to accelerate students according to their level of achievement.

The Digital SAT Suite

The *SAT Suite of Assessments* is College Board's collective term for its flagship suite of college and career readiness testing programs and services: the SAT, PSAT/NMSQT and PSAT 10, and PSAT 8/9. During the 2015-2016 academic year, College Board began to transition the SAT Suite to a digital format. While continuing to measure the skills and knowledge assessed by the paper-based SAT Suite it replaces, the digital version of each exam is responsive to the changing educational landscape as well as the emerging needs of students and their families, teachers, state and district users, higher education officials, and policymakers. Over the several years that the SAT Suite has been available in its paper-based form, College Board has listened closely to feedback and input from a wide range of stakeholders, carefully assessed the needs of the suite's users, and evaluated how best to respond. The result is the digital SAT Suite.

Key Features

Innovations introduced as part of College Board's transition to digital testing for the SAT Suite make the tests **easier to take, easier to give, more secure, and more relevant**.

Easier to take. In a number of important ways, the digital SAT Suite tests are easier to take than their paper-and-pencil predecessors.

- *Shorter tests.* The digital tests take only roughly two hours to complete instead of the three hours of the paper-based tests.
- *A streamlined test day.* Pre- and post-test activities and administrative time have been significantly reduced.
- *A wide range of eligible devices.* Students can take the tests on their own laptops (Windows or MacOS), iPads, school-managed desktops and laptops, and school-managed Chromebooks.
- *Focused questions.* Digital test questions, while preserving the rigor of the paper-and-pencil SAT Suite tests, are concise and focused, facilitating their delivery on digital devices.
- *Bluebook™.* The College Board custom-built test delivery app presents the tests in an intuitive, fluid way, features numerous tools that all students may elect to use, and supports a wide range of testing accommodations and supports for students who require them.
- *Built-in graphing calculator.* Students may opt to use either the built-in Desmos Graphing Calculator for the Math section (only) or their own approved calculator.

BORROWING A DEVICE

College Board recognizes that not all students have ready access to an appropriate digital device on which to test. During registration for the SAT on a weekend, students who do not have access to a device can submit a request to borrow one from College Board. See satsuite.collegeboard.org/digital/device-lending for more information.

Easier to give. The digital versions of the SAT Suite tests are simpler to administer than ever before.

- *No more paper.* Gone are the days of shipping, securing, unpacking, distributing, collecting, and repacking test materials.
- *Flexible testing windows.* Schools and districts can now choose testing dates that work for them and their students instead of being restricted to a few national test dates.
- *Streamlined administration.* The tests themselves have fewer separately timed sections, thereby easing administration, and exam timing is handled by Bluebook, the test delivery app, not the proctor. The Test Day Toolkit app created by College Board makes the remaining test administration tasks much easier for proctors and test coordinators as well.
- *Robust web-based application.* Bluebook can withstand momentary interruptions in device connectivity and power. Students can simply reconnect to the test center's Wi-Fi or plug back in, with no loss of testing time or work.

More secure. The SAT Suite tests are more secure than they've ever been thanks to the transition to digital.

- *No more paper.* The switch to digital eliminates paper handling and the security risks associated with paper-based testing.
 - ◆ Students approved for paper-based accommodations will still be able to take a paper linear version of the exam.
- *Unique but highly comparable test forms.* Each student taking one of the digital SAT Suite assessments is given a highly comparable but unique test form. This makes cheating off one's neighbors or with the aid of other testers much more difficult.
- *A single test question per screen.* Displaying only one question at a time to students—a situation made possible by the digital app's exclusive use of discrete, or standalone, questions—impairs the ability of bad actors to copy swaths of test content.

More relevant. The digital SAT Suite tests are even more useful and meaningful than the paper-based tests they replace.

- *More engaging test content.* The number and variety of topics in test materials have been greatly increased thanks to the exclusive use of discrete test questions. This means that there are many more opportunities for the tests to represent the diversity of people, experiences, and interests in the United States and around the world. Students also have many more chances to encounter subjects that interest them—which is important because more engaged test takers are likely also to be better, more confident test takers.
- *Faster score delivery.* Instead of waiting weeks for paper score reports to be processed and shipped, schools will have access to student score reports online in a matter of days and will be able to distribute score reports to students sooner. If an eligible student downloads the BigFuture School™ mobile application, their scores will be available in the app when score reports are distributed by schools. As always, students with a personal College Board account may access their score information at studentscores.collegeboard.org. For the SAT, if a student chooses to send their scores to colleges, universities, or other organizations as directed by the student during in-school testing, those scores will be sent to the selected institutions or organizations 7–10 days after the scores are released.
- *Greater access to actionable information.* You and your students will find digital SAT Suite scores and information replete with valuable data, including explanations of test scores, ways to compare and contextualize scores, recommendations for next steps, and opportunities to connect with colleges and careers.

Research Foundations

The tests of the SAT Suite of Assessments are among the most intensively researched large-scale standardized assessments ever created. The digital versions of the SAT Suite tests continue College Board’s tradition of ensuring that our college and career readiness assessments are based on the best available evidence concerning essential prerequisites for postsecondary success.

College Board employs a wide range of research approaches to help ensure that the digital SAT Suite tests are valid, reliable, and fair measures of all students’ reading and writing and math achievement.

- **Psychometrics-focused studies** established appropriate test timing, concordance between the digital and paper-based SAT Suite tests, and the vertical scale on which the scoring of all digital SAT Suite tests is based. Additional studies will examine the predictive and concurrent validity of the tests—that is, the extent to which the tests accurately predict postsecondary success and agree with other recognized measures of college and career readiness, such as high school GPAs and AP[®] Exam scores.
- **Content-focused studies** determined the skills and knowledge that should be included in the digital tests and assessed the alignment of the test specifications to state academic standards in relevant subject areas and grades.
- **User experience-related studies** employed survey, focus group, and both conventional and cognitive interview (“think-aloud”) approaches to explore how students interact with test materials. These studies examined such topics as whether test directions were clear and understandable as well as the mental (cognitive) processes students employ when they interact with particular digital SAT Suite test questions.

In addition, we’ve established a rigorous, multifaceted approach to confirm that questions in the digital SAT Suite tests are content sound, fair and accessible to all students, and psychometrically meaningful. Steps in this process include internal and external evaluation of questions, pretesting on samples of the student testing population, and statistical analyses verifying that the questions have desirable measurement properties (such as appropriate difficulty and the ability to differentiate among students of varying achievement levels) and lack undesirable properties (such as significantly favoring or disfavoring one or more population subgroups when studied samples of each group are matched on achievement).

COMPANION RESOURCE

Chapter 5 of the **Assessment Framework for the Digital SAT Suite** offers an extended discussion of the evidentiary foundations undergirding the digital SAT Suite of Assessments. This resource can be found at satsuite.collegeboard.org/media/pdf/assessment-framework-for-digital-sat-suite.pdf.

The Digital SAT Suite, You, and Your Students

The digital SAT Suite assessments share your goal of preparing all students for life after high school. Deeply influenced by evidence, the digital-suite tests support your classroom work in a number of important ways.

- The tests focus on measuring essential college and career readiness prerequisites.
- The tests reinforce important evidence-backed instructional emphases.
- Test questions are written to be clear and transparent.
- Test questions are grounded in authentic tasks.
- The tests are supported by a range of world-class practice opportunities, most of which are offered at no cost.
- Test results link students to opportunities they've earned through their hard work in school.

Essential College and Career Readiness Prerequisites

The digital SAT Suite tests are tightly focused on the knowledge and skills in reading and writing and in math that the best available evidence indicates are required for students to be ready for success in postsecondary education. Through its surveys of college and secondary teachers' curricular expectations and emphases, examination of state academic standards, input from subject matter experts, and other means, College Board gained a clear sense of what students taking the tests need to be ready to succeed in a wide range of common first-year, credit-bearing college courses.

We found that **to be college and career ready in reading and writing**, students must be able to

- demonstrate understanding of **information and ideas** in texts across a range of academic subjects and complexities aligned with college and career readiness requirements.
- evaluate the **craft and structure** of texts, including demonstrating understanding of the meaning of as well as proficiency in using high-utility academic (tier two) vocabulary in context.
- revise the **expression of ideas** in texts to enhance communicative power in accordance with specified rhetorical goals.
- edit texts in accordance with **Standard English conventions** in order to meet academic and workplace expectations regarding the use of standardized expression.

We further found that **to be college and career ready in math**, students must know and be able to do the following:

- In **algebra**, analyze, fluently solve, interpret, and create linear equations and inequalities as well as analyze and fluently solve systems of equations using multiple techniques.
- In **advanced math**, demonstrate attainment of skills and knowledge central for successful progression to subsequent math courses, including analyzing, fluently solving, interpreting, and creating equations, including absolute value, quadratic, exponential, polynomial, rational, radical, and other nonlinear equations, as well as analyzing and fluently solving systems of linear and nonlinear equations in two variables.

- In **problem-solving and data analysis**, apply quantitative reasoning about ratios, rates, and proportional relationships; understand and apply unit rate; and analyze and interpret one- and two-variable data.
- In **geometry** (PSAT 8/9) and **geometry and trigonometry** (SAT, PSAT/NMSQT, and PSAT 10), solve problems that focus on perimeter, area, and volume; angles, triangles, and trigonometry; and circles.

Benchmark scores associated with each digital SAT Suite testing program establish the empirical thresholds students must reach or exceed to be considered college and career ready in reading and writing and in math. These benchmarks are discussed in more detail in [Chapter 4](#).

Important Instructional Emphases

For college and career readiness for all students to become a reality, secondary instruction must align with evidence about what students need to succeed in postsecondary education. Working with subject matter experts in secondary and postsecondary education, we've determined that all students need to develop the following capacities.

In **reading and writing**, students must develop the ability to

- read and comprehend **complex texts** reflective of the challenge level of high school and early postsecondary readings.
- apply **close reading strategies** to obtain meaning from texts, especially complex ones.
- identify and make skilled use of **textual and quantitative evidence** (e.g., quotations, facts, figures, data).
- draw reasonable text-based **inferences**.
- skillfully use and determine the in-context meaning of **high-utility academic vocabulary**.
- build and deploy **subject matter (domain) and world knowledge** to aid in comprehension.
- edit texts to conform to core requirements of **Standard English conventions** in writing as an aid to effective communication and to meet academic and workplace expectations for standardized expression.
- demonstrate understanding of **disciplinary literacy**, or the ways in which the nature of reading and writing varies by subject area (e.g., between literature and science).

In **math**, students must attain

- **algebra** skills and knowledge involving linear expressions, linear equations in one and two variables, linear functions, systems of linear equations, and linear inequalities.
- **advanced math** skills and knowledge involving nonlinear equations and functions, including quadratic, exponential, polynomial, rational, radical, absolute value, and conic section equations and functions.
- **problem-solving and data analysis** skills and knowledge involving ratios, rates, proportional relationships, unit analysis, percentages, probability and conditional probability, one- and two-variable data, scatterplots, and models.
- **geometry and trigonometry** skills and knowledge involving area, perimeter, volume, and surface area; concepts and theorems related to lines, angles, and triangles; triangles and right triangle trigonometry; sine, cosine, and tangent; radian measure and trigonometric ratios in the unit circle; and definitions, properties, and theorems related to circles.

COMPANION RESOURCES

With the help of subject matter experts, we've created *Classroom Practice Guides* for both English language arts/literacy (satsuite.org/digital-classroom-practice-english) and math (satsuite.org/digital-classroom-practice-math). The various essays in these collections explain why each topic addressed briefly in this guide is important to college and career readiness for all, offers a reader-friendly research summary (with extensive citations), and provides suggestions for incorporating these instructional emphases into coursework across a range of subject areas.

These emphases directly inform the development of questions in the digital SAT Suite assessments. The literacy emphases are woven throughout the Reading and Writing section (as well as the digital SAT Essay task undertaken by some students testing during the school day), while questions in the Math section are organized into four corresponding content domains, or categories: Algebra, Advanced Math, Problem-Solving and Data Analysis, and Geometry and Trigonometry (the last of which is simply Geometry on the PSAT 8/9).

Question Clarity and Transparency

Test questions for the digital SAT Suite assessments are written to be immediately comprehensible to students. By design, the challenge of digital SAT Suite test questions arises from the complexity of what students are asked to demonstrate, not from a lack of clarity about what's being asked or from intentionally tricky phrasing. To this end, all test questions for the suite go through a rigorous internal review process, and batches of representative questions are periodically audited by independent experts for content soundness and fairness.

Question Authenticity

The digital SAT Suite tests center on the kinds of questions and problems that students routinely address in secondary and postsecondary classrooms. Questions in the Reading and Writing section are based on real-world information and authentic scenarios. They discuss actual research studies, well-known and less-famous works of art and literature, meaningful data from a range of academic subjects, and the like. Questions in the Math section may present similar contexts about topics in science, social studies, and the real world for students to consider and apply their skills and knowledge to, or they may consist of “pure” math problems focused on key postsecondary prerequisites in algebra, advanced math, problem-solving and data analysis, and geometry and trigonometry.

Although digital SAT Suite test questions often require students to engage with authentic topics, they don't test students' prior knowledge of these matters. All the information students need to answer the questions is included in the questions themselves. This helps ensure that all students have access to test content and are able to show what they know and can do.

Practice Opportunities

A critical tenet of test fairness is that all students should have a full and equal opportunity to demonstrate what they know and can do on an assessment. To help meet this requirement, College Board makes three categories of digital SAT Suite practice available to students.

- **Digital assessment readiness**, which helps students familiarize themselves with the digital test interface and how to enter answer responses.
- **Test wisdom**, which lets students know the types of questions they'll encounter on the tests, determine whether they can or can't answer such questions correctly, and offer insights into ways they can improve their future test performance.
- **Skill/knowledge building**, which helps students gain the academic abilities they need for college, career, and life.

Practice opportunities are discussed in more detail in [Chapter 5](#).

Score Report and Insights

The score report for each digital SAT Suite test provides a wealth of information, advice, and opportunities for students. From their score report, students can gain access to their scores and how to interpret them; track their growth from one digital SAT Suite test to the next; and gauge their college and career readiness. Interested students can go online to find practice opportunities and gain access to information about college and career opportunities, as well as planning and paying for postsecondary education.

This topic is covered in greater depth in [Chapter 4](#).

What Does This Mean for You and Your Classroom?

We understand that your students are your priority and that the most important thing you can do is to focus on the work that takes place in your own classroom. That's why the digital SAT Suite is aligned with classroom instruction as part of our commitment to empowering educators. With its focus on a relatively small number of essential topics and its alignment to teaching and learning best practices, the digital SAT Suite fits neatly into your instruction rather than presenting you with more responsibilities. You won't be "teaching to the test"—instead, the test reflects your teaching.

The best news out of all of this is that the knowledge and skills students need to be college and career ready—and, not coincidentally, to do well on the digital SAT Suite tests—are best developed as part of rigorous classroom instruction. This means that you, as a classroom teacher, have a tremendously important role to play by providing challenging, on-grade-level lessons and encouraging students to do their best work. This also means that while there are some ways you can help prepare students for the specifics of the digital SAT Suite tests—more on this in later chapters—**the single best preparation for postsecondary success (and the digital SAT Suite tests) comes through everyday teaching and learning activities and active student engagement in their own learning.**

Guide Preview

Chapter 2 of this guide offers a high-level overview of the tests of the digital SAT Suite. Chapter 3 delves into the Reading and Writing and Math test sections, including what the test sections measure and the formats and types of questions used, along with numerous sample questions and answer explanations. Chapter 4 discusses in more detail the scores and score reports yielded by the tests and how they can help teachers, students, and families make better use of the results. Chapter 5 provides some suggestions on how best to prepare your students for the digital SAT Suite tests. A series of appendices rounds out the guide.

THE DIGITAL SAT ESSAY

Some students taking the digital SAT as part of school day testing may also be required by their state or district to take the Essay, a direct-writing assessment designed and developed by College Board. The Essay, which calls on students to read a provided passage and explain how the passage's author builds an argument to persuade an audience, is discussed in [Chapter 3](#).

CHAPTER 2:

Getting Familiar with the Digital SAT Suite of Assessments

Overview

The digital SAT Suite is focused on the knowledge and skills shown by our research to matter most for postsecondary education and career success. It also models the best work being done in the nation's classrooms, giving both you and your students a context for how the essential knowledge and skills for college readiness connect with school experience.

The four digital SAT Suite testing programs—the SAT, PSAT/NMSQT, PSAT 10, and PSAT 8/9—measure the same broad knowledge domains and skills, with slight modifications (discussed below) reflecting differences in the age and attainment of students across the secondary grades, making it easier for students, families, and teachers to monitor student progress and address any areas of weakness.

All test content is developed at a complexity level appropriate for students at their grade level. Each of the assessments in the digital SAT Suite is designed to measure readiness and skills relevant to a wide range of college majors and careers, presenting opportunities for students to demonstrate what they've learned in school. The components of the assessments provide a clear picture of a student's skills and knowledge across academic disciplines and of that student's readiness to meet the challenges of college and career. Input from K-12 and other educators helps ensure that the knowledge and skills assessed by the digital SAT Suite reflect college and career readiness standards and best instructional practices.

The main purpose of the digital SAT Suite is to determine to what extent students are prepared to succeed both in college and workforce training. Scores from the tests—used alongside other data, such as high school grades, and in the context of where students live and learn—provide meaningful information about a student's likelihood of succeeding in college and can contribute to decisions about higher education admission and placement.

COMPANION RESOURCE

Chapter 2 of the **Assessment Framework for the Digital SAT Suite** offers a comprehensive overview of the digital SAT Suite and its tests. Read more at satsuite.collegeboard.org/media/pdf/assessment-framework-for-digital-sat-suite.pdf.

Limitations on Test Use

The SAT Suite is intended to open doors for students and to help them gain access to opportunities that they've earned through their hard work. It's therefore inappropriate to use SAT Suite scores as a veto on students' educational or vocational aspirations. When interpreted properly, data from tests such as those of the SAT Suite can make valuable contributions to helping students meet their academic and career goals, but test scores should never be the sole basis for highly consequential decisions about students' futures. SAT Suite scores, therefore, should be considered alongside other factors, including high school grades and where students live and learn, when evaluating students' achievement or potential.

SAT Suite scores should also not be used as the single measure to rank or rate teachers, educational institutions, districts, or states. Users should exercise care when attempting to interpret test results for a purpose other than the intended purposes. College Board isn't aware of any compelling validation evidence to support the use of any of the SAT Suite assessments, or other educational achievement measures, as the principal source of evidence for teacher or school leader evaluation. Assessment data, when subjected to several constraints, can, however, be used in conjunction with other educational outcome measures to make inferences about school and educational quality, including teaching and learning.

Key Features

Numerous innovations make the digital SAT Suite tests easier to take, easier to give, more secure, and more relevant than ever before.

- **Digital testing.** The digital SAT Suite tests are delivered digitally on a wide range of devices to all students except those who require paper-based testing accommodations.
- **Customized web-based application for test delivery.** We've built Bluebook, a digital testing application created specifically for College Board exams, to administer the digital SAT Suite tests in an intuitive, accessible manner.
- **Multistage adaptive testing engine.** The digital SAT Suite tests take advantage of technology to “adapt,” or adjust, each student's testing experience based on their performance. (The adaptive model is discussed in more detail below.) Adaptive testing allows for shorter tests that still yield scores as precise and reliable as those from the paper-based SAT Suite tests that the digital tests replace.
- **Embedded pretesting.** College Board includes (“embeds”) a small number of nonoperational (unscored) test questions in each student's test form. This helps ensure that College Board can securely obtain high-quality question performance statistics and maintain the digital SAT Suite indefinitely while limiting the burden on students of answering pretest questions on which they aren't scored.
- **Discrete questions.** Each digital SAT Suite test question is discrete, meaning that it can be answered by itself, without reference to any other test question. In other words, there are no question sets built around a single passage, context, or informational graphic. This allows the tests to assess skills and knowledge in English language arts/literacy and math in an efficient, valid, and fair way.

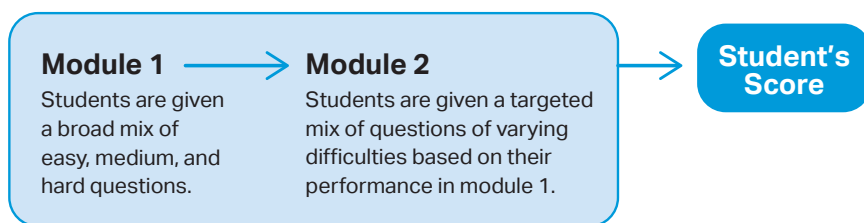
- **Test fairness.** With the digital tests, we continue our practice of ensuring that the SAT Suite is a valid and fair assessment of all students' skills and knowledge.
- **Test accessibility.** Bluebook adheres to universal design principles, provides universal tools that all students may elect to use during testing to improve their experience, and makes a wide range of accommodations and supports readily available for students who require them to access and respond to test content.
- **Scores and score interpretation tools.** Each digital SAT Suite test provides clear, actionable information to students and their families, teachers, and other stakeholders.
- **World-class practice opportunities, most of which are offered at no cost.** The digital SAT Suite includes a broad variety of resources that familiarize students with Bluebook, the digital testing app; prepare them to answer test questions successfully; and help them develop durable skills and knowledge needed for college and career readiness. (These resources are discussed in detail in [Chapter 5](#).)

Multistage Adaptive Testing

A central feature of the digital SAT Suite tests is the use of an adaptive testing model that greatly improves testing efficiency. *Adaptive* in this context means that the tests adjust (“adapt”) the material presented to students based on how those students are performing while testing. The key benefit of the digital suite’s adaptive testing model is a significant reduction in testing time—the digital tests are roughly two hours in length instead of the three hours of the paper-based SAT Suite tests—with no loss of measurement validity or reliability.

The digital SAT Suite employs a simple two-stage adaptive model, depicted in Figure 2.

FIGURE 2. DIGITAL SAT SUITE MULTISTAGE ADAPTIVE TESTING MODEL.



The questions in each digital SAT Suite test section (Reading and Writing; Math) are grouped into *modules*. Each module is defined by the average difficulty of its questions, consists of half the section's questions, and is timed separately.

Students begin each digital-suite test section by answering questions in the section's first module. These questions are, on average, of medium difficulty, although individual questions may range from easy to hard. The questions in this module are numerous and diverse enough, in terms of the range of content and difficulty, to ensure that all students have a good opportunity to show what they know and can do in reading and writing and in math.

Once students have answered the questions in the test section's first module, Bluebook determines, based on the students' performance so far, which of two second-stage modules they should be delivered to complete testing in the section. Questions in the second module are, on average, of either higher or lower difficulty than those in the first module, though, again, individual questions may range from easy to hard.

Whether students are routed to the higher- or lower-difficulty second-stage module, they have a fair opportunity to demonstrate their achievement. Students routed to the higher-difficulty module can still miss some questions and get a good score, while students routed to the lower-difficulty module have a chance to show what they do know and can do, not just what they don't and can't.

The adaptive test engine used for the digital SAT Suite tests benefits students in several ways. First and foremost, it results in shorter tests that retain the precision and reliability of longer (linear) tests. That's because question difficulty in the second stage of each section is determined based on student performance in the first stage, resulting in more efficient assessment. Second, unlike in some other adaptive testing models, students taking one of the digital SAT Suite tests can navigate freely through a given module's questions, previewing upcoming questions or marking earlier questions to return to should time permit. That's possible because the content of each module is fixed prior to testing rather than determined "in the moment" by Bluebook. Finally, because this content is set before test day, students don't have to have uninterrupted power or a continuous connection to Wi-Fi during testing. Students whose devices run out of battery can simply plug them in, and those who experience momentary internet connectivity issues can simply rejoin the network—in either case, without loss of testing time or students' work, as Bluebook automatically saves their progress.

Overall Test Specifications

Table 2 presents the high-level specifications for the digital SAT Suite tests, including the tests' organization as well as the timing of and number of questions in each test section. Key features mentioned in the table are discussed in detail in the section that follows.

TABLE 2. DIGITAL SAT SUITE: OVERALL TEST SPECIFICATIONS.

| Characteristic | Reading and Writing Section | Math Section |
|---|---|--|
| Administration | Two-stage adaptive test design; one Reading and Writing section administered via two separately timed modules | Two-stage adaptive test design; one Math section administered via two separately timed modules |
| Test length (number of operational and pretest questions) | 1st module: 27 questions 2nd module: 27 questions | 1st module: 22 questions 2nd module: 22 questions |
| Time per module | 1st module: 32 minutes 2nd module: 32 minutes | 1st module: 35 minutes 2nd module: 35 minutes |
| Total number of questions | 54 questions | 44 questions |
| Total time allotted | 64 minutes | 70 minutes |
| Average time per question | 1.19 minutes | 1.59 minutes |
| Scores reported | Section score (Half of total score) | Section score (Half of total score) |
| Question format(s) used | Discrete; four-option multiple-choice | Discrete; four-option multiple-choice ($\approx 75\%$) and student-produced response (SPR) ($\approx 25\%$) |
| Stimulus subject areas | Literature, history/social studies, the humanities, science | Science, social studies, real-world topics |
| Word count | 25–150 (6-character) words per stimulus text (or pair of texts) | Approximately 30% of questions in context; a majority of in-context questions have 50 (6-character) words or fewer |
| Informational graphics | Tables, bar graphs, line graphs | A wide range of data displays, geometric figures, and xy -plane graphs |
| Text complexity bands | Grades 6–8, grades 9–11, grades 12–14 (Grades 12–14 excluded from PSAT 8/9) | N/A (see Text Complexity Bands on page 17.) |

The Features in Detail

This section discusses the key features of the digital SAT Suite tests presented in Table 2.

Administration

Each assessment of the digital SAT Suite is composed of two sections: a Reading and Writing section and a Math section. For individual students, each section is, in turn, composed of two equal-length modules: an initial (routing) module consisting of a broad mix of easy, medium, and hard questions and a second module containing a mix of questions of varying difficulties targeted to their performance on the first module. Because the tests are designed according to a two-stage adaptive model (as discussed in detail in the Multistage Adaptive Testing section on page 12), each module is separately timed, and while students may navigate freely within each module, they may not return to the first module's questions after having transitioned to the second module's nor return to the first section (Reading and Writing) after moving to the second (Math).

Test Length

Each Reading and Writing module consists of 27 questions. In total, the Reading and Writing section is made up of 54 questions. Each Math module consists of 22 questions, for a total of 44 questions across each test form.

Time Per Module

Each Reading and Writing module is 32 minutes in length, while each Math module is 35 minutes. As noted above, each module is separately timed. When time runs out on the first module of each section, Bluebook, the digital testing app, automatically moves students to the second module, where they're administered either the lower- or higher-difficulty module associated with the routing module. When students complete the Reading and Writing section, they're automatically moved to the Math section after a short break between the sections.

Average Time Per Question

Students have, on average, 1.19 minutes to answer each Reading and Writing question and 1.59 minutes to answer each Math question.

Scores Reported

Each of the digital SAT Suite assessments yields three scores: a total score and two section scores. The total score is based on students' performance on the entire assessment and is the arithmetic sum of the two section scores. Two section scores, one for Reading and Writing, the other for Math, are based on students' performance on each section.

Question Formats Used

The Reading and Writing section exclusively uses four-option multiple-choice questions, with each question having a single best answer (known as the *keyed response* or *key*).

DIGITAL SAT ESSAY

Some students taking the digital SAT as part of school day testing may also be required by their state or district to take the Essay, a direct-writing assessment designed and developed by College Board. The features of the Essay are discussed in [Chapter 3](#), and Essay scoring is covered in [Chapter 4](#). The Essay rubric and numerous annotated sample responses are presented in [Appendix B](#).

DIGITAL SAT ESSAY

Those taking the digital SAT Essay as part of school day testing also receive three Essay scores: Reading, Analysis, and Writing. For more details, see [Chapter 4](#).

About 75% of questions in the Math section use the same four-option multiple-choice format, while the remainder use the student-produced response (SPR) format. As the name implies, the latter type of Math question requires students to generate their own answer and enter it into a response field positioned near the question. These questions assess students' ability to solve math problems with greater independence and with less structure and support than that provided in the multiple-choice format. SPR questions may have more than one correct response, although students are directed to supply only one answer.

Stimulus Subject Areas

The digital SAT Suite assessments ground all Reading and Writing and some Math questions in authentic contexts based in academic disciplines or real-world scenarios. In Reading and Writing, each of these contexts consists of a brief text (or pair of texts) and possibly an informational graphic as well as a single (discrete) question. Reading and Writing passages are drawn from and reflect the norms and conventions of the subject areas of literature, history/social studies, the humanities, and science. Students don't need subject-specific topical knowledge to answer Reading and Writing questions; all the information needed to answer each question is provided in the questions themselves. To help confirm that passage contexts are appropriate for the target test-taking population, test development staff consult various external sources, such as the Next Generation Science Standards (NGSS), to help determine what those students are likely to know and be able to do in various subject areas. However, because the questions are designed to emulate those asked and answered in the sampled subject areas, students with greater experience in and facility with these disciplines and how they structure and communicate knowledge textually are likely, on average, to perform better than those who lack that exposure.

In Math, about 30% of test questions are set in academic (science or social studies) or real-world contexts, while the rest are "pure" math questions outside of context. Math contexts are brief: sufficient in length to establish a scenario but clear, direct, and concise enough not to impose undue linguistic burdens on students. Questions set in science or social studies contexts emulate the kinds of problems, reasoning, and solving strategies commonly encountered in those fields, adding to the tests' verisimilitude. Again, topic-specific prior knowledge isn't required to answer these sorts of questions.

Word Count

Passages (or passage pairs) used in Reading and Writing questions range in length from 25 to 150 words. In this technical context, a *word* is considered a set of six characters of any sort (i.e., any combination of letters, numbers, spaces, or symbols, including punctuation) so that word counts are standardized across texts and thus not affected by an abundance of especially short or long words in any one passage. This character count is then divided by six to obtain a word count. In-context Math questions are typically 50 (six-character) words or fewer.

Informational Graphics

In accordance with evidence about essential college and career readiness requirements, both the Reading and Writing and Math sections include informational graphics with select questions. For Reading and Writing, these informational graphics are restricted to tables, bar graphs, and line graphs, as these are the most commonly used types in academic and real-world texts; for Math, the range is wider (e.g., including scatterplots) to reflect the diversity of tables and figures encountered in that subject area. Select Math questions may instead be accompanied by geometric figures (e.g., triangles, circles) or *xy*-plane graphs, which students must make use of when answering.

Text Complexity Bands

An abundance of evidence supports the conclusion that the complexity of texts students are able to read is closely associated with their degree of college and career readiness. In accordance with that evidence, text complexity plays an important role in the design and development of the digital SAT Suite Reading and Writing section. Texts in that section are assigned to one of three complexity bands (grades 6–8, grades 9–11, and grades 12–14) aligned with the growing text complexity demands across successively higher grades of schooling and with college and career readiness requirements. Complexity of texts is determined using a combination of a sophisticated quantitative measure and expert, trained human judgment.

Math contexts aren't formally rated for complexity. However, Math test development staff review each context qualitatively to ensure that its linguistic load and demands are consistent with the requirements of the question being posed, and Math (and Reading and Writing) staff have been trained in linguistic modification principles, which seek to relieve students of unnecessary linguistic burdens during test taking through clear and concise word choice in contexts and questions.

Test assembly parameters for the Reading and Writing section of the digital SAT, PSAT/NMSQT, and PSAT 10 don't constrain for text complexity. This means that texts in any of the three bands may appear on any of these tests. Texts from the highest complexity band (grades 12–14) are, however, excluded from PSAT 8/9, as these complex to highly complex texts aren't generally appropriate for use in assessing the literacy knowledge and skills of eighth and ninth graders.

Variations by Testing Program

By design, the tests of the digital SAT Suite are meant to be highly similar across programs and grade levels. One obvious benefit of this for students is that preparing for one of the tests in the suite serves as good preparation for subsequent tests.

Because of differences in age and attainment of students across grades 8 through 12, however, we've tailored the various digital SAT Suite tests in a small number of ways to ensure a better, more appropriate experience for all students.

- In the Reading and Writing section, passages from the grades 12–14 text complexity band aren't included in the PSAT 8/9 tests.
- In the Math section:
 - ♦ Rational and radical equations (Advanced Math) aren't represented on PSAT 8/9.
 - ♦ Trigonometry skills and knowledge aren't assessed on PSAT 8/9.
 - ♦ Skills and knowledge associated with circles (Geometry and Trigonometry) are assessed only on the SAT.
 - ♦ The proportion of questions in the Math section's four content domains shifts slightly across testing programs. (For specifics, see [Chapter 3](#) and [Appendix C](#).)

CHAPTER 3:

Connecting Test Content and Classroom Instruction

Overview

This chapter is dedicated to brief overviews of the Reading and Writing and Math test sections of the digital SAT Suite tests as well as the digital SAT Essay, the last of which is administered to some students in certain states as part of school day testing. This chapter includes test section specifications, general instructional strategies, and sample test questions annotated with relevant information (“Key to the SAT Suite” sidebars) and strategies (“Skill-Building Strategy” sidebars) for supporting skill and knowledge development in the classroom. Additional sample questions, with answer explanations, are available with the full-length digital SAT Suite Practice Tests (SAT: satsuite.collegeboard.org/digital/digital-practice-preparation/practice-tests; PSAT/NMSQT and PSAT 10: satsuite.collegeboard.org/psat-nmsqt/preparing/practice-tests; PSAT 8/9: satsuite.collegeboard.org/psat-8-9/preparing/practice-tests as well as from the Educator Question Bank (satsuitequestionbank.collegeboard.org). A compilation of the instructional strategies for all test sections can be accessed in [Appendix A](#).

The Reading and Writing Section

The Reading and Writing section of the digital SAT Suite assessments is designed to measure students' attainment of critical college and career readiness prerequisites in literacy in English language arts as well as in various academic disciplines, including history/social studies, the humanities, and science. The Reading and Writing section focuses on key elements of comprehension, rhetoric, and language use that the best available evidence identifies as necessary for postsecondary readiness and success. Over the course of a Reading and Writing section of one of the digital SAT Suite assessments, students answer multiple-choice questions requiring them to read, comprehend, and use information and ideas in texts; analyze the craft and structure of texts; revise texts to improve the rhetorical expression of ideas; and edit texts to conform to core conventions of Standard English.

The Section at a Glance

Table 3 displays the key features of the digital SAT Suite Reading and Writing test section.

TABLE 3. READING AND WRITING SECTION OVERVIEW.

| Characteristic | Digital SAT Suite Reading and Writing Section |
|---|---|
| Administration | Two-stage adaptive test design; one Reading and Writing section administered via two separately timed modules |
| Test length (number of operational and pretest questions) | 1st module: 27 questions 2nd module: 27 questions Total: 54 questions |
| Time per module | 1st module: 32 minutes 2nd module: 32 minutes Total: 64 minutes |
| Average time per question | 1.19 minutes |
| Score reported | Section score (constitutes half of total score) SAT: 200–800 PSAT/NMSQT and PSAT 10: 160–760 PSAT 8/9: 120–720 |
| Question format used | Discrete; four-option multiple-choice |
| Stimulus subject areas | Literature, history/social studies, the humanities, science |
| Word count | 25–150 (6-character) words per stimulus text (or pair of texts) |
| Informational graphics | Tables, bar graphs, line graphs |
| Text complexity bands | Grades 6–8, grades 9–11, grades 12–14 (Grades 12–14 excluded from PSAT 8/9) |

Content Domains

Test questions in the Reading and Writing section are organized into four broad conceptual categories known as *content domains*.

- For questions in the **Information and Ideas** content domain, students must use comprehension, analysis, and reasoning skills and knowledge as well as what's stated and implied in texts (including in any accompanying informational graphics) to locate, interpret, evaluate, and integrate information and ideas.
- For questions in the **Craft and Structure** content domain, students must use comprehension, vocabulary, analysis, synthesis, and reasoning skills and knowledge to use and determine the meaning of high-utility academic words and phrases in context, evaluate texts rhetorically, and make supportable connections between multiple topically related texts.
- For questions in the **Expression of Ideas** content domain, students must use revision skills and knowledge to improve the effectiveness of written expression in accordance with specified rhetorical goals.
- For questions in the **Standard English Conventions** content domain, students must use editing skills and knowledge to make text conform to core conventions of Standard English sentence structure, usage, and punctuation.

Table 4 offers an overview of the four domains, including a description of the topics addressed in each domain, the skill/knowledge testing points each domain measures, and the approximate proportion of the test section given over to questions in each domain.

TABLE 4. READING AND WRITING SECTION CONTENT DOMAINS.

| Content Domain | Domain Description | Skill/Knowledge Testing Points | Operational Question Distribution |
|------------------------------|--|---|-----------------------------------|
| Information and Ideas | Students will use comprehension, analysis, and reasoning skills and knowledge as well as what is stated and implied in texts (including in any accompanying informational graphics) to locate, interpret, evaluate, and integrate information and ideas. | Central ideas and details Command of evidence <ul style="list-style-type: none"> ▪ Textual ▪ Quantitative Inferences | ≈26% 12–14 questions |
| Craft and Structure | Students will use comprehension, vocabulary, analysis, synthesis, and reasoning skills and knowledge to use and determine the meaning of high-utility academic words and phrases in context, evaluate texts rhetorically, and make supportable connections between multiple topically related texts. | Words in context Text structure and purpose Cross-test connections | ≈28% 13–15 questions |
| Expression of Ideas | Students will use revision skills and knowledge to improve the effectiveness of written expression in accordance with specified rhetorical goals. | Rhetorical synthesis Transitions | ≈20% 8–12 questions |
| Standard English Conventions | Students will use editing skills and knowledge to make text conform to core conventions of Standard English sentence structure, usage, and punctuation. | Boundaries Form, structure, and sense | ≈26% 11–15 questions |

Questions from all domains appear in each module of questions in the Reading and Writing section, and each question belongs to one and only one domain.

Table 5 presents in more detail the skill/knowledge testing points addressed in the Reading and Writing section. Except as noted, all elements are addressed in each digital SAT Suite testing program, from PSAT 8/9 through the SAT. For convenience, this table is repeated in [Appendix C](#).

TABLE 5. READING AND WRITING SECTION SKILL/KNOWLEDGE TESTING POINTS.

| Content Dimension | Description |
|-------------------------------------|--|
| Text Complexity | The passages (and pairs of passages) on the Reading and Writing section represent a range of text complexities from grades 6–8 through grades 12–14. (Grades 12–14 passages are excluded from appearing on PSAT 8/9.) |
| Information and Ideas | Students will use comprehension, analysis, and reasoning skills and knowledge as well as what is stated and implied in texts (including in any accompanying informational graphics) to locate, interpret, evaluate, and integrate information and ideas. |
| Central Ideas and Details | Students will determine the central idea of a text and/or interpret the key details supporting that idea. |
| Command of Evidence | Students will determine the evidence in a text that best supports a specified claim or point. |
| Textual | Students will determine the textual evidence (e.g., a fact, detail, or example from a text) that best supports a specified claim or point. |
| Quantitative | Students will determine the quantitative evidence (i.e., data from an informational graphic) that best supports a specified claim or point. |
| Inferences | Students will draw reasonable inferences based on explicit and/or implicit information and ideas in a text. |
| Craft and Structure | Students will use comprehension, vocabulary, analysis, synthesis, and reasoning skills and knowledge to use and determine the meaning of high-utility academic words and phrases in context, evaluate texts rhetorically, and make supportable connections between multiple topically related texts. |
| Words in Context | Students will determine the meaning of a high-utility academic word or phrase in context or use such vocabulary in a contextually appropriate way. |
| Text Structure and Purpose | Students will analyze the structure of a text or determine the main rhetorical purpose of a text. |
| Cross-Text Connections | Students will draw reasonable connections between two texts on related topics. |
| Expression of Ideas | Students will use revision skills and knowledge to improve the effectiveness of written expression in accordance with specified rhetorical goals. |
| Rhetorical Synthesis | Students will strategically integrate information and ideas on a topic to form an effective sentence achieving a specified rhetorical aim. |
| Transitions | Students will determine the most effective transition word or phrase to logically connect information and ideas in a text. |
| Standard English Conventions | Students will use editing skills and knowledge to make text conform to core conventions of Standard English sentence structure, usage, and punctuation. |
| Boundaries | Students will edit text to ensure that sentences are conventionally complete. |
| Form, Structure, and Sense | Students will edit text to conform to conventional usage (e.g., agreement, verb tense/aspect). |

General Instructional Strategies

- The single best preparation students can undertake for the digital SAT Suite Reading and Writing section is engaging in **wide and/or deep reading** and in **writing routinely** for a range of tasks, purposes, and audiences.
 - ♦ *Wide reading* involves reading a great variety of texts on differing subjects, while *deep reading* involves reading intensively about a single subject. Both kinds of reading are capable of developing students' comprehension skills, metacognitive ability (i.e., the ability to monitor and adjust one's own reading approach), and stamina (i.e., the ability to read over an extended period of time without fatigue or loss of understanding).
 - ♦ Students should be given a range of writing tasks over the course of the school year. These tasks should involve both on-demand writing—first-draft writing to a prompt under time constraints—and writing over extended time periods and involving various aspects of the writing process, including planning, drafting, obtaining and using feedback, revising, editing, and publishing.
 - ♦ Students should engage in numerous **appropriately challenging reading and writing tasks** throughout the school year.

Students should frequently be asked to read and demonstrate comprehension of grade-level complex texts. *Grade-level complex texts* are those that are appropriately challenging for the grade level, based on quantitative and qualitative assessments of text complexity as well as consideration of reader and task variables, such as how difficult the activity is and how much (or little) students already know about the topic under study.

- Text complexity is a critical consideration because complex texts do things that simpler texts don't. Relative to easier texts, complex texts tend to present more information and ideas (and more quickly); describe less familiar concepts or experiences; employ higher levels of abstraction; use more intricate text and sentence structures; make abundant use of high-utility academic vocabulary; and so on.
- It's fine if students sometimes read texts that are "too easy" for them, as this can give pleasure, build interest, and develop and consolidate knowledge on various topics. The general movement across the school year, however, should be toward steadily increasing levels of text complexity in assigned (and potentially self-selected) texts.

Writing tasks should be similarly complex. They should call on students to develop cogent arguments, clear informative/explanatory texts, engaging narratives, or a combination. When these tasks involve research, students should be incorporating credible, reliable sources selectively and effectively. Revision and editing, with structure and support from teachers, peers, and others, should be a regular part of extended-writing projects.

- Students should engage routinely in **reading and demonstrating understanding of appropriately challenging texts across subject areas and text types as well as writing in various disciplines and using a range of text types**.
 - ♦ The Reading and Writing section includes passages in the subject areas of literature, history/social studies, the humanities, and science. Each subject area constructs and conveys knowledge differently, so students should be familiar with how to productively read texts in a range of academic disciplines.

COMPANION RESOURCE

Chapter 1 of the *Classroom Practice Guide for the Digital SAT Suite: ELA/Literacy* (satsuite.org/digital-classroom-practice-english) discusses text complexity in detail and includes a rubric for qualitatively assessing the difficulty of texts.

IMPORTANT

The Reading and Writing section isn't strictly an assessment of English language arts-related skills and knowledge. Students will need to read and comprehend passages in multiple subject areas and that represent differing text types. This means that *all* teachers, and not just those teaching ELA, have an important role to play in students' literacy development.

Chapter 5 of the *Classroom Practice Guide for the Digital SAT Suite: ELA/Literacy* (satsuite.org/digital-classroom-practice-english) focuses on disciplinary literacy and the ways in which literacy demands vary by academic subject.

COMPANION RESOURCE

Chapter 8 of *The Official Digital SAT Study Guide™* provides student-focused guidance on dealing with Reading and Writing section passages.

- ◆ Passages in the Reading and Writing section represent three main text types: arguments, informative/explanatory texts, and narratives. As with subject area, text type greatly influences the form and content of writing, including the kinds of information and ideas conveyed and the structure used to organize them.
- ◆ Students should have a similarly varied range of writing experiences, including writing for differing subject areas and using differing text types (or combinations of types). This will consolidate and improve their communication skills across a range of academic disciplines.
- Students need **extensive exposure to and experience with reading, comprehending, and working with informational graphics**.
 - ◆ Select Reading and Writing passages are accompanied by a table, bar graph, or line graph. Students must be able to locate relevant data points from such graphics, make reasonable interpretations of the data, and integrate information conveyed graphically with that expressed in words.
 - ◆ Students should gain experience working with elements of informational graphics, including the title, the labels used for key elements, the quantitative data represented, and any legend or additional contextual information provided to make the graphic easier to understand.
- Students should have **ample practice demonstrating the kinds of skills and knowledge tested in the Reading and Writing section**. Among the most critical literacy-related skills and knowledge assessed by the digital SAT Suite are the following:
 - ◆ Locating and/or reasonably inferring the main point of a text, and identifying and using supporting details.
 - ◆ Understanding and using textual and quantitative evidence (e.g., quotations, facts, figures, data) to support or challenge points or claims.
 - ◆ Making reasonable text-based inferences.
 - ◆ Determining the meaning of and effectively using high-utility academic vocabulary in context.
 - ◆ Analyzing the structure of texts, including identifying a text’s overall organizational pattern and figuring out the contribution that important parts of a text (e.g., particular statements) make to the text as a whole.
 - ◆ Making text-supported connections between two or more texts on the same topic or similar topics, including recognizing where the texts agree and disagree in terms of content and/or point of view.
 - ◆ Selectively using and combining information and ideas in order to meet writerly goals (e.g., drawing appropriate information from research notes to introduce an artist to an audience unfamiliar with that artist’s works).
 - ◆ Using transitions effectively to logically connect and to improve the flow of information and ideas in writing.
 - ◆ Editing sentences to ensure that they’re conventionally complete.
 - ◆ Editing sentences to conform to core Standard English usage and punctuation conventions.

COMPANION RESOURCE

Chapter 9 of *The Official Digital SAT Study Guide* walks through Reading and Writing informational graphics for students.

“HIGH-UTILITY ACADEMIC VOCABULARY”

High-utility academic vocabulary (sometimes known as *tier two words and phrases*) is commonly encountered in readings, especially complex readings, but less often in conversation and isn’t specific to any one domain of knowledge, such as history or science. Chapter 3 of the *Classroom Practice Guide for the Digital SAT Suite: ELA/Literacy* (satsuite.org/digital-classroom-practice-english) contains an extensive discussion of high-utility academic vocabulary and how to help students develop their stores of it.

IMPORTANT

The skills and knowledge elements listed here need not be developed mainly—or at all—through traditional “test prep” activities. They’re standard parts of instruction that should be nurtured in a wide variety of ways throughout the school year. At the same time, students can benefit from exposure to the particular ways in which the digital SAT Suite tests measure these skills and knowledge.

Sample Test Questions

Question 1

To dye wool, Navajo (Diné) weaver Lillie Taylor uses plants and vegetables from Arizona, where she lives. For example, she achieved the deep reds and browns featured in her 2003 rug *In the Path of the Four Seasons* by using Arizona dock roots, drying and grinding them before mixing the powder with water to create a dye bath. To intensify the appearance of certain colors, Taylor also sometimes mixes in clay obtained from nearby soil.

Which choice best states the main idea of the text?

- A) Reds and browns are not commonly featured in most of Taylor’s rugs.
- B) *In the Path of the Four Seasons* is widely acclaimed for its many colors and innovative weaving techniques.
- C) Taylor draws on local resources in the approach she uses to dye wool.
- D) Taylor finds it difficult to locate Arizona dock root in the desert.

| | |
|---------------|---------------------------|
| Key | C |
| Domain | Information and Ideas |
| Skill | Central Ideas and Details |

Key Explanation: Choice C is the best answer. The passage focuses on the idea that the artist Lillie Taylor uses resources such as plants and vegetables from where she lives in Arizona to make dyes for wool.

Distractor Explanations: Choice A is incorrect because the passage offers no evidence that reds and browns are unusual colors in Taylor’s rugs; in fact, it offers an example of a rug that does feature those colors. Choice B is incorrect because the passage offers no indication of whether *In the Path of the Four Seasons* is widely acclaimed; it also does not mention whether the weaving techniques are innovative. Choice D is incorrect because the passage offers no evidence that Taylor has a hard time finding Arizona dock root.

KEY TO THE SAT SUITE

Sample questions 1 through 5 are drawn from the **Information and Ideas** content domain. For these questions, students must use comprehension, analysis, and reasoning skills and knowledge as well as what’s stated and implied in texts (including in any accompanying informational graphics) to locate, interpret, evaluate, and integrate information and ideas.

SKILL-BUILDING STRATEGY

For questions focused on main ideas, students will need practice determining which statement best summarizes the overall informational content of a given text. This will involve differentiating main from subordinate points as well as ruling out assertions that aren’t supported by the text. When answering such questions, students may benefit from coming up with their own summaries of texts first and then evaluating those summaries against provided answer choices.

Question 2

Jan Gimsa, Robert Sleight, and Ulrike Gimsa have hypothesized that the sail-like structure running down the back of the dinosaur *Spinosaurus aegyptiacus* improved the animal's success in underwater pursuits of prey species capable of making quick, evasive movements. To evaluate their hypothesis, a second team of researchers constructed two battery-powered mechanical models of *S. aegyptiacus*, one with a sail and one without, and subjected the models to a series of identical tests in a water-filled tank.

Which finding from the model tests, if true, would most strongly support Gimsa and colleagues' hypothesis?

- A) The model with a sail took significantly longer to travel a specified distance while submerged than the model without a sail did.
- B) The model with a sail displaced significantly more water while submerged than the model without a sail did.
- C) The model with a sail had significantly less battery power remaining after completing the tests than the model without a sail did.
- D) The model with a sail took significantly less time to complete a sharp turn while submerged than the model without a sail did.

| | |
|---------------|-------------------------------|
| Key | D |
| Domain | Information and Ideas |
| Skill | Command of Evidence (Textual) |

Key Explanation: **Choice D** is the best answer. The passage states that Gimsa and colleagues' hypothesis was that the sail-like structure on the back of *S. aegyptiacus* enhanced the dinosaur's ability to travel underwater to hunt down "prey species capable of making quick, evasive movements." This choice's finding would effectively support the hypothesis because it would indicate that the sail-like structure would enable a dinosaur moving underwater to maneuver more quickly than a dinosaur moving underwater without the structure.

Distractor Explanations: **Choice A** is incorrect because it would essentially contradict the hypothesis by suggesting that a dinosaur moving underwater with the sail-like structure would move more slowly than a dinosaur moving underwater without the structure. **Choice B** is incorrect because there is no clear passage-based relationship between the amount of water displaced and the hypothesis. **Choice C** is incorrect because there is no clear passage-based relationship between the amount of battery power used and the hypothesis.

SKILL-BUILDING STRATEGY

Important to correctly answering a Command of Evidence question such as this is ensuring that students understand the criterion presented in the question itself. In this case, students need to look for the finding among the answer choices that would, if true, best support the researchers' hypothesis.

Question 3

“Ghosts of the Old Year” is an early 1900s poem by James Weldon Johnson. In the poem, the speaker describes experiencing an ongoing cycle of anticipation followed by regretful reflection: _____

Which quotation from “Ghosts of the Old Year” most effectively illustrates the claim?

- A) “The snow has ceased its fluttering flight, / The wind sunk to a whisper light, / An ominous stillness fills the night, / A pause—a hush.”
- B) “And so the years go swiftly by, / Each, coming, brings ambitions high, / And each, departing, leaves a sigh / Linked to the past.”
- C) “What does this brazen tongue declare, / That falling on the midnight air / Brings to my heart a sense of care / Akin to fright?”
- D) “It tells of many a squandered day, / Of slighted gems and treasured clay, / Of precious stores not laid away, / Of fields unreaped.”

| | |
|---------------|-------------------------------|
| Key | B |
| Domain | Information and Ideas |
| Skill | Command of Evidence (Textual) |

Key Explanation: **Choice B** is the best answer. The quotation addresses both aspects of the claim: cycles of anticipation (“Each, coming, brings ambitions high”) and regretful reflection (“And each, departing, leaves a sigh / Linked to the past”).

Distractor Explanations: **Choice A** is incorrect because the quotation focuses on anticipation (“An ominous stillness fills the night, / A pause—a hush”) but not regretful reflection. **Choice C** is incorrect because the quotation focuses on worry and anxiety (“... a sense of care / Akin to fright?”) rather than anticipation and regretful reflection. **Choice D** is incorrect because the quotation focuses on regretful reflection (“It tells of many a squandered day”) but not anticipation.

KEY TO THE SAT SUITE

Reading and Writing questions in the literature subject area may, like this question, ask students to analyze authentic quotations from a text to determine which one best meets the criterion presented in the question itself. Students don’t need to have previously read the literary works being sampled to answer such questions correctly.

Question 4

Participants' Evaluation of the Likelihood That Robots Can Work Effectively in Different Occupations

| Occupation | Somewhat or very unlikely (%) | Neutral (%) | Somewhat or very likely (%) |
|------------------------|-------------------------------|-------------|-----------------------------|
| television news anchor | 24 | 9 | 67 |
| teacher | 37 | 16 | 47 |
| firefighter | 62 | 9 | 30 |
| surgeon | 74 | 9 | 16 |
| tour guide | 10 | 8 | 82 |

Rows in table may not add up to 100 due to rounding.

Georgia Tech roboticists De'Aira Bryant and Ayanna Howard, along with ethicist Jason Borenstein, were interested in people's perceptions of robots' competence. They recruited participants and asked them how likely they think it is that a robot could do the work required in various occupations. Participants' evaluations varied widely depending on which occupation was being considered; for example, _____

Which choice most effectively uses data from the table to complete the example?

- A) 82% of participants believe that it is somewhat or very likely that a robot could work effectively as a tour guide, but only 16% believe that it is somewhat or very likely that a robot could work as a surgeon.
- B) 47% of participants believe that it is somewhat or very likely that a robot could work effectively as a teacher, but 37% of respondents believe that it is somewhat or very unlikely that a robot could do so.
- C) 9% of participants were neutral about whether a robot could work effectively as a television news anchor, which is the same percent of participants who were neutral when asked about a robot working as a surgeon.
- D) 62% of participants believe that it is somewhat or very unlikely that a robot could work effectively as a firefighter.

| | |
|---------------|------------------------------------|
| Key | A |
| Domain | Information and Ideas |
| Skill | Command of Evidence (Quantitative) |

Key Explanation: Choice A is the best answer. This choice supports the claim by contrasting two occupations that survey participants gave widely divergent probabilities of robots working effectively in: tour guide (82 percent) and surgeon (16 percent).

Distractor Explanations: Choice B is incorrect because it focuses on only one occupation—that of teacher—and therefore does not illustrate how survey participants' views of the likelihood of robots working effectively vary widely by occupation. Choice C is incorrect because although it does compare

KEY TO THE SAT SUITE

Select questions in the Reading and Writing section ask students to engage with data presented in tables, bar graphs, and line graphs. This may require them to draw on skills and knowledge developed in history/social studies, science, and other classes in which quantitative data are expressed graphically.

SKILL-BUILDING STRATEGY

Students should practice analyzing a range of informational graphics, such as ones like the table in this question. They should pay attention to such features as the title, labels for important elements (here, the rows and columns), and what the data represent (here, percentages of respondents answering questions in certain ways). Some informational graphics included in the Reading and Writing section will also have additional information, such as the fact in this case that the figures in the rows may not add up to 100 percent due to rounding.

survey participants' views of robots working effectively in two occupations, the percentages cited for television news anchor and surgeon are the same, not widely varied. **Choice D** is incorrect because it focuses on only one occupation—that of firefighter—and therefore does not illustrate how survey participants' views of the likelihood of robots working effectively vary widely by occupation.

Question 5

Many animals, including humans, must sleep, and sleep is known to have a role in everything from healing injuries to encoding information in long-term memory. But some scientists claim that, from an evolutionary standpoint, deep sleep or hours at a time leaves an animal so vulnerable that the known benefits of sleeping seem insufficient to explain why it became so widespread in the animal kingdom. These scientists therefore imply that _____

Which choice most logically completes the text?

- A) it is more important to understand how widespread prolonged deep sleep is than to understand its function.
- B) prolonged deep sleep is likely advantageous in ways that have yet to be discovered.
- C) many traits that provide significant benefits for an animal also likely pose risks to that animal.
- D) most traits perform functions that are hard to understand from an evolutionary standpoint.

| | |
|---------------|-----------------------|
| Key | B |
| Domain | Information and Ideas |
| Skill | Inferences |

Key Explanation: **Choice B** is the best answer. The passage indicates that although scientists recognize that sleep, which is widespread among animal species, has benefits, some scientists believe that deep, prolonged sleep is so risky from the perspective of animal species' survival and well-being that there must be some so-far-undiscovered advantage(s) to sleep to make it worthwhile from an evolutionary standpoint.

Distractor Explanations: **Choice A** is incorrect because the passage suggests that the extent of deep, prolonged sleep among animal species is well understood by scientists and that the real question for scientists is why so many animal species engage in deep, prolonged sleep. **Choice C** is incorrect because the passage offers no evidence that any trait other than deep, prolonged sleep poses both benefits and risks for animal species. **Choice D** is incorrect because the passage offers no evidence that any trait other than deep, prolonged sleep has one or more functions that are hard for scientists to understand.

SKILL-BUILDING STRATEGY

Inferences questions such as this require students to reach reasonable conclusions based on what a given passage says directly or strongly implies. In this case, the answer choice that most logically completes the text (i.e., fills in the blank most appropriately) follows from what's come before in the passage, as signaled by "therefore."

Question 6

In recommending Bao Phi’s collection *Sông I Sing*, a librarian noted that pieces by the spoken-word poet don’t lose their _____ nature when printed: the language has the same pleasant musical quality on the page as it does when performed by Phi.

Which choice completes the text with the most logical and precise word or phrase?

- A) jarring
- B) scholarly
- C) melodic
- D) personal

| | |
|---------------|---------------------|
| Key | C |
| Domain | Craft and Structure |
| Skill | Words in Context |

Key Explanation: Choice C is the best answer. “Melodic,” referring to a pleasant arrangement of sounds, effectively signals the later use in the passage of “pleasant musical quality” to refer to Phi’s spoken-word poetry when read rather than heard.

Distractor Explanations: Choice A is incorrect because “jarring,” meaning disagreeable or upsetting, suggests the opposite of what the passage says about the “pleasant musical quality” of Phi’s spoken-word poetry, whether read or heard. **Choice B** is incorrect because “scholarly” does not effectively signal the later use in the passage of “pleasant musical quality” to refer to Phi’s spoken-word poetry. **Choice D** is incorrect because “personal” does not effectively signal the later use in the passage of “pleasant musical quality” to refer to Phi’s spoken-word poetry.

KEY TO THE SAT SUITE

Questions 6 through 11 are drawn from the **Craft and Structure** content domain. For these questions, students must employ comprehension, vocabulary, analysis, synthesis, and reasoning skills and knowledge to use and determine the meaning of high-utility academic words and phrases in context, evaluate texts rhetorically, and make supportable connections between multiple topically related texts.

SKILL-BUILDING STRATEGY

For Words in Context questions with a blank, students must determine which answer choice fills that blank with the most logical and precise word or phrase. Making skilled use of context clues is critical to answering such questions correctly. In this case, “melodic” aligns strongly with “pleasant musical quality,” while “jarring,” “scholarly,” and “personal” don’t.

Question 7

The following text is from F. Scott Fitzgerald’s 1925 novel *The Great Gatsby*.

[Jay Gatsby] was balancing himself on the dashboard of his car with that resourcefulness of movement that is so peculiarly American—that comes, I suppose, with the absence of lifting work in youth and, even more, with the formless grace of our nervous, sporadic games. This quality was continually breaking through his punctilious manner in the shape of restlessness.

As used in the text, what does the word “quality” most nearly mean?

- A) Characteristic
- B) Standard
- C) Prestige
- D) Accomplishment

| | |
|---------------|---------------------|
| Key | A |
| Domain | Craft and Structure |
| Skill | Words in Context |

Key Explanation: **Choice A** is the best answer. As used in the last sentence of the passage, “quality” refers to a trait or attribute (“characteristic”)—specifically, Jay Gatsby’s “resourcefulness of movement,” which manifested as restlessness.

Distractor Explanations: **Choice B** is incorrect because although Jay Gatsby’s “resourcefulness of movement” is a trait or attribute, referring to it as a “standard” implies that he is meeting a requirement or criterion set by others, a conclusion the passage does not support. **Choices C** and **D** are incorrect because neither “prestige” nor “accomplishment” makes sense in this context.

SKILL-BUILDING STRATEGY

In this sort of vocabulary-related question, students must determine the answer choice that best captures how a given word or phrase is used in the associated passage. Context clues are again critical. Here, the context establishes that “quality” is used as a synonym of “characteristic” to identify a trait or attribute of Jay Gatsby.

Question 8

The work of molecular biophysicist Enrique M. De La Cruz is known for _____ traditional boundaries between academic disciplines. The university laboratory that De La Cruz runs includes engineers, biologists, chemists, and physicists, and the research the lab produces makes use of insights and techniques from all those fields.

Which choice completes the text with the most logical and precise word or phrase?

- A) reinforcing
- B) anticipating
- C) epitomizing
- D) transcending

| | |
|---------------|---------------------|
| Key | D |
| Domain | Craft and Structure |
| Skill | Words in Context |

Key Explanation: Choice D is the best answer. “Transcending,” which means rising above or going beyond limits, effectively signals that De La Cruz broke down traditional academic disciplinary boundaries by working with experts, ideas, and methods from numerous fields.

Distractor Explanations: Choice A is incorrect because “reinforcing” suggests the opposite of what the passage says, which is that De La Cruz broke down, rather than made stronger, traditional barriers between academic disciplines. **Choice B** is incorrect because “anticipating,” in the sense of expecting or acting in advance of something, does not make sense in this context. **Choice C** is incorrect because “epitomizing,” meaning to use something as an ideal example, suggests the opposite of what the text says, which is that De La Cruz broke down, rather than idealized, traditional barriers between academic disciplines.

SKILL-BUILDING STRATEGY

To answer Words in Context questions correctly, students need sufficient stores of vocabulary knowledge, especially knowledge of high-utility academic (tier two) words and phrases. Rich vocabulary stores can be developed in many ways, including through direct instruction as well as wide and/or deep reading of appropriately challenging texts. Because the kind of vocabulary tested in the digital SAT Suite is used in a wide range of subject areas, students’ word and phrase knowledge can and should be developed across the curriculum. Chapter 3 of the *Classroom Practice Guide for the Digital SAT Suite: ELA/Literacy* (satsuite.org/digital-classroom-practice-english) goes into detail about the nature, value, and acquisition of vocabulary knowledge.

Question 9

Some studies have suggested that posture can influence cognition, but we should not overstate this phenomenon. A case in point: In a 2014 study, Megan O'Brien and Alaa Ahmed had subjects stand or sit while making risky simulated economic decisions. Standing is more physically unstable and cognitively demanding than sitting; accordingly, O'Brien and Ahmed hypothesized that standing subjects would display more risk aversion during the decision-making tasks than sitting subjects did, since they would want to avoid further feelings of discomfort and complicated risk evaluations. But O'Brien and Ahmed actually found no difference in the groups' performance.

Which choice best states the main purpose of the text?

- A) It presents the study by O'Brien and Ahmed to critique the methods and results reported in previous studies of the effects of posture on cognition.
- B) It argues that research findings about the effects of posture on cognition are often misunderstood, as in the case of O'Brien and Ahmed's study.
- C) It explains a significant problem in the emerging understanding of posture's effects on cognition and how O'Brien and Ahmed tried to solve that problem.
- D) It discusses the study by O'Brien and Ahmed to illustrate why caution is needed when making claims about the effects of posture on cognition.

| | |
|---------------|----------------------------|
| Key | D |
| Domain | Craft and Structure |
| Skill | Text Structure and Purpose |

Key Explanation: **Choice D** is the best answer. The passage asserts that “we should not overstate” the effect of posture on cognition and uses the O'Brien and Ahmed study as a “case in point” in support of that claim.

Distractor Explanations: **Choice A** is incorrect because although the passage indicates that O'Brien and Ahmed reached different conclusions from those of other researchers, it does not use the O'Brien and Ahmed study to criticize how those earlier studies were conducted or to directly challenge the accuracy of those studies' results. **Choice B** is incorrect because although the passage indicates that the results from studies finding a link between posture and cognition have been overstated, it offers no evidence that the O'Brien and Ahmed study has often been misunderstood. **Choice C** is incorrect because the passage suggests that although O'Brien and Ahmed were interested in studying the matter of posture and cognition, it does not indicate what these researchers thought before conducting their study or that the researchers set out specifically to solve a problem.

SKILL-BUILDING STRATEGY

Questions about the main purpose of texts can be approached in much the same way as questions about central ideas. The key difference is that digital SAT Suite questions about central ideas focus on summarizing the informational content (i.e., the “message”) of texts, whereas questions about main purpose focus on summarizing the rhetorical aim of texts, or what the author is trying to accomplish. Students should practice coming up with their own accurate summaries of texts' main purpose; in doing so, they should avoid both making assertions not supported by a given text and elevating subordinate purposes to the level of main ones.

Question 10

The following text is from Herman Melville’s 1854 short story “The Lightning-Rod Man.”

The stranger still stood in the exact middle of the cottage, where he had first planted himself. His singularity impelled a closer scrutiny. A lean, gloomy figure. Hair dark and lank, mattedly streaked over his brow. His sunken pitfalls of eyes were ringed by indigo halos, and played with an innocuous sort of lightning: the gleam without the bolt. The whole man was dripping. He stood in a puddle on the bare oak floor: his strange walking-stick vertically resting at his side.

Which choice best states the function of the underlined sentence in the text as a whole?

- A) It sets up the character description presented in the sentences that follow.
- B) It establishes a contrast with the description in the previous sentence.
- C) It elaborates on the previous sentence’s description of the character.
- D) It introduces the setting that is described in the sentences that follow.

| | |
|---------------|----------------------------|
| Key | A |
| Domain | Craft and Structure |
| Skill | Text Structure and Purpose |

Key Explanation: Choice A is the best answer. The underlined sentence, which asserts that the uniqueness of the stranger’s physical appearance invited careful examination, sets up the following sentences’ description of the stranger’s distinctive physical features and stance.

Distractor Explanations: Choice B is incorrect because the underlined sentence has no direct logical relationship to the previous sentence.

Choice C is incorrect because the previous sentence does not describe the stranger, so the underlined sentence cannot build on it in this way. **Choice D** is incorrect because the underlined sentence offers a general sense of the stranger’s physical appearance and does not introduce a setting, nor is the main purpose of the following sentences to describe a setting.

SKILL-BUILDING STRATEGY

Questions such as this assess whether students can determine the main contribution that a portion of a text makes to the text as a whole. To gain facility with this task, students should routinely be asked to consider how and why authors include particular elements, such as claims, examples, or evidence. These tasks should focus students’ attention on the rhetorical impact of such elements rather than their informational content. Students could be asked, for instance, to indicate what would be lost if a particular sentence or paragraph hadn’t been included in a given text. Such activities should center on especially important elements, such as key evidence or notable turns of phrase.

Question 11**Text 1**

What factors influence the abundance of species in a given ecological community? Some theorists have argued that historical diversity is a major driver of how diverse an ecological community eventually becomes: differences in community diversity across otherwise similar habitats, in this view, are strongly affected by the number of species living in those habitats at earlier times.

Text 2

In 2010, a group of researchers including biologist Carla Cáceres created artificial pools in a New York forest. They stocked some pools with a diverse mix of zooplankton species and others with a single zooplankton species and allowed the pool communities to develop naturally thereafter. Over the course of four years, Cáceres and colleagues periodically measured the species diversity of the pools, finding—contrary to their expectations—that by the end of the study there was little to no difference in the pools’ species diversity.

Based on the texts, how would Cáceres and colleagues (Text 2) most likely describe the view of the theorists presented in Text 1?

- A) It is largely correct, but it requires a minor refinement in light of the research team’s results.
- B) It is not compelling as a theory regardless of any experimental data collected by the research team.
- C) It may seem plausible, but it is not supported by the research team’s findings.
- D) It probably holds true only in conditions like those in the research team’s study.

| | |
|---------------|------------------------|
| Key | C |
| Domain | Craft and Structure |
| Skill | Cross-Text Connections |

Key Explanation: Choice C is the best answer. Text 2 indicates that Cáceres and colleagues expected to find at the end of their study that the pools they stocked with multiple zooplankton species would have greater diversity than the pools they stocked with a single zooplankton species but that this was not, in fact, the case.

Distractor Explanations: Choice A is incorrect because the findings obtained by Cáceres and colleagues fundamentally challenge the hypothesis in Text 1 rather than largely support it. **Choice B** is incorrect because “contrary to their expectations” (Text 2) indicates that Cáceres and colleagues had assumed the hypothesis in Text 1 was correct prior to conducting their own study. **Choice D** is incorrect because the findings obtained by Cáceres and colleagues undermine, rather than support, the hypothesis in Text 1.

SKILL-BUILDING STRATEGY

The ability to draw meaningful, evidence-supported connections between topically related texts is critically important to college and career readiness and in life in general. Students can practice this task by determining the main idea(s) and points of view of two separate texts, noting areas of agreement and disagreement, and then crafting evidence-backed statements about the relationship between the two texts.

Question 12

While researching a topic, a student has taken the following notes:

- Maika'i Tubbs is a Native Hawaiian sculptor and installation artist.
- His work has been shown in the United States, Canada, Japan, and Germany, among other places.
- Many of his sculptures feature discarded objects.
- His work *Erasure* (2008) includes discarded audiocassette tapes and magnets.
- His work *Home Grown* (2009) includes discarded pushpins, plastic plates and forks, and wood.

The student wants to emphasize a similarity between the two works. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A) *Erasure* (2008) uses discarded objects such as audiocassette tapes and magnets; *Home Grown* (2009), however, includes pushpins, plastic plates and forks, and wood.
- B) Like many of Tubbs's sculptures, both *Erasure* and *Home Grown* include discarded objects: *Erasure* uses audiocassette tapes, and *Home Grown* uses plastic forks.
- C) Tubbs's work, which often features discarded objects, has been shown both within the United States and abroad.
- D) Tubbs completed *Erasure* in 2008 and *Home Grown* in 2009.

| | |
|---------------|----------------------|
| Key | B |
| Domain | Expression of Ideas |
| Skill | Rhetorical Synthesis |

Key Explanation: **Choice B** is the best answer. The sentence uses “like many of Tubbs’s sculptures” and “both” to emphasize a similarity between *Erasure* and *Home Grown* in terms of their common use of discarded objects, though the specific discarded objects used differed between the two works.

Distractor Explanations: **Choice A** is incorrect because although the sentence discusses two of Tubbs’s works, the use of “however” emphasizes a contrast, rather than a similarity, between the works. **Choice C** is incorrect because the sentence focuses only on Tubbs’s work in general and does not mention any specific works. **Choice D** is incorrect because the sentence simply conveys information about two of Tubbs’s works—the year in which each was completed—without establishing any sort of logical relationship between the pieces of information.

SKILL-BUILDING STRATEGY

Rhetorical Synthesis questions call attention to the fact that while there are many ways to express the same idea, some ways are better aligned to a writer’s goal than others. Students should have opportunities to play around with and evaluate the effects of changes to syntax, or the arrangement of sentence elements, in their own and others’ writing.

Question 13

Iraqi artist Nazik Al-Malaika, celebrated as the first Arabic poet to write in free verse, didn't reject traditional forms entirely; her poem "Elegy for a Woman of No Importance" consists of two ten-line stanzas and a standard number of syllables. Even in this superficially traditional work, _____ Al-Malaika was breaking new ground by memorializing an anonymous woman rather than a famous man.

Which choice completes the text with the most logical transition?

- A) in fact,
- B) though,
- C) therefore,
- D) moreover,

| | |
|---------------|---------------------|
| Key | B |
| Domain | Expression of Ideas |
| Skill | Transitions |

Key Explanation: Choice B is the best answer. The passage's first sentence establishes that although Al-Malaika is famous for her free verse poetry, she still made some use of traditional poetic forms, as in her work "Elegy for a Woman of No Importance." The passage's last sentence qualifies the point made in the passage's first sentence by indicating that even when Al-Malaika used traditional forms, as in "Elegy," she challenged tradition, in this case by making an "anonymous woman rather than a famous man" the subject of the poem. "Though" is the best transition for the passage's last sentence because, along with "even," it signals that Al-Malaika subverted traditional poetic forms even when she used them by, in this case, using a nontraditional subject for an elegy.

Distractor Explanations: Choice A is incorrect because "in fact" illogically signals that the passage's last sentence stresses or amplifies the truth of the assertion made in the passage's first sentence. **Choice C** is incorrect because "therefore" illogically signals that the passage's last sentence describes a consequence arising from the assertion made in the passage's first sentence. **Choice D** is incorrect because "moreover" illogically signals that the passage's last sentence merely offers additional information about the assertion made in the passage's first sentence.

SKILL-BUILDING STRATEGY

Transitions—whether words, phrases, sentences, or paragraphs—provide logical links that make texts cohesive. Students should be familiar with common transitional words and phrases (e.g., *however, that is, at the same time*) as well as attentive to sentences and paragraphs that perform similar roles in longer texts. While reading, students may be asked to consider the impact that omitting or changing a particular transition would have on the rest of the text. In their own writing and presenting, students should be encouraged to use clear, precise transitions that signal logical relationships among information and ideas and improve the flow of their work.

Question 14

According to Naomi Nakayama of the University of Edinburgh, the reason seeds from a dying dandelion appear to float in the air while _____ is that their porous plumes enhance drag, allowing the seeds to stay airborne long enough for the wind to disperse them throughout the surrounding area.

Which choice completes the text so that it conforms to the conventions of Standard English?

- A) falling,
- B) falling:
- C) falling;
- D) falling

| | |
|---------------|------------------------------|
| Key | D |
| Domain | Standard English Conventions |
| Skill | Boundaries |

Key Explanation: Choice D is the best answer. No punctuation is needed.

Distractor Explanations: Choices A, B, and C are incorrect because each inserts unnecessary punctuation (a comma, colon, and semicolon, respectively) between the sentence's subject ("the reason . . . falling") and the verb "is."

KEY TO THE SAT SUITE

Questions 14 and 15 are drawn from the **Standard English Conventions** content domain. For these questions, students must use editing skills and knowledge to make text conform to core conventions of Standard English sentence structure, usage, and punctuation.

SKILL-BUILDING STRATEGY

Students' skills with Standard English conventions are generally best developed in the course of editing their own and others' writing rather than out of context.

Question 15

Rabinal Achí is a precolonial Maya dance drama performed annually in Rabinal, a town in the Guatemalan highlands. Based on events that occurred when Rabinal was a city-state ruled by a king, _____ had once been an ally of the king but was later captured while leading an invading force against him.

Which choice completes the text so that it conforms to the conventions of Standard English?

- A) *Rabinal Achí* tells the story of K'iche' Achí, a military leader who
- B) K'iche' Achí, the military leader in the story of *Rabinal Achí*,
- C) there was a military leader, K'iche' Achí, who in *Rabinal Achí*
- D) the military leader whose story is told in *Rabinal Achí*, K'iche' Achí,

| | |
|---------------|------------------------------|
| Key | A |
| Domain | Standard English Conventions |
| Skill | Form, Structure, and Sense |

Key Explanation: Choice A is the best answer. This choice ensures that the introductory participial phrase “Based on events that occurred when Rabinal was a city-state ruled by a king” appears immediately before the noun it modifies, “*Rabinal Achí*.”

Distractor Explanations: Choices B, C, and D are incorrect because “Based on events that occurred when Rabinal was a city-state ruled by a king” should appear next to the words it modifies, “*Rabinal Achí*,” whereas all these choices result in dangling modifiers.

SKILL-BUILDING STRATEGY

To make students' engagement with Standard English conventions more meaningful, students should understand that these practices aren't simply a set of arbitrary “rules” but rather exist to contribute to the clarity and therefore the comprehensibility of writing. In this case, only choice A results in a clear, complete sentence that says what it means to, while the other choices result in dangling (misplaced) modifiers.

The Math Section

The Math section of the digital SAT Suite assessments is designed to measure students' attainment of critical college and career readiness prerequisites in math. The digital SAT Suite Math section focuses on key elements of algebra, advanced math, problem-solving and data analysis, and geometry and (SAT, PSAT/NMSQT, and PSAT 10 only) trigonometry that the best available evidence identifies as necessary for postsecondary readiness and success. Over the course of the Math section of one of the digital SAT Suite assessments, students answer multiple-choice and student-produced response questions that measure their fluency with, understanding of, and ability to apply the math concepts, skills, and practices that are most essential for readiness for entry-level postsecondary work.

The Section at a Glance

Table 6 displays the key features of the digital SAT Suite Math test section.

TABLE 6. MATH SECTION OVERVIEW.

| Characteristic | Digital SAT Suite Math Section |
|---|--|
| Administration | Two-stage adaptive test design; one Math section administered via two separately timed modules |
| Test length (number of operational and pretest questions) | 1st module: 20 operational questions and 2 pretest questions 2nd module: 20 operational questions and 2 pretest questions Total: 44 questions |
| Time per module | 1st module: 35 minutes 2nd module: 35 minutes Total: 70 minutes |
| Average time per question | 1.59 minutes |
| Score reported | Section score (constitutes half of total score) SAT: 200–800 PSAT/NMSQT and PSAT 10: 160–760 PSAT 8/9: 120–720 |
| Question formats used | Discrete; four-option multiple-choice ($\approx 75\%$) and student-produced response (SPR) ($\approx 25\%$) |
| Context topics | Science, social studies, real-world topics |
| Word count by question | Approximately 30% of questions in context; a majority of in-context questions have 50 (6-character) words or fewer |
| Informational graphics | A wide range of data displays, geometric figures, and xy -plane graphs |

Content Domains

Test questions in the Math section are organized into four broad conceptual categories known as *content domains*.

- For questions in the **Algebra** content domain, students must analyze, fluently solve, and create linear equations and inequalities as well as analyze and fluently solve systems of equations using multiple techniques.
- For questions in the **Advanced Math** content domain, students must demonstrate attainment of skills and knowledge central for successful progression to more advanced math courses, including analyzing, fluently solving, interpreting, and creating equations, including absolute value, quadratic, exponential, polynomial, rational, radical, and other nonlinear equations, as well as analyzing and fluently solving systems of linear and nonlinear equations in two variables.
- For questions in the **Problem-Solving and Data Analysis** content domain, students must apply quantitative reasoning about ratios, rates, and proportional relationships; understand and apply unit rate; and analyze and interpret one- and two-variable data.
- For questions in the **Geometry and Trigonometry** (SAT, PSAT/NMSQT, and PSAT 10) / **Geometry** (PSAT 8/9) content domain, students must solve problems that focus on perimeter, area, and volume; angles, triangles, and trigonometry; and circles.

Questions from all domains appear in each module of questions in the Math section, and each question belongs to one and only one domain.

Table 7 (digital SAT), Table 8 (digital PSAT/NMSQT and PSAT 10), and Table 9 (digital PSAT 8/9) offer overviews of the four domains by digital SAT Suite testing program, including a description of the topics addressed in each domain, the skill/knowledge testing points each domain measures, and the approximate proportion of the test section given over to questions in each domain. A more detailed version of the Math skills and knowledge assessed by each digital SAT Suite program can be found in [Appendix C](#).

TABLE 7. MATH SECTION CONTENT DOMAINS: DIGITAL SAT.

| Content Domain | Domain Description | Skill/Knowledge Testing Points | Operational Question Distribution |
|-----------------------------------|--|--|--|
| Algebra | Students will interpret, create, use, represent, and solve problems using linear representations, and make connections between different representations of linear relationships, all from high school algebra courses preparatory for the math aligned with college and career readiness expectations. | Linear equations in one variable Linear equations in two variables Linear functions Systems of two linear equations in two variables Linear inequalities in one or two variables | ≈35% 13–15 questions |
| Advanced Math | Students will interpret, rewrite, fluently solve, make strategic use of structure, and create absolute value, quadratic, exponential, polynomial, rational, radical, and other nonlinear equations and make connections between different representations of a nonlinear relationship between two variables, all from high school courses preparatory for the math aligned with college and career readiness expectations. | Equivalent expressions Nonlinear equations in one variable and systems of equations in two variables Nonlinear functions | ≈35% 13–15 questions |
| Problem-Solving and Data Analysis | Using quantitative reasoning, students will fluently solve problems using percentages, proportional relationships, ratios, rates, and units; analyze and interpret distributions of data; use various representations of data to find relative frequency, probabilities, and conditional probabilities; fit models to data and compare linear and exponential growth; and calculate, compare, and interpret mean, median, range, and standard deviation, understand basic study design, and interpret margin of error, all from high school courses preparatory for the math aligned with college and career readiness expectations. | Ratios, rates, proportional relationships, and units Percentages One-variable data: distributions and measures of center and spread Two-variable data: models and scatterplots Probability and conditional probability Inference from sample statistics and margin of error Evaluating statistical claims: observational studies and experiments | ≈15% 5–7 questions |
| Geometry and Trigonometry | Students will solve problems associated with length, area, volume, and scale factors using geometric figures; determine congruence, similarity, and sufficiency using concepts and theorems about vertical angles, triangles, and parallel lines cut by a transversal; solve problems using the Pythagorean theorem, right triangle and unit circle trigonometry, and properties of special right triangles; and use properties and theorems relating to circles to solve problems, all from high school courses preparatory for the math aligned with college and career readiness expectations. | Area and volume Lines, angles, and triangles Right triangles and trigonometry Circles | ≈15% 5–7 questions |

TABLE 8. MATH SECTION CONTENT DOMAINS: DIGITAL PSAT/NMSQT AND PSAT 10.

| Content Domain | Domain Description | Skill/Knowledge Testing Points | Operational Question Distribution |
|-----------------------------------|---|--|--|
| Algebra | Students will interpret, create, use, represent, and solve problems using linear representations and make connections between different representations of linear relationships, all from high school algebra courses preparatory for the math aligned with college and career readiness expectations. | Linear equations in one variable Linear equations in two variables Linear functions Systems of two linear equations in two variables Linear inequalities in one or two variables | ≈35% 13–15 questions |
| Advanced Math | Students will interpret, rewrite, fluently solve, make strategic use of structure, and create absolute value, quadratic, exponential, polynomial, rational, radical, and other nonlinear equations and make connections between different representations of a nonlinear relationship between two variables, all from high school courses preparatory for the math aligned with college and career readiness expectations. | Equivalent expressions Nonlinear equations in one variable and systems of equations in two variables Nonlinear functions | ≈32.5% 12–14 questions |
| Problem-Solving and Data Analysis | Using quantitative reasoning, students will fluently solve problems using percentages, proportional relationships, ratios, rates, and units; analyze and interpret distributions of data; use various representations of data to find relative frequency, probabilities, and conditional probabilities; fit models to data and compare linear and exponential growth; and calculate, compare, and interpret mean, median, and range and compare distributions with the same and different standard deviation, all from high school courses preparatory for the math aligned with college and career readiness expectations. | Ratios, rates, proportional relationships, and units Percentages One-variable data: distributions and measures of center and spread Two-variable data: models and scatterplots Probability and conditional probability Inference from sample statistics | ≈20% 7–9 questions |
| Geometry and Trigonometry | Students will solve problems associated with length, area, volume, and scale factors using geometric figures; determine congruence, similarity, and sufficiency using concepts and theorems about vertical angles, triangles, and parallel lines cut by a transversal; and solve problems using the Pythagorean theorem and right triangle trigonometry, all from high school courses preparatory for the math aligned with college and career readiness expectations. | Area and volume Lines, angles, and triangles Right triangles and right triangle trigonometry | ≈12.5% 4–6 questions |

TABLE 9. MATH SECTION CONTENT DOMAINS: PSAT 8/9.

| Content Domain | Domain Description | Skill/Knowledge Testing Points | Operational Question Distribution |
|-----------------------------------|--|--|-----------------------------------|
| Algebra | Students will interpret, create, use, represent, and solve problems using linear representations and make connections between different representations of linear relationships, all from middle school/junior high school and first-year algebra courses preparatory for the math aligned with college and career readiness expectations. | Linear equations in one variable Linear equations in two variables Linear functions Systems of two linear equations in two variables Linear inequalities in one or two variables | ≈42.5% 16–18 questions |
| Advanced Math | Students will rewrite, fluently solve, and make strategic use of structure, absolute value, quadratic, exponential, polynomial, and other nonlinear equations and make connections between different representations of a nonlinear relationship between two variables, all from middle school/junior high school and first-year algebra courses preparatory for the math aligned with college and career readiness expectations. | Equivalent expressions Nonlinear equations in one variable and systems of equations in two variables Nonlinear functions | ≈20% 7–9 questions |
| Problem-Solving and Data Analysis | Using quantitative reasoning, students will fluently solve problems using percentages, proportional relationships, ratios, rates, and units; analyze and interpret distributions of data; use various representations of data to find relative frequency, probabilities, and conditional probabilities; fit models to data; and calculate, compare, and interpret mean, median, and range, all from middle school/junior high school and first-year algebra courses preparatory for the math aligned with college and career readiness expectations. | Ratios, rates, proportional relationships, and units Percentages One-variable data: distributions and measures of center and spread Two-variable data: models and scatterplots Probability and conditional probability | ≈25% 9–11 questions |
| Geometry | Students will solve problems associated with length, area, volume, and scale factors using geometric figures; apply theorems such as triangle sum; and solve problems using the Pythagorean theorem, all from middle school/junior high school and first-year algebra courses preparatory for the math aligned with college and career readiness expectations. | Area and volume Lines, angles, and triangles, including right triangles | ≈12.5% 4–6 questions |

Table 10 displays the skill/knowledge testing points addressed in the Math section by testing program and content domain. As the table illustrates, strong continuity exists across the suite, with only relatively minor variations accounting for differences in the age and attainment of students.

TABLE 10. MATH SECTION SKILL/KNOWLEDGE TESTING POINTS BY CONTENT DOMAIN AND TESTING PROGRAM.

| Content Domain | PSAT 8/9 | PSAT/NMSQT and PSAT 10 | SAT |
|---|---|--|--|
| Algebra | | Linear equations in one variable Linear equations in two variables Linear functions Systems of two linear equations in two variables Linear inequalities in one or two variables | |
| Advanced Math | | Equivalent expressions Nonlinear equations in one variable and systems of equations in two variables Nonlinear functions | |
| Problem-Solving and Data Analysis | | Ratios, rates, proportional relationships, and units Percentages One-variable data: measures of center and spread Two-variable data: models and scatterplots Probability and conditional probability | |
| | | Inference from sample statistics | Inference from sample statistics and margin of error |
| | | | Evaluating statistical claims: observational studies and experiments |
| Geometry and Trigonometry (SAT, PSAT/NMSQT, and PSAT 10)/ Geometry (PSAT 8/9) | | Area and volume | |
| | Lines, angles, and triangles, including right triangles | Lines, angles, and triangles | |
| | | Right triangles and right triangle trigonometry | Right triangles and trigonometry |
| | | | Circles |

Table 11 summarizes the digital Math question distribution by testing program. As the table illustrates, only modest variations in emphasis exist across testing programs with respect to content domain representation.

TABLE 11. MATH SECTION QUESTION DISTRIBUTION BY TESTING PROGRAM.

| Feature | Digital SAT Suite Testing Program | | |
|--|--|------------------------|--------------|
| | PSAT 8/9 | PSAT/NMSQT and PSAT 10 | SAT |
| Operational Questions | | 40 | |
| Questions by Format (% / #) | | | |
| – Multiple-Choice (MC) | | ≈75% / 28–32 | |
| – Student-Produced Response (SPR) | | ≈25% / 8–12 | |
| Questions in Context | | ≈30% / 10–14 | |
| Questions by Content Domain (% / #) | | | |
| – Algebra | ≈42.5% / 16–18 | ≈35% / 13–15 | ≈35% / 13–15 |
| – Advanced Math | ≈20% / 7–9 | ≈32.5% / 12–14 | ≈35% / 13–15 |
| – Problem-Solving and Data Analysis | ≈25% / 9–11 | ≈20% / 7–9 | ≈15% / 5–7 |
| – Geometry and Trigonometry (SAT, PSAT/NMSQT, and PSAT 10) / Geometry (PSAT 8/9) | ≈12.5% / 4–6 (Only Geometry for PSAT 8/9) | ≈12.5% / 4–6 | ≈15% / 5–7 |
| Embedded Pretest Questions | | | |
| – Per Module | | 2 | |
| – Per Test Form | | 4 | |

General Instructional Strategies

- Ensure that students practice solving multistep problems. Math questions on assessments in the digital SAT Suite often ask students to solve more than one problem to arrive at the correct answer.
- Separate students into small working groups. Ask them to discuss how to arrive at solutions. When their solutions are incorrect, ask them to discuss how to make corrections. Encourage students to express quantitative relationships in meaningful words and sentences to support their arguments and conjectures.
- Vary the types of problems in homework assignments so that students aren't always using the same strategy to find solutions. Students benefit from the practice of determining the right mathematical strategy to solve problems in addition to solving the problems correctly.
- Assign students some math problems or create some classroom-based assessments that don't allow for the use of a calculator. While all digital SAT Suite Math questions permit the use of a calculator, this practice encourages greater number sense, probes students' understanding of content on a conceptual level, and builds student skill in determining when it's more efficient to answer a question without using a calculator.
- Develop interest and facility in math by having students practice using math to address tasks and problems in a wide range of subject areas. Use tables, expressions, and graphs that students encounter in other courses to present math as a tool that may be applied to many areas of study rather than being relegated to math classes. Provide frequent opportunities for students to interpret and apply math skills and knowledge in real-world and academic contexts, particularly ones in the sciences and social studies.

SKILL-BUILDING STRATEGY

Use the sample student essays in [Appendix C](#) of this guide to extend understanding of the SAT Essay prompt. Immerse students in the samples, and help them notice components and characteristics common to all, in addition to analyzing and identifying areas for improvement.

Sample Test Questions

Question 1

If $f(x) = x + 7$ and $g(x) = 7x$, what is the value of $4f(2) - g(2)$?

- A) -5
- B) 1
- C) 22
- D) 28

| | |
|---------------|--|
| Key | C |
| Domain | Algebra |
| Skill | <i>Linear functions</i> Evaluate a linear function given an input value |

Key Explanation: **Choice C** is correct. The value of $f(2)$ can be found by substituting 2 for x in the given equation $f(x) = x + 7$, which yields $f(2) = 2 + 7$, or $f(2) = 9$. The value of $g(2)$ can be found by substituting 2 for x in the given equation $g(x) = 7x$, which yields $g(2) = 7(2)$, or $g(2) = 14$. The value of the expression $4f(2) - g(2)$ can be found by substituting the corresponding values into the expression, which gives $4(9) - 14$. This expression is equivalent to $36 - 14$, or 22.

Distractor Explanations: **Choice A** is incorrect. This is the value of $f(2) - g(2)$, not $4f(2) - g(2)$. **Choice B** is incorrect and may result from calculating $4f(2)$ as $4(2) + 7$, rather than $4(2 + 7)$. **Choice D** is incorrect and may result from conceptual or calculation errors.

Question 2

The y -intercept of the graph of $y = -6x - 32$ in the xy -plane is $(0, y)$. What is the value of y ?

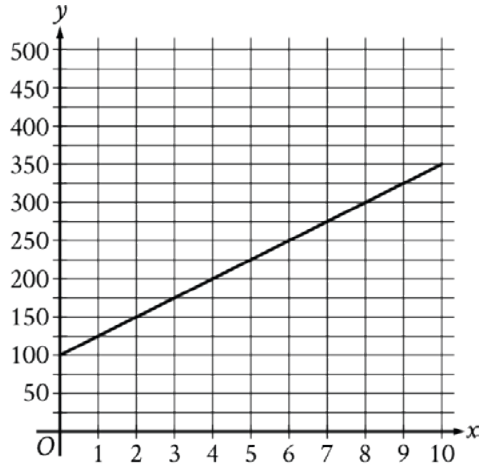
| | |
|---------------|--|
| Key | -32 |
| Domain | Algebra |
| Skill | <i>Linear equations in two variables</i> Make connections between an algebraic representation and a graph |

Key Explanation: The correct answer is -32. It's given that the y -intercept of the graph of $y = -6x - 32$ is $(0, y)$. Substituting 0 for x in this equation yields $y = -6(0) - 32$ or $y = -32$. Therefore, the value of y that corresponds to the y -intercept of the graph of $y = -6x - 32$ in the xy -plane is -32.

KEY TO THE SAT SUITE

Questions 1 through 6 are drawn from the **Algebra** content domain. For these questions, students must analyze, fluently solve, and create linear equations and inequalities as well as analyze and fluently solve systems of equations using multiple techniques.

Question 3



The graph of the function f , where $y = f(x)$, models the total cost y , in dollars, for a certain video game system and x games. What is the best interpretation of the slope of the graph in this context?

- A) Each game costs \$25.
- B) The video game system costs \$100.
- C) The video game system costs \$25.
- D) Each game costs \$100.

| | |
|---------------|---|
| Key | A |
| Domain | Algebra |
| Skill | <i>Linear functions</i> Interpret the graph of a linear function in terms of a context |

Key Explanation: **Choice A** is correct. The given graph is a line, and the slope of a line is defined as the change in the value of y for each increase in the value of x by 1. It's given that y represents the total cost, in dollars, and that x represents the number of games. Therefore, the change in the value of y for each increase in the value of x by 1 represents the change in total cost, in dollars, for each increase in the number of games by 1. In other words, the slope represents the cost, in dollars, per game. The graph shows that when the value of x increases from 0 to 1, the value of y increases from 100 to 125. It follows that the slope is 25, or the cost per game is \$25. Thus, the best interpretation of the slope of the graph is that each game costs \$25.

Distractor Explanations: **Choice B** is incorrect. This is an interpretation of the y -intercept of the graph rather than the slope of the graph. **Choice C** is incorrect. The slope of the graph is the cost per game, not the cost of the video game system. **Choice D** is incorrect. Each game costs \$25, not \$100.

SKILL-BUILDING STRATEGY

Provide students with practice problems in which the graphs have different scales on the x - and y -axes. Facilitate discussion by asking students to give different points on the graph and explain what they mean. Direct students to focus on the scale of each axis and how that relates to the situation given, the shape of the graph given, and the meaning of the slope and y -intercept. Then ask what happens to the y -value when the x -value increases by 1. Then connect the answer to the slope of the line in the graph and what the slope means in the context.

Question 4

$$y < -4x + 4$$

Which point (x, y) is a solution to the given inequality in the xy -plane?

- A) $(2, -1)$
- B) $(2, 1)$
- C) $(0, 5)$
- D) $(-4, 0)$

| | |
|---------------|---|
| Key | D |
| Domain | Algebra |
| Skill | <i>Linear inequalities in one or two variables</i> For a linear inequality, interpret a point in the xy -plane |

Key Explanation: Choice **D** is correct. For a point (x, y) to be a solution to the given inequality in the xy -plane, the value of the point's y -coordinate must be less than the value of $-4x + 4$, where x is the value of the x -coordinate of the point. This is true of the point $(-4, 0)$ because $0 < -4(-4) + 4$, or $0 < 20$. Therefore, the point $(-4, 0)$ is a solution to the given inequality.

Distractor Explanations: Choices **A**, **B**, and **C** are incorrect. None of these points is a solution to the given inequality because each point's y -coordinate is greater than the value of $-4x + 4$ for the point's x -coordinate.

SKILL-BUILDING STRATEGY

A strategy for understanding a linear inequality is to display an xy -plane and graph the boundary line in it for the class. Then have students each pick any point and evaluate whether it's in the solution set for the inequality. Have students whose point is in the solution set add it to the displayed xy -plane that shows the boundary line. Facilitate a discussion on which points (x, y) are solutions and where those points are located with respect to the graph of the boundary line.

Question 5

Figure A and figure B are both regular polygons. The sum of the perimeter of figure A and the perimeter of figure B is 63 inches. The equation $3x + 6y = 63$ represents this situation, where x is the number of sides of figure A and y is the number of sides of figure B. Which statement is the best interpretation of 6 in this context?

- A) Each side of figure B has a length of 6 inches.
- B) The number of sides of figure B is 6.
- C) Each side of figure A has a length of 6 inches.
- D) The number of sides of figure A is 6.

| | |
|---------------|---|
| Key | A |
| Domain | Algebra |
| Skill | <i>Linear equations in two variables</i> For a linear equation, interpret a solution, constant, variable, factor, or term based on the context |

Key Explanation: Choice A is correct. It's given that figure A and figure B (not shown) are both regular polygons and the sum of the perimeters of the two figures is 63 inches. It's also given that x is the number of sides of figure A and y is the number of sides of figure B, and that the equation $3x + 6y = 63$ represents this situation. Thus, $3x$ and $6y$ represent the perimeters, in inches, of figure A and figure B, respectively. Since $6y$ represents the perimeter, in inches, of figure B and y is the number of sides of figure B, it follows that each side of figure B has a length of 6 inches.

Distractor Explanations: Choice B is incorrect. The number of sides of figure B is y , not 6. **Choice C** is incorrect. Since the perimeter, in inches, of figure A is represented by $3x$, each side of figure A has a length of 3 inches, not 6 inches. **Choice D** is incorrect. The number of sides of figure A is x , not 6.

Question 6

Store A sells raspberries for \$5.50 per pint and blackberries for \$3.00 per pint. Store B sells raspberries for \$6.50 per pint and blackberries for \$8.00 per pint. A certain purchase of raspberries and blackberries would cost \$37.00 at store A or \$66.00 at store B. How many pints of blackberries are in this purchase?

- A) 12
- B) 8
- C) 5
- D) 4

| | |
|---------------|---|
| Key | C |
| Domain | Algebra |
| Skill | Systems of two linear equations in two variables Create and use a system of two linear equations |

Key Explanation: Choice C is correct. It's given that store A sells raspberries for \$5.50 per pint and blackberries for \$3.00 per pint, and a certain purchase of raspberries and blackberries at store A would cost \$37.00. It's also given that store B sells raspberries for \$6.50 per pint and blackberries for \$8.00 per pint, and this purchase of raspberries and blackberries at store B would cost \$66.00. Let r represent the number of pints of raspberries and b represent the number of pints of blackberries in this purchase. The equation $5.50r + 3.00b = 37.00$ represents this purchase of raspberries and blackberries from store A and the equation $6.50r + 8.00b = 66.00$ represents this purchase of raspberries and blackberries from store B. Solving the system of equations by elimination gives the value of r and the value of b that make the system of equations true. Multiplying both sides of the equation for store A by 6.5 yields $(5.50r)(6.5) + (3.00b)(6.5) = (37.00)(6.5)$, or $35.75r + 19.5b = 240.5$. Multiplying both sides of the equation for store B by 5.5 yields $(6.50r)(5.5) + (8.00b)(5.5) = (66.00)(5.5)$, or $35.75r + 44b = 363$. Subtracting both sides of the equation for store A, $35.75r + 19.5b = 240.5$, from the corresponding sides of the equation for store B, $35.75r + 44b = 363$, yields $(35.75r - 35.75r) + (44b - 19.5b) = (363 - 240.5)$, or $24.5b = 122.5$. Dividing both sides of this equation by 24.5 yields $b = 5$. Thus, 5 pints of blackberries are in this purchase.

Distractor Explanations: Choices A and B are incorrect and may result from conceptual or calculation errors. **Choice D** is incorrect. This is the number of pints of raspberries, not blackberries, in the purchase.

SKILL-BUILDING STRATEGY

Have students graph the system of equations in two variables. Facilitate a discussion of the meaning of points along each line in context. Ask students to interpret the meaning of the single-point solution in the given context. Provide students practice with several systems of equations in two variables, and have them discuss with the class the meaning of the solution for each system.

Question 7

$$g(x) = x^2 + 55$$

What is the minimum value of the given function?

- A) 3,025
- B) 110
- C) 55
- D) 0

| | |
|---------------|--|
| Key | C |
| Domain | Advanced Math |
| Skill | <i>Nonlinear functions</i> Determine the most suitable form of a function to display key features |

Key Explanation: Choice C is correct. A quadratic function in the form $g(x) = a(x - h)^2 + k$, where a , h , and k are constants, has a minimum value of k at $x = h$ when $a > 0$. The given quadratic function can be rewritten as $g(x) = 1(x - 0)^2 + 55$, where $h = 0$ and $k = 55$. Therefore, the minimum value of the given function is 55.

Distractor Explanations: Choice A is incorrect and may result from squaring the minimum value. Choice B is incorrect and may result from multiplying the minimum value by 2. Choice D is incorrect. This is the x -value at which the minimum value of $g(x)$ occurs.

KEY TO THE SAT SUITE

Questions 7 through 12 are drawn from the **Advanced Math** content domain. For these questions, students must demonstrate attainment of skills and knowledge central for successful progression to more advanced math courses, including analyzing, fluently solving, interpreting, and creating equations, including absolute value, quadratic, exponential, polynomial, rational, radical, and other nonlinear equations, as well as analyzing and fluently solving systems of linear and nonlinear equations in two variables.

SKILL-BUILDING STRATEGY

Help students connect equations to features of the equations' graphs by examining a variety of parent functions and the effects of various transformations on each parent function's equation and graph. Facilitate a discussion on the patterns observed. For further exploration, use a graphing tool such as the Desmos Graphing Calculator to illustrate the key features of the functions.

Question 8

The function h is defined by $h(x) = a^x + b$, where a and b are positive constants. The graph of $y = h(x)$ in the xy -plane passes through the points $(0, 10)$ and $\left(-2, \frac{325}{36}\right)$.

What is the value of ab ?

- A) $\frac{1}{4}$
 B) $\frac{1}{2}$
 C) 54
 D) 60

| | |
|---------------|--|
| Key | C |
| Domain | Advanced Math |
| Skill | <i>Nonlinear functions</i> Make connections between algebraic representations and a graph |

Key Explanation: Choice C is correct. It's given that the function h is defined by $h(x) = a^x + b$ and that the graph of $y = h(x)$ in the xy -plane passes through the points $(0, 10)$ and $\left(-2, \frac{325}{36}\right)$. Substituting 0 for x and 10 for $h(x)$ in the equation $h(x) = a^x + b$ yields $10 = a^0 + b$, or $10 = 1 + b$. Subtracting 1 from both sides of this equation yields $9 = b$. Substituting -2 for x and $\frac{325}{36}$ for $h(x)$ in the equation $h(x) = a^x + 9$ yields $\frac{325}{36} = a^{-2} + 9$. Subtracting 9 from both sides of this equation yields $\frac{1}{36} = a^{-2}$, which can be rewritten as $\frac{1}{36} = \frac{1}{a^2}$, or $a^2 = 36$. Taking the square root of both sides of this equation yields $a = 6$ and $a = -6$, but because it's given that a is a positive constant, a must equal 6. Because the value of a is 6 and the value of b is 9, the value of ab is $(6)(9)$, or 54.

Distractor Explanations: Choice A is incorrect and may result from finding the value of $a^{-2}b$ rather than the value of ab . **Choice B** is incorrect and may result from conceptual or calculation errors. **Choice D** is incorrect and may result from correctly finding the value of a as 6, but multiplying it by the y -value in the first ordered pair rather than by the value of b .

SKILL-BUILDING STRATEGY

Help students strengthen their ability to recognize function notation and practice their substitution skills by providing practice questions. Identifying that the equation in this question represents the standard form for an exponential function with a vertical shift can be helpful in finding the values of a and b . For further exploration, provide students with practice questions featuring exponential equations with vertical shifts and graphs that have vertical shifts and ask them to investigate how the y -intercept is related to the value of b .

Question 9

$$(x - 1)^2 = -4$$

How many distinct real solutions does the given equation have?

- A) Exactly one
- B) Exactly two
- C) Infinitely many
- D) Zero

| | |
|---------------|---|
| Key | D |
| Domain | Advanced Math |
| Skill | <i>Nonlinear equations in one variable and systems of equations in two variables</i> Determine the conditions under which a quadratic equation has zero, one, two, or infinitely many real solutions |

Key Explanation: Choice **D** is correct. Any quantity that is positive or negative in value has a positive value when squared. Therefore, the left-hand side of the given equation is either positive or zero for any value of x . Since the right-hand side of the given equation is negative, there is no value of x for which the given equation is true. Thus, the number of distinct real solutions for the given equation is zero.

Distractor Explanations: Choices **A**, **B**, and **C** are incorrect and may result from conceptual errors.

Question 10

Which expression is equivalent to $\frac{4}{4x-5} - \frac{1}{x+1}$?

A) $\frac{9}{(x+1)(4x-5)}$

B) $\frac{3}{3x-6}$

C) $\frac{1}{(x+1)(4x-5)}$

D) $-\frac{1}{(x+1)(4x-5)}$

| | |
|---------------|--|
| Key | A |
| Domain | Advanced Math |
| Skill | <i>Equivalent expressions</i> Rewrite a rational expression |

Key Explanation: Choice A is correct. To subtract one rational expression from another, the denominators of the expressions must be the same. Since $4x - 5$ and $x + 1$ do not have any common factors, each rational expression should be

rewritten with a denominator of $(x + 1)(4x - 5)$. Multiplying $\frac{4}{4x - 5}$ by $\frac{x + 1}{x + 1}$

and multiplying $\frac{1}{x + 1}$ by $\frac{4x - 5}{4x - 5}$ yields $\frac{4(x + 1)}{(x + 1)(4x - 5)} - \frac{4x - 5}{(x + 1)(4x - 5)}$.

This expression can be rewritten using the distributive property, which yields

$\frac{4x + 4}{(x + 1)(4x - 5)} - \frac{4x - 5}{(x + 1)(4x - 5)}$. Since the denominators are the same, this

expression is equivalent to $\frac{4x + 4 - 4x + 5}{(x + 1)(4x - 5)}$, or $\frac{9}{(x + 1)(4x - 5)}$.

Distractor Explanations: Choices B, C, and D are incorrect and may result from conceptual or calculation errors.

SKILL-BUILDING STRATEGY

Help students strengthen their skill by practicing math problems for which they need to find common denominators in order to add or subtract rational expressions. For students who are challenged by simplifying rational expressions, having them draw connections to numeric expressions with common denominators and then numeric expressions without common denominators, and then incorporate variables in the expressions can facilitate pattern recognition.

Question 11

For the function f , $f(0) = 86$, and for each increase in x by 1, the value of $f(x)$ decreases by 80%. What is the value of $f(2)$?

| | |
|---------------|---|
| Keys | 3.44, 86/25 |
| Domain | Advanced Math |
| Skill | <i>Nonlinear functions</i> Create and use quadratic or exponential functions |

Key Explanation: The correct answer is 3.44. It's given that $f(0) = 86$ and that for each increase in x by 1, the value of $f(x)$ decreases by 80%. Because the output of the function decreases by a constant percentage for each 1-unit increase in the value of x , this relationship can be represented by an exponential function of the form $f(x) = a(b)^x$, where a represents the initial value of the function and b represents the rate of decay, expressed as a decimal. Because $f(0) = 86$, the value of a must be 86. Because the value of $f(x)$ decreases by 80% for each 1-unit increase in x , the value of b must be $(1 - 0.80)$, or 0.2. Therefore, the function f can be defined by $f(x) = 86(0.2)^x$. Substituting 2 for x in this function yields $f(2) = 86(0.2)^2$, which is equivalent to $f(2) = 86(0.04)$, or $f(2) = 3.44$. Either 3.44 or 86/25 may be entered as the correct answer.

Alternate approach: It's given that $f(0) = 86$ and that for each increase in x by 1, the value of $f(x)$ decreases by 80%. Therefore, when $x = 1$, the value of $f(x)$ is $(100 - 80)\%$, or 20%, of 86, which can be expressed as $(0.20)(86)$. Since $(0.20)(86) = 17.2$, the value of $f(1)$ is 17.2. Similarly, when $x = 2$, the value of $f(x)$ is 20% of 17.2, which can be expressed as $(0.20)(17.2)$. Since $(0.20)(17.2) = 3.44$, the value of $f(2)$ is 3.44. Either 3.44 or 86/25 may be entered as the correct answer.

SKILL-BUILDING STRATEGY

Understanding function behavior is key to building an equation that matches a description of a function. Provide students with a set of one linear function, one quadratic function, and one exponential function that have one point in common. Have students create a table of values with the same input for each of these functions and interpret the differences in the output of the functions.

Question 12

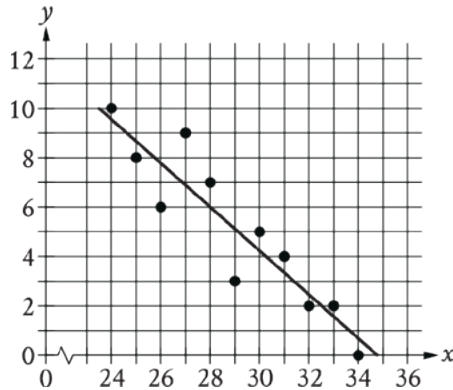
In the xy -plane, a line with equation $2y = 4.5$ intersects a parabola at exactly one point. If the parabola has equation $y = -4x^2 + bx$, where b is a positive constant, what is the value of b ?

| | |
|---------------|--|
| Key | 6 |
| Domain | Advanced Math |
| Skill | <i>Nonlinear equations in one variable and systems of equations in two variables</i> Solve systems of linear and nonlinear equations in two variables |

Key Explanation: The correct answer is 6. It's given that a line with equation $2y = 4.5$ intersects a parabola with equation $y = -4x^2 + bx$, where b is a positive constant, at exactly one point in the xy -plane. It follows that the system of equations consisting of $2y = 4.5$ and $y = -4x^2 + bx$ has exactly one solution. Dividing both sides of the equation of the line by 2 yields $y = 2.25$. Substituting 2.25 for y in the equation of the parabola yields $2.25 = -4x^2 + bx$. Adding $4x^2$ and subtracting bx from both sides of this equation yields $4x^2 - bx + 2.25 = 0$. A quadratic equation in the form of $ax^2 + bx + c = 0$, where a , b , and c are constants, has exactly one solution when the discriminant, $b^2 - 4ac$, is equal to zero. Substituting 4 for a and 2.25 for c in the expression $b^2 - 4ac$ and setting this expression equal to 0 yields $b^2 - 4(4)(2.25) = 0$, or $b^2 - 36 = 0$. Adding 36 to each side of this equation yields $b^2 = 36$. Taking the square root of each side of this equation yields $b = \pm 6$. It's given that b is positive, so the value of b is 6.

Question 13

The scatterplot shows the relationship between two variables, x and y . A line of best fit for the data is also shown.



At $x = 32$, which of the following is closest to the y -value predicted by the line of best fit?

- A) 0.4
- B) 1.5
- C) 2.4
- D) 3.3

| | |
|---------------|--|
| Key | C |
| Domain | Problem-Solving and Data Analysis |
| Skill | <i>Two-variable data: Models and scatterplots</i> Analyze and interpret data in a scatterplot |

Key Explanation: Choice C is correct. At $x = 32$, the line of best fit has a y -value between 2 and 3. The only choice with a value between 2 and 3 is choice C.

Distractor Explanations: Choice A is incorrect. This is the difference between the y -value predicted by the line of best fit and the actual y -value at $x = 32$ rather than the y -value predicted by the line of best fit at $x = 32$. **Choice B** is incorrect. This is the y -value predicted by the line of best fit at $x = 31$ rather than at $x = 32$.

Choice D is incorrect. This is the y -value predicted by the line of best fit at $x = 33$ rather than at $x = 32$.

Question 14

In a group, 40% of the items are red. Of all the red items in the group, 30% also have stripes. What percentage of the items in the group are red and have stripes?

- A) 10%
- B) 12%
- C) 70%
- D) 75%

| | |
|---------------|---|
| Key | B |
| Domain | Problem-Solving and Data Analysis |
| Skill | <i>Percentages</i> Use percentages to solve problems |

Key Explanation: **Choice B** is correct. It's given that in a group, 40% of the items are red. It follows that the number of red items in the group can be represented by $0.4x$, where x represents the total number of items in the group. It's also given that of all the red items in the group, 30% also have stripes. It follows that the number of items in the group that are red and have stripes can be represented by $0.3(0.4x)$, or $0.12x$. The expression $0.12x$ represents 12% of x . Since x represents the total number of items in the group, it follows that 12% of the items in the group are red and have stripes.

Distractor Explanations: **Choice A** is incorrect and may result from subtracting 30% from 40% rather than calculating 30% of 40%. **Choice C** is incorrect and may result from adding 30% and 40% rather than calculating 30% of 40%.

Choice D is incorrect and may result from calculating the percentage that 30% is of 40% rather than calculating 30% of 40%.

SKILL-BUILDING STRATEGY

Encourage students to draw a diagram, such as a two-way table, to represent this type of situation. A classroom activity that divides the class into two groups and then divides one of those groups further can be used to explore percents. For example, divide the class into those wearing red and those not wearing red. Find the percent of each. Then take the group wearing red and divide them into those wearing glasses and those not. Find the percent of each. Then compare the percentages by group and by whole class.

Question 15

The density of a certain type of wood is 353 kilograms per cubic meter. A sample of this type of wood is in the shape of a cube and has a mass of 345 kilograms. To the nearest hundredth of a meter, what is the length of one edge of this sample?

- A) 0.98
- B) 0.99
- C) 1.01
- D) 1.02

| | |
|---------------|---|
| Key | B |
| Domain | Problem-Solving and Data Analysis |
| Skill | <i>Ratios, rates, proportional relationships, and units</i> Solve problems involving derived units |

Key Explanation: Choice B is correct. It's given that the density of a certain type of wood is 353 kilograms per cubic meter (kg/m^3), and a sample of this type of wood has a mass of 345 kg. Let x represent the volume, in m^3 , of the sample. It follows that the relationship between the density, mass, and volume of this sample can be written as $\frac{353\text{kg}}{1\text{ m}^3} = \frac{345\text{kg}}{x\text{ m}^3}$, or $353 = \frac{345}{x}$. Multiplying both sides of this equation by x yields $353x = 345$. Dividing both sides of this equation by 353 yields $x = \frac{345}{353}$. Therefore, the volume of this sample is $\frac{345}{353} \text{ m}^3$. Since it's given that the sample of this type of wood is a cube, it follows that the length of one edge of this sample can be found using the volume formula for a cube, $V = s^3$, where V represents the volume, in m^3 , and s represents the length, in m, of one edge of the cube. Substituting $\frac{345}{353}$ for V in this formula yields $\frac{345}{353} = s^3$. Taking the cube root of both sides of this equation yields $\sqrt[3]{\frac{345}{353}} = s$, or $s \approx 0.99$. Therefore, the length of one edge of this sample to the nearest hundredth of a meter is 0.99.

Distractor Explanations: Choices A, C, and D are incorrect and may result from conceptual or calculation errors.

SKILL-BUILDING STRATEGY

The Math section emphasizes students' ability to apply math skills to solve questions in rich and varied contexts, such as this science context. Collaborate with science teachers to provide students with practice questions that can apply to both courses. The same can (and should) be done with teachers in other subjects, such as social studies.

Question 16

Two nearby trees are perpendicular to the ground, which is flat. One of these trees is 10 feet tall and has a shadow that is 5 feet long. At the same time, the shadow of the other tree is 2 feet long. How tall, in feet, is the other tree?

- A) 3
- B) 4
- C) 8
- D) 27

| | |
|---------------|---|
| Key | B |
| Domain | Geometry and Trigonometry |
| Skill | <i>Lines, angles, and triangles</i> Use concepts of congruence and similarity of triangles to solve problems |

Key Explanation: Choice B is correct. Each tree and its shadow can be modeled using a right triangle, where the height of the tree and the length of its shadow are the legs of the triangle. At a given point in time, the right triangles formed by two nearby trees and their respective shadows will be similar. Therefore, if the height of the other tree is x , in feet, the value of x can be calculated by solving

the proportional relationship $\frac{10 \text{ feet tall}}{5 \text{ feet long}} = \frac{x \text{ feet tall}}{2 \text{ feet long}}$. This equation is

equivalent to $\frac{10}{5} = \frac{x}{2}$, or $2 = \frac{x}{2}$. Multiplying each side of the equation

$2 = \frac{x}{2}$ by 2 yields $4 = x$. Therefore, the other tree is 4 feet tall.

Distractor Explanations: Choice A is incorrect and may result from calculating the difference between the lengths of the shadows, rather than the height of the other tree. **Choice C** is incorrect and may result from calculating the difference between the height of the 10-foot-tall tree and the length of the shadow of the other tree, rather than calculating the height of the other tree. **Choice D** is incorrect and may result from a conceptual or calculation error.

Question 17

The length of a rectangle's diagonal is $5\sqrt{17}$, and the length of the rectangle's shorter side is 5. What is the length of the rectangle's longer side?

- A) $\sqrt{17}$
- B) 20
- C) $15\sqrt{2}$
- D) 400

| | |
|---------------|--|
| Key | B |
| Domain | Geometry and Trigonometry |
| Skill | <i>Right triangles and trigonometry</i> Use the Pythagorean theorem to solve problems |

Key Explanation: Choice B is correct. A rectangle's diagonal divides a rectangle into two congruent right triangles, where the diagonal is the hypotenuse of both triangles. It's given that the length of the diagonal is $5\sqrt{17}$ and the length of the rectangle's shorter side is 5. Therefore, each of the two right triangles formed by the rectangle's diagonal has a hypotenuse with length $5\sqrt{17}$, and a shorter leg with length 5. To calculate the length of the longer leg of each right triangle, the Pythagorean theorem, $a^2 + b^2 = c^2$, can be used, where a and b are the lengths of the legs and c is the length of the hypotenuse of the triangle. Substituting 5 for a and $5\sqrt{17}$ for c in the equation $a^2 + b^2 = c^2$ yields $5^2 + b^2 = (5\sqrt{17})^2$, which is equivalent to $25 + b^2 = 25(17)$, or $25 + b^2 = 425$. Subtracting 25 from each side of this equation yields $b^2 = 400$. Taking the positive square root of each side of this equation yields $b = 20$. Therefore, the length of the longer leg of each right triangle formed by the diagonal of the rectangle is 20. It follows that the length of the rectangle's longer side is 20.

Distractor Explanations: Choice A is incorrect and may result from dividing the length of the rectangle's diagonal by the length of the rectangle's shorter side, rather than substituting these values into the Pythagorean theorem. **Choice C** is incorrect and may result from using the length of the rectangle's diagonal as the length of a leg of the right triangle, rather than the length of the hypotenuse. **Choice D** is incorrect. This is the square of the length of the rectangle's longer side.

Question 18

A circle has center O , and points A and B lie on the circle. The measure of arc AB is 45° and the length of arc AB is 3 inches. What is the circumference, in inches, of the circle?

- A) 3
- B) 6
- C) 9
- D) 24

| | |
|---------------|---|
| Key | D |
| Domain | Geometry and Trigonometry |
| Skill | <i>Circles</i> Use definitions, properties, and theorems relating to circles to solve problems |

Key Explanation: **Choice D** is correct. It's given that the measure of arc AB is 45° and the length of arc AB is 3 inches. The arc measure of the full circle is 360° . If x represents the circumference, in inches, of the circle, it follows that $\frac{45^\circ}{360^\circ} = \frac{3 \text{ inches}}{x \text{ inches}}$. This equation is equivalent to $\frac{45}{360} = \frac{3}{x}$, or $\frac{1}{8} = \frac{3}{x}$. Multiplying both sides of this equation by $8x$ yields $1(x) = 3(8)$, or $x = 24$.

Therefore, the circumference of the circle is 24 inches.

Distractor Explanations: **Choice A** is incorrect. This is the length of arc AB . **Choice B** is incorrect and may result from multiplying the length of arc AB by 2. **Choice C** is incorrect and may result from squaring the length of arc AB .

SKILL-BUILDING STRATEGY

Have students draw and label a figure to represent a situation such as the one presented in this question. Provide practice questions that emphasize the use of proportional thinking to solve questions of this type.

Digital SAT Essay

The digital SAT Essay is a direct-writing assessment that measures students' ability to read and comprehend a supplied argumentative passage, analyze how the passage's author builds an argument to persuade an audience, and convey their analysis formally using clear, cohesive writing.

The digital SAT Essay doesn't elicit students' subjective opinions. Instead of simply emulating the general nature of evidence use by asking students to draw on and document their own experiences or imaginations, the digital SAT Essay requires students to make purposeful, substantive use of textual evidence in a way that can be objectively evaluated. In addition, while students are tasked with analyzing how a given author builds an argument, they're not asked whether they agree or disagree with the argument presented, and offering such opinions isn't rewarded by the rubric used to score responses.

The Essay task is consistent across all administrations of the assessment; only the passage on which students base their responses changes.

The digital SAT Essay rubric and numerous annotated sample student essays are available in [Appendix B](#).

In broad terms, Essay responses are evaluated on three dimensions:

- **Reading**, based on demonstrated comprehension of the source text.
- **Analysis**, based on the quality of students' evaluation of that source text in accordance with the task directions.
- **Writing**, based on the clarity and cohesiveness of students' writing as well as their demonstrated mastery of Standard English conventions.

Three corresponding scores—Reading, Analysis, and Writing—are supplied for each response. These scores are the sum of two scorers' ratings in each dimension.

The Essay requires students to analyze how an author uses evidence, reasoning, and/or stylistic or persuasive elements (and/or other elements of students' choosing) to build an argument. The human scorers employed, trained, and monitored by College Board evaluate how well students' responses demonstrate a careful understanding of the passage, effective and selective use of textual evidence to develop and support points, clear organization and expression of ideas, and a command of the conventions of Standard English.

IMPORTANT

The Essay task described below is administered at the direction of particular states and districts to some students taking the digital SAT as part of the school day. It's not currently offered as an option to students taking the digital SAT on the weekend.

The Task at a Glance

Table 12 displays the key features of the digital SAT Essay, which are then briefly discussed afterward.

TABLE 12. DIGITAL SAT ESSAY OVERVIEW.

| Characteristic | Digital SAT Essay |
|------------------------|---|
| Administration | Single task |
| Time | 50 minutes |
| Scores reported | Three dimension scores—Reading, Analysis, and Writing—each on a 2–8 scale, the sum of two scorers’ ratings of 1–4 on each dimension |
| Question format used | Direct-writing task |
| Stimulus subject area | Arguments written for a broad audience |
| Word count (passage) | 750–800 (6-character) words |
| Informational graphics | None |
| Text complexity | High school reading level |

The digital SAT Essay consists of a single task, which students have 50 minutes to complete. In that time, students must

- read and comprehend a supplied argumentative passage of between 750 and 800 (six-character) words in length.
- analyze the passage to determine how the author builds an argument to persuade an audience.
- provide a clear, cohesive written explanation of the author’s technique(s).

The passages students are asked to analyze are arguments written for a broad audience. Passages are excerpted or minimally adapted (chiefly for length) from high-quality, previously published sources. The prototypical examples of such pieces are op-eds written for national or regional publication, but other sorts of well-reasoned opinion-focused passages may appear as well. Students aren’t expected to have prior knowledge of the topics presented in Essay passages; all the information needed to respond to the task effectively is provided in the passages themselves.

Each Essay response is evaluated by two human scorers operating independently of each other. These scorers rate each response on three dimensions—Reading, Analysis, and Writing—on a 1–4 scale. These scores are added to determine a student’s dimension scores, which each range from 2–8. Dimension scores are reported separately and aren’t added together to form a composite or in any way considered when calculating digital SAT total or section scores.

Evaluation Criteria

Table 13 summarizes the criteria scorers use to evaluate student essay responses. The full rubric may be found in [Appendix B](#).

TABLE 13. DIGITAL SAT ESSAY CONTENT DIMENSIONS.

| Content Dimension | Description |
|-------------------|---|
| Reading | <ul style="list-style-type: none"> ▪ Comprehension of the source text ▪ Understanding of central ideas, important details, and their interrelationship ▪ Accuracy in representation of the source text (i.e., no errors of fact or interpretation introduced) ▪ Use of textual evidence (quotations, paraphrases, or both) to demonstrate understanding of the source text |
| Analysis | <ul style="list-style-type: none"> ▪ Analysis of the source text and understanding of the analytical task ▪ Evaluation of the author’s use of evidence, reasoning, and/or stylistic and persuasive elements, and/or features chosen by the student ▪ Support for claims or points made in the response ▪ Focus on features of the text most relevant to addressing the task |
| Writing | <ul style="list-style-type: none"> ▪ Use of a central claim ▪ Use of effective organization and progression of ideas ▪ Use of varied sentence structures ▪ Employment of precise word choice ▪ Maintenance of a consistent, appropriate style and tone ▪ Command of the conventions of Standard English |

General Instructional Strategies

The first two strategies discussed here are identical to those for the Reading and Writing section.

- The single best preparation students can undertake for the digital SAT Essay section is engaging in **wide and/or deep reading** and in **writing routinely** for a range of tasks, purposes, and audiences.
 - ◆ *Wide reading* involves reading a great variety of texts on differing subjects, while *deep reading* involves reading a great deal about a single subject. Both kinds of reading are capable of developing students’ comprehension skills, metacognitive ability (i.e., the ability to monitor and adjust one’s own reading approach), and stamina (i.e., the ability to read over an extended period of time without fatigue or loss of understanding).
 - ◆ Students should be given a range of writing tasks over the course of the school year. These tasks should involve both on-demand writing—first-draft writing to a prompt under time constraints—and writing over extended time periods and involving various aspects of the writing process, including planning, drafting, obtaining feedback, revising, editing, and publishing.

- Students should engage in **appropriately challenging reading and writing tasks** throughout the school year.
 - ◆ Students should frequently be asked to read and demonstrate comprehension of grade-level complex texts. *Grade-level complex texts* are those that are appropriately challenging for the grade level, based on quantitative and qualitative assessments of text complexity as well as consideration of reader and task variables, such as how difficult the activity is and how much (or little) students already know about the topic under study.
 - Text complexity is a critical consideration because complex texts do things that simpler texts don’t. Relative to easier texts, complex texts tend to present more information and ideas (and more quickly); describe less familiar concepts or experiences; employ higher levels of abstraction; use more intricate text and sentence structures; make use of high-utility academic vocabulary more frequently; and so on.
 - It’s fine if students sometimes read texts that are “too easy” for them, as this can be pleasurable and effective in knowledge building and consolidation. The general movement across the school year, however, should be toward steadily increasing levels of text complexity in assigned (and potentially self-selected) texts.
- Writing tasks should be similarly complex. They should call on students to develop cogent arguments, clear informative/explanatory texts, engaging narratives, or a combination. When these tasks involve research, students should be incorporating credible, reliable sources selectively and effectively. Revision and editing, with structure and support from teachers, peers, and others, should be a regular part of extended-writing projects.
- Students should have frequent opportunities to engage in **source analysis tasks**.
 - ◆ As defined here, a *source analysis task* involves assessing a text—in this case, an argument—to better understand the overall point of view and organization of a text as well as the contributions key components of the text, such as particular statements or examples, make to the text as a whole.
 - ◆ When students analyze such texts, their goal shouldn’t be to indicate whether or to what extent they agree or disagree with the point of view expressed. Rather, they should seek to understand the text from the author’s perspective and evaluate how the text is put together. Source analysis tasks, in other words, aren’t chiefly about students’ opinions about the subjects covered by the tasks but are instead rhetorically focused.
 - ◆ Students may be asked to examine arguments for key features, such as those they are prompted to discuss in the Essay task:
 - Evidence, such as facts or examples, used to support claims.
 - Reasoning used to develop ideas and to connect claims and evidence.
 - Stylistic or persuasive elements, such as word choice or appeals to emotion, that add power to the ideas expressed.
 - ◆ They may also explain different or additional rhetorical elements of their choosing as long as they can make a good case that these elements contribute in important ways to the persuasiveness of the author’s argument.

COMPANION RESOURCE

Chapter 1 of the *Classroom Practice Guide for the Digital SAT Suite: ELA/Literacy* (satsuite.org/digital-classroom-practice-english) discusses text complexity in detail and includes a rubric for qualitatively assessing the difficulty of texts.

- ◆ Source analysis activities can be standalone, but they're likely to be more meaningful to students if they're connected to sources they themselves have selected and that have relevance to their other classroom work. A source analysis task, for example, could be part of a larger extended-writing project involving research on a topic of interest.
- ◆ Actively participating in source analysis activities will help students develop important competencies for analyzing text, such as recognizing claims, weighing evidence, and assessing the reasoning used to link claims and evidence. As an intended byproduct of such work, students also gain a degree of objective detachment from texts. They come to better recognize that texts have authors, that texts are trying to accomplish things (e.g., convincing readers of the “rightness” of an assertion), and that texts can and should be comprehended even—and perhaps especially—when we disagree with the author’s point of view. This doesn’t mean that students should simply accept everything they read, but rather that they should begin from a place of understanding regarding the author’s message before moving on to critiquing (or, worse, simply ignoring) that message.
- Students should have regular opportunities to demonstrate and practice the **various skills and knowledge elements evaluated by the digital SAT Essay rubric** (found in **Appendix B** and summarized in Table 13, above). These wide-ranging literacy activities include having students
 - ◆ locate and/or reasonably infer central ideas and key details of texts as well as the relationship between main points and details.
 - ◆ represent information and ideas in sources accurately (i.e., fairly representing an author’s message without key omissions and without introducing errors of fact or interpretation).
 - ◆ use textual evidence (quotations, paraphrases, or both) to demonstrate understanding of what they’ve read.
 - ◆ evaluate an author’s use of evidence, reasoning, and/or stylistic and persuasive elements.
 - ◆ support their claims or points in writing (or when speaking/presenting) with relevant evidence.
 - ◆ keep their writing (or speaking/presenting) focused on successfully accomplishing the task at hand.
 - ◆ introduce a central claim in their writing (or speaking/presenting) that establishes a controlling idea.
 - ◆ organize their writing (or speaking/presenting) effectively.
 - ◆ vary sentence structure for meaning and reader interest when writing.
 - ◆ use words precisely when writing (or speaking/presenting).
 - ◆ maintain a consistent and appropriate style and tone in their writing (or presentations).
 - ◆ observe the conventions of Standard English sentence structure, usage, and punctuation in their writing.

Task Directions

Each administration of the digital SAT Essay employs the same task, with the only important variable being the argumentative passage students are directed to analyze.

As you read the passage below, consider how [the author] uses

- evidence, such as facts or examples, to support claims.
- reasoning to develop ideas and to connect claims and evidence.
- stylistic or persuasive elements, such as word choice or appeals to emotion, to add power to the ideas expressed.

Write an essay in which you explain how [the author] builds an argument to persuade [their] audience that [author's claim]. In your essay, analyze how [the author] uses one or more of the features listed in the box above (or features of your own choice) to strengthen the logic and persuasiveness of [their] argument. Be sure that your analysis focuses on the most relevant features of the passage. Your essay should not explain whether you agree with [the author's] claims, but rather explain how [the author] builds an argument to persuade [their] audience.

Sample Task, Response, and Evaluation

The following annotated example presents a digital SAT Essay passage (used with permission), one sample response, and annotations concerning how the response was scored. Scores presented are from a single rater and are thus on scales of 1–4. This and numerous other sample responses with varying score distributions may be found in [Appendix B](#).

Sample Essay Passage

Adapted from Paul Bogard, “Let There Be Dark.” ©2012 by Paul Bogard. Originally published in *Los Angeles Times*, December 21, 2012.

- 1 At my family’s cabin on a Minnesota lake, I knew woods so dark that my hands disappeared before my eyes. I knew night skies in which meteors left smoky trails across sugary spreads of stars. But now, when 8 of 10 children born in the United States will never know a sky dark enough for the Milky Way, I worry we are rapidly losing night’s natural darkness before realizing its worth. This winter solstice, as we cheer the days’ gradual movement back toward light, let us also remember the irreplaceable value of darkness.
- 2 All life evolved to the steady rhythm of bright days and dark nights. Today, though, when we feel the closeness of nightfall, we reach quickly for a light switch. And too little darkness, meaning too much artificial light at night, spells trouble for all.
- 3 Already the World Health Organization classifies working the night shift as a probable human carcinogen, and the American Medical Association has voiced its unanimous support for “light pollution reduction efforts and glare reduction efforts at both the national and state levels.” Our bodies need darkness to produce the hormone melatonin, which keeps certain cancers from developing, and our bodies need darkness for sleep. Sleep disorders have been linked to diabetes, obesity, cardiovascular disease and depression, and recent research suggests one main cause of “short sleep” is “long light.” Whether we work at night or simply take our tablets, notebooks and smartphones to bed, there isn’t a place for this much artificial light in our lives.
- 4 The rest of the world depends on darkness as well, including nocturnal and crepuscular species of birds, insects, mammals, fish and reptiles. Some examples are well known—the 400 species of birds that migrate at night in North America, the sea turtles that come ashore to lay their eggs—and some are not, such as the bats that save American farmers billions in pest control and the moths that pollinate 80% of the world’s flora. Ecological light pollution is like the bulldozer of the night, wrecking habitat and disrupting ecosystems several billion years in the making. Simply put, without darkness, Earth’s ecology would collapse. . . .

- 5 In today's crowded, louder, more fast-paced world, night's darkness can provide solitude, quiet and stillness, qualities increasingly in short supply. Every religious tradition has considered darkness invaluable for a soulful life, and the chance to witness the universe has inspired artists, philosophers and everyday stargazers since time began. In a world awash with electric light. . . how would Van Gogh have given the world his "Starry Night"? Who knows what this vision of the night sky might inspire in each of us, in our children or grandchildren?
- 6 Yet all over the world, our nights are growing brighter. In the United States and Western Europe, the amount of light in the sky increases an average of about 6% every year. Computer images of the United States at night, based on NASA photographs, show that what was a very dark country as recently as the 1950s is now nearly covered with a blanket of light. Much of this light is wasted energy, which means wasted dollars. Those of us over 35 are perhaps among the last generation to have known truly dark nights. Even the northern lake where I was lucky to spend my summers has seen its darkness diminish.
- 7 It doesn't have to be this way. Light pollution is readily within our ability to solve, using new lighting technologies and shielding existing lights. Already, many cities and towns across North America and Europe are changing to LED streetlights, which offer dramatic possibilities for controlling wasted light. Other communities are finding success with simply turning off portions of their public lighting after midnight. Even Paris, the famed "city of light," which already turns off its monument lighting after 1 a.m., will this summer start to require its shops, offices and public buildings to turn off lights after 2 a.m. Though primarily designed to save energy, such reductions in light will also go far in addressing light pollution. But we will never truly address the problem of light pollution until we become aware of the irreplaceable value and beauty of the darkness we are losing.

Sample Student Response

The following essay is reprinted exactly as it was originally written (in response to the passage above), including grammatical and mechanical mistakes. An explanation of how the response would be scored follows the response. Find the Essay rubric as well as additional annotated student samples in [Appendix B](#).

This response scored a 3/2/3.

Paul Bogard's essay about the necessity of darkness captures the reader's attention. He brilliantly gave examples of why darkness is essential and how darkness can benefit human life. His use of syntax also supports his essay to have very reasonable and valid points.

Bogard starts out by giving one example from his own personal experience at his family's cabin on a Minnesota lake. He describes the Milky Way and the night sky in all of its brilliance. He then portrays how 8 out of 10 children born in the United States will never know a sky darky enough for the Milky Way. By this point, Bogard is building up pathos within his essay. The reader begins to feel pity for those 8 in 10 children who will never get the chance to see the sky in its truest and most real form. Bogard then explains how much turning a light switch on and off is taken for granted. This is an example of logos because the reader can sense that that is what life has come down to. It is evident that the world today is dependent upon electricity, and Bogard does a fabulous job gathering evidence for this argument that darkness has been undermined.

Some other examples that Bogard gives are the issues of light pollution and nocturnal animals. He explains that our bodies need darkness to produce certain hormones which can prevent certain diseases and illnesses. Also, he claims how animals are dependent upon the darkness and without darkness, "Earth's ecology would collapse." Then he goes on to talk about the previous centuries and how they did not rely on electricity to live their everyday lives.

One of the most famous paintings in history was done centuries ago and was called "Starry Night," by Vincent Van Gogh. Bogard explains how the night sky can be inspiring which causes more pathos to build up within the reader, causing them to think about the importance of the darkness and beauty of nighttime.

After giving examples of how darkness is taken for granted, Bogard provides a solution. This is logos. He tells the reader that the over usage of light and electricity doesn't have to be that way and by making a few minor changes, the world can be different. Giving examples of everyday life and providing a solution, Bogard brilliantly portrayed the need and importance of darkness in everyday life.

Scoring Evaluation

Reading – 3: This response shows an effective understanding of the passage. The writer demonstrates comprehension of the argument’s central idea by noting that Bogard writes *about the necessity of darkness and portrayed the need and importance of darkness in everyday life*. This understanding is supported by the writer’s use of important details from the source text, like citing Bogard’s *family’s cabin on a Minnesota lake where He describes the Milky Way and the night sky, which 8 out of 10 children born in the United States won’t ever see*. The writer also discusses *how our bodies need darkness to produce certain hormones which can prevent certain diseases*, brings up *how animals are dependent upon the darkness and without darkness, “Earth’s ecology would collapse,”* references “Starry Night” as an example of *how the night sky can be inspiring*, and briefly mentions *how much turning a light switch on and off is taken for granted* and that people in *the previous centuries...did not rely on electricity to live their everyday lives*. This demonstration of appropriate paraphrasing and quoting from the source text, along with the writer’s understanding of the central idea, demonstrates the writer’s proficient reading comprehension.

Analysis – 2: This response offers limited analysis of Bogard’s argument. The writer identifies a few persuasive elements from the passage, like the use of *pathos* and *evidence*, but only provides an unexplained claim about how *pathos* influences readers. The writer states that the passage *is building up pathos* in the discussion of *how 8 out of 10 children...will never know a sky darky enough for the Milky Way* and asserts *The reader begins to feel pity for those 8 in 10 children who will never get the chance to see the sky in its truest and most real form*. The response then moves on without elaborating on this idea, though, and does not try to explain why readers would feel *pity* because of this statistic or how generating this feeling would lead them to agree with Bogard’s argument to preserve darkness. The writer’s other analytical attempts are ineffective, as they do not develop a claim about what effect the features have on the audience: *Bogard does a fabulous job gathering evidence for this argument; the night sky can be inspiring which causes more pathos...causing them to think about the importance of the darkness and beauty of nighttime*. However, because the writer has asserted the effect of *pity*, the response does show a partial understanding of the analytical task.

Writing – 3: This response is mostly cohesive and exhibits proficient language control. The introduction presents a central claim (*He brilliantly gave examples of why darkness is essential; His use of syntax also supports his essay*) that the response mostly follows, and the writer uses transitions to clearly signal how Bogard’s ideas develop: *Bogard starts out by giving one example; He then portrays how; By this point, Bogard is building; Some other examples that Bogard gives are; Then he goes on to talk about*. Some sentences show variation in their structures (*It is evident that the world today is dependent upon electricity, and Bogard does a fabulous job gathering evidence for this; After giving examples of how darkness is taken for granted, Bogard provides a solution*), and the writer occasionally uses precise word choices: *brilliantly; inspiring; necessity*. These features are marks of effective organization and language use, demonstrating proficient writing skill.

CHAPTER 4:

Scoring and the Digital SAT Suite of Assessments

Overview

The primary purpose of the scores for the digital SAT Suite is to provide students, teachers, and administrators with useful information and constructive feedback over the long term.

The digital SAT Suite tests yield three scores—a **total score** and **two section scores**—accompanied by test interpretation tools that allow students as well as teachers, families, and other stakeholders to make informed, data-based decisions about students' educational futures. Scores for all the assessments are on the same vertical scale (more on this below), allowing meaningful interpretations about students' academic growth as they move between testing programs within the suite.

Student score reports provide easy access to performance information and interpretation aids. If a student uses their personal College Board account, their score information also facilitates connections to educational opportunities, such as information and resources about local two-year colleges, workforce training programs, and career options.

Digital SAT Suite Scores

For each of the tests of the digital SAT Suite, three scores are reported:

- A **Reading and Writing section score**.
- A **Math section score**.
- A **total score**, which is the arithmetic sum of the two section scores.

Table 14 summarizes the score scales of the digital SAT Suite testing programs.

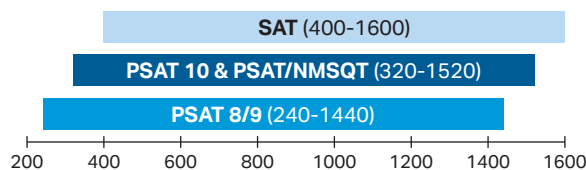
TABLE 14. DIGITAL SAT SUITE TOTAL AND SCALE SCORES.

| Testing Program | Total Score Scale | Section Score Scales |
|------------------------|---------------------------------|--------------------------------|
| PSAT 8/9 | 240–1440, in 10-point intervals | 120–720, in 10-point intervals |
| PSAT/NMSQT and PSAT 10 | 320–1520, in 10-point intervals | 160–760, in 10-point intervals |
| SAT | 400–1600, in 10-point intervals | 200–800, in 10-point intervals |

Vertical Scaling

A key feature of the digital SAT Suite assessments is that the scores they yield (apart from any digital SAT Essay scores) are on the same vertical scale. Being on a vertical scale allows for student growth to be meaningfully tracked across assessments in the suite because any given score carries the same meaning with respect to achievement regardless of from which test it was obtained. A 530 on the PSAT 8/9 Math section, for example, represents the same level of achievement as would a 530 on the Math sections of the PSAT/NMSQT or PSAT 10 or the SAT. Vertical scaling is possible because the various tests of the digital suite assess the same knowledge and skills across testing programs, with relatively minor exceptions reflecting appropriate age/grade attainment expectations across grades 8 through 12.

FIGURE 3. GRAPHICALLY DEPICTS THE TOTAL SCORE SCALES OF THE DIGITAL SAT SUITE ASSESSMENTS.



The score scales are somewhat staggered across testing programs. That is, the scale for each subsequent testing program has a lower “floor” and a higher “ceiling.” This feature serves to facilitate vertical scaling by offering students in successively higher grades the opportunity to demonstrate higher levels of achievement.

Score Interpretation

Of the array of score interpretation tools available for the digital SAT Suite, two are of particular note here: the College and Career Readiness and grade-level **benchmarks**, which set empirically derived thresholds for adequate achievement, and **Skills Insight™**, which verbally describes the skills and knowledge typically demonstrated by students whose scores fall within particular bands along the test sections' score scales.

Benchmarks

To facilitate meaningful score interpretation and to help both test takers and teachers assess student progress toward college and career readiness from year to year, College Board has empirically established benchmark scores for the PSAT 8/9, PSAT/NMSQT and PSAT 10, and the SAT.

College and Career Readiness benchmarks establish the points on the score scale at or above which students are considered college and career ready (i.e., have a high likelihood of succeeding in common entry-level credit-bearing postsecondary courses), while **grade-level benchmarks** help students and their families, teachers, and others track progress toward college and career readiness.

Table 15 lists the Reading and Writing (RW) and Math benchmark scores according to the testing program(s) to which they are most relevant given the age and attainment of the typical test-taking population.

TABLE 15. DIGITAL SAT SUITE BENCHMARK SCORES.

| Benchmark score | Digital SAT Suite Testing Program | | | | | |
|------------------------------|-----------------------------------|------|------------------------|------|----------|------|
| | SAT | | PSAT/NMSQT and PSAT 10 | | PSAT 8/9 | |
| | RW | Math | RW | Math | RW | Math |
| College and Career Readiness | 480 | 530 | | | | |
| 11th Grade | | | 460 | 510 | | |
| 10th Grade | | | 430 | 480 | | |
| 9th Grade | | | | | 410 | 450 |
| 8th Grade | | | | | 390 | 430 |

NOTE: PSAT/NMSQT / PSAT 10 and PSAT 8/9 benchmarks are subject to further study and potential minor revision.

Skills Insight

We've developed Skills Insight to help digital SAT Suite test users better understand the meaning of scores by describing the skill and knowledge attainment that these scores typically represent.

Skills Insight descriptors were developed from careful examination by College Board subject matter experts of large pools of test questions that exemplify performance in various score bands in each test section across the digital-suite assessments. These descriptors generalize the skills and knowledge typically demonstrated by students scoring in particular score bands; accompanying exemplar questions make these descriptors more concrete. The Skills Insight

descriptors are vertically aligned so that they illustrate progression in skill and knowledge attainment across successively higher score bands. Collectively, these descriptors render more transparent the meaning of scores in a way different from that afforded by quantitative interpretation aids, such as benchmark scores and percentile ranks.

Skills Insight information is included in student score information available to students in their personal College Board accounts and as a standalone framework so that students, teachers, and others can better understand how the skill and knowledge demands increase in concert with higher test section scores. See satsuite.collegeboard.org/k12-educators/using-skills-insight for more information.

Student Score Information

A student's scores and score information available to them through their personal College Board accounts may be used by students, parents, and teachers to better understand student scores on a digital SAT Suite test. The score reported to them online through their account is not merely a vehicle for retrieving scores but rather is designed to provide a comprehensive understanding as to what scores mean as they relate to a student's demonstrated knowledge and skills in the context of other test takers' performance, college and career readiness requirements, and the student's own goals.

In general, students seek to answer the following questions when viewing their score:

- What are my scores?
- Am I on track to achieve my goals?
- How did I do compared to others?
- What do I need to do to get a better score?

At its core, the digital SAT Suite score and score information online

- gives a student access to their scores, including explanatory information such as score scales and score ranges.
- identifies a student's performance growth from one test in the digital SAT Suite to another.
- allows a student to contextualize their score performance relative to that of other test takers using score comparisons and percentile rankings involving a variety of test populations, including test takers from the student's school, district, state, and/or country as well as all test takers.
- provides information on a student's college and career readiness relative to established section score benchmarks.
- gives a high school junior who has taken the PSAT/NMSQT information about their eligibility for entry into the National Merit Scholarship Program.
- provides students with information and resources that allow them to "do more with their score," including finding out how their scores align to college and career opportunities for planning purposes (BigFuture[®]), scholarships (BigFuture Scholarships), Advanced Placement[®], and Student Search Service[™].
- gives a student information regarding the skills and knowledge that their test scores indicate they are likely able to demonstrate, and suggests actionable next steps concerning knowledge domains and skills the student can focus on to improve their scores, including tools, tips, and other resources to get them started.
- provides links to online practice aligned to a student's scores and the guidance for improving those scores.

K-12 Reporting Portal

The K-12 Score Reporting Portal supports effective decision making with a variety of standard reports that can be configured for your needs. In the online reporting portal, teachers who are granted access to the portal by their school access manager are able to log in to view score reports for the whole school to analyze score data from every test in the SAT Suite. As each assessment is administered, the reporting portal grows to include new reports: a single sign-in will grant access to all score data from the SAT, PSAT/NMSQT, PSAT 10, and PSAT 8/9.

The portal generates score reports based on student demographics, and this information can be compared with the performance of students in the district and at the state level.

In addition to the standard online score reports, portal users can configure reports with filters, and they are able to export information to Excel for additional uses.

The online reporting portal tracks students' progress for all assessments they take, allowing you to identify how students are demonstrating the development of their college and career readiness skills over time. If a student demonstrated they were on track to meet the college and career readiness benchmark on the PSAT 8/9 but falls off track on the PSAT/NMSQT, you may want to work with the student to determine their current needs for building the knowledge and skills required for college and career success and for SAT readiness. In addition, if a larger group of students demonstrates that same lack of year-over-year growth, you can work with teacher colleagues and administrators to analyze current curriculum and instructional strategies and look for ways to ensure that students are engaged in learning activities that build the needed skills.

You'll find continual enhancements to these online score reports in the future. We're conducting research studies to provide students and teachers with reliable recommendations to improve performance. As more and more students take the SAT and demonstrate success, we hope to be able to provide more detailed recommendations about what students should focus on to increase college and career readiness.

BigFuture School and Connections

BigFuture® School is a free mobile app for students age 13 and older who take the digital PSAT/NMSQT, PSAT 10 or SAT School Day in the United States. It's designed for students to use to get their test scores quickly, get help on planning for college and career, and learn about financial aid and scholarships. Students may also have the opportunity to opt-in to Connections—a feature that allows them to hear from nonprofit colleges and scholarship programs that may be a good match. Connections puts privacy first. No personal information is shared with institutions unless a student directly chooses to do so. Please know that your school, district, or state may choose to not provide access to Connections for its students or students that test at their schools.

Students who choose not to download the BigFuture School app or who don't have a mobile phone can still access their scores and planning information. Schools will continue to receive PDF score reports for all assessments they administer, which can be shared with students. And as always, students can log into their personal College Board accounts at studentscores.collegeboard.org to get additional insights about their scores and explore BigFuture.

Concordance

Scores from the digital SAT are directly linked to scores from the paper-based SAT it replaced, so there's no need for concordance tables or score conversions. The underlying linking methodology is essentially the same as that used in most assessment programs to equate alternate test forms over time.

The digital SAT and paper-based SAT measure very similar, but not identical, content, so while a score on the digital test isn't a perfect predictor of how a student would perform on the paper-and-pencil test (and vice versa), directly linking the digital SAT to the current SAT enables users to easily compare digital SAT scores and paper-based SAT scores without any conversions. For example, colleges can assume the same relationships between scores and college readiness from both digital and paper-and-pencil SAT scores.

Because of the direct linking between the digital SAT and the paper-based SAT, colleges and other organizations can still use the existing ACT/SAT concordance tables with digital SAT scores. College Board will continue to review the relationship between SAT and ACT scores over time.

We're continuing to evaluate digital PSAT/NMSQT, PSAT 10, and PSAT 8/9 concordance with the paper-based versions of those tests and will supply concordance tables if needed.

LINKING VS. EQUATING

We use the term *linking* instead of *equating* for this process because what the digital SAT measures is similar but not identical to what's measured on the paper-based SAT, and therefore the process falls short of meeting the psychometric criteria for equating. This is to be expected when shifting from a linear paper-and-pencil format to a digital adaptive format.

CHAPTER 5:

Preparing Your Students for Success on the Digital SAT Suite Tests

Overview

The most important preparation for the digital SAT Suite tests occurs in the course of everyday classroom activities. A close connection to your curriculum means that skills and knowledge assessed by the tests are the same as those being taught and developed each day. Beyond the classroom, College Board provides students with further support as they prepare for success on the digital SAT Suite tests and beyond. Through free resources and programs, including a partnership with Khan Academy®, your students have multiple opportunities to focus on reviewing and practicing their skills and knowledge.

Productive practice for the digital SAT Suite is supported by a number of high-quality resources available to students, mostly at no cost. To be productive, practice must familiarize students with the test itself, its response formats, and its delivery method as well as help students build on what they're already good at and address weaknesses where they exist. Bluebook onboarding, full-length and question-level practice, and skill/knowledge building support are designed to facilitate students' readiness for test day and to meet College Board's professional and ethical obligation to level the playing field so that all test takers have an equal chance to demonstrate their achievement on the digital SAT Suite.

College Board conceptualizes *practice* for the digital SAT Suite as operating at three main levels:

- **Digital assessment readiness**, which is intended to make students familiar and comfortable with the digital test interface and the manner in which answer responses are entered.
- **Test wisdom**, which is intended to acquaint students with the types of questions they'll encounter on the tests, determine whether they can or can't answer such questions correctly, and offer insights into ways students can improve their future test performance.
- **Skill/knowledge building**, which is intended to help students gain durable academic abilities useful for college, career, and life.

PRACTICING FOR THE PSAT 8/9?

The entry point into the digital SAT Suite is the PSAT 8/9 test, typically given to eighth and ninth graders. Because this test's main purpose is to establish a baseline measure of students' emerging college and career readiness, it's not typically the case that students practice for it in the same ways they do for the other PSAT-related assessments and the SAT.

Conceiving of practice in these ways serves students far more effectively than do traditional forms of “test prep” focused only on the middle layer in the above scheme. To be clear, providing all students with practice test questions is a critically important element of ensuring fairness and equity in testing, but overfocusing on repetitive test- or question-level practice risks narrowing students’ attention and the secondary curriculum itself to only those skills and knowledge elements directly measured by an assessment and to the ways and manner these elements are sampled on a given test. In a real sense, practice focused mainly on such test preparation runs the risk of conflating a proxy of the desired skills and knowledge—that is, performance on an assessment—with the goal of developing students’ durable skills and knowledge through a rich, diverse educational experience.

Table 16 provides a synoptic look at the several layers of practice opportunities available for the digital SAT Suite, each of which is discussed in more detail below.

TABLE 16. DIGITAL SAT SUITE PRACTICE OPPORTUNITIES.

| Form of Practice | Focus | Digital SAT Suite Implementation |
|------------------------------|---|---|
| Digital assessment readiness | Prepare students for the digital testing app interface and response modes | <ul style="list-style-type: none"> ▪ Test Preview |
| Test wisdom | Prepare students to answer test questions productively and offer insight into students’ academic strengths and weaknesses | <ul style="list-style-type: none"> ▪ Sample test questions (with answer explanations) ▪ Official full-length practice test forms in Bluebook ▪ Official Digital SAT Prep on Khan Academy ▪ <i>The Official Digital SAT Study Guide</i> (print book) ▪ Educator Question Bank ▪ Score reports ▪ Skills Insight score interpretation |
| Skill/knowledge building | Build durable skills and knowledge needed for college, career, and life | <ul style="list-style-type: none"> ▪ Official Digital SAT Prep on Khan Academy ▪ Classroom practice guides ▪ High-quality instructional materials |

Digital assessment readiness. Students preparing for one of the digital SAT Suite tests have access to the Test Preview, which acquaints them with the central features of the assessments and presents them with a small number of sample Reading and Writing and Math questions. These sample questions serve primarily to familiarize test takers with the kinds of questions they'll be administered on test day and how to properly enter their answers rather than assess students' readiness to answer such questions successfully.

Test wisdom. Students taking one of the digital SAT Suite tests have ready access, mostly at no cost, to a wide range of high-quality test wisdom resources. Table 17 provides an overview of these resources.

TABLE 17. DIGITAL SAT SUITE TEST WISDOM RESOURCES.

| Test Wisdom Resource | Description |
|--|--|
| Sample test questions (with answer explanations) | These questions serve to illustrate the range of skills and knowledge sampled on the digital SAT Suite tests as well as the response formats used (multiple-choice and, for select Math questions, student-produced response). |
| Official full-length practice test forms | Digital adaptive test forms are available through Bluebook, College Board's customized web-based testing app, allowing students to practice using the same interface and format most of them will use on test day. Linear (nonadaptive) test forms, with directions for determining scores, are also available in Bluebook or from College Board as downloadable PDFs. The PDF versions of practice test forms are recommended only for students who will test with paper-based accommodations on test day. Because these forms are nonadaptive, they must be somewhat longer to achieve the same level of measurement precision as their digital adaptive counterparts. |
| Official Digital SAT Prep on Khan Academy | Khan Academy offers students the opportunity to practice on sequences of test questions and receive feedback, including answer explanations. |
| <i>The Official Digital SAT Study Guide</i> (print book) | <i>The Official Digital SAT Study Guide</i> offers authoritative insights and advice regarding taking the digital SAT (information that applies generally across all the suite's exams) as well as paper-based linear (nonadaptive) test forms with which students can practice (although, as noted earlier, practice in Bluebook is recommended for most test takers). |
| Educator Question Bank | This free digital resource allows users to search through a repository of released SAT Suite test questions and select and download ones to use for practice, test familiarization, and question-level review. The bank's contents are filterable along many dimensions, making it easy for users to find exactly the questions they want. |
| Score information | Students have multiple options to learn more about their scores, information about what their scores mean, and suggestions for next steps, such as additional practice and links to college and workforce training opportunities. |
| Skills Insight score interpretation | Skills Insight verbally describes the skills and knowledge in reading and writing and in math that test takers scoring in particular ranges are likely to know and to be able to demonstrate. The descriptions at each score band are empirically derived from an analysis of student performance on digital SAT Suite test questions. Exemplar questions by test section and score range help concretize the verbal descriptors. |

Skill/knowledge building. College Board, in partnership with Khan Academy and others, makes a range of skill/knowledge building resources available for free. These resources are aimed at developing students’ durable knowledge and skills rather than directly at preparing students for test day. Table 18 provides an overview of these resources.

TABLE 18. DIGITAL SAT SUITE SKILL/KNOWLEDGE BUILDING RESOURCES.

| Skill/Knowledge Building Resource | Description |
|---|--|
| Official Digital SAT Prep on Khan Academy | In addition to providing test preparation activities, Khan Academy offers students a range of high-quality skill-/knowledge-building activities, including numerous videos and articles that target specific areas where students might need additional support. |
| Classroom practice guides | These guides, designed primarily for teachers, are collections of essays on select topics written by experts in English language arts/literacy and math. The essays discuss critical college and career readiness requirements and how instruction can be designed to support all secondary students obtaining those competencies. Sidebars draw links between the essays’ topics and how those topics are addressed on the digital SAT Suite tests. |
| High-quality instructional materials | College Board offers a wide range of high-quality instructional materials through its Pre-AP®, AP, and SpringBoard programs. These programs support all students’ attainment of critical college and career readiness prerequisites. |

Digital SAT Suite Test-Taking Strategies

Although traditional “test prep” activities are only one portion of successful preparation for the digital SAT Suite tests, it’s still important that students be aware of what they’re going to be tested on and how as well as receive guidance about how to approach the tests. The following are digital SAT Suite test-taking strategies that all students should be aware of.

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1. Getting Familiar with the Digital SAT Suite Tests

A. Understand the Tests’ Purpose

The digital SAT Suite tests are assessments of your college and career readiness. They’re designed to assess the extent to which you’ve obtained the necessary prerequisites in reading and writing and in math for success in college and workforce training programs. You should expect that the digital SAT Suite tests will call on you to demonstrate academic skills and knowledge that the best available evidence indicates are necessary for you to have to be ready for postsecondary education. Because the tests are aligned with instruction, **the single best preparation for the digital SAT Suite tests is actively participating in a challenging set of academic courses.**

B. Know the Test Basics

Test components: A Reading and Writing section and a Math section

- **Number of questions:** 98 (54 Reading and Writing questions, 44 Math questions), with each test section divided into two equal-length, separately timed modules consisting of half the section’s questions (27 questions for each Reading and Writing module, 22 questions for each Math module)
- **Time allotted:** 134 minutes (64 minutes for the Reading and Writing section, 70 minutes for the Math section), with each test section divided into two equal-length, separately timed modules of questions (32 minutes for each Reading and Writing module, 35 minutes for each Math module)
- **Scores**
 - ◆ Two section scores (Reading and Writing; Math), each on a 200–800 scale
 - ◆ A total score (sum of the Reading and Writing and Math section scores) on a 400–1600 scale

C. Get Familiar with Digital Testing Tools

Bluebook, the digital SAT Suite testing application, allows you to

- annotate text (Reading and Writing section only).
- cross out answer options in multiple-choice questions.
- display or (until the five-minutes-remaining mark) hide a countdown timer.
- access the test directions and the Math section’s reference sheet during testing.
- flag questions within a given test module to return to.
- access a display informing you of how many questions in each test module you’ve either flagged or left unanswered and allowing you to jump to any question within a module.
- use the built-in Desmos Graphing Calculator (Math section only).
- adjust magnification (zoom with keyboard shortcuts on laptops or by pinching on tablets).
- modify color contrast using system settings before testing.

COMPANION RESOURCE

The strategies introduced here are presented in elaborated form in the book-length *The Official Digital SAT Study Guide* produced by College Board. The strategies are reprinted here to help ensure that as many students as possible have access to them and to better coordinate test practice activities.

If you’re taking the digital SAT, **SAT Test Preview** gives you an untimed, stress-free option to explore Bluebook—the digital SAT Suite testing application—try out the tools, and test out any assistive technology you might be using on test day.

In addition to hosting SAT Test Preview, Bluebook is also your hub for **official full-length practice tests** for the digital SAT, PSAT/NMSQT, and PSAT 10. Simply sign in to Bluebook using credentials provided by your school or a College Board account to get started.

CALCULATOR OPTIONS

You may use the built-in Desmos Graphing Calculator or your own approved calculator for all Math section questions.

D. Understand the Nature of Adaptive SAT Suite Testing

Each of the two test sections on the digital SAT Suite tests is divided into two separately timed, equal-length modules of questions. After you answer the questions in the first module of each test section, Bluebook will automatically route you to either a higher- or lower-difficulty second module of questions, depending on your performance on the first module's questions. Each of the two possible second modules of questions contains a mix of easy, medium, and hard questions, although in different proportions. The digital SAT Suite's adaptive testing model is beneficial to you because it means that the same information about your skills and knowledge can be obtained with fewer questions and less time. It also means you'll more likely be able to give your full effort and attention throughout the test than you would if the test were longer.

E. Learn the Test Directions Prior to Test Day

We strongly encourage you to become familiar with the directions for the digital SAT Suite tests prior to test day. You won't have to memorize them because you'll have access to them throughout the test if you wish, but any time you spend reading directions on test day is time not spent answering questions.

F. Know the Two Test Question Formats

Most digital SAT questions—all Reading and Writing questions and most Math questions—are in the multiple-choice format. Each of these questions has four answer choices, and your job is to determine which of these choices is the best (Reading and Writing) or correct (Math) answer. About a quarter of Math questions are in the student-produced response format. These questions lack answer options and instead require you to generate and enter your own answers.

G. Get Familiar with the Various Question Types

Becoming aware of and comfortable with the types of questions you'll be asked is a critical element of your preparation. The Reading and Writing section includes questions in the categories of Information and Ideas, Craft and Structure, Expression of Ideas, and Standard English Conventions. The Math section includes questions in the categories of Algebra, Advanced Math, Problem-Solving and Data Analysis, and Geometry and Trigonometry (SAT, PSAT/NMSQT, PSAT 10) / Geometry (PSAT 8/9).

2. Doing Your Best on Test Day

A. Read Every Question Carefully

It's important that you read every question on the digital SAT Suite tests carefully to know what you're being asked to demonstrate and as a way of avoiding careless mistakes.

B. Answer Every Question

There's no penalty for guessing on the digital SAT Suite tests, so there's no reason not to answer every question in both sections. But what if you're not sure of the answer? There are a few things you can do to improve your odds of responding properly.

- You may find it beneficial to flag questions you're having trouble with to return to should time permit.
- For multiple-choice questions that you're not sure of the answer to, try to eliminate one or more incorrect answer choices. (The Bluebook testing application has an answer elimination option for this very reason.) You're much more likely to answer correctly if you can reduce your possible responses by two or even one than if you randomly guess.

IMPORTANT RESOURCES

To familiarize yourself with digital SAT Suite question types, consider full-length test practice through College Board's Bluebook app as well as Official Digital SAT Prep on Khan Academy (khanacademy.org/digital-sat). Both resources are free for users.

- As a last resort, randomly guess on multiple-choice questions that you're uncertain of the answer to and when time's running out. Admittedly, you're not likely to correctly answer many questions to which you randomly guessed the answer, but you'll definitely get none of the questions right that you don't answer at all.

After you've reached the end of a module but before time has expired, the questions you've flagged to return to and the questions you haven't answered at all will appear on your Check Your Work page. Use this information in the remaining moments of your testing to address as many of these questions as possible.

C. Make Use of the Question Order

In the Reading and Writing section, each module begins with Craft and Structure questions, followed by Information and Ideas, Standard English Conventions, and Expression of Ideas questions. Within all but the Standard English Conventions content domain, questions are further ordered by type, meaning that similar questions appear together. Note, however, that Reading and Writing questions aren't strictly ordered by question difficulty, so within each module you can expect to see easy, medium, and hard questions mingled.

In Math, questions are ordered by difficulty, from easiest to hardest, within each module. While you're free to navigate through the questions in each module and answer them in any order you choose, you may find more success working from the start of a given module to the end, given that the easier questions appear earlier than the harder ones.

D. Pace Yourself

To get your best score, you need to spend the right amount of time on each question—no more, no less. In Reading and Writing, you'll have about 1.2 minutes to read and answer each question, and you'll have about 1.6 minutes to read and answer each Math question.

In general:

- Reading and Writing questions in the Information and Ideas content domain are usually the lengthiest and require the most time, on average, while questions in the Standard English Conventions domain are typically the briefest and take the least time, on average. Craft and Structure and Expression of Ideas questions usually fall somewhere in between.
- Math questions set in context are likely to take a bit longer to answer than Math questions not in context, as you'll have to spend some time and effort reading and understanding the scenarios being laid out.

E. Know When to Move On

It may sometimes be worth it to give up on particular test questions and move on to others for the sake of time, though you should still give your best answer to every question, as there's no penalty for guessing. Focus on your strengths and avoid getting bogged down in one or more questions that stump you.

Now What? Making Information Work for You and Your Students

College Board provides great resources, including the digital SAT Suite of Assessments, scores, score reports, and support from Official SAT Practice for you and your students as you work together on goal setting for college and career readiness.

You'll be able to use this information to do the following:

- **Determine current status.** Help students understand their scores and examine the areas in which they meet—and don't meet—the grade-level and College and Career Readiness benchmarks.
- **Set attainable goals.** Work with your students to determine their goals for meeting the College and Career Readiness benchmarks before graduation. Help them set intermediate goals along the way.
- **Guide students to targeted practice.** Provide students with opportunities to develop their college and career readiness skills in challenging classroom activities. Lead them to Official SAT Practice for practice activities.
- **Measure progress.** Remind students to check their own progress. Ask them to arrange to meet with you and/or their counselor to discuss their progress.
- **Meet and exceed the standards.** When students engage in goal setting and targeted practice, measuring the progress along the way, they're bound to achieve their goals.

Visit sat.org/k12 to find more classroom suggestions. Contribute your own suggestion, or ask any question about the digital SAT Suite of Assessments at SATinstructionalsupport@collegeboard.org.

APPENDIX A:

Instructional Strategies

Reading and Writing Section

- The single best preparation students can undertake for the digital SAT Suite Reading and Writing section is engaging in **wide and/or deep reading** and in **writing routinely** for a range of tasks, purposes, and audiences.
 - ♦ *Wide reading* involves reading a great variety of texts on differing subjects, while *deep reading* involves reading intensively about a single subject. Both kinds of reading are capable of developing students' comprehension skills, metacognitive ability (i.e., the ability to monitor and adjust one's own reading approach), and stamina (i.e., the ability to read over an extended period of time without fatigue or loss of understanding).
 - ♦ Students should be given a range of writing tasks over the course of the school year. These tasks should involve both on-demand writing—first-draft writing to a prompt under time constraints—and writing over extended time periods and involving various aspects of the writing process, including planning, drafting, obtaining and using feedback, revising, editing, and publishing.
- Students should engage in numerous **appropriately challenging reading and writing tasks** throughout the school year.
 - ♦ Students should frequently be asked to read and demonstrate comprehension of grade-level complex texts. *Grade-level complex texts* are those that are appropriately challenging for the grade level, based on quantitative and qualitative assessments of text complexity as well as consideration of reader and task variables, such as how difficult the activity is and how much (or little) students already know about the topic under study.
 - Text complexity is a critical consideration because complex texts do things that simpler texts don't. Relative to easier texts, complex texts tend to present more information and ideas (and more quickly); describe less familiar concepts or experiences; employ higher levels of abstraction; use more intricate text and sentence structures; make abundant use of high-utility academic vocabulary; and so on.
 - It's fine if students sometimes read texts that are “too easy” for them, as this can give pleasure, build interest, and develop and consolidate knowledge on various topics. The general movement across the school year, however, should be toward steadily increasing levels of text complexity in assigned (and potentially self-selected) texts.

- ◆ Writing tasks should be similarly complex. They should call on students to develop cogent arguments, clear informative/explanatory texts, engaging narratives, or a combination. When these tasks involve research, students should be incorporating credible, reliable sources selectively and effectively. Revision and editing, with structure and support from teachers, peers, and others, should be a regular part of extended-writing projects.
- Students should engage routinely in **reading and demonstrating understanding of appropriately challenging texts across subject areas and text types as well as writing in various disciplines and using a range of text types.**
 - ◆ The Reading and Writing section includes passages in the subject areas of literature, history/social studies, the humanities, and science. Each subject area constructs and conveys knowledge differently, so students should be familiar with how to productively read texts in a range of academic disciplines.
 - ◆ Passages in the Reading and Writing section represent three main text types: arguments, informative/explanatory texts, and narratives. As with subject area, text type greatly influences the form and content of writing, including the kinds of information and ideas conveyed and the structure used to organize them.
 - ◆ Students should have a similarly varied range of writing experiences, including writing for differing subject areas and using differing text types (or combinations of types). This will consolidate and improve their communication skills across a range of academic disciplines.
- Students need **extensive exposure to and experience with reading, comprehending, and working with informational graphics.**
 - ◆ Select Reading and Writing passages are accompanied by a table, bar graph, or line graph. Students must be able to locate relevant data points from such graphics, make reasonable interpretations of the data, and integrate information conveyed graphically with that expressed in words.
 - ◆ Students should gain experience working with elements of informational graphics, including the title, the labels used for key elements, the quantitative data represented, and any legend or additional contextual information provided to make the graphic easier to understand.
- Students should have **ample practice demonstrating the kinds of skills and knowledge tested in the Reading and Writing section.** Among the most critical literacy-related skills and knowledge assessed by the digital SAT Suite are the following:
 - ◆ Locating and/or reasonably inferring the main point of a text, and identifying and using supporting details.
 - ◆ Understanding and using textual and quantitative evidence (e.g., quotations, facts, figures, data) to support or challenge points or claims.
 - ◆ Making reasonable text-based inferences.
 - ◆ Determining the meaning of and effectively using high-utility academic vocabulary in context.
 - ◆ Analyzing the structure of texts, including identifying a text's overall organizational pattern and figuring out the contribution that important parts of a text (e.g., particular statements) make to the text as a whole.

- ◆ Making text-supported connections between two or more texts on the same topic or similar topics, including recognizing where the texts agree and disagree in terms of content and/or point of view.
- ◆ Selectively using and combining information and ideas in order to meet writerly goals (e.g., drawing appropriate information from research notes to introduce an artist to an audience unfamiliar with that artist's works).
- ◆ Using transitions effectively to logically connect and to improve the flow of information and ideas in writing.
- ◆ Editing sentences to ensure that they're conventionally complete.
- ◆ Editing sentences to conform to core Standard English usage and punctuation conventions.

Math Section

- Ensure that students practice solving multistep problems. Math questions on assessments in the digital SAT Suite often ask students to solve more than one problem to arrive at the correct answer.
- Separate students into small working groups. Ask them to discuss how to arrive at solutions. When their solutions are incorrect, ask them to discuss how to make corrections. Encourage students to express quantitative relationships in meaningful words and sentences to support their arguments and conjectures.
- Vary the types of problems in homework assignments so that students aren't always using the same strategy to find solutions. Students benefit from the practice of determining the right mathematical strategy to solve problems in addition to solving the problems correctly.
- Assign students some math problems or create some classroom-based assessments that don't allow for the use of a calculator. While all digital SAT Suite Math questions permit the use of a calculator, this practice encourages greater number sense, probes students' understanding of content on a conceptual level, and builds student skill in determining when it's more efficient to answer a question without using a calculator.
- Develop interest and facility in math by having students practice using math to address tasks and problems in a wide range of subject areas. Use tables, expressions, and graphs that students encounter in other courses to present math as a tool that may be applied to many areas of study rather than being relegated to math classes. Provide frequent opportunities for students to interpret and apply math skills and knowledge in real-world and academic contexts, particularly ones in the sciences and social studies.

Digital SAT Essay

The digital SAT Essay is only administered in certain states as part of some students' school day testing. The instructional strategies below, however, are broadly useful in developing students' literacy skills and knowledge.

- The single best preparation students can undertake for the digital SAT Essay section is engaging in **wide and/or deep reading** and in **writing routinely** for a range of tasks, purposes, and audiences.
 - ◆ *Wide reading* involves reading a great variety of texts on differing subjects, while *deep reading* involves reading a great deal about a single subject. Both kinds of reading are capable of developing students' comprehension skills, metacognitive ability (i.e., the ability to monitor and adjust one's own reading approach), and stamina (i.e., the ability to read over an extended period of time without fatigue or loss of understanding).
 - ◆ Students should be given a range of writing tasks over the course of the school year. These tasks should involve both on-demand writing—first-draft writing to a prompt under time constraints—and writing over extended time periods and involving various aspects of the writing process, including planning, drafting, obtaining feedback, revising, editing, and publishing.
- Students should engage in **appropriately challenging reading and writing tasks** throughout the school year.
 - ◆ Students should frequently be asked to read and demonstrate comprehension of grade-level complex texts. *Grade-level complex texts* are those that are appropriately challenging for the grade level, based on quantitative and qualitative assessments of text complexity as well as consideration of reader and task variables, such as how difficult the activity is and how much (or little) students already know about the topic under study.
 - Text complexity is a critical consideration because complex texts do things that simpler texts don't. Relative to easier texts, complex texts tend to present more information and ideas (and more quickly); describe less familiar concepts or experiences; employ higher levels of abstraction; use more intricate text and sentence structures; make use of high-utility academic vocabulary more frequently; and so on.
 - It's fine if students sometimes read texts that are “too easy” for them, as this can be pleasurable and effective in knowledge building and consolidation. The general movement across the school year, however, should be toward steadily increasing levels of text complexity in assigned (and potentially self-selected) texts.
- Writing tasks should be similarly complex. They should call on students to develop cogent arguments, clear informative/explanatory texts, engaging narratives, or a combination. When these tasks involve research, students should be incorporating credible, reliable sources selectively and effectively. Revision and editing, with structure and support from teachers, peers, and others, should be a regular part of extended-writing projects.

- Students should have frequent opportunities to engage in **source analysis tasks**.
 - ◆ As defined here, a *source analysis task* involves assessing a text—in this case, an argument—to better understand the overall point of view and organization of a text as well as the contributions key components of the text, such as particular statements or examples, make to the text as a whole.
 - ◆ When students analyze such texts, their goal shouldn't be to indicate whether or to what extent they agree or disagree with the point of view expressed. Rather, they should seek to understand the text from the author's perspective and evaluate how the text is put together. Source analysis tasks, in other words, aren't chiefly about students' opinions about the subjects covered by the tasks but are instead rhetorically focused.
 - ◆ Students may be asked to examine arguments for key features, such as those they are prompted to discuss in the Essay task:
 - Evidence, such as facts or examples, used to support claims.
 - Reasoning used to develop ideas and to connect claims and evidence.
 - Stylistic or persuasive elements, such as word choice or appeals to emotion, that add power to the ideas expressed.
 - They may also explain different or additional rhetorical elements of their choosing as long as they can make a good case that these elements contribute in important ways to the persuasiveness of the author's argument.
 - ◆ Source analysis activities can be standalone, but they're likely to be more meaningful to students if they're connected to sources they themselves have selected and that have relevance to their other classroom work. A source analysis task, for example, could be part of a larger extended-writing project involving research on a topic of interest.
 - ◆ Actively participating in source analysis activities will help students develop important competencies for analyzing text, such as recognizing claims, weighing evidence, and assessing the reasoning used to link claims and evidence. As an intended byproduct of such work, students also gain a degree of objective detachment from texts. They come to better recognize that texts have authors, that texts are trying to accomplish things (e.g., convincing readers of the “rightness” of an assertion), and that texts can and should be comprehended even—and perhaps especially—when we disagree with the author's point of view. This doesn't mean that students should simply accept everything they read, but rather that they should begin from a place of understanding regarding the author's message before moving on to critiquing (or, worse, simply ignoring) that message.

- Students should have regular opportunities to demonstrate and practice the **various skills and knowledge elements evaluated by the digital SAT Essay rubric** (found in **Appendix B** and summarized in Table 13 on page 66 , above). These wide-ranging literacy activities include having students
 - ◆ locate and/or reasonably infer central ideas and key details of texts as well as the relationship between main points and details.
 - ◆ represent information and ideas in sources accurately (i.e., fairly representing an author’s message without key omissions and without introducing errors of fact or interpretation).
 - ◆ use textual evidence (quotations, paraphrases, or both) to demonstrate understanding of what they’ve read.
 - ◆ evaluate an author’s use of evidence, reasoning, and/or stylistic and persuasive elements.
 - ◆ support their claims or points in writing (or when speaking/presenting) with relevant evidence.
 - ◆ keep their writing (or speaking/presenting) focused on successfully accomplishing the task at hand.
 - ◆ introduce a central claim in their writing (or speaking/presenting) that establishes a controlling idea.
 - ◆ organize their writing (or speaking/presenting) effectively.
 - ◆ vary sentence structure for meaning and reader interest when writing.
 - ◆ use words precisely when writing (or speaking/presenting).
 - ◆ maintain a consistent and appropriate style and tone in their writing (or presentations).
 - ◆ observe the conventions of Standard English sentence structure, usage, and punctuation in their writing.

APPENDIX B:

Digital SAT Essay Rubric and Sample Essays

Overview

In broad terms, digital SAT Essay responses are evaluated across three dimensions: reading (for demonstrated comprehension of the source text), analysis (the quality of analysis of that source text), and writing (the quality of the writing in the response). Three dimension scores are reported, each on a scale of 2–8, the combined scores of two scorers using the three 1–4 scales in the rubric below.

This appendix lays out the digital SAT Essay rubric at its four levels, beginning with the highest score tier, or score band. Presentation of the levels is followed by one or more sample student responses and an explanation of how the scores were determined. Note that students receive three separate scores. This means they may score higher in some dimensions than others. Note also that the sample student responses below are verbatim transcripts and may include infelicities and errors due to the nature of first-draft timed writing.

As in all digital SAT Essay administrations, the student responses below were generated in response to the following generalized prompt:

As you read the passage below, consider how [the author] uses

- evidence, such as facts or examples, to support claims.
- reasoning to develop ideas and to connect claims and evidence.
- stylistic or persuasive elements, such as word choice or appeals to emotion, to add power to the ideas expressed.

Write an essay in which you explain how [the author] builds an argument to persuade [their] audience that [author's claim]. In your essay, analyze how [the author] uses one or more of the features listed in the box above (or features of your own choice) to strengthen the logic and persuasiveness of [their] argument. Be sure that your analysis focuses on the most relevant features of the passage. Your essay should not explain whether you agree with [the author's] claims, but rather explain how [the author] builds an argument to persuade [their] audience.

The student essays included here are in response to the following passage, which is used with permission.

Adapted from Paul Bogard, "Let There Be Dark." ©2012 by Paul Bogard. Originally published in *Los Angeles Times*, December 21, 2012.

- 1 At my family's cabin on a Minnesota lake, I knew woods so dark that my hands disappeared before my eyes. I knew night skies in which meteors left smoky trails across sugary spreads of stars. But now, when 8 of 10 children born in the United States will never know a sky dark enough for the Milky Way, I worry we are rapidly losing night's natural darkness before realizing its worth. This winter solstice, as we cheer the days' gradual movement back toward light, let us also remember the irreplaceable value of darkness.
- 2 All life evolved to the steady rhythm of bright days and dark nights. Today, though, when we feel the closeness of nightfall, we reach quickly for a light switch. And too little darkness, meaning too much artificial light at night, spells trouble for all.
- 3 Already the World Health Organization classifies working the night shift as a probable human carcinogen, and the American Medical Association has voiced its unanimous support for "light pollution reduction efforts and glare reduction efforts at both the national and state levels." Our bodies need darkness to produce the hormone melatonin, which keeps certain cancers from developing, and our bodies need darkness for sleep. Sleep disorders have been linked to diabetes, obesity, cardiovascular disease and depression, and recent research suggests one main cause of "short sleep" is "long light." Whether we work at night or simply take our tablets, notebooks and smartphones to bed, there isn't a place for this much artificial light in our lives.

- 4 The rest of the world depends on darkness as well, including nocturnal and crepuscular species of birds, insects, mammals, fish and reptiles. Some examples are well known—the 400 species of birds that migrate at night in North America, the sea turtles that come ashore to lay their eggs—and some are not, such as the bats that save American farmers billions in pest control and the moths that pollinate 80% of the world’s flora. Ecological light pollution is like the bulldozer of the night, wrecking habitat and disrupting ecosystems several billion years in the making. Simply put, without darkness, Earth’s ecology would collapse. . . .
- 5 In today’s crowded, louder, more fast-paced world, night’s darkness can provide solitude, quiet and stillness, qualities increasingly in short supply. Every religious tradition has considered darkness invaluable or a soulful life, and the chance to witness the universe has inspired artists, philosophers and everyday stargazers since time began. In a world awash with electric light. . . how would Van Gogh have given the world his “Starry Night”? Who knows what this vision of the night sky might inspire in each of us, in our children or grandchildren?
- 6 Yet all over the world, our nights are growing brighter. In the United States and Western Europe, the amount of light in the sky increases an average of about 6% every year. Computer images of the United States at night, based on NASA photographs, show that what was a very dark country as recently as the 1950s is now nearly covered with a blanket of light. Much of this light is wasted energy, which means wasted dollars. Those of us over 35 are perhaps among the last generation to have known truly dark nights. Even the northern lake where I was lucky to spend my summers has seen its darkness diminish.
- 7 It doesn’t have to be this way. Light pollution is readily within our ability to solve, using new lighting technologies and shielding existing lights. Already, many cities and towns across North America and Europe are changing to LED streetlights, which offer dramatic possibilities for controlling wasted light. Other communities are finding success with simply turning off portions of their public lighting after midnight. Even Paris, the famed “city of light,” which already turns off its monument lighting after 1 a.m., will this summer start to require its shops, offices and public buildings to turn off lights after 2 a.m. Though primarily designed to save energy, such reductions in light will also go far in addressing light pollution. But we will never truly address the problem of light pollution until we become aware of the irreplaceable value and beauty of the darkness we are losing.

Score Band 4

TABLE 19. DIGITAL SAT ESSAY RUBRIC: SCORE BAND 4.

| Score | Reading | Analysis | Writing |
|-------|---|--|--|
| 4 | <p>Advanced: The response demonstrates thorough comprehension of the source text.</p> <p>The response shows an understanding of the text’s central idea(s) and of most important details and how they interrelate, demonstrating a comprehensive understanding of the text.</p> <p>The response is free of errors of fact or interpretation with regard to the text.</p> <p>The response makes skillful use of textual evidence (quotations, paraphrases, or both), demonstrating a complete understanding of the source text.</p> | <p>Advanced: The response offers an insightful analysis of the source text and demonstrates a sophisticated understanding of the analytical task.</p> <p>The response offers a thorough, well-considered evaluation of the author’s use of evidence, reasoning, and/or stylistic and persuasive elements, and/or feature(s) of the student’s own choosing.</p> <p>The response contains relevant, sufficient, and strategically chosen support for claim(s) or point(s) made.</p> <p>The response focuses consistently on those features of the text that are most relevant to addressing the task.</p> | <p>Advanced: The response is cohesive and demonstrates a highly effective use and command of language.</p> <p>The response includes a precise central claim.</p> <p>The response includes a skillful introduction and conclusion. The response demonstrates a deliberate and highly effective progression of ideas both within paragraphs and throughout the essay.</p> <p>The response has a wide variety in sentence structures. The response demonstrates a consistent use of precise word choice.</p> <p>The response maintains a formal style and objective tone.</p> <p>The response shows a strong command of the conventions of Standard Written English and is free or virtually free of errors.</p> |

Sample 1

This response scored a 4/4/4.

In response to our world’s growing reliance on artificial light, writer Paul Bogard argues that natural darkness should be preserved in his article “Let There Be dark”. He effectively builds his argument by using a personal anecdote, allusions to art and history, and rhetorical questions.

Bogard starts his article off by recounting a personal story – a summer spent on a Minnesota lake where there was “woods so dark that [his] hands disappeared before [his] eyes.” In telling this brief anecdote, Bogard challenges the audience to remember a time where they could fully amass themselves in natural darkness void of artificial light. By drawing in his readers with a personal encounter about night darkness, the author means to establish the potential for beauty, glamour, and awe-inspiring mystery that genuine darkness can possess. He builds his argument for the preservation of natural darkness by reminiscing for his readers a first-hand encounter that proves the “irreplaceable value of darkness.” This anecdote provides a baseline of sorts for readers to find credence with the author’s claims.

Bogard’s argument is also furthered by his use of allusion to art – Van Gogh’s “Starry Night” – and modern history – Paris’ reputation as “The City of Light”. By first referencing “Starry Night”, a painting generally considered to be undoubtedly beautiful, Bogard establishes that the natural magnificence of stars in a dark sky is definite. A world absent of excess artificial light could potentially hold the key to a grand, glorious night sky like Van Gogh’s according to the writer. This urges the readers to weigh the disadvantages of our world consumed by unnatural, vapid lighting. Furthermore, Bogard alludes to Paris as “the famed ‘city of light’”. He then goes on to state how Paris has taken steps to exercise more sustainable lighting practices. By doing this, Bogard creates a dichotomy between Paris’ traditionally alluded-to name and the reality of what Paris is becoming – no longer “the city of light”, but moreso “the city of light... before 2 AM”. This furthers his line of argumentation because it shows how steps can be and are being taken to preserve natural darkness. It shows that even a city that is literally famous for being constantly lit can practically address light pollution in a manner that preserves the beauty of both the city itself and the universe as a whole.

Finally, Bogard makes subtle yet efficient use of rhetorical questioning to persuade his audience that natural darkness preservation is essential. He asks the readers to consider “what the vision of the night sky might inspire in each of us, in our children or grandchildren?” in a way that brutally plays to each of our emotions. By asking this question, Bogard draws out heartfelt ponderance from his readers about the affecting power of an untainted night sky. This rhetorical question tugs at the readers’ heartstrings; while the reader may have seen an unobscured night skyline before, the possibility that their child or grandchild will never get the chance sways them to see as Bogard sees. This strategy is definitively an appeal to pathos, forcing the audience to directly face an emotionally-charged inquiry that will surely spur some kind of response. By doing this, Bogard develops his argument, adding gutthral power to the idea that the issue of maintaining natural darkness is relevant and multifaceted.

Writing as a reaction to his disappointment that artificial light has largely permeated the presence of natural darkness, Paul Bogard argues that we must preserve true, unaffected darkness. He builds this claim by making use of a personal anecdote, allusions, and rhetorical questioning.

Score Explanation

Reading – 4: This response demonstrates thorough comprehension of the source text through skillful use of paraphrases and direct quotations. The writer briefly summarizes the central idea of Bogard’s piece (*natural darkness should be preserved; we must preserve true, unaffected darkness*) and presents many details from the source text that support Bogard’s argument, such as referencing the personal anecdote that opens the passage and citing Bogard’s use of *Paris’ reputation as “The City of Light.”* Although there are few long direct quotations from the source text, the writer is able to succinctly and accurately capture the entirety of Bogard’s argument and is able to articulate how details in the source text interrelate (*Van Gogh’s “Starry Night”...urges the readers to weigh the disadvantages of...unnatural, vapid lighting...He then goes on to state how Paris has taken steps to exercise more sustainable lighting practices*) and support Bogard’s central claim. The response is also free of errors of fact or interpretation with regard to the source text and illustrates advanced reading comprehension.

Analysis – 4: This response offers an insightful analysis of the source text and demonstrates a sophisticated understanding of the analytical task. In the analysis of Bogard’s use of *personal anecdote, allusions to art and history, and rhetorical questions*, the writer is able to explain carefully and thoroughly how Bogard builds his argument over the course of the passage. For example, the writer offers a possible reason for why Bogard chose to open his argument with a personal anecdote (*In telling this brief anecdote, Bogard challenges the audience to remember a time where they could fully amass themselves in natural darkness void of artificial light*) and is also able to describe the overall effect of that choice on his audience: *By drawing in his readers with a personal encounter...the author means to establish the potential for beauty, glamour, and awe-inspiring mystery that genuine darkness can possess...reminiscing for his readers...proves the “irreplaceable value of darkness.” This anecdote provides a baseline of sorts for readers to find credence with the author’s claims.* Although each of these sentences by itself may appear to be based on assertions, the way that the writer builds this analysis indicates an understanding of the overall effect of Bogard’s personal narrative, both in terms of its function in Bogard’s argument (*boosting the readers’ credence with the author’s claims*) and in terms of how it affects his audience (*convincing them to fully amass themselves in darkness’s potential for beauty, glamour, and awe-inspiring mystery*). Therefore, the writer has offered a thorough and well-considered evaluation of Bogard’s choices and decisions in building his argument. This type of insightful analysis is evident throughout the response and indicates advanced analytical skill.

Writing – 4: The response is cohesive and demonstrates highly effective use and command of language. The response contains a precise central claim (*He effectively builds his argument by using personal anecdote, allusions to art and history, and rhetorical questions*), and each body paragraph is tightly focused on those three elements of Bogard’s text. There is a clear, deliberate progression of ideas within paragraphs and throughout the response as a whole. The writer’s brief introduction and conclusion are skillfully written (*Writing as a reaction to his disappointment that artificial light has largely permeated the presence of natural darkness*) and perfectly encapsulate both the main ideas of Bogard’s piece as well as the overall structure and argument of the writer’s analysis. There is a consistent use of both precise word choice and insightful turns of phrase that illustrate the writer’s advanced writing skill (*the natural magnificence of stars in a dark sky is definite; our world consumed by unnatural, vapid lighting; the affecting power of an untainted night sky*). Moreover, the response features a wide variety in sentence structures and many examples of complex sentences: *By doing this, Bogard creates a dichotomy between Paris’ traditionally alluded-to name and the reality of what Paris is becoming – no longer ‘the city of light’, but moreso ‘the city of light...before 2 AM.* Overall, the response demonstrates a strong command of the conventions of written English and exemplifies advanced writing proficiency.

Score Band 3

TABLE 20. DIGITAL SAT ESSAY RUBRIC: SCORE BAND 3.

| Score | Reading | Analysis | Writing |
|-------|--|---|---|
| 3 | <p>Proficient: The response demonstrates effective comprehension of the source text.</p> <p>The response shows an understanding of the text’s central idea(s) and important details.</p> <p>The response is free of substantive errors of fact and interpretation with regard to the text.</p> <p>The response makes appropriate use of textual evidence (quotations, paraphrases, or both), demonstrating an understanding of the source text.</p> | <p>Proficient: The response offers an effective analysis of the source text and demonstrates an understanding of the analytical task.</p> <p>The response competently evaluates the author’s use of evidence, reasoning, and/or stylistic and persuasive elements, and/or feature(s) of the student’s own choosing.</p> <p>The response contains relevant and sufficient support for claim(s) or point(s) made.</p> <p>The response focuses primarily on those features of the text that are most relevant to addressing the task.</p> | <p>Proficient: The response is mostly cohesive and demonstrates effective use and control of language.</p> <p>The response includes a central claim or implicit controlling idea.</p> <p>The response includes an effective introduction and conclusion. The response demonstrates a clear progression of ideas both within paragraphs and throughout the essay.</p> <p>The response has variety in sentence structures. The response demonstrates some precise word choice. The response maintains a formal style and objective tone.</p> <p>The response shows a good control of the conventions of Standard Written English and is free of significant errors that detract from the quality of writing.</p> |

Sample 2

This response scored a 4/3/4.

Paul Bogard, a respected and passionate writer, offers a convincing argument on the importance of allowing more darkness to fill the earth for distinct health and ecological reasons. With light providing as such a huge factor in daily life, we sometimes forget that darkness can have more healing abilities, and allows nature to return to a nonartificial, primitive state. Bogard uses personal observation for credibility, stirring feelings, and startling facts to deliver a powerful argument.

Throughout the passage, Bogard remains nostalgic about his childhood: “At my family’s cabin on a Minnesota lake, I knew woods so dark that my hands disappeared before my eyes. I knew night skies in which meteors left smoky trails across sugary spreads of stars....This winter solstice, as we cheer the days’ gradual movement back toward light, let us also remember the irreplaceable value of darkness.” The description of nature and the stunningly beautiful imagery creates a feeling of deep respect for the darkness. We share in Bogard’s view and as a result, Bogard has undeniable credibility. Bogard knows the power of darkness and through his childhood memories, we lean our ears to listen to him.

Even though credibility makes many appearances throughout the passage, it would have no real meaning without evoking emotion. Bogard strikes the people who disagree with him when he says, “Our bodies need darkness to produce the hormone melatonin, which keeps certain cancers from developing and our bodies need darkness for sleep. Sleep disorders have been linked to diabetes, obesity, cardiovascular disease and depression, and recent research suggests one main cause of ‘short sleep’ is ‘long light’.” Bogard’s statement dissolves any doubt, but builds up new feeling. We finally see the true importance of allowing our world to temporarily succumb to darkness. Through the emotion Bogard evokes, we suddenly feel defensive in preserving the darkness for the sake of our mental and physical health. Bogard even makes us think about the future generations: “In a world awash with electric light...how would Van Gogh have given the world his ‘starry night’? Who knows what this vision of the night sky must inspire in each of us, in our children or grandchildren?”

In order to achieve proper credibility and stir emotion, undeniable facts must reside in passage. Bogard has completed his research, and uses it to further his case: “The rest of the world depends on darkness as well, including nocturnal and crepuscular species of birds, insects, mammals, fish, and reptiles. Some examples are well known—the 400 species of birds that migrate at night in North America, the sea turtles that come to lay their eggs—and some are not, such as the bats that save American farmers billions in pest control and the moths that pollinate 80% of the world’s flora.” Using the facts about animals, Bogard extends the argument beyond humans, allowing us to see that darkness does not only have an impact on us, but all of nature. Bogard then says, “In the United States and Western Europe, the amount of light in the sky increases an average of about 6% every year.... Much of this light is wasted energy, which means wasted dollars. Those of us over 35 are perhaps among the last generation to have known truly dark nights.” However, Bogard extends the facts to offer various solutions to wasted and excessive light, such as changing LED streetlights and reducing the use of lights in public buildings and homes during the night. Bogard builds up our world, and then breaks it down in our minds with his writing: “Simply put, without darkness, Earth’s ecology would collapse....”

We can still save our world according to Bogard. We must see the strength and beauty in the darkness, and remember how our world survived without lights. Light can be acceptable, but too much of it can prove worse than permanent darkness.

Score Explanation

Reading – 4: This response demonstrates thorough comprehension of Bogard’s text. The writer captures the central idea of the source passage (*the importance of allowing more darkness to fill the earth for distinct health and ecological reasons*) and accurately quotes and paraphrases many important details from the passage that support Bogard’s argument. Moreover, the writer demonstrates an understanding of how these details interrelate. In the third body paragraph, for example, the writer not only presents details from Bogard’s text about the effects of darkness upon nature but also indicates comprehension of how those facts relate to both research on humans and proposed solutions to the problem (*Using the facts about animals, Bogard extends the argument beyond humans; Bogard extends the facts to offer various solutions...such as changing LED streetlights... “Simply put, without darkness, Earth’s ecology would collapse”*). This technique of describing how different details in Bogard’s text relate to each other is also evident in the second body paragraph where the writer connects concerns about our well-being with that of future generations: fear-inducing facts about *the sake of our mental and physical health* and anxiety for *our children or grandchildren*. In addition, the response is free of any errors of fact and interpretation, and the writer makes skillful use of textual evidence throughout the response. Overall, then, this response demonstrates advanced reading comprehension.

Analysis – 3: The writer demonstrates an understanding of the analytical task by analyzing three ways Bogard builds his argument (*personal observation for credibility, stirring feelings, and startling facts to deliver a powerful argument*). Throughout the course of the response, the writer discusses Bogard’s use of these three elements and is able to move past asserting their significance to arrive at an effective analysis of the effects of these techniques on Bogard’s audience. In the second body paragraph, for example, the writer states, *Bogard’s statement dissolves any doubt, but builds up new feeling. We finally see the true importance of allowing our world to temporarily succumb to darkness. Through the emotion Bogard evokes, we suddenly feel defensive in preserving the darkness for the sake of our mental and physical health*. Effective analysis is also evident in the first body paragraph where the writer discusses the audience’s possible reaction to reading about Bogard’s experience with darkness as a child (*The description of nature and the stunningly beautiful imagery creates a feeling of deep respect...as a result, Bogard has undeniable credibility. Bogard knows the power of darkness and through his childhood memories, we lean our ears to listen to him*). These points of analysis would have been stronger had the writer perhaps elaborated more on how or why they build Bogard’s argument. However, the writer nevertheless competently evaluates Bogard’s use of personal observation, emotions, and facts and provides relevant and sufficient support for each claim, demonstrating effective analysis.

Writing – 4: The writer demonstrates highly effective use and command of language in this cohesive response. The response includes a precise central claim (*Bogard uses personal observation for credibility, stirring feelings, and startling facts to deliver a powerful argument*), and each of the subsequent paragraphs remain focused on the topics set forth in that central claim. There is a deliberate progression of ideas both within paragraphs and throughout the response. Moreover, the response demonstrates precise word choice and sophisticated turns of phrase (*temporarily succumb to darkness; remains nostalgic about his childhood; dissolves any doubt*). The concluding paragraph is skillful for its precise word choice and complex sentence structures (*We must see the strength and beauty in the darkness, and remember how our world survived without lights. Light can be acceptable, but too much of it can prove worse than permanent darkness*). Overall, this response demonstrates advanced writing skill.

Sample 3

This response scored a 3/3/3.

Paul Bogard, author of “Let There Be Dark” has structurely emphasized why darkness is beneficial, and he also recognizes some individuals who are depleting our darkness. Whether an individual loves being baked by the sun, or loves the cool night breeze, dark will always accompany us in our world.

Bogard points out the people who take “[their] tablets, notebooks and smartphones to bed,” because he knows that our world is technologically advanced and a majority of people use it 24/7. As a reader, one may feel guilty after reading this paragraph because they know that they are an individual who brings technology to bed. Bogard knows that this will interest readers because it applies to their daily life. One may argue that taking a tablet to bed doesn't get rid of darkness, it only enlightens them on the latest gossip. This is one example of how were letting technology and social media run our lives. Bogard clearly embedded this fact into his story because he knows that it will affect a lot of Americans.

Most people wouldn't consider lighting up a dark room as light pollution, but Bogard gives this activity a name. Bogard mentions tourist attractions, Europe and Paris, to persuade readers to quit the emission of light. Even though Paris is “the [famous] city of lights,” they are willing to turn off the monument lights, shop & offices lighting, and also public building lights in order to combat light pollution. The reductions in lighting will not only save energy, but also help with the light pollution problem; turning off lights can be beneficial in many different ways. Bogard uses famous places to prove that this is a world-wide issue.

Bogard uses emotional appeal when he mentions the different types of species that benefit from darkness. Most people are more sensitive towards animals, rather than just plain facts and figures. Bogard uses the fourth paragraph to describe how animals and farmers will be affected by light pollution. The species on our planet are our responsibility because they have nobody to tell us what is right or wrong for them. Bogard makes it obvious that light pollution is not only affecting our citizens, but our animals.

Bogard also uses emotion to persuade the reader when he asks, “Who knows what this vision of the night sky might inspire in each of us?” This could be emotional for some people or parents because Bogard is mainly stating that without the night sky, many of us would not have some advanced thoughts. Everybody in this world wants to succeed at something, and this question may make people think about how light pollution can affect their future. Bogard's stylistic approach to hook the reader in was achieved at this point. Not all people may care how light pollution may affect the animals around us, but most people care about themselves and their loved ones around them.

Bogard also explains how “darkness [produces] the hormone melatonin.” Many people may be shocked by this because they realize that light pollution and bringing tablets to bed is something that will affect their health. Melatonin is key to everyone's healthy sleep habits. This part incorporates reasoning and emotion. Without the darkness that is created naturally, none of us would be able to sleep, resulting in sleep disorders.

With the use of emotion, and facts, Bogard has completely involved the reader in an issue that they may not think is apparent.

Score Explanation

Reading – 3: This response exhibits effective comprehension of the source text. The writer opens by describing the passage’s central idea (*Bogard...has structurally emphasized why darkness is beneficial, and he also recognizes some individuals who are depleting our darkness*) and then proceeds to address key details from the source text. These details include the rise in artificial light for people who take “[*their*] tablets, notebooks and smartphones to bed,” which is something that will affect their health because “darkness [produces] the hormone melatonin, and that Paris is reducing light pollution” (*Even though Paris is “the [famous] city of lights,” they are willing to turn off the monument lights, shop & offices lighting, and also public building lights*). The writer also brings up *how animals and farmers will be affected by light pollution* and Bogard’s mention of what the “*vision of the night sky might inspire in each of us*.” These references to the source text’s important details, captured through effective quotation and paraphrasing, demonstrate the writer’s proficient comprehension of Bogard’s argument.

Analysis – 3: The writer provides proficient analysis of Bogard’s argument in this response. The most clearly developed point of analysis is the writer’s evaluation of how Bogard’s question about “*what this vision of the night sky might inspire*” in the viewer serves to *hook the reader in*. After asserting that *This could be emotional for some people in that Everybody...wants to succeed at something, and this question may make people think about how light pollution can affect their future*, the writer offers justification for why this would be persuasive: *Not all people may care how light pollution may affect the animals...but most people care about themselves and their loved ones*. Other analytical attempts in the response only reach the level of assertion as the writer does not attempt to elaborate on these points (*As a reader, one may feel guilty...because they know that they are an individual who brings technology to bed; Most people are more sensitive towards animals, rather than just plain facts*). However, the writer’s effective analysis of Bogard’s *hook*, which presents a persuasive effect (making readers *think about how light pollution can affect their future*) and explains how it functions (*most people care about themselves*), is sufficient to demonstrate a proficient understanding of the analytical task.

Writing – 3: This response is mostly cohesive and shows the writer’s effective use of language. The brief introduction presents the source text’s central idea and provides an entry into the writer’s points. Though it does not offer an explicit central claim or thesis, the response’s conclusion does point out the two main elements the writer focuses on: *With the use of emotion, and facts, Bogard has completely involved the reader*. Topic sentences and other transitions between paragraphs (*Bogard uses emotional appeal when he mentions; Bogard also uses emotion to persuade the reader when he asks; Bogard also explains how*) show a progression of ideas in the response, as does the internal development within those paragraphs: *Bogard points out the people... As a reader, one may feel guilty... Bogard knows that this will interest readers because... This is one example....* The writer also utilizes some more complex sentence constructions (*The reductions in lighting will not only save energy, but also help with the light pollution problem; turning off lights can be beneficial in many different ways*) and a few precise word choices (*Whether an individual loves being baked by the sun, or loves the cool night breeze, dark will always accompany us in our world; One may argue that taking a tablet to bed doesn’t get rid of darkness, it only enlightens them on the latest gossip*). Overall, these features demonstrate effective writing skill and proficient language control.

Score Band 2

TABLE 21. DIGITAL SAT ESSAY RUBRIC: SCORE BAND 2.

| Score | Reading | Analysis | Writing |
|-------|--|---|---|
| 2 | <p>Partial: The response demonstrates some comprehension of the source text.</p> <p>The response shows an understanding of the text’s central idea(s) but not of important details.</p> <p>The response may contain errors of fact and/or interpretation with regard to the text.</p> <p>The response makes limited and/or haphazard use of textual evidence (quotations, paraphrases, or both), demonstrating some understanding of the source text.</p> | <p>Partial: The response offers limited analysis of the source text and demonstrates only partial understanding of the analytical task.</p> <p>The response identifies and attempts to describe the author’s use of evidence, reasoning, and/or stylistic and persuasive elements, and/or feature(s) of the student’s own choosing, but merely asserts rather than explains their importance.</p> <p>Or one or more aspects of the response’s analysis are unwarranted based on the text.</p> <p>The response contains little or no support for claim(s) or point(s) made.</p> <p>The response may lack a clear focus on those features of the text that are most relevant to addressing the task.</p> | <p>Partial: The response demonstrates little or no cohesion and limited skill in the use and control of language.</p> <p>The response may lack a clear central claim or controlling idea or may deviate from the claim or idea over the course of the response.</p> <p>The response may include an ineffective introduction and/or conclusion. The response may demonstrate some progression of ideas within paragraphs but not throughout the response.</p> <p>The response has limited variety in sentence structures; sentence structures may be repetitive. The response demonstrates general or vague word choice; word choice may be repetitive. The response may deviate noticeably from a formal style and objective tone.</p> <p>The response shows a limited control of the conventions of Standard Written English and contains errors that detract from the quality of writing and may impede understanding.</p> |

Sample 4

This response scored a 3/2/3.

Paul Bogard's essay about the necessity of darkness captures the reader's attention. He brilliantly gave examples of why darkness is essential and how darkness can benefit human life. His use of syntax also supports his essay to have very reasonable and valid points.

Bogard starts out by giving one example from his own personal experience at his family's cabin on a Minnesota lake. He describes the Milky Way and the night sky in all of its brilliance. He then portrays how 8 out of 10 children born in the United States will never know a sky darky enough for the Milky Way. By this point, Bogard is building up pathos within his essay. The reader begins to feel pity for those 8 in 10 children who will never get the chance to see the sky in its truest and most real form. Bogard then explains how much turning a light switch on and off is taken for granted. This is an example of logos because the reader can sense that that is what life has come down to. It is evident that the world today is dependent upon electricity, and Bogard does a fabulous job gathering evidence for this argument that darkness has been undermined.

Some other examples that Bogard gives are the issues of light pollution and nocturnal animals. He explains that our bodies need darkness to produce certain hormones which can prevent certain diseases and illnesses. Also, he claims how animals are dependent upon the darkness and without darkness, "Earth's ecology would collapse." Then he goes on to talk about the previous centuries and how they did not rely on electricity to live their everyday lives.

One of the most famous paintings in history was done centuries ago and was called "Starry Night," by Vincent Van Gogh. Bogard explains how the night sky can be inspiring which causes more pathos to build up within the reader, causing them to think about the importance of the darkness and beauty of nighttime.

After giving examples of how darkness is taken for granted, Bogard provides a solution. This is logos. He tells the reader that the over usage of light and electricity doesn't have to be that way and by making a few minor changes, the world can be different. Giving examples of everyday life and providing a solution, Bogard brilliantly portrayed the need and importance of darkness in everyday life.

Score Explanation

Reading – 3: This response shows an effective understanding of the passage. The writer demonstrates comprehension of the argument’s central idea by noting that Bogard writes about the necessity of darkness and portrayed the need and importance of darkness in everyday life. This understanding is supported by the writer’s use of important details from the source text, like citing Bogard’s *family’s cabin on a Minnesota lake where He describes the Milky Way and the night sky, which 8 out of 10 children born in the United States won’t ever see*. The writer also discusses *how our bodies need darkness to produce certain hormones which can prevent certain diseases*, brings up *how animals are dependent upon the darkness and without darkness, “Earth’s ecology would collapse,”* references “Starry Night” as an example of *how the night sky can be inspiring*, and briefly mentions *how much turning a light switch on and off is taken for granted and that people in the previous centuries...did not rely on electricity to live their everyday lives*. This demonstration of appropriate paraphrasing and quoting from the source text, along with the writer’s understanding of the central idea, demonstrates the writer’s proficient reading comprehension.

Analysis – 2: This response offers limited analysis of Bogard’s argument. The writer identifies a few persuasive elements from the passage, like the use of *pathos* and *evidence*, but only provides an unexplained claim about how *pathos* influences readers. The writer states that the passage *is building up pathos* in the discussion of *how 8 out of 10 children...will never know a sky darky enough for the Milky Way* and asserts *The reader begins to feel pity for those 8 in 10 children who will never get the chance to see the sky in its truest and most real form*. The response then moves on without elaborating on this idea, though, and does not try to explain why readers would feel *pity* because of this statistic or how generating this feeling would lead them to agree with Bogard’s argument to preserve darkness. The writer’s other analytical attempts are ineffective, as they do not develop a claim about what effect the features have on the audience: *Bogard does a fabulous job gathering evidence for this argument; the night sky can be inspiring which causes more pathos...causing them to think about the importance of the darkness and beauty of nighttime*. However, because the writer has asserted the effect of *pity*, the response does show a partial understanding of the analytical task.

Writing – 3: This response is mostly cohesive and exhibits proficient language control. The introduction presents a central claim (*He brilliantly gave examples of why darkness is essential; His use of syntax also supports his essay*) that the response mostly follows, and the writer uses transitions to clearly signal how Bogard’s ideas develop: *Bogard starts out by giving one example; He then portrays how; By this point, Bogard is building; Some other examples that Bogard gives are; Then he goes on to talk about*. Some sentences show variation in their structures (*It is evident that the world today is dependent upon electricity, and Bogard does a fabulous job gathering evidence for this; After giving examples of how darkness is taken for granted, Bogard provides a solution*), and the writer occasionally uses precise word choices: *brilliantly; inspiring; necessity*. These features are marks of effective organization and language use, demonstrating proficient writing skill.

Sample 5

This response scored a 2/2/2.

In Paul Bogard's essay "Let there Be Dark" he emphasizes the importance of natural darkness. Bogard begins his argument by first providing a story from his personal experience, appealing to the reader by adding imagery. "I knew night skies in which meteors left smoky trails across sugary spreads of stars." In this sentence, Bogard depicts the beauty of natural darkness using detail. Bogard continues with comparing his personal perspective of natural darkness in the past to society's perspective in the present. "Today, though, when we feel the closeness of night fall, we reach quickly for a light switch." Implying that the times have definitely changed and natural darkness's value has been lost in society, replaced with artificial light. This example gives Bogard a sense of voice and his use of comparison is definitely effective.

Bogard supports his claims about natural darkness's underrated value by providing the reader with evidence of health problems that the opposite replacement, artificial light, can cause. "Our bodies need darkness to produce the hormone melatonin, which keeps certain cancers from developing." Oh, no! Not cancer! Right there is a quick attention grabber to any reader previously bored by Bogard's constant opinions because now there are facts, and a fact relating to the reader is the best persuasion, especially when it relates to their health or well-being. Cancer, because who wants a terminal illness over an action as simple as flipping a switch on a night light when it's too dark for your comfort?

Score Explanation

Reading – 2: This writer demonstrates some comprehension of the passage. In the first paragraph, the writer conveys the passage’s broad central idea—that Bogard *emphasizes the importance of natural darkness*—and discusses Bogard’s comparison of his personal past to society’s present use of light. Here, the writer offers an interpretation of one of the author’s points: [Bogard implies] *that the times have definitely changed and natural darkness’s value has been lost in society, replaced with artificial light*. In the following paragraph, the writer continues by briefly citing Bogard’s point about the negative health implications of too much natural light. However, this is the last evidence of understanding the writer provides. The essay ends almost immediately after, and with this limited coverage of textual details, the writer demonstrates only partial understanding of the source text.

Analysis – 2: The response offers some, but limited, analysis, demonstrating only partial understanding of the analytical task. The writer identifies Bogard’s use of imagery in the story of meteors in the night sky and then asserts that this imagery appeals to the reader but offers no further discussion of Bogard’s use of imagery and how it contributes to his argument. The writer also references the comparison Bogard makes between his youth and now and says that the comparison *gives Bogard a sense of voice* but doesn’t explain why this comparison contributes to Bogard’s voice or how establishing a particular voice works for Bogard’s argument. The writer offers one additional point of analysis, asserting that Bogard’s reference to cancer is a *quick attention grabber* and claims that the use of a *fact relating to the reader is the best persuasion, especially when it relates to their health or well-being*. However, the writer does not elaborate on this point further or attempt to explain why bringing up health is an effective tactic. In each instance of analysis in this response, the writer identifies the use of evidence or rhetorical features but asserts rather than explains their importance.

Writing – 2: This response demonstrates limited cohesion and only some skill in the use of language. Although a controlling idea can be found in the topic sentences of the two paragraphs (*Bogard begins his argument by first providing a story; Bogard supports his claims...by providing the reader with evidence*), there is no indication of an introduction or conclusion to frame ideas or any other organizing structure to indicate consistent development. Overall, sentences are clear and there are no problematic issues with conventions of standard written English. However, by the end of this short response, the writer has deviated from a formal style and objective tone: *Oh, no! Not cancer! Right there is a quick attention grabber to any reader previously bored by Bogard’s constant opinions*. The essay concludes with a rhetorical question that also strays from a formal tone: *Cancer, because who wants a terminal illness over an action as simple as flipping a switch on a night light when it’s too dark for your comfort?* On the whole, therefore, this response shows only partial evidence of cohesion and control of language.

Score Band 1

TABLE 22. DIGITAL SAT ESSAY RUBRIC: SCORE BAND 1.

| Score | Reading | Analysis | Writing |
|-------|--|--|--|
| 1 | <p>Inadequate: The response demonstrates little or no comprehension of the source text.</p> <p>The response fails to show an understanding of the text’s central idea(s), and may include only details without reference to central idea(s).</p> <p>The response may contain numerous errors of fact and/or interpretation with regard to the text.</p> <p>The response makes little or no use of textual evidence (quotations, paraphrases, or both), demonstrating little or no understanding of the source text.</p> | <p>Inadequate: The response offers little or no analysis or ineffective analysis of the source text and demonstrates little or no understanding of the analytical task.</p> <p>The response identifies without explanation some aspects of the author’s use of evidence, reasoning, and/or stylistic and persuasive elements, and/or feature(s) of the student’s choosing,</p> <p>Or numerous aspects of the response’s analysis are unwarranted based on the text.</p> <p>The response contains little or no support for claim(s) or point(s) made, or support is largely irrelevant.</p> <p>The response may not focus on features of the text that are relevant to addressing the task,</p> <p>Or the response offers no discernible analysis (e.g., is largely or exclusively summary).</p> | <p>Inadequate: The response demonstrates little or no cohesion and inadequate skill in the use and control of language.</p> <p>The response may lack a clear central claim or controlling idea.</p> <p>The response lacks a recognizable introduction and conclusion.</p> <p>The response does not have a discernible progression of ideas.</p> <p>The response lacks variety in sentence structures; sentence structures may be repetitive.</p> <p>The response demonstrates general and vague word choice; word choice may be poor or inaccurate. The response may lack a formal style and objective tone.</p> <p>The response shows a weak control of the conventions of Standard Written English and may contain numerous errors that undermine the quality of writing.</p> |

Sample 6

This response scored a 3/1/3.

Paul Bogard is very persuasive throughout this published work. He explains and persuades that natural darkness should be preserved. In the beginning, he makes his argument by giving a statistic about children born in the United States and how their experiences with a true dark night are different from when he was a child himself. He says, “8 out of 10 children born in the United states will never know a sky dark enough for the Milky Way, I worry we are rapidly losing night’s natural darkness before realizing it’s worth.”

Next, he explains that as soon as night time hits, everyone automatically reaches for a light switch. He explains that the “World Health Organization classifies working the night shift as probable human carcinogen...” He says that humans need darkness to produce the hormone melatonin. Melatonin keeps certain cancers from developing. We also need darkness for sleep. Not having enough sleep leads to other health issues such as diabetes, obesity, and depression. He says that humans have too much artificial light that comes from things like cell phones when we go to bed.

He also tells us that not only do humans rely on natural darkness but so do nocturnal and crepuscular species of birds, insects, mammals, fish, and reptiles. So many different species rely on darkness to live like birds that migrate, sea turtles that lay their eggs, and bats that control pests for farmers crops. “Ecological light pollution is like a bulldozer of the night, wrecking habitat and disrupting ecosystems... without darkness, Earth’s ecology would collapse...”

He says that even though our world is on-going and at such a fast pace, we can still provide “solitude, quiet and stillness.” He questions how could we have such nice things such as Van Gogh’s “Starry Night” without natural darkness?

He talks about our nights are growing brighter and brighter. Back in the 1950’s compared to now, the United States was really dark and now it’s bright and lit up all the time. He says that only a small percentage of people on Earth today know what a true dark night is.

He offers a solution to this problem. He says we can go to what Europe has done to shrink artificial light use. And even what Paris has done: Use LED lights and streetlights and cut off big light/energy users after a certain time.

Paul Bogard has a lot of argumentative statements that prove we are more corrupt people by using more artificial light instead of natural darkness. He says it affects our ecosystems and can be related to diseases that are common in a lot of people.

Score Explanation

Reading – 3: The writer shows proficient comprehension of Bogard’s argument. The introduction presents the passage’s central idea (*He explains and persuades that natural darkness should be preserved*) and begins describing the important details used in its support: *a statistic about children born in the United States and how their experiences with a true dark night are different from when he was a child*. The writer continues to bring up Bogard’s main points, addressing the increase in artificial light that comes from things like cell phones when we go to bed and the health risks *such as diabetes, obesity, and depression* related to poor sleep; the fact that *So many different species rely on darkness to live that our “Ecological light pollution is like a bulldozer of the night”*; that *while in the 1950’s compared to now, the United States was really dark and now it’s bright and lit up all the time*; and that Bogard suggests *we can go to what Europe has done to shrink artificial light use by changing streetlights and reducing lighting hours*. This coverage of the source text’s key points, through competent paraphrase and quotations, demonstrates the writer’s effective understanding of the passage.

Analysis – 1: This response offers no analysis of Bogard’s argument. Rather than identifying elements from the source text that are persuasive and attempting to describe their importance, the writer merely summarizes the information that Bogard provides in the passage. This can be seen in the way the response recounts points from the source text (*He says that humans need darkness; He says that humans have too much artificial light; even though our world is on-going and at such a fast pace, we can still provide “solitude, quiet and stillness”; He talks about how our nights are growing brighter*) without discussing any aspect of what persuasive effect they might have. Because the response is exclusively summary and does not attempt to evaluate the persuasiveness of Bogard’s argument, it displays an inadequate understanding of the analytical task.

Writing – 3: This mostly cohesive response demonstrates proficient use and control of language. While the introduction does not offer a central claim and instead launches directly into discussion of Bogard’s points, the response does follow an implicit controlling idea as the writer addresses these points in the order in which they appear in the passage. This creates a clear progression of ideas as the writer moves from Bogard’s personal anecdote to the health effects of artificial light on humans and animals, to the loss of sights like Van Gogh’s “Starry Night” in a brightening world, and then to Bogard’s suggested solutions. The writer’s sentences are clear and free of significant errors, though a few use a slightly repetitive structure (*He says that humans need darkness; He says that humans have too much artificial light; He talks about our nights*). As a whole, the response displays the writer’s effective use of language.

Sample 7

This response scored a 2/1/2.

Paul Bogard builds a very persuasive argument to persuade his audience that natural darkness should be preserved. Bogard uses many features such as touch, feeling, seeing or even our own senses. Touching all of these features within Bogard's essay will make his argument stronger on whether natural darkness should be preserved.

One of the senses Bogard uses within his essay is touch. He concludes that many species depend on the darkness. I think that this is an important part to Bogard's essay because it is showing that not only humans depend on this. Darkness tends to evolve all over the world for a variety of things.

Another sense that Bogard uses is feeling. He compares the rhythm into which light and dark days exist. Many medical centers have concluded that our bodies need darkness to produce many different hormones and to continue with processes to keep us alive. Paul shows how many different characteristics affect how important darkness is to a human body.

In Bogard's essay he talks about many different religious traditions that value darkness. I think that this topic Bogard uses appeals to emotion to many different religious groups. Giving evidence of a historical artist Van Gogh adds a lot of emotion to this particular essay.

In Bogard's essay he provides information about technologies that are determining different light fixtures. Comparing how cities and towns across the world are changing their ways of light is going to be wasted.

I think that Bogard's essay is particularly strong. He uses a lot of evidence with emotion. Providing a variety of different examples on how darkness should be preserved gives a lot of power to the ideas that are expressed.

Score Explanation

Reading – 2: This response demonstrates some understanding of the source text. The writer captures Bogard’s central idea by repeating the prompt’s summary statement about the importance of preserving natural darkness and includes a few details from the source text that support this central idea. The writer references the fact that *many species depend on the darkness, that are bodies need darkness to produce many different hormones, that different religious tradition that vaule darkness*, and that Bogard compares how *cities and towns across the world are changing thier ways of light*. However, despite citing these details, whenever the writer moves beyond language taken directly from the passage and attempts to summarize a point Bogard has made, the interpretation is often unclear or inaccurate (*Darkness tends to evolve all over the world for a variety of things; In Bogard’s essay he provides information about technologies that are determining different light fixtures*). Overall, therefore, this essay demonstrates only limited comprehension of Bogard’s argument.

Analysis – 1: This writer has an ineffective understanding of the analytical task. The writer identifies Bogard’s use of *touch, feeling, seeing or even our own senses* as aspects that build Bogard’s argument. However, the writer is unable to express how Bogard uses these elements specifically. For example, in the first body paragraph, the writer claims that *One of the senses Bogard uses within his essay is touch*, but none of the ensuing discussion in this paragraph relates to touch at all. Instead, the writer merely goes on to summarize that Bogard *concludes that many species depend on the darkness*. In the ensuing paragraph, the writer tries to address Bogard’s use of *feeling*, but again, the discussion does not clearly explain how the examples cited from the source text relate to “feeling.” In the fourth paragraph, the writer is on the right track by identifying that Bogard uses emotion to build his argument, but the writer doesn’t extend beyond identification: *I think that this topic Bogard uses appeals to emotion to many different religious groups. Giving evidence of a historical artist Van Gogh adds a lot of emotion to this particular essay*. The writer merely identifies these as appeals to emotion but doesn’t try to explain the effect these examples have on readers’ emotions—how they might be used to influence readers or otherwise build Bogard’s argument. All this demonstrates little analysis of the source text.

Writing – 2: This response demonstrates limited cohesion and skill in the use and control of language. The writer has provided a skeletal organizational structure for the essay, with a brief introduction that sets up the writer’s central claim and a standard six-paragraph format that roughly follows the order of the points the writer intends to discuss: *Bogard uses many features such as touch, feeling, seeing or even our own senses*. However, the essay lacks a progression of ideas within paragraphs; instead, ideas are disconnected from one another, so although the essay has the appearance of being ordered into logical paragraphs, the actual content of those paragraphs does not demonstrate cohesion. In many instances, in fact, the writer has separated a single idea into separate sentence/fragment combinations that give the illusion of more robust paragraphs than actually exist (for example, the entirety of the fifth paragraph: *In Bogard’s essay he provides information about technologies that are determining different light fixtures. Comparing how cities and towns across the world are changing thier ways of light is going to be wasted*). In this essay, organization and language errors detract from the quality of the writing and often impede understanding, demonstrating limited writing skill.

Sample 8

This response scored a 2/1/1.

In “Let there Be dark,” Paul Bogard talks about the importance of darkness.

Darkness is essential to humans. Bogard states, “Our bodies need darkness to produce the hormone melatonin, which keeps certain cancers from developing, and our bodies need darkness for sleep, sleep. Sleep disorders have been linked to diabetes, obesity, cardiovascular disease and depression and recent research suggests are main cause of “short sleep” is “long light.” Whether we work at night or simply take our tablets, notebooks and smartphones to bed, there isn’t a place for this much artificial light in our lives.” (Bogard 2). Here, Bogard talks about the importance of darkness to humans. Humans need darkness to sleep in order to be healthy.

Animals also need darkness. Bogard states, “The rest of the world depends on darkness as well, including nocturnal and crepuscular species of birds, insects, mammals, fish and reptiles. Some examples are well known—the 400 species of birds that migrate at night in North America, the sea turtles that come ashore to lay their eggs—and some are not, such as the bats that save American farmers billions in pest control and the moths that pollinate 80% of the world’s flora. Ecological light pollution is like the bulldozer of the night, wrecking habitat and disrupting ecosystems several billion years in the making. Simply put, without darkness, Earth’s ecology would collapse...” (Bogard 2). Here Bogard explains that animals, too, need darkness to survive.

Score Explanation

Reading – 2: This response demonstrates some comprehension of Bogard’s text. Although this essay consists almost entirely of two quotations taken directly from the passage, the writer has demonstrated an understanding of two of Bogard’s central points: that darkness is crucial to humans and animals. This understanding is displayed by the writer’s selection of two important lines of the source text and the brief evidence the writer shows of being able to summarize the main idea of these quotations. However, the writer demonstrates no other understanding of the passage beyond the ability to quote these two main ideas, leading to a demonstration of only partial understanding of the source text.

Analysis – 1: The writer demonstrates no understanding of the analytical task. The writer does not attempt to analyze Bogard’s use of evidence, reasoning, or stylistic or persuasive elements. Instead, the writer cites two sentences from the passage and then offers a brief restatement of each point. With no analysis, the response scores a 1.

Writing – 1: This essay demonstrates little cohesion and inadequate skill in the use and control of language. The essay begins with a very broad central claim *In “Let there Be dark,” Paul Bogard talks about the importance of darkness* but otherwise lacks a recognizable introduction and conclusion. The writer’s two main ideas are separated into two separate paragraphs, but because there is little original writing here, there is no clear evidence of the ability to logically order or develop ideas. There is also little evidence of the writer’s ability to vary sentence structures. Overall, this essay does not provide enough evidence of writing ability to warrant a score higher than a 1.

Sample 9

This response scored a 1/1/1.

In this article, Paul Bogard talks about the dark. Paul gives many ideas about light and dark. It seems like Paul is a person who likes the dark. He is fascinated in the night skies. He gives many pros and cons about the dark. The dark isn't always dark there could be a little light in the dark to, as Paul says. Paul says that the night sky can be beautiful too. The more dark the less electric bill to pay and easier to deal with. Rise with the sun and rise like the moon. The night sky may be dark, but there always be a little to make it even better.

We can save energy by using the light of the day and the moon from the dark. Paul uses lots of pros and cons to explain his wonderful ideas.

Score Explanation

Reading – 1: This response demonstrates little comprehension of the source text. The writer fails to show an understanding of the passage's central idea. Though the writer recognizes that *Paul is a person who likes the dark and is fascinated in the night skies*, this is insufficient to show a grasp of the core of Bogard's argument that artificial light should be reduced and natural darkness preserved. This lack of understanding is further shown in the statement that Bogard *gives many pros and cons about the dark*, as the passage does not raise any detriments of darkness. Additional attempts to describe the purpose of Bogard's argument are equally unclear: *The dark isn't always dark there could be a little light in the dark; Rise with the sun and rise like the moon*. The few references to details from the passage (*Paul says that the night sky can be beautiful too. The more dark the less electric bill to pay and easier to deal with*) are isolated from context and do not refer to the broader purpose of Bogard's passage. This lack of understanding of the argument's central idea shows the writer's inadequate comprehension of the source text.

Analysis – 1: This response displays no understanding of the analytical task. The writer makes no attempt to identify any potential persuasive elements from Bogard's passage. The response instead is focused on attempts to relay textual details (*He is fascinated in the night skies; We can save energy by using the light of the day and the moon from the dark*). Since the response offers no discernible analysis, it shows inadequate skill in this dimension.

Writing – 1: This response exhibits ineffective language control and little cohesion. There is no recognizable introduction or conclusion, and the writer doesn't provide a central claim or other organizing idea. The response has virtually no progression, as ideas are presented with little apparent connection to earlier ones: *He gives many pros and cons about the dark. The dark isn't always dark there could be a little light; Paul says that the night sky can be beautiful too. The more dark the less electric bill to pay*. Sentences use short and repetitive structures and often contain errors (*The more dark the less electric bill to pay and easier to deal with*) or vague word choices that lack meaning (*Rise with the sun and rise like the moon*). This lack of structure and control of language demonstrates ineffective writing skill.

APPENDIX C:

Digital SAT Suite Detailed Skill and Knowledge Testing Points

Digital SAT Suite Detailed Skill and Knowledge Testing Points

The following tables present in detail the skill/knowledge testing points in the Reading and Writing and Math sections of the digital SAT Suite tests.

TABLE 23. DIGITAL SAT SUITE READING AND WRITING SECTION SKILL/KNOWLEDGE TESTING POINTS.

| Content Dimension | Description |
|------------------------------|--|
| Text Complexity | The passages (and pairs of passages) on the Reading and Writing section represent a range of text complexities from grades 6–8 through grades 12–14. (Grades 12–14 passages are excluded from appearing on PSAT 8/9.) |
| Information and Ideas | Students will use comprehension, analysis, and reasoning skills and knowledge as well as what is stated and implied in texts (including in any accompanying informational graphics) to locate, interpret, evaluate, and integrate information and ideas. |
| Central Ideas and Details | Students will determine the central idea of a text and/or interpret the key details supporting that idea. |
| Command of Evidence | Students will determine the evidence in a text that best supports a specified claim or point. |
| Textual | Students will determine the textual evidence (e.g., a fact, detail, or example from a text) that best supports a specified claim or point. |
| Quantitative | Students will determine the quantitative evidence (i.e., data from an informational graphic) that best supports a specified claim or point. |
| Inferences | Students will draw reasonable inferences based on explicit and/or implicit information and ideas in a text. |
| Craft and Structure | Students will use comprehension, vocabulary, analysis, synthesis, and reasoning skills and knowledge to use and determine the meaning of high-utility academic words and phrases in context, evaluate texts rhetorically, and make supportable connections between multiple topically related texts. |
| Words in Context | Students will determine the meaning of a high-utility academic word or phrase in context or use such vocabulary in a contextually appropriate way. |
| Text Structure and Purpose | Students will analyze the structure of a text or determine the main rhetorical purpose of a text. |
| Cross-Text Connections | Students will draw reasonable connections between two texts on related topics. |

| Content Dimension | Description |
|-------------------------------------|---|
| Expression of Ideas | Students will use revision skills and knowledge to improve the effectiveness of written expression in accordance with specified rhetorical goals. |
| Rhetorical Synthesis | Students will strategically integrate information and ideas on a topic to form an effective sentence achieving a specified rhetorical aim. |
| Transitions | Students will determine the most effective transition word or phrase to logically connect information and ideas in a text. |
| Standard English Conventions | Students will use editing skills and knowledge to make text conform to core conventions of Standard English sentence structure, usage, and punctuation. |
| Boundaries | Students will edit text to ensure that sentences are conventionally complete. |
| Form, Structure, and Sense | Students will edit text to conform to conventional usage (e.g., agreement, verb tense/aspect). |

TABLE 24. DIGITAL SAT SUITE MATH SECTION SKILL/KNOWLEDGE TESTING POINTS: ALGEBRA.

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|---|--|--|--|
| Linear equations in one variable | | | |
| Linear equations in one variable | Create and use linear equations in one variable to solve problems in a variety of contexts. | Create and use linear equations in one variable to solve problems in a variety of contexts. | Create and use linear equations in one variable to solve problems in a variety of contexts. |
| | Identify or create a linear equation in one variable that represents a context. | Identify or create a linear equation in one variable that represents a context. | Identify or create a linear equation in one variable that represents a context. |
| | For a linear equation in one variable, interpret a constant, variable, factor, term, or the solution in a context. | For a linear equation in one variable, interpret a constant, variable, factor, term, or the solution in a context. | For a linear equation in one variable, interpret a constant, variable, factor, term, or the solution in a context. |
| | Solve a linear equation in one variable, making strategic use of algebraic structure. | Solve a linear equation in one variable, making strategic use of algebraic structure. | Solve a linear equation in one variable, making strategic use of algebraic structure. |
| | For a linear equation in one variable, determine the conditions under which the equation has no solution, a unique solution, or infinitely many solutions. | For a linear equation in one variable, determine the conditions under which the equation has no solution, a unique solution, or infinitely many solutions. | For a linear equation in one variable, determine the conditions under which the equation has no solution, a unique solution, or infinitely many solutions. |
| Fluently solve a linear equation in one variable. | Fluently solve a linear equation in one variable. | Fluently solve a linear equation in one variable. | |

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|-------------------------|--|--|--|
| Linear functions | | | |
| Linear functions | <p>Algebraically, a linear function can be defined by a linear expression in one variable or by a linear equation in two variables. In the first case, the variable is the input and the value of the expression is the output. In the second case, one of the variables is designated as the input and determines a unique value of the other variable, which is the output.</p> <ul style="list-style-type: none"> ▪ Create and use linear functions to solve problems in a variety of contexts. ▪ Identify or create a linear function to model a relationship between two quantities. ▪ For a linear function that represents a context, interpret the meaning of an input/output pair, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. ▪ Interpret the graph of a linear function in a context. ▪ Make connections between a table, an algebraic representation, or a graph of a linear function not in context. ▪ Make connections between a table, an algebraic representation, or a graph of a linear function in context. ▪ For a linear function that represents a context, given an input value, find and interpret the output value using the given representation, or given an output value, find and interpret the input value using the given representation, if it exists. ▪ Write the rule for a linear function given two input/output pairs or one input/output pair and the rate of change. ▪ Evaluate a linear function given an input value, or find the input value for a corresponding output. | <p>Algebraically, a linear function can be defined by a linear expression in one variable or by a linear equation in two variables. In the first case, the variable is the input and the value of the expression is the output. In the second case, one of the variables is designated as the input and determines a unique value of the other variable, which is the output.</p> <ul style="list-style-type: none"> ▪ Create and use linear functions to solve problems in a variety of contexts. ▪ Identify or create a linear function to model a relationship between two quantities. ▪ For a linear function that represents a context, interpret the meaning of an input/output pair, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. ▪ Interpret the graph of a linear function in a context. ▪ Make connections between a table, an algebraic representation, or a graph of a linear function not in context. ▪ Make connections between a table, an algebraic representation, or a graph of a linear function in context. ▪ For a linear function that represents a context, given an input value, find and interpret the output value using the given representation, or given an output value, find and interpret the input value using the given representation, if it exists. ▪ Write the rule for a linear function given two input/output pairs or one input/output pair and the rate of change. ▪ Evaluate a linear function given an input value, or find the input value for a corresponding output. | <p>Algebraically, a linear function can be defined by a linear expression in one variable or by a linear equation in two variables. In the first case, the variable is the input and the value of the expression is the output. In the second case, one of the variables is designated as the input and determines a unique value of the other variable, which is the output.</p> <ul style="list-style-type: none"> ▪ Create and use linear functions to solve problems in a variety of contexts. ▪ Identify or create a linear function to model a relationship between two quantities. ▪ For a linear function that represents a context, interpret the meaning of an input/output pair, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. ▪ Interpret the graph of a linear function in a context. ▪ Make connections between a table, an algebraic representation, or a graph of a linear function not in context. ▪ Make connections between a table, an algebraic representation, or a graph of a linear function in context. ▪ For a linear function that represents a context, given an input value, find and interpret the output value using the given representation, or given an output value, find and interpret the input value using the given representation, if it exists. ▪ Write the rule for a linear function given two input/output pairs or one input/output pair and the rate of change. ▪ Evaluate a linear function given an input value, or find the input value for a corresponding output. |

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|--|---|---|---|
| Linear equations in two variables | | | |
| Linear equations in two variables | <p>A linear equation in two variables can be used to represent a constraint or condition on two variable quantities in situations where neither of the variables is regarded as an input or an output. A linear equation can also be used to represent a straight line in the coordinate plane.</p> <ul style="list-style-type: none"> ▪ Create and use a linear equation in two variables to solve problems in a variety of contexts. ▪ Identify or create a linear equation in two variables to model a constraint or condition on two quantities. ▪ For a linear equation in two variables that represents a context, interpret a solution, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. ▪ Interpret the graph of a linear equation in the form $Ax + By = C$ in a context. ▪ Make connections between: <ul style="list-style-type: none"> ▪ an algebraic representation and a graph of a linear equation in two variables not in context. ▪ a table and an algebraic representation or between a table and a graph of a linear equation in two variables not in context. ▪ Make connections between a table, an algebraic representation, or a graph of a linear equation in two variables in a context. ▪ For a linear equation in two variables that represents a context, given a value of one quantity in the relationship, find a value of the other, if it exists. ▪ Write an equation for a line given two points on the line, one point and the slope of the line, or one point and a parallel or perpendicular line. | <p>A linear equation in two variables can be used to represent a constraint or condition on two variable quantities in situations where neither of the variables is regarded as an input or an output. A linear equation can also be used to represent a straight line in the coordinate plane.</p> <ul style="list-style-type: none"> ▪ Create and use a linear equation in two variables to solve problems in a variety of contexts. ▪ Identify or create a linear equation in two variables to model a constraint or condition on two quantities. ▪ For a linear equation in two variables that represents a context, interpret a solution, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. ▪ Interpret the graph of a linear equation in the form $Ax + By = C$ in a context. ▪ Make connections between: <ul style="list-style-type: none"> ▪ an algebraic representation and a graph of a linear equation in two variables not in context. ▪ a table and an algebraic representation or between a table and a graph of a linear equation in two variables not in context. ▪ Make connections between a table, an algebraic representation, or a graph of a linear equation in two variables in a context. ▪ For a linear equation in two variables that represents a context, given a value of one quantity in the relationship, find a value of the other, if it exists. ▪ Write an equation for a line given two points on the line, one point and the slope of the line, or one point and a parallel or perpendicular line. | <p>A linear equation in two variables can be used to represent a constraint or condition on two variable quantities in situations where neither of the variables is regarded as an input or an output. A linear equation can also be used to represent a straight line in the coordinate plane.</p> <ul style="list-style-type: none"> ▪ Create and use a linear equation in two variables to solve problems in a variety of contexts. ▪ Identify or create a linear equation in two variables to model a constraint or condition on two quantities. ▪ For a linear equation in two variables that represents a context, interpret a solution, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. ▪ Interpret the graph of a linear equation in the form $Ax + By = C$ in a context. ▪ Make connections between: <ul style="list-style-type: none"> ▪ an algebraic representation and a graph of a linear equation in two variables not in context. ▪ a table and an algebraic representation or between a table and a graph of a linear equation in two variables not in context. ▪ Make connections between a table, an algebraic representation, or a graph of a linear equation in two variables in a context. ▪ For a linear equation in two variables that represents a context, given a value of one quantity in the relationship, find a value of the other, if it exists. ▪ Write an equation for a line given two points on the line, one point and the slope of the line, or one point and a parallel or perpendicular line. |

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|---|--|--|---|
| Systems of two linear equations in two variables | | | |
| Systems of two linear equations in two variables | Create and use a system of two linear equations in two variables to solve problems in a variety of contexts. | Create and use a system of two linear equations in two variables to solve problems in a variety of contexts. | Create and use a system of two linear equations in two variables to solve problems in a variety of contexts. |
| | Identify or create a system of linear equations in two variables to model constraints or conditions on two quantities. | Identify or create a system of linear equations in two variables to model constraints or conditions on two quantities. | Identify or create a system of linear equations in two variables to model constraints or conditions on two quantities. |
| | Solve a system of two linear equations in two variables, making strategic use of algebraic structure. | Solve a system of two linear equations in two variables, making strategic use of algebraic structure. | Solve a system of two linear equations in two variables, making strategic use of algebraic structure. |
| | For a system of linear equations in two variables, determine the conditions under which the system has no solution, a unique solution, or infinitely many solutions. | For a system of linear equations in two variables, determine the conditions under which the system has no solution, a unique solution, or infinitely many solutions. | |
| | Make connections between an algebraic representation and a graph of a system of linear equations in two variables not in context. | Make connections between an algebraic representation and a graph of a system of linear equations in two variables not in context. | Make connections between an algebraic representation and a graph of a system of linear equations in two variables not in context. |
| | Make connections between an algebraic representation and a graph of a system of linear equations in two variables in a context. | Make connections between an algebraic representation and a graph of a system of linear equations in two variables in a context. | Make connections between an algebraic representation and a graph of a system of linear equations in two variables in a context. |
| | Fluently solve a system of linear equations in two variables. | Fluently solve a system of linear equations in two variables. | Fluently solve a system of linear equations in two variables. |

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|--|--|--|---|
| Linear inequalities in one or two variables | | | |
| Linear inequalities in one or two variables | <p>Create and use linear inequalities in one or two variables to solve problems in a variety of contexts.</p> <p>Identify or create linear inequalities in one or two variables to model constraints or conditions on two quantities.</p> <p>For linear inequalities in one or two variables, interpret a constant, variable, factor, term, or solution, including situations where seeing structure provides an advantage.</p> <p>Given a linear inequality or system of linear inequalities, interpret a point in the xy-plane in terms of the solution set.</p> <p>Make connections between tabular, algebraic, and graphical representations of linear inequalities in one or two variables by deriving one from the other.</p> | <p>Create and use linear inequalities in one or two variables to solve problems in a variety of contexts.</p> <p>Identify or create linear inequalities in one or two variables to model constraints or conditions on two quantities.</p> <p>For linear inequalities in one or two variables, interpret a constant, variable, factor, term, or solution, including situations where seeing structure provides an advantage.</p> <p>Given a linear inequality or system of linear inequalities, interpret a point in the xy-plane in terms of the solution set.</p> <p>Make connections between tabular, algebraic, and graphical representations of linear inequalities in one or two variables by deriving one from the other.</p> | <p>Create and use linear inequalities in one or two variables to solve problems in a variety of contexts.</p> <p>Identify or create linear inequalities in one or two variables to model constraints or conditions on two quantities.</p> <p>For linear inequalities in one or two variables, interpret a constant, variable, factor, term, or solution, including situations where seeing structure provides an advantage.</p> <p>Given a linear inequality or system of linear inequalities, interpret a point in the xy-plane in terms of the solution set.</p> |

TABLE 25. DIGITAL SAT SUITE MATH SECTION SKILL/KNOWLEDGE TESTING POINTS: ADVANCED MATH.

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|-------------------------------|---|---|---|
| Equivalent expressions | | | |
| Equivalent expressions | <p>Make strategic use of algebraic structure and the properties of operations to identify and create equivalent expressions:</p> <ul style="list-style-type: none"> by factoring polynomials limited to finding a common factor, rewriting binomials that represent a difference of two squares, and rewriting trinomials as the product of two binomials. including rewriting simple rational expressions, rewriting expressions with rational exponents in radical form, and factoring polynomials not included in the preceding bullet. <p>Fluently add, subtract, and multiply polynomials.</p> | <p>Make strategic use of algebraic structure and the properties of operations to identify and create equivalent expressions by factoring polynomials limited to finding a common factor, rewriting binomials that represent a difference of two squares, and rewriting trinomials as the product of two binomials.</p> <p>Fluently add, subtract, and multiply polynomials.</p> | <p>Make strategic use of algebraic structure and the properties of operations to identify and create equivalent expressions by factoring polynomials limited to finding a common factor, rewriting binomials that represent a difference of two squares, and rewriting trinomials as the product of two binomials.</p> <p>Fluently add, subtract, and multiply polynomials.</p> |

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|--|---|--|--|
| Nonlinear equations in one variable and systems of equations in two variables | | | |
| Nonlinear equations in one variable and systems of equations in two variables | <p>Make strategic use of algebraic structure, the properties of operations, and/or reasoning about equality to solve:</p> <ul style="list-style-type: none"> quadratic equations in one variable presented in a wide variety of forms. linear absolute value equations in one variable or simple rational and radical equations in one variable. polynomial equations in one variable that are written in factored form. | <p>Make strategic use of algebraic structure, the properties of operations, and/or reasoning about equality to solve:</p> <ul style="list-style-type: none"> quadratic equations in one variable presented in a wide variety of forms. linear absolute value equations in one variable or simple rational and radical equations in one variable. | <p>Make strategic use of algebraic structure, the properties of operations, and/or reasoning about equality to solve quadratic equations in one variable presented in a wide variety of forms.</p> |
| | <p>Make strategic use of algebraic structure, the properties of operations, and reasoning about equality to solve systems of linear and nonlinear equations in two variables.</p> <p>Determine the conditions under which a quadratic equation has no real solutions, one real solution, or two real solutions.</p> | <p>Make strategic use of algebraic structure, the properties of operations, and reasoning about equality to solve systems of linear and nonlinear equations in two variables.</p> <p>Determine the conditions under which a quadratic equation has no real solutions, one real solution, or two real solutions.</p> | <p>Make strategic use of algebraic structure, the properties of operations, and reasoning about equality to solve systems of linear and nonlinear equations in two variables.</p> |
| | <p>Relate the solutions of a system of a linear and a nonlinear equation in two variables to the graphs of the equations in the system.</p> | <p>Relate the solutions of a system of a linear and a nonlinear equation in two variables to the graphs of the equations in the system.</p> | <p>Relate the solutions of a system of a linear and a nonlinear equation in two variables to the graphs of the equations in the system.</p> |
| | <p>Given an equation or formula in two or more variables, view it as an equation in a single variable of interest where the other variables are parameters, and solve for the variable of interest.</p> | <p>Given an equation or formula in two or more variables, view it as an equation in a single variable of interest where the other variables are parameters, and solve for the variable of interest.</p> | <p>Given an equation or formula in two or more variables, view it as an equation in a single variable of interest where the other variables are parameters, and solve for the variable of interest.</p> |
| | <p>Fluently solve quadratic equations in one variable, written as a quadratic expression in standard form, where using the quadratic formula or completing the square is the most efficient method for solving the equation.</p> | <p>Fluently solve quadratic equations in one variable, written as a quadratic expression in standard form, where using the quadratic formula or completing the square is the most efficient method for solving the equation.</p> | <p>Fluently solve quadratic equations in one variable, written as a quadratic expression in standard form, where using the quadratic formula or completing the square is the most efficient method for solving the equation.</p> |

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|----------------------------|---|---|--|
| Nonlinear functions | | | |
| Nonlinear functions | <p>Create and use quadratic or exponential functions to solve problems in a variety of contexts.</p> <p>Identify or create an appropriate quadratic or exponential function to model a relationship between quantities.</p> <p>For a quadratic or exponential function that represents a context:</p> <ul style="list-style-type: none"> interpret the meaning of an input/output pair including an intercept or initial value, including situations where seeing structure provides an advantage. interpret the meaning of a constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. <p>For a quadratic or exponential function in a context:</p> <ul style="list-style-type: none"> interpret a point on the graph. interpret parts of the graph (other than a point or intercept). <p>Make connections between a table, an algebraic representation, or a graph of a:</p> <ul style="list-style-type: none"> quadratic or exponential function that does not involve a transformation, not in context. polynomial function, simple rational function, or quadratic or exponential function that involves a transformation, not in context. <p>Make connections between a table, an algebraic representation, or a graph of a:</p> <ul style="list-style-type: none"> quadratic or exponential function that does not involve a transformation, in a context. polynomial function, simple rational function, or other nonlinear function in a context, or a quadratic or exponential function that involves a transformation in a context. | <p>Create and use quadratic or exponential functions to solve problems in a variety of contexts.</p> <p>Identify or create an appropriate quadratic or exponential function to model a relationship between quantities.</p> <p>For a quadratic or exponential function that represents a context:</p> <ul style="list-style-type: none"> interpret the meaning of an input/output pair including an intercept or initial value, including situations where seeing structure provides an advantage. interpret the meaning of a constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. <p>For a quadratic or exponential function in a context:</p> <ul style="list-style-type: none"> interpret a point on the graph. interpret parts of the graph (other than a point or intercept). <p>Make connections between a table, an algebraic representation, or a graph of a:</p> <ul style="list-style-type: none"> quadratic or exponential function that does not involve a transformation, not in context. polynomial function, simple rational function, or quadratic or exponential function that involves a transformation, not in context. <p>Make connections between a table, an algebraic representation, or a graph of a:</p> <ul style="list-style-type: none"> quadratic or exponential function that does not involve a transformation, in a context. polynomial function, simple rational function, or other nonlinear function in a context, or a quadratic or exponential function that involves a transformation in a context. | <p>For a quadratic or exponential function that represents a context, interpret the meaning of an input/output pair including an intercept or initial value, including situations where seeing structure provides an advantage.</p> <p>For a quadratic or exponential function in a context, interpret a point on the graph.</p> <p>Make connections between a table, an algebraic representation, or a graph of a quadratic or exponential function that does not involve a transformation, not in context.</p> <p>Make connections between a table, an algebraic representation, or a graph of a quadratic or exponential function that does not involve a transformation, in a context.</p> |

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|------------------------------------|---|---|--|
| Nonlinear functions (cont.) | | | |
| | <p>Determine the most suitable form of the expression representing the output of the function to display key features for:</p> <ul style="list-style-type: none"> ▪ a quadratic function. ▪ an exponential function. <p>Understand and use the fact that for the graph of $y = f(x)$, the solutions to $f(x) = 0$ correspond to x-intercepts of the graph and $f(0)$ corresponds to the y-intercept of the graph; make connections between the input/output pairs and points on a graph; interpret this information in a context.</p> <p>Use function notation to represent and interpret input/output pairs:</p> <ul style="list-style-type: none"> ▪ evaluate a nonlinear function given an input value; or, for a quadratic function, find the input value for a corresponding output. ▪ for exponential, polynomial, radical, and rational functions, find the input value for a corresponding output. | <p>Determine the most suitable form of the expression representing the output of the function to display key features for:</p> <ul style="list-style-type: none"> ▪ a quadratic function. ▪ an exponential function. <p>Use function notation to represent and interpret input/output pairs:</p> <ul style="list-style-type: none"> ▪ evaluate a nonlinear function given an input value; or, for a quadratic function, find the input value for a corresponding output. ▪ for exponential, polynomial, radical, and rational functions, find the input value for a corresponding output. | <p>Use function notation to represent and interpret input/output pairs. Evaluate a nonlinear function given an input value; or, for a quadratic function, find the input value for a corresponding output.</p> |

TABLE 26. DIGITAL SAT SUITE MATH SECTION SKILL/KNOWLEDGE TESTING POINTS: PROBLEM-SOLVING AND DATA ANALYSIS.

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|---|--|--|--|
| Ratios, rates, proportional relationships, and units | | | |
| Ratios, rates, proportional relationships, and units | <p>Questions will require students to solve problems by using a proportional relationship between quantities, calculating or using a ratio or rate, and/or using units, derived units, and unit conversion.</p> <ul style="list-style-type: none"> Apply proportional relationships, ratios, and rates in a wide variety of contexts. Examples include, but are not limited to, scale drawings and problems in the natural and social sciences. Solve problems involving derived units, including those that arise from products (e.g., kilowatt-hours) and quotients (e.g., population per square kilometer). Solve problems involving: <ul style="list-style-type: none"> a one-step unit conversion. a multistep or multidimensional unit conversion. Understand and use the fact that when two quantities are in a proportional relationship, if one changes by a scale factor, then the other also changes by the same scale factor. | <p>Questions will require students to solve problems by using a proportional relationship between quantities, calculating or using a ratio or rate, and/or using units, derived units, and unit conversion.</p> <ul style="list-style-type: none"> Apply proportional relationships, ratios, and rates in a wide variety of contexts. Examples include, but are not limited to, scale drawings and problems in the natural and social sciences. Solve problems involving derived units, including those that arise from products (e.g., kilowatt-hours) and quotients (e.g., population per square kilometer). Solve problems involving: <ul style="list-style-type: none"> a one-step unit conversion. a multistep or multidimensional unit conversion. Understand and use the fact that when two quantities are in a proportional relationship, if one changes by a scale factor, then the other also changes by the same scale factor. | <p>Questions will require students to solve problems by using a proportional relationship between quantities, calculating or using a ratio or rate, and/or using units, derived units, and unit conversion.</p> <ul style="list-style-type: none"> Apply proportional relationships, ratios, and rates in a wide variety of contexts. Examples include, but are not limited to, scale drawings and problems in the natural and social sciences. Solve problems involving derived units, including those that arise from products (e.g., kilowatt-hours) and quotients (e.g., population per square kilometer). Solve problems involving: <ul style="list-style-type: none"> a one-step unit conversion. a multistep or multidimensional unit conversion. Understand and use the fact that when two quantities are in a proportional relationship, if one changes by a scale factor, then the other also changes by the same scale factor. |
| Percentages | | | |
| Percentages | <p>Use percentages to solve problems in a variety of contexts:</p> <ul style="list-style-type: none"> including, but not limited to, discounts, interest, taxes, and tips. including those that involve percent increases and decreases for many different quantities. <p>Understand and use the relationship between percent change and growth factor (5% and 1.05, for example); include percentages greater than or equal to 100%.</p> | <p>Use percentages to solve problems in a variety of contexts:</p> <ul style="list-style-type: none"> including, but not limited to, discounts, interest, taxes, and tips. including those that involve percent increases and decreases for many different quantities. <p>Understand and use the relationship between percent change and growth factor (5% and 1.05, for example); include percentages greater than or equal to 100%.</p> | <p>Use percentages to solve problems in a variety of contexts:</p> <ul style="list-style-type: none"> including, but not limited to, discounts, interest, taxes, and tips. including those that involve percent increases and decreases for many different quantities. <p>Understand and use the relationship between percent change and growth factor (5% and 1.05, for example); include percentages greater than or equal to 100%.</p> |

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|---|--|---|---|
| One-variable data: Distributions and measures of center and spread | | | |
| One-variable data: Distributions and measures of center and spread | <p>Analyze and interpret numerical data distributions represented with frequency tables, histograms, dot plots, and box plots.</p> <p>For quantitative variables, calculate, compare, and interpret mean, median, and range.</p> <p>Compare distributions using measures of center and spread, including</p> <ul style="list-style-type: none"> distributions with different means and the same standard deviations. distributions with different standard deviations. <p>Understand and describe the effect of outliers on mean and median.</p> | <p>Analyze and interpret numerical data distributions represented with frequency tables, histograms, dot plots, and box plots.</p> <p>For quantitative variables, calculate, compare, and interpret mean, median, and range.</p> <p>Compare distributions using measures of center and spread, including:</p> <ul style="list-style-type: none"> distributions with different means and the same standard deviations. distributions with different standard deviations. <p>Understand and describe the effect of outliers on mean and median.</p> | <p>Analyze and interpret numerical data distributions represented with frequency tables, histograms, dot plots, and box plots.</p> <p>For quantitative variables, calculate, compare, and interpret mean, median, and range.</p> <p>Compare distributions using measures of center and spread, including distributions with different means and the same standard deviations.</p> <p>Understand and describe the effect of outliers on mean and median.</p> |
| Two-variable data: Models and scatterplots | | | |
| Two-variable data: Models and scatterplots | <p>Analyze and interpret data represented in a scatterplot, but do not make predictions.</p> <p>Analyze and interpret data represented in a scatterplot to make predictions.</p> <p>Fit linear models to data represented in a scatterplot.</p> <p>Fit quadratic and exponential models to data represented in a scatterplot.</p> <p>Given a relationship between two quantities, read and interpret graphs modeling the relationship.</p> <p>Compare linear and exponential growth.</p> | <p>Analyze and interpret data represented in a scatterplot, but do not make predictions.</p> <p>Analyze and interpret data represented in a scatterplot to make predictions.</p> <p>Fit linear models to data represented in a scatterplot.</p> <p>Fit quadratic and exponential models to data represented in a scatterplot.</p> <p>Given a relationship between two quantities, read and interpret graphs modeling the relationship.</p> <p>Compare linear and exponential growth.</p> | <p>Analyze and interpret data represented in a scatterplot, but do not make predictions.</p> <p>Fit linear models to data represented in a scatterplot.</p> <p>Given a relationship between two quantities, read and interpret graphs modeling the relationship.</p> |

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|---|---|---|---|
| Probability and conditional probability | | | |
| Probability and conditional probability | <p>Use one- and two-way tables, area models, and other representations to find relative frequency, probabilities, and conditional probabilities.</p> <ul style="list-style-type: none"> Calculate, express, or interpret the probability or conditional probability of an event using a data display showing frequencies for a single variable, a two-way table, an area model, or a description of a situation. Infrequently, given a probability, determine an unknown number in a data display showing frequencies for a single variable, a two-way table, or a description of a situation, including using a probability to determine the frequency of an event. | <p>Use one- and two-way tables, area models, and other representations to find relative frequency, probabilities, and conditional probabilities.</p> <ul style="list-style-type: none"> Calculate, express, or interpret the probability or conditional probability of an event using a data display showing frequencies for a single variable, a two-way table, an area model, or a description of a situation. Infrequently, given a probability, determine an unknown number in a data display showing frequencies for a single variable, a two-way table, or a description of a situation, including using a probability to determine the frequency of an event. | <p>Use one- and two-way tables, area models, and other representations to find relative frequency, probabilities, and conditional probabilities.</p> <ul style="list-style-type: none"> Calculate, express, or interpret the probability or conditional probability of an event using a data display showing frequencies for a single variable, a two-way table, an area model, or a description of a situation. Infrequently, given a probability, determine an unknown number in a data display showing frequencies for a single variable, a two-way table, or a description of a situation, including using a probability to determine the frequency of an event. |
| Inference from sample statistics and margin of error | | | |
| Inference from sample statistics and margin of error | <p>Use sample mean and sample proportion to estimate population mean and population proportion.</p> <p>Interpret margin of error. Understand that a larger sample size generally leads to a smaller margin of error.</p> | <p>Use sample mean and sample proportion to estimate population mean and population proportion.</p> | |
| Evaluating statistical claims: Observational studies and experiments | | | |
| Evaluating statistical claims: Observational studies and experiments | <p>With random samples, identify or describe which population the results can be extended to. Given a description of a study with or without random assignment, determine whether there is evidence for a causal relationship.</p> <p>Understand why random assignment provides evidence for a causal relationship in an experimental study.</p> <p>Understand issues related to sampling methods and why a result can be extended only to the population from which the sample was selected.</p> | | |

TABLE 27. DIGITAL SAT SUITE MATH SECTION SKILL/KNOWLEDGE TESTING POINTS: GEOMETRY AND TRIGONOMETRY (SAT, PSAT/NMSQT, PSAT 10) / GEOMETRY (PSAT 8/9).

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|------------------------|---|---|---|
| Area and volume | | | |
| Area and volume | <p>Solve real-world and mathematical problems about the:</p> <ul style="list-style-type: none"> ▪ area or perimeter of a geometric figure or an object that can be modeled by a geometric figure using given information. ▪ surface area or volume of a geometric figure or an object that can be modeled by a geometric figure using given information such as length, area, surface area, or volume. <p>Apply knowledge that changing by a scale factor of k changes all lengths by a factor of k, changes all areas by a factor of k^2, and changes all volumes by a factor of k^3.</p> <p>Demonstrate procedural fluency by selecting the correct:</p> <ul style="list-style-type: none"> ▪ area formula and correctly calculating a specified value. ▪ surface area or volume formula and correctly calculating a specified value. | <p>Solve real-world and mathematical problems about the:</p> <ul style="list-style-type: none"> ▪ area or perimeter of a geometric figure or an object that can be modeled by a geometric figure using given information. ▪ surface area or volume of a geometric figure or an object that can be modeled by a geometric figure using given information such as length, area, surface area, or volume. <p>Apply knowledge that changing by a scale factor of k changes all lengths by a factor of k, changes all areas by a factor of k^2, and changes all volumes by a factor of k^3.</p> <p>Demonstrate procedural fluency by selecting the correct:</p> <ul style="list-style-type: none"> ▪ area formula and correctly calculating a specified value. ▪ surface area or volume formula and correctly calculating a specified value. | <p>Solve real-world and mathematical problems about the:</p> <ul style="list-style-type: none"> ▪ area or perimeter of a geometric figure or an object that can be modeled by a geometric figure using given information. ▪ surface area or volume of a geometric figure or an object that can be modeled by a geometric figure using given information such as length, area, surface area, or volume. <p>Apply knowledge that changing by a scale factor of k changes all lengths by a factor of k, changes all areas by a factor of k^2, and changes all volumes by a factor of k^3.</p> <p>Demonstrate procedural fluency by selecting the correct:</p> <ul style="list-style-type: none"> ▪ area formula and correctly calculating a specified value. ▪ surface area or volume formula and correctly calculating a specified value. |

| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|---|---|---|---|
| Lines, angles, and triangles | | | |
| Lines, angles, and triangles | <p>Use concepts and theorems relating to congruence and similarity of triangles to solve problems.</p> <p>Determine which statements may be required to prove certain relationships or to satisfy a given theorem.</p> <p>Apply knowledge that changing by a scale factor of k changes all lengths by a factor of k, but angle measures remain unchanged.</p> <p>Know and directly apply relevant theorems such as the:</p> <ul style="list-style-type: none"> ▪ triangle angle sum theorem. ▪ vertical angle theorem and the relationship of angles formed when a transversal cuts parallel lines. | <p>Use concepts and theorems relating to congruence and similarity of triangles to solve problems.</p> <p>Determine which statements may be required to prove certain relationships or to satisfy a given theorem.</p> <p>Apply knowledge that changing by a scale factor of k changes all lengths by a factor of k, but angle measures remain unchanged.</p> <p>Know and directly apply relevant theorems such as the:</p> <ul style="list-style-type: none"> ▪ triangle angle sum theorem. ▪ vertical angle theorem and the relationship of angles formed when a transversal cuts parallel lines. | <p>Know and directly apply the triangle angle sum theorem.</p> |
| Right triangles and trigonometry | | | |
| Right triangles and trigonometry | <p>Solve problems in a variety of contexts using:</p> <ul style="list-style-type: none"> ▪ the Pythagorean theorem. ▪ properties of special right triangles. ▪ right triangle trigonometry. <p>Use similarity to calculate values of sine, cosine, and tangent.</p> <p>Solve problems using the relationship between sine and cosine of complementary angles.</p> | <p>Solve problems in a variety of contexts using:</p> <ul style="list-style-type: none"> ▪ the Pythagorean theorem. ▪ properties of special right triangles. ▪ right triangle trigonometry. | <p>Solve problems in a variety of contexts using the Pythagorean theorem.</p> |



| Content Dimension | SAT Description | PSAT/NMSQT and PSAT 10 Description | PSAT 8/9 Description |
|-------------------|---|------------------------------------|----------------------|
| Circles | | | |
| Circles | <p>Use definitions, properties, and theorems relating to circles and parts of circles such as radii, diameters, tangents, angles, arc lengths, and sector areas to solve problems.</p> <p>Solve problems using either radian measure or trigonometric ratios in the unit circle.</p> <p>Create an equation to represent a circle in the xy-plane.</p> <p>Describe how a change to the equation representing a circle affects the graph of the circle in the xy-plane or how a change to the graph of a circle affects the equation that represents the circle.</p> <p>Understand that the ordered pairs that satisfy an equation of the form $(x-h)^2 + (y-k)^2 = r^2$ form a circle when plotted in the xy-plane.</p> <p>Convert between angle measures in degrees and radians.</p> <p>Complete the square in an equation representing a circle to determine properties of the circle when it is graphed in the xy-plane and use the distance formula in problems related to circles.</p> | | |