

**Official SAT Practice**

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# Lesson Plans

for Teachers by Teachers

## LESSON 15

## Writing and Language— Quantitative Texts

**Subscore:** Expression of Ideas, Command of Evidence

**Note:** It would be helpful if students had completed Lesson 11 about reading quantitative texts, though this lesson can be completed independently.

**Focus:** Revising texts that include informational graphics

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**Objectives:**

Students will explain how an accompanying chart or data set helps or hinders a writer's argument, or how graphic information might be included if it's not already there.

**Before the Lesson:**

- Review Lesson 11 on analyzing quantitative texts on the Reading Test.
- Preview the video from Official SAT® Practice.
- Preview and print (if necessary) the student materials.

## Introductory Activity | 15 minutes

- Let students know that quantitative texts—graphs, charts, data sets, etc.—are also a part of the SAT Writing and Language Test. From the Official Study Guide:
  - “Passages (and occasionally questions) on the Writing and Language Test may include one or more tables, graphs, or charts that relate to the topic of the passage. A graphic may, for example, provide additional statistical support for a point made in the passage. Questions may ask you, for example, to use information from the graphic(s) to correct a factual error in the passage or to replace the passage’s vague description with a more precise one using specific quantities.”
  - If you feel your students would benefit, here is a tutorial from Khan Academy® that works through how the visual texts work within a passage and some strategies for approaching it, starting at about the 0:13:00 mark: <https://www.khanacademy.org/test-prep/sat/sat-reading-writing-practice/new-sat-writing-passages/v/sat-writing-informational-passage>.
- Ask students to read the first text in the student materials for this lesson, and ask students to discuss the following:
  - What is the topic sentence or main idea of the paragraph?
  - What supporting evidence is included? Is there additional information that you would have included?
  - Is there anything in this paragraph that is not relevant?
- Then, ask students to look closely at the graph that follows and discuss the following:
  - What is the title of the graph? What information is it communicating?
  - What are the  $x$  and  $y$  axes? What is being compared?
  - What are some conclusions that can be drawn only from this graph?
- Now it’s time to examine Question 11 that follows to demonstrate the ways in which the SAT Writing and Language Test asks about visual texts. Be sure to point out that students will need to interpret the graph first and then apply that understanding to the context of the sentence.
- Discuss the rationale for the correct response and what these types of questions about quantitative texts will be asking for.

### Rationale for #11:

**Explanation:** Choice C is the best answer because it completes the sentence with an accurate interpretation of data in the graph. The graph displays projections of how much growth in employment there is expected to be between 2010 and 2020 for “social scientists and related workers,” for “urban and regional planners,” and in “all occupations” in the U.S. economy. According to the graph, the employment of urban and regional planners is expected to increase 16 percent between 2010 and 2020.

Choice A is not the best answer because the data in the graph do not support the claim that 16 percent of new jobs in all occupations will be related to urban and regional planning.

Choice B is not the best answer because the data in the graph do not support the claim that job growth in urban and regional planning will slow to 14 percent by 2020.

Choice D is not the best answer because the data in the graph do not support the claim that 14 to 18 percent of urban and regional planning positions will remain unfilled.

## Pair/Group Practice | 15 minutes

1. Ask students to look carefully at the graph about managed honey bee loss. They should discuss the conclusions that can be drawn from the graph. What are conclusions that **cannot** be drawn from the graph? Why? What additional information might students need in order to draw other conclusions?
2. Next, ask students to read the beginning of the article about bees, annotating for the main ideas and supporting evidence as they go. Before they look at the sample SAT questions, ask students to discuss the ways in which the print and visual texts intersect.
3. Then, students should examine and discuss Questions 15 and 16 that ask about the graph and the print text. Share and discuss the rationales as needed, paying close attention to how the interpretations of the data must correspond to the information presented in the print text.

### Rationale for #15:

Choice B is the best answer because it accurately represents the information in the chart. Choice A is incorrect because in the 2011–2012 winter season, bee mortality rates fell below 25% of the bee colony. Choice C is incorrect because, according to the chart, bee mortality rates have varied noticeably year to year. Choice D is incorrect for a similar reason. The chart shows that, year to year, bee mortality rates have both increased and decreased.

### Rationale for #16:

Choice D is the best answer because it accurately represents the comparison in bee population loss between the 2010–2012 and 2012–2013 periods. Compared to the 2011–2012 winter season, bee loss was almost 10 percentage points higher the following year. Choice A is incorrect because it states that compared to the preceding years, bee losses fell in 2012–2013 when, according to the data, the opposite was true. Choice B is incorrect because the bee loss in 2012–2013 did not double from 2011–2012. Given that bee loss in 2011–2012 hovered around 22%, double would be around 44%, while the chart says bee loss in 2012–2013 was just over 30%. Choice C is incorrect because it makes a false statement: the number of losses had not “fallen within the acceptable range the previous year.”

**Independent Practice | 15 minutes**

1. Ask students to read the excerpts from the article about bird migration and carefully study the accompanying graphic.
2. Then, students should answer Questions 20 and 21 that ask students to connect the visual texts with the print texts.
3. Share and discuss the rationales afterward, as needed.

**Rationale #20:**

Choice C is the best answer because the figure indicates that the percent of surviving nests decreased over time at each of the four locations (all four lines show a decrease over the nine-day period). Choices A, B, and D are incorrect because they do not correctly represent the information conveyed in the figure. The figure does not indicate that the number of predators invading the nests either increased or decreased, nor does it indicate that the percent of surviving nests increased.

**Rationale #21:**

Choice A is the best answer because it accurately describes the data represented in the figure. The percent of surviving nests was greater at higher latitudes (for example, 82 degrees North) than at lower latitudes (for example, 63 degrees North). Choices B, C, and D are incorrect because the figure does not indicate that the percent of surviving nests at locations having higher latitudes was smaller or remained the same, or that the percent of eggs was lower.

4. Ask students to reflect on their current abilities to work with visuals as part of the SAT Writing and Language Test.

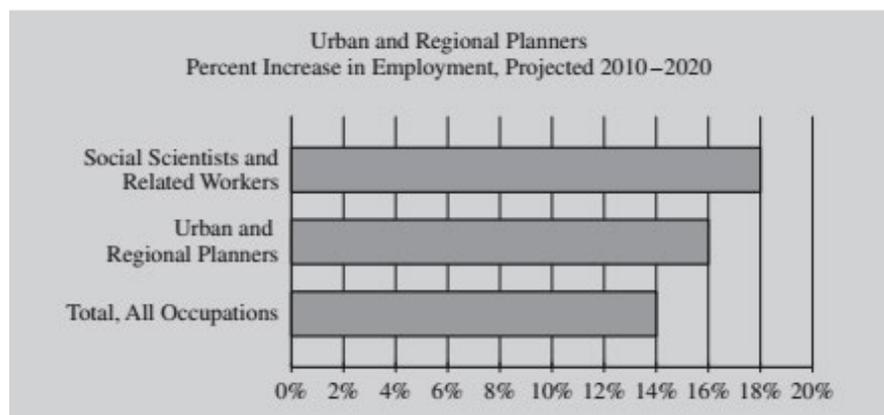
**Homework | 20 minutes**

- As students continue to practice Writing on Official SAT Practice on Khan Academy®, they should make note of the questions that ask about quantitative texts. Not every passage contains an informational graphic, but students should expect to see at least two in the Writing and Language Test.

## Student Materials—Lesson 15

### Introductory Activity

[...] Transportation planners perform critical work within the broader field of urban and regional planning. As of 2010, there were approximately 40,300 urban and regional planners employed in the United States. The United States Bureau of Labor Statistics forecasts steady job growth in this field, **11** projecting that 16 percent of new jobs in all occupations will be related to urban and regional planning. Population growth and concerns about environmental sustainability are expected to spur the need for transportation planning professionals.

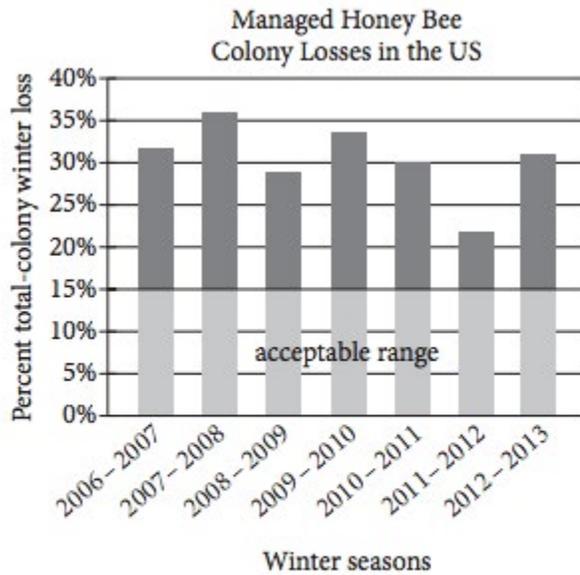


**11**

Which choice completes the sentence with accurate data based on the graph?

- A) NO CHANGE
- B) warning, however, that job growth in urban and regional planning will slow to 14 percent by 2020.
- C) predicting that employment of urban and regional planners will increase 16 percent between 2010 and 2020.
- D) indicating that 14 to 18 percent of urban and regional planning positions will remain unfilled.

## Pair/Group Practice



Adapted from Dennis van Engelsdorp et al., "Preliminary Results: Honey Bee Colony Losses in the United States, Winter 2012-2013." ©2013 by the Bee Informed Partnership.

### Vanishing Honeybees: A Threat to Global Agriculture

Honeybees play an important role in the agriculture industry by pollinating crops. An October 2006 study found that as much as one-third of global agriculture depends on animal pollination, including honeybee **12** pollination—to increase crop output. The importance of bees **13** highlights the potentially disastrous affects of an emerging, unexplained crisis: entire colonies of honeybees are dying off without warning.

**14** They know it as colony collapse disorder (CCD), this phenomenon will have a detrimental impact on global agriculture if its causes and solutions are not determined. Since the emergence of CCD around 2006, bee mortality rates have **15** exceeded 25 percent of the population each winter. There was one sign of hope: during the 2010–2012 winter seasons, beemortality rates decreased slightly, and beekeepers speculated that the colonies would recover. Yet in the winter of 2012–2013, the **16** portion of the bee population lost fell nearly 10 percent in the United States, with a loss of 31 percent of the colonies that pollinate crops.

**15**

Which choice offers the most accurate interpretation of the data in the chart?

- A) NO CHANGE
- B) been above the acceptable range.
- C) not changed noticeably from year to year.
- D) greatly increased every year.

**16**

Which choice offers an accurate interpretation of the data in the chart?

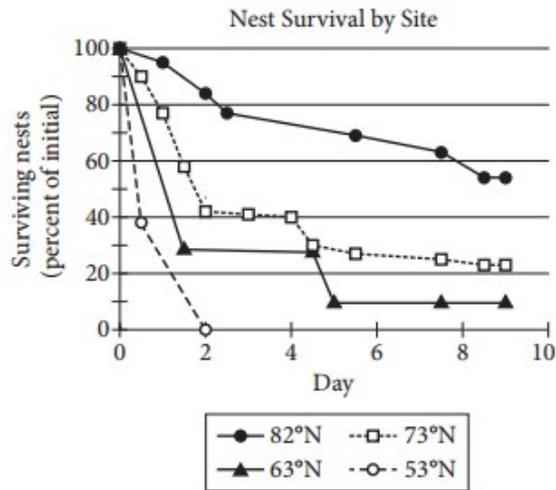
- A) NO CHANGE
- B) portion of bees lost was double what it had been the previous year, rising to
- C) number of losses, which had fallen within the acceptable range the previous year, rose to
- D) portion of total colonies lost rose almost 10 percentage points, with a loss of

## Independent Practice

### From “A Study in Arctic Migration”

[1] A four-year study by a team of Canadian scientists, headed by student Laura McKinnon of the Université du Québec, **16** provide evidence in support of this hypothesis. [2] The scientists created artificial nests that resembled a typical shorebird’s nest. [3] Then each year, during the shorebirds’ breeding season, forty of the nests were placed in each of seven locations that ranged in latitude from the low Arctic to the high Arctic. [4] Each nest had been baited with four **17** quail egg’s, which are similar in size and shape to a shorebird’s eggs. [5] The scientists returned to the nests many times over nine days to check how many eggs remained in the nests. [6] A nest was said to have survived if, at the end of the nine days, it contained at least one undisturbed quail egg. **18**

The figure shows the results for the nesting **19** sites, furthermore, at four of the seven locations, averaged over the four years of the study. The **20** number of predators invading the nests increased over time at each location. This result confirmed that predators were present at the researchers’ chosen locations. The researchers found that the percent of **21** surviving nests was greater at locations having higher latitudes. for example, on day 9, approximately 55 percent of nests were found to have survived at the 82°N location compared to approximately 10 percent of nest survival at the 63°N location. This



Adapted from L. McKinnon et al., “Lower Predation Risk for Migratory Birds at High Latitudes.” ©2010 by American Association for the Advancement of Science.

**20**

Which choice makes the writer's description of data represented in the figure most accurate?

- A) NO CHANGE
- B) numbers of predators invading the nests decreased
- C) percent of surviving nests decreased
- D) percent of surviving nests increased

**21**

Which choice makes the writer's description of data represented in the figure most accurate?

- A) NO CHANGE
- B) surviving nests was smaller
- C) surviving nests remained the same
- D) eggs was much lower