

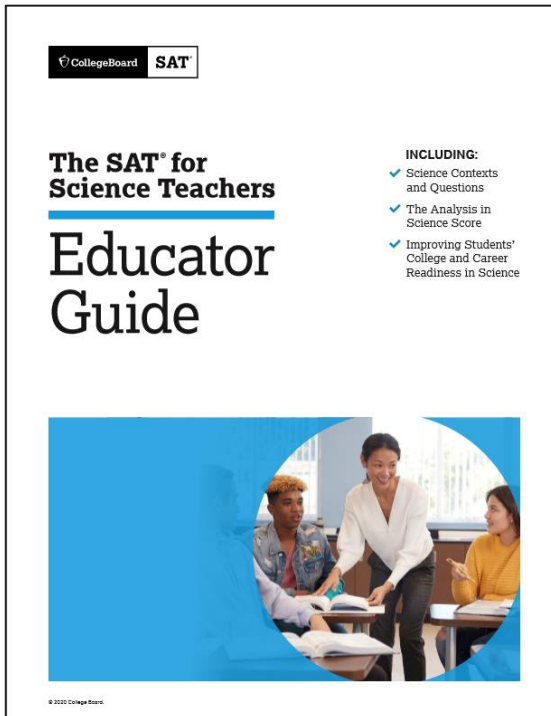


# The SAT<sup>®</sup> and the Analysis in Science Cross-Test Score

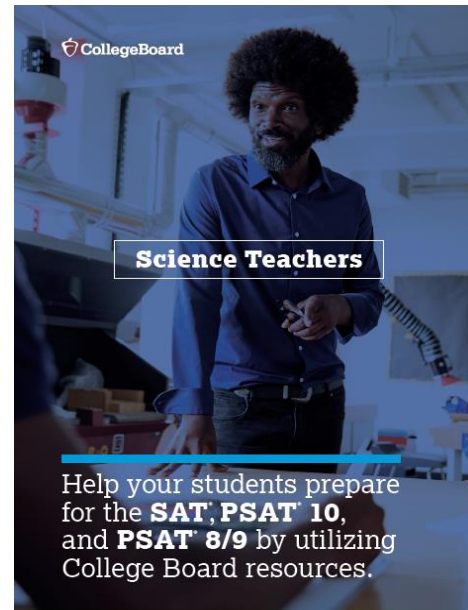
November 16-20, 2020



# What we'll cover today:

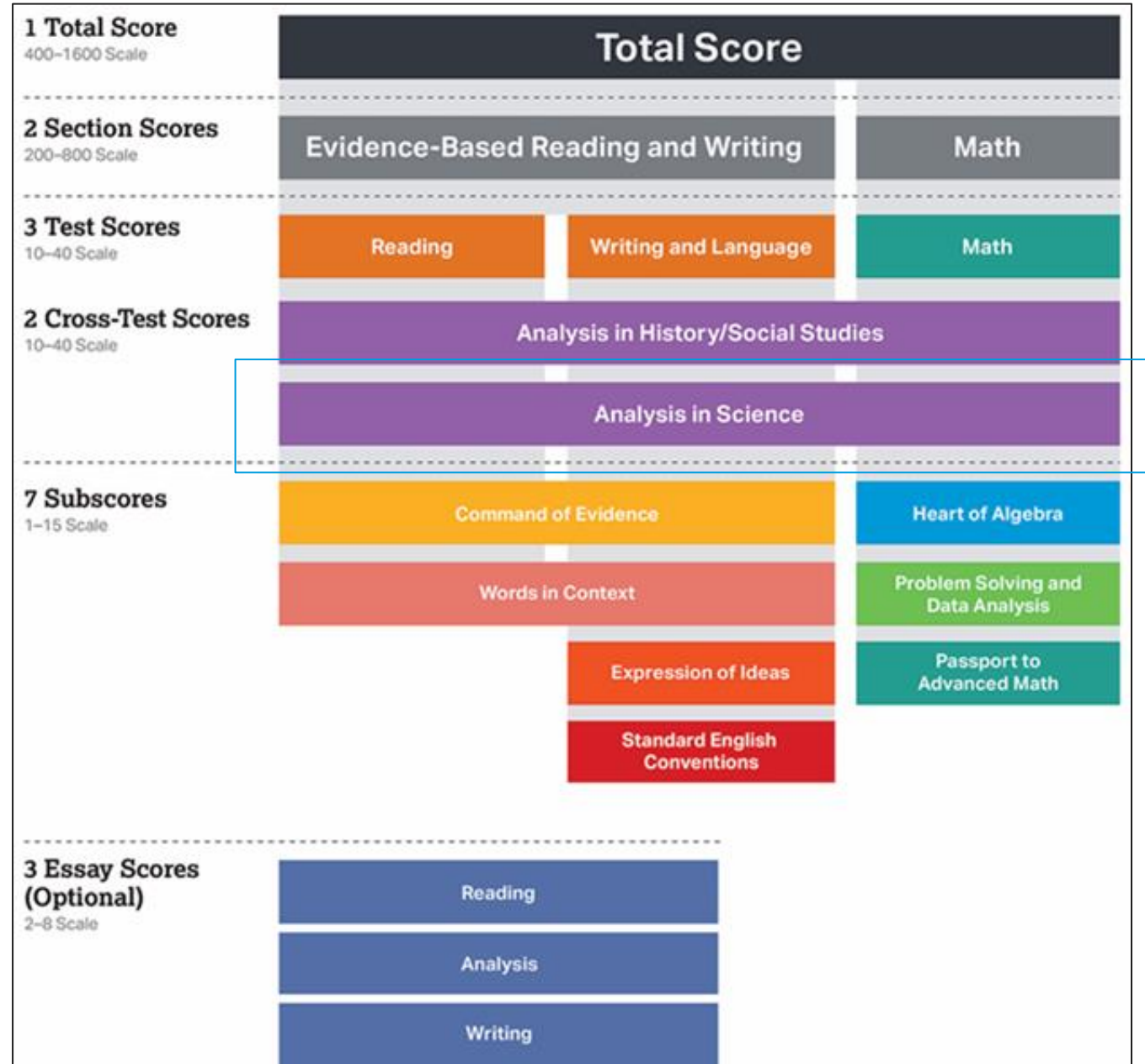


- **The Analysis in Science Cross-Test Score**
  - Review the Science Educator Guide and Science Teacher Toolkit
- **The Analysis in Science Cross-Test Score and Associated Skills**
  - Focus on tools and strategies that support skills assessed on the SAT®
- **The SAT® Suite Question Bank (SSQB)**
  - Explore science-related questions in the SSQB

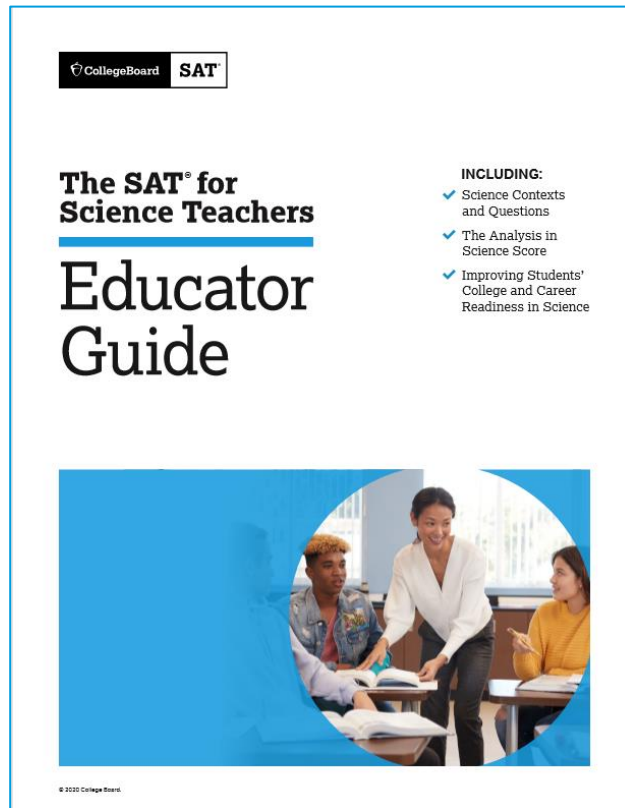


# What Is the Analysis in Science Cross-Test Score?

# SAT<sup>®</sup> Scores and Subscores



# Overview of Science Educator Guide



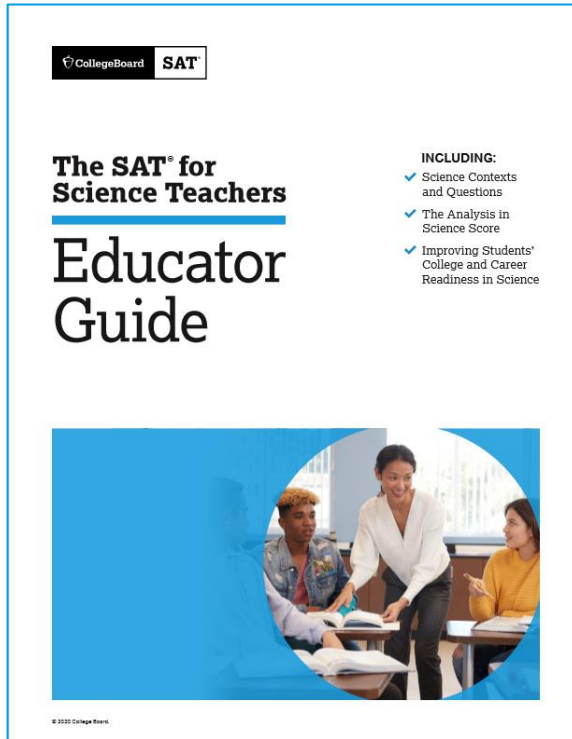
The field of science is represented in various ways on the three tests of the SAT® Suite of Assessments.

The **Reading Test** includes science passages covering foundational and applied topics in the field of science that may be accompanied by informational graphics involving locating and interpreting data and relating data to the information and main ideas in the passage.

The **Writing and Language Test** highlights concepts, data, findings, and implications drawn from research.

The **Math Test** assesses the ability to apply math knowledge and skills to solve problems and analyze data grounded in authentic, meaningful science contexts specifically by analyzing scientific scenarios and data while solving problems reflecting real-world tasks in the sciences.

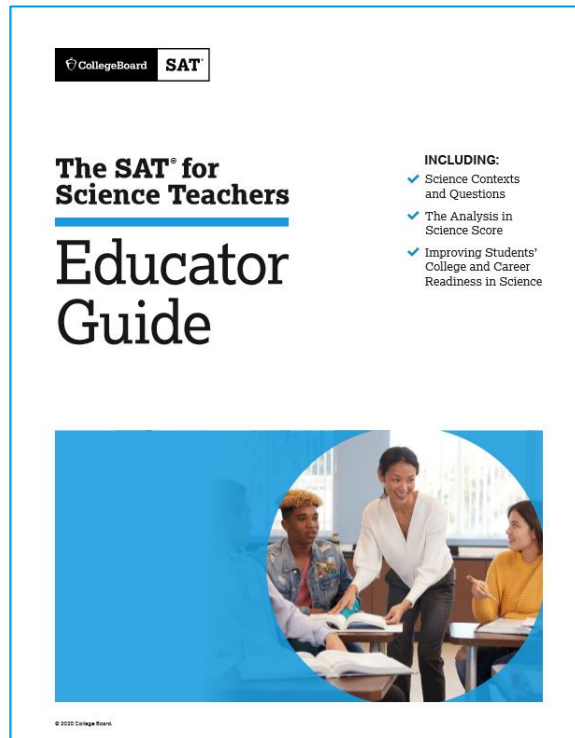
# Analysis in Science Cross-Test Score: SAT®



Test	Contribution to the Analysis in Science Cross-Test Score
Reading	21 questions
Writing and Language	6 questions
Math	8 questions



# Analysis in Science Cross-Test Score: SAT®



Recurring themes related to the Analysis in Science cross-test score include the following:

- Command of evidence (Reading; Writing and Language)
- Words in context (Reading; Writing and Language)
- Informational graphics (Reading; Writing and Language; Math)
- Multiple texts (Reading)
- Relationships (Reading)
- Logical sequence, transitions, syntax (Writing and Language)
- Problem solving and data analysis (Math)

# Analysis in Science Question: Reading Test

## Words in Context

**Question ID 4788252**

Assessment	Test	Cross-Test and Subscore	Difficulty	Primary Dimension	Secondary Dimension	Tertiary Dimension	Passage Text Complexity
SAT	Reading	Analysis in Science	■ ■ □	Information and Ideas	Interpreting words and phrases in context	N/A	Grades 11-CCR

Questions 42-52 are based on the following passage and supplementary material. This passage is adapted from Robert M. Hazen, *The Story of Earth: The First 4.5 Billion Years, from Stardust to Living Planet*. ©2012 by Robert M. Hazen.

25 scientists who studied the Apollo samples—Hauri’s team has revisited the colorful glass beads collected during lunar missions in the late 1960s and early 1970s. Other scientists had examined the glass beads for signs of water decades earlier, but their detection capacities were no match for the ion microprobe’s ability to resolve measurements at the scale of a millionth of an inch. Hauri and his coworkers polished a variety of glass beads so that their round cross sections were revealed in the ion probe. The beads’ outer rims proved to be very dry, with only a few parts per million water, but the cores of the

30

**4788252**

As used in [line 27](#), “resolve” most nearly means

- A. distinguish between.
- B. change into.
- C. convert to.
- D. clear from.

**Rationale**

Choice A is the best answer. The third paragraph states that decades earlier other scientists had looked for water in the glass beads. However, “their detection capacities were no match for the ion microprobe’s ability to resolve measurements at the scale of a millionth of an inch.” In other words, the equipment that the other scientists used was less able to differentiate, or distinguish between, extremely precise measurements. Therefore, in the context



# Analysis in Science

## Question: Math Test

### Informational Graphics

CollegeBoard		Question ID 423228					
Assessment SAT	Test Math	Cross-Test and Subscore Analysis in Science	Difficulty Easy	Primary Dimension Problem Solving and Data Analysis	Secondary Dimension Two- variable data: Models and scatterplots	Tertiary Dimension 8. Estimate the line of best fit for a given scatterplot; use the line to make predictions.	Calculator Calculator

Distance and Density of Planetoids  
in the Inner Solar System

The scatterplot displays the relationship between the average distance from the Sun (in AU) and the density (in g/cm³) for seven planetoids. The x-axis ranges from 0 to 3.2 AU with major grid lines every 0.4 AU. The y-axis ranges from 3 to 6 g/cm³ with major grid lines every 0.5 g/cm³. Seven data points are plotted, showing a clear negative correlation. A line of best fit is drawn through the points, starting at approximately (0, 5.8) and ending at (3.2, 3.2).

Distance from the Sun (AU)	Density (g/cm³)
0.4	5.5
0.8	5.2
1.2	5.0
1.6	4.0
2.0	3.8
2.4	3.5
2.8	3.3

The scatterplot above shows the densities of 7 planetoids, in grams per cubic centimeter, with respect to their average distances from the Sun in astronomical units (AU). The line of best fit is also shown.

An astronomer has discovered a new planetoid about 1.2 AU from the Sun. According to the line of best fit, which of the following best approximates the density of the planetoid, in grams per cubic centimeter?

**Question Difficulty:** Easy

- A. 3.6
- B. 4.1
- C. 4.6
- D. 5.5

---

# Teacher Toolkit Contents

**Test Specifications**

**Teacher Implementation Guide**

**Skills Insight**

**Official SAT<sup>®</sup> Practice Lesson Plans**

# The Teacher Toolkit

<https://www.isbe.net/Pages/sat-psat.aspx>

## SAT Teacher Toolkit Resources

College Board Illinois SAT® Teacher Toolkit Webinar for English/Language Arts, Math, Social Studies, and Science

- Presentation 📄
- Webinar 🗣️
  - ELA Toolkit
  - Math Toolkit
  - Science Toolkit
  - Social Studies Toolkit

CollegeBoard

### ELA Teachers

Help your students prepare for the **SAT**, **PSAT** 10, and **PSAT** 8/9 by utilizing College Board resources.

CollegeBoard

### Math Teachers

Help your students prepare for the **SAT**, **PSAT** 10, and **PSAT** 8/9 by utilizing College Board resources.

CollegeBoard

### Science Teachers

Help your students prepare for the **SAT**, **PSAT** 10, and **PSAT** 8/9 by utilizing College Board resources.

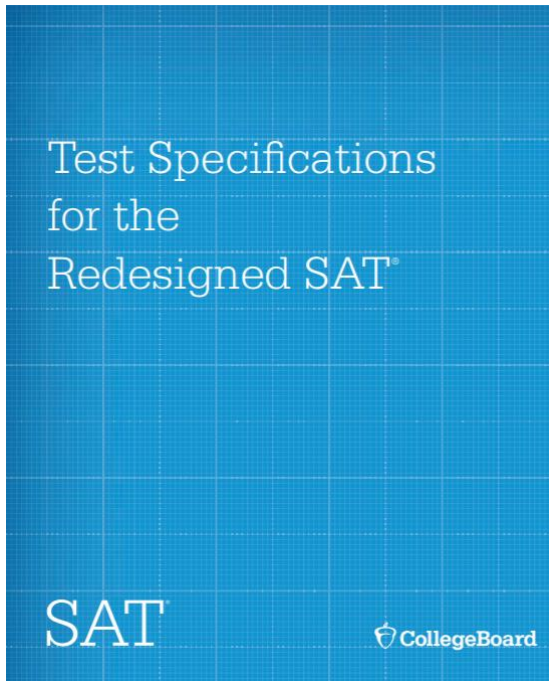
CollegeBoard

### Social Studies Teachers

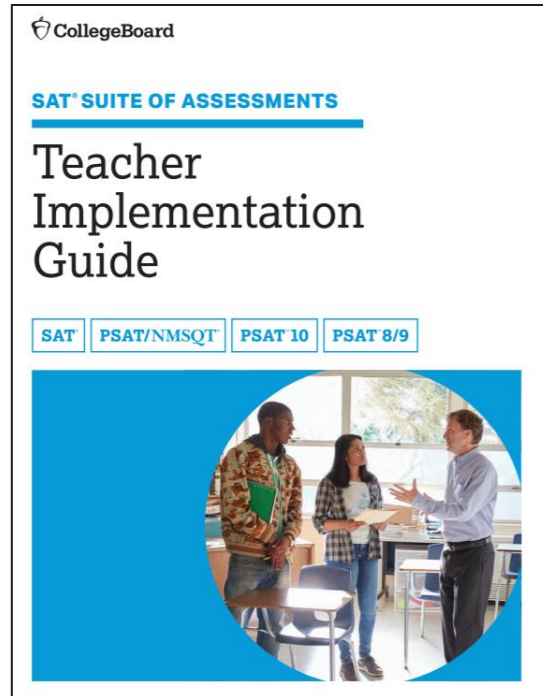
Help your students prepare for the **SAT**, **PSAT** 10, and **PSAT** 8/9 by utilizing College Board resources.

# The Teacher Toolkit

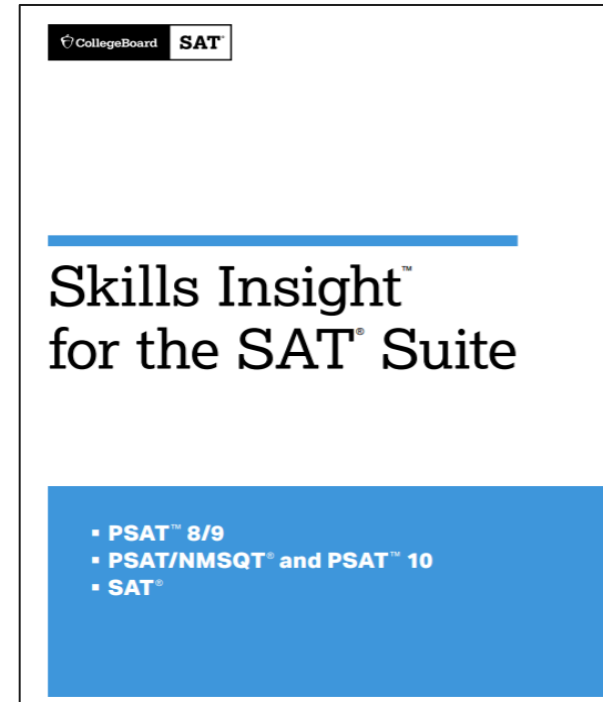
<https://www.isbe.net/Pages/sat-psat.aspx>



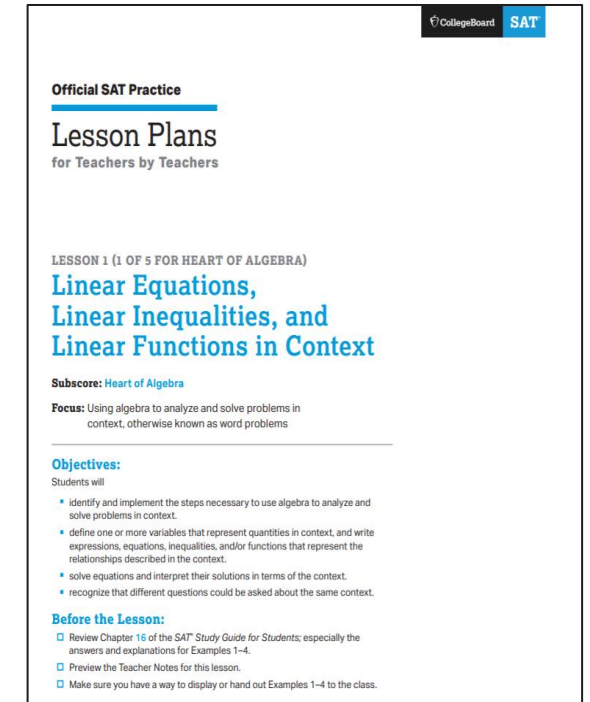
Test Specifications  
for the SAT



Teacher Implementation  
Guide



Skills Insight



Official SAT Practice  
Lesson Plans



# Curriculum Review Worksheets

<https://www.isbe.net/Pages/sat-psat.aspx>

## The Curriculum Review Worksheets are designed to help teachers

- understand many of the skills and knowledge that are assessed on the PSAT™ 8/9, PSAT™ 10, and SAT®;
- review student performance;
- identify skills and knowledge that need additional instruction and support; and
- develop a plan for implementation.

The Curriculum Review Worksheets contain sets of tables addressing most of the skills and knowledge assessed on the PSAT™ 8/9, PSAT™ 10, and SAT® (Reading, Writing and Language, and Math Tests).

Each table includes a description of a skill or knowledge and provides a structure to guide educators to evaluate the placement of that skill or knowledge within the curriculum.

To request the full version of the Curriculum Review Worksheets for Reading, Writing and Language, and Math, please email [ILSAT@collegeboard.org](mailto:ILSAT@collegeboard.org).

The image displays three overlapping screenshots of Curriculum Review Worksheets from the CollegeBoard SAT Suite of Assessments. The top screenshot is for the SAT Math Test, the middle for the SAT Writing and Language Test, and the bottom for the SAT Reading Tests. Each screenshot shows the 'Introduction' section, which explains the purpose of the worksheets and lists resources for further information. The worksheets are designed to help educators understand the skills and knowledge assessed on the tests, review student performance, identify areas needing additional instruction, and develop implementation plans. Each table in the worksheets includes a description of a skill or knowledge area, questions to guide placement within the curriculum, and a series of statements describing the ways in and extent to which various score ranges on the tests are typically attained. The worksheets also include a table of abbreviations for the four subscores associated with the SAT Suite of Assessments.

---

# Science Folder

<https://www.isbe.net/Pages/sat-psat.aspx>

A promotional graphic for College Board resources for science teachers. It features a photograph of a male teacher with a large afro and beard, wearing a blue shirt, standing in a science classroom. In the background, several students are seated at a table, working on their assignments. The College Board logo is in the top left corner of the image. A white box with a black border contains the text "Science Teachers". Below this, a blue horizontal line is followed by text encouraging the use of College Board resources for SAT, PSAT 10, and PSAT 8/9.

CollegeBoard

**Science Teachers**

Help your students prepare for the **SAT**, **PSAT** 10, and **PSAT** 8/9 by utilizing College Board resources.



# Science Folder Resources

## Science Guide

### The SAT and the Science Teacher

With its traditional focus on assessing general reading, writing, language, and math skills, the SAT, frankly, hasn't had much relevance for science teachers. That situation, however, has changed significantly with the redesign of the SAT.

An important feature of the test—one based on extensive evidence and reflective of best instructional practices—is its emphasis on students applying their literacy and math knowledge and skills in a wide range of subjects. This across-the-curriculum focus means that teachers in many fields, including science, have a critical and specific role to play in helping students get ready for the SAT and, more importantly, acquire the knowledge and skills they'll need to succeed in college and career training programs.

This guide is intended to help you, the science teacher, get more familiar with the SAT, better understand its relationship to the teaching and learning already going on in your classroom, and identify ways to enhance your students' college and career readiness.

Though many of the suggestions in this guide have broad applicability, the information and advice are tailored specifically to science teachers such as you. We do want to note at the outset that our goal here is *not* to try to convert you into an English language arts or math teacher. Instead, our intent is to show how fostering your students' ability to handle the special challenges of reading, writing, language, and quantitative analysis in your field contributes in a unique way to the literacy and numeracy work going on in your school.

### Disciplinary Literacy and Numeracy on the SAT

One hallmark of the SAT is its emphasis on disciplinary literacy and numeracy. Rather than simply ask students to demonstrate generic reading, writing, language, and math knowledge and skills in ways that lack real-world relevance, the SAT makes extensive use of texts, tasks, and scenarios similar to those students already encounter in their high school classes and to those they'll have to deal with in college and career training programs.

In recent years, numerous educators and researchers have affirmed the value of subject-based approaches to teaching literacy and numeracy. Writing in the *Journal of Literacy Research*, Cynthia Shanahan, Timothy Shanahan, and Cynthia Misischia make a persuasive case that students' literacy education should extend beyond generic communication skills to include the differing demands of particular fields of study: "In addition to the 'domain knowledge' of the disciplines . . . each discipline possesses specialized genre, vocabulary, traditions of communication, and standards of quality and precision, and each requires specific kinds of reading and writing to an extent greater than has been recognized by teachers or teacher preparation programs." Similarly, Kathleen W. Craver, in *Developing Quantitative Literacy Skills in History and the Social Sciences*, argues for a broad-based, cross-curricular approach to numeracy: "Being charged with the responsibility that our students become quantitatively literate has long been the sole domain of those teaching mathematics. In the data-drenched world of the current century, however, it has now become the responsibility of not only history and social science educators but also STEM (science, technology, engineering, and mathematics) coordinators and curriculum development specialists to integrate quantitative literacy skills into all aspects of the school curriculum, including the humanities."

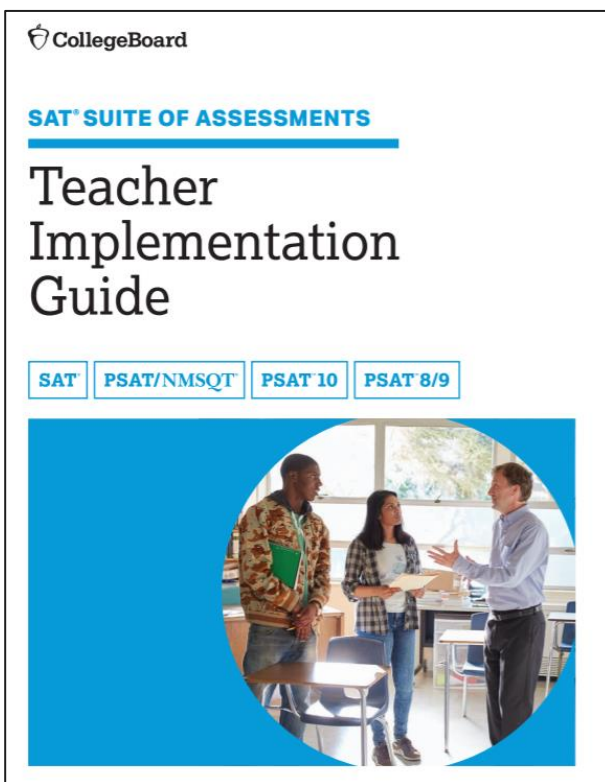
Here's how to get the most out of the resources included in the Science folder:

**Step 1:** Review the [Analysis in Science Guide](#) in a department meeting. Talk with your colleagues about the skills/knowledge listed for each test that are related to science instruction. Discuss the following questions:

- Are there any skills or knowledge that aren't included in your curriculum?
- Which five skills will your students apply effectively on the SAT®?
- Which three skills will your students struggle with on the SAT®?

# Science Folder Resources

## Teacher Implementation Guide



**Step 2:** Review practice questions to see how skills are assessed on the SAT®. This Toolkit includes two sample passages and associated questions from the Reading Test, one passage and associated questions from the Writing and Language Test, and several sample Math Test questions.

More practice questions are available at [sat.org/practice](https://sat.org/practice). Besides the eight SAT® practice tests, you can review answer explanations and scoring guides to clarify the skills being assessed.

# Science and Using the SAT® Suite Question Bank

<https://satsuitequestionbank.collegeboard.org>

CollegeBoard

SAT | PSAT/NMSQT | PSAT 10 | PSAT 8/9

## SAT Suite Question Bank:

Create custom, targeted question sets and improve instruction

The SAT® Suite Question Bank (SSQB) provides educators with access to over 3,500 questions from the SAT, PSAT/NMSQT®, PSAT™ 10, and PSAT™ 8/9 assessments.

The SSQB is designed to help educators:

- Become more familiar with the SAT Suite of Assessments.
- Better understand the knowledge and skills assessed to inform instruction, and
- Access sets of questions

The SSQB is publicly available. Select an ID to view a question or check the box to export it to PDF. Add up to 20 questions to a single set.

For each question, the following information is available:

- Level of difficulty
- Primary, secondary, and tertiary dimensions
- Passage text complexity level
- Calculator or calculator-free
- Questions, answer choices

Export questions as PDF file

Print individual questions

Additional information on the SAT Teacher Implementation Guide

Take a closer look at [collegeboard.org/aboutssqb](https://collegeboard.org/aboutssqb)

✓	ID #	Difficulty	Cross-Test and Subscore	Primary Dimension	Secondary Dimension	Tertiary Dimension	Passage Text Complexity
<input type="checkbox"/>	1474799	Medium	Analysis in Science	Information and Ideas	Interpreting words and phrases in context	N/A	Grades 11-CCR
<input type="checkbox"/>	1473151	Medium	Analysis in Science	Information and Ideas	Reading closely	Determining implicit meanings	Grades 11-CCR
<input type="checkbox"/>	4787294	Medium	Analysis in Science	Information and Ideas	Reading closely	Determining explicit meanings	Grades 11-CCR
<input type="checkbox"/>	5441772	Medium	Analysis in Science	Information and Ideas	Citing textual evidence	N/A	Grades 11-CCR
<input type="checkbox"/>	1473152	Medium	Analysis in Science	Information and Ideas	Interpreting words and phrases in context	N/A	Grades 11-CCR
<input type="checkbox"/>	422807	Medium	Analysis in Science	Information and Ideas	Reading closely	Determining implicit meanings	Grades 11-CCR
<input type="checkbox"/>	1474439	Medium	Analysis in Science	Information and Ideas	Citing textual evidence	N/A	Grades 11-CCR

**Step 3:** Review your school’s score data in the [K-12 Score Reporting Portal](#). The perfect way to get started with these skills is to see where your students are strong and where they need improvement.

- Review the *Instructional Planning Report*. Note average test scores, cross-test scores, and subscores, paying particular attention to the Analysis in Science cross-test score.
- The *Question Analysis Report* shows you which questions contributed to the Analysis in Science cross-test score and how your students performed on these questions.
- Determine whether they’re having more difficulty with the Reading Test, Writing and Language Test, or Math Test questions in science contexts.
- Use the [SAT Suite Question Bank](#) to find questions that align to the Analysis in Science cross-test score.

# Science Folder Resources

## Official SAT® Practice Lesson Plans

The screenshot shows the top portion of a lesson plan page. At the top right, there are logos for KHANACADEMY and CollegeBoard SAT. Below these, the text reads 'Official SAT Practice' followed by 'Lesson Plans for Teachers by Teachers'. The lesson title is 'LESSON 15 Writing and Language—Quantitative Texts'. The subscore is 'Expression of Ideas, Command of Evidence'. A note states: 'It would be helpful if students had completed Lesson 11 about reading quantitative texts, though this lesson can be completed independently.' The focus is 'Revising texts that include informational graphics'. Objectives are listed: '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.' A 'Before the Lesson' section contains three bullet points: 'Review Lesson 11 on analyzing quantitative texts on the Reading Test.', 'Preview the video from Official SAT Practice.', and 'Preview and print (if necessary) the student materials.'

**Step 4:** Review sample lessons and strategies. Investigate [Official SAT Practice Lesson Plans](#), which use resources such as Official SAT® Practice on Khan Academy® to foster a classroom experience that builds students' college and career readiness skills. Several lessons relate to science instruction.

The [Quantitative Texts Lesson Plan](#) is included in this Toolkit.

**Step 5:** Continue to measure student progress. You've already noted the current Analysis in Science cross-test score on the SAT® Suite of Assessments. As you include passages and questions in your formative and summative assessments, track student progress.

# SAT® Writing and Language Domain

## Science Courses: Quantitative Texts Lesson Plan

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

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

**Lesson Plan includes the following:**

- Introductory Activity
- Pair/Group Practice
- Independent Practice

LESSON 15 Writing and Language—Quantitative Texts

### Introductory Activity | 15 minutes

1. 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<sup>®</sup> 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-pre/sat-reading-writing-practice/new-sat-writing-passages/v/sat-writing-informational-passage>.

2. 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?

3. 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?

4. 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.

5. 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.

Official SAT Practice: Lesson Plans for Teachers by Teachers

LESSON 15 Writing and Language—Quantitative Texts

### Pair/Group Practice

#### Managed Honey Bee Colony Losses in the US

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 **[1]** pollination—to increase crop output. The importance of bees **[2]** highlights the potentially disastrous affects of an emerging, unexplained crisis: entire colonies of honeybees are dying off without warning.

**[3]** 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 **[4]** exceeded 25 percent of the population each winter. There was one sign of hope during the 2010-2012 winter seasons, bee mortality rates decreased slightly, and beekeepers speculated that the colonies would recover. Yet in the winter of 2012-2013, the **[5]** 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.

LESSON 15 Writing and Language—Quantitative Texts

### 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, **[2]** provide evidence in support of this hypothesis. **[3]** 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 **[5]** quail eggs, 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. **[6]**

The figure shows the results for the nesting **[2]** sites, furthermore, at four of the seven locations, averaged over the four years of the study. The **[3]** 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 **[4]** 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

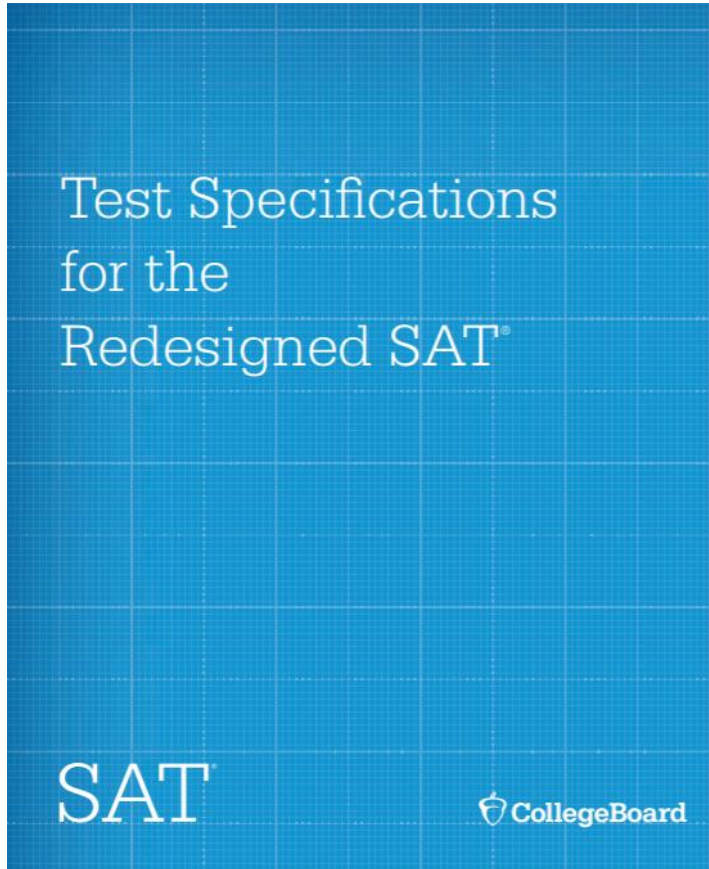
Adapted from L. McKinnon et al., “Lower Predation Risk for Migratory Birds at High Latitudes.” ©2010 by American Association for the Advancement of Science.

<https://www.isbe.net/Documents/SCI-Lesson-Plan-Quantitative-Texts.pdf>

# **A Closer Look at Skills Associated with Analysis in Science Cross-Test Score**



# Test Specifications for the Redesigned SAT®



Test Specifications  
for the  
Redesigned SAT®

SAT

CollegeBoard

Test Specifications for the SAT

The Test Specifications for the Redesigned SAT® comprehensively lists content dimensions and descriptions of skills assessed on the Reading Test, Writing and Language Test, and Math Test.

SAT READING DOMAIN		SAT WRITING AND LANGUAGE DOMAIN		PROBLEM SOLVING AND DATA ANALYSIS: PROPORTIONAL RELATIONSHIPS, PERCENTAGES, COMPLEX MEASUREMENTS, AND DATA INTERPRETATION AND SYNTHESIS	
Content Dimension	Description	Content Dimension	Description	Content Dimension	Description
<b>Text Complexity</b>	The passages/pair on the sat Reading Test represent a specified range of text complexities from grades 9–10 to postsecondary entry.	<b>Text Complexity</b>	The passages on the sat Writing and Language Test represent complexities from grades 9–10 to postsecondary entry.	<b>Ratios, rates, proportional relationships, and units</b>	Items 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.
<b>Information and Ideas</b>	These questions focus on the informational content of text.	<b>Expression of Ideas</b>	These questions focus on revision of text for topic development between text and graphic(s), logic, cohesion, and rhetorical development.		<b>Percentages</b>
<b>Reading closely</b>	These questions focus on the explicit and implicit meaning beyond the information and ideas in a text.	<b>Development</b>	These questions focus on revising text in relation to rhetoric of the topic is not assessed, though consistency of the mode.	<b>One-variable data: distributions and measures of center and spread</b>	
<b>Determining explicit meanings</b>	The student will identify information and ideas explicitly stated in text.	<b>Proposition</b>	The student will add, revise, or retain central ideas, main clauses, sentences, and the like to structure text and convey arguments clearly and effectively.		<b>Two-variable data: models and scatterplots</b>
<b>Determining implicit meanings</b>	The student will draw reasonable inferences and logical conclusions from text.	<b>Support</b>	The student will add, revise, or retain information and ideas intended to support claims or points in text.	<b>Standard English Conventions</b>	
<b>Using analogical reasoning</b>	The student will extrapolate in a reasonable way from the text or apply information and ideas in a text to a new, analogous situation.	<b>Focus</b>	The student will add, revise, retain, or delete information and ideas relevant to topic and purpose.		
<b>Citing textual evidence</b>	The student will cite the textual evidence that best supports the student's analysis of a text.	<b>Quantitative information</b>	The student will relate information presented quantitatively in charts, tables, and tables to information presented in text.		
<b>Determining central ideas and themes</b>	The student will identify explicitly stated central ideas or the implicit central ideas or themes from text.	<b>Organization</b>	These questions focus on revision of text to improve the logical sequence of the text.		
<b>Summarizing</b>	The student will identify a reasonable summary of a text or an idea in text.	<b>Logical sequence</b>	The student will revise text as needed to ensure that information is in the most logical order.		
<b>Understanding relationships</b>	The student will identify explicitly stated relationships or relationships between and among individuals, events, or ideas (e.g., cause and effect).	<b>Introductions, conclusions, and transitions</b>	The student will revise text as needed to improve the beginning, middle, and end of the text.		
<b>Interpreting words and phrases in context</b>	The student will determine the meaning of words and phrases in context.	<b>Effective language use</b>	These questions focus on revision of text to improve the use of language.		
<b>Rhetoric</b>	These questions focus on the rhetorical analysis of text.	<b>Precision</b>	The student will revise text as needed to improve the exactness of word choice.		
<b>Analyzing word choice</b>	The student will determine how the selection of specific words and phrases shapes meaning and tone in a text.	<b>Concision</b>	The student will revise text as needed to improve the economy of language (eliminate wordiness and redundancy).		
<b>Analyzing text structure</b>	These questions focus on the overall structure of a text and a particular part of a text and the whole text.	<b>Style and tone</b>	The student will revise text as necessary to ensure consistency of style and tone to purpose.		
<b>Analyzing overall text structure</b>	The student will describe the overall structure of a text.	<b>Syntax</b>	The student will use various sentence structures to accomplish purposes.		
<b>Analyzing part-whole relationships</b>	The student will analyze the relationship between a particular sentence and the whole text.	<b>Standard English Conventions</b>	These questions focus on editing text to ensure conformity with Standard Written English sentence structure, usage, and punctuation.		
<b>Analyzing point of view</b>	The student will determine the point of view or perspective that influences this point of view or perspective has on content.	<b>Sentence structure</b>	These questions focus on editing text to correct problems in inappropriate shifts in construction within and between sentences.		
<b>Analyzing purpose</b>	The student will determine the main or most likely purpose of a text (typically one or more paragraphs).	<b>Sentence formation</b>	These questions focus on editing text to correct problems with complete and standard sentences.		
<b>Analyzing arguments</b>	These questions focus on analyzing arguments for their content and counterclaims.	<b>Sentence boundaries</b>	The student will recognize and correct grammatically incorrect sentences.		
<b>Analyzing claims and counterclaims</b>	The student will identify claims and counterclaims explicitly stated in text.	<b>Subordination and coordination</b>	The student will recognize and correct problems in coordinating and subordinating constructions.		
<b>Assessing reasoning</b>	The student will assess an author's reasoning for soundness and bias.	<b>Parallel structure</b>	The student will recognize and correct problems in parallel structure.		
<b>Analyzing evidence</b>	The student will assess how an author uses or fails to use evidence to support a claim or counterclaim.	<b>Modifier placement</b>	The student will recognize and correct problems in modifier placement.		
<b>Synthesis</b>	These questions focus on synthesizing multiple sources of information.				
<b>Analyzing multiple texts</b>	The student will synthesize information and ideas from multiple texts.				
<b>Analyzing quantitative information</b>	The student will analyze information presented quantitatively in tables, charts and/or relate that information to information in text.				

# Activity: SAT<sup>®</sup> Reading Skills in High School Science Courses

SAT READING DOMAIN	
Content Dimension	Description
<b>Text Complexity</b>	The passages/pair on the SAT Reading Test represent a specified range of text complexities from grades 9–10 to postsecondary entry.
<b>Information and Ideas</b>	These questions focus on the informational content of text.
Reading closely	These questions focus on the explicit and implicit meaning of text and on extrapolating beyond the information and ideas in a text.
Determining explicit meanings	The student will identify information and ideas explicitly stated in text.
Determining implicit meanings	The student will draw reasonable inferences and logical conclusions from text.
Using analogical reasoning	The student will extrapolate in a reasonable way from the information and ideas in a text or apply information and ideas in a text to a new, analogous situation.
Citing textual evidence	The student will cite the textual evidence that best supports a given claim or point.
Determining central ideas and themes	The student will identify explicitly stated central ideas or themes in text and determine implicit central ideas or themes from text.
Summarizing	The student will identify a reasonable summary of a text or of key information and ideas in text.
Understanding relationships	The student will identify explicitly stated relationships or determine implicit relationships between and among individuals, events, or ideas (e.g., cause-effect, comparison-contrast, sequence).
Interpreting words and phrases in context	The student will determine the meaning of words and phrases in context.
<b>Rhetoric</b>	These questions focus on the rhetorical analysis of text.
Analyzing word choice	The student will determine how the selection of specific words and phrases or the use of patterns of words and phrases shapes meaning and tone in text.
Analyzing text structure	These questions focus on the overall structure of a text and on the relationship between a particular part of a text and the whole text.
Analyzing overall text structure	The student will describe the overall structure of a text.
Analyzing part-whole relationships	The student will analyze the relationship between a particular part of a text (e.g., a sentence) and the whole text.
Analyzing point of view	The student will determine the point of view or perspective from which a text is related or the influence this point of view or perspective has on content and style.
Analyzing purpose	The student will determine the main or most likely purpose of a text or of a particular part of a text (typically, one or more paragraphs).
Analyzing arguments	These questions focus on analyzing arguments for their content and structure.
Analyzing claims and counterclaims	The student will identify claims and counterclaims explicitly stated in text or determine implicit claims and counterclaims from text.
Assessing reasoning	The student will assess an author's reasoning for soundness.
Analyzing evidence	The student will assess how an author uses or fails to use evidence to support a claim or counterclaim.
<b>Synthesis</b>	These questions focus on synthesizing multiple sources of information.
Analyzing multiple texts	The student will synthesize information and ideas from paired texts. (Note: All of the skills listed above may be tested with either single or paired passages.)
Analyzing quantitative information	The student will analyze information presented quantitatively in such forms as graphs, tables, and charts and/or relate that information to information presented in text.



## SAT Suite Skills in High School Science Courses

1. Review the SAT Reading Domain document.
2. Explore the [curriculum maps](#) and high school science [scope and sequence](#) for Biology, Chemistry, Environmental Science, and Physics to identify how SAT Suite knowledge and skills are relevant to specific units and/or subjects.
3. Are the **SAT Reading Domain**: skills/knowledge explicitly taught in your curriculum? If “yes,” in which course(s)/grade level(s) is this skill/knowledge explicitly taught? When are students expected to demonstrate proficiency?

	Biology	Chemistry	Environmental Science	Physics

# Activity: SAT<sup>®</sup> Math Skills in High School Science Courses

PROBLEM SOLVING AND DATA ANALYSIS: PROPORTIONAL RELATIONSHIPS, PERCENTAGES, COMPLEX MEASUREMENTS, AND DATA INTERPRETATION AND SYNTHESIS

SAT PROBLEM SOLVING AND DATA ANALYSIS DOMAIN	
Content Dimension	Description
Ratios, rates, proportional relationships, and units	<p>Items 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> <ol style="list-style-type: none"> <li>Apply proportional relationships, ratios, rates, and units in a wide variety of contexts. Examples include but are not limited to scale drawings and problems in the natural and social sciences.</li> <li>Solve problems involving               <ol style="list-style-type: none"> <li>derived units, including those that arise from products (e.g., kilowatt-hours) and quotients (e.g., population per square kilometer);</li> <li>unit conversion, including currency exchange and conversion between different measurement systems.</li> </ol> </li> <li>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.</li> </ol>
Percentages	<ol style="list-style-type: none"> <li>Use percentages to solve problems in a variety of contexts. Examples include, but are not limited to, discounts, interest, taxes, tips, and percent increases and decreases for many different quantities.</li> <li>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%.</li> </ol>
One-variable data: distributions and measures of center and spread	<ol style="list-style-type: none"> <li>Choose an appropriate graphical representation for a given data set.</li> <li>Interpret information from a given representation of data in context.</li> <li>Analyze and interpret numerical data distributions represented with frequency tables, histograms, dot plots, and boxplots.</li> <li>For quantitative variables, calculate, compare, and interpret mean, median, and range. Interpret (but don't calculate) standard deviation.</li> <li>Compare distributions using measures of center and spread, including distributions with different means and the same standard deviations and ones with the same mean and different standard deviations.</li> <li>Understand and describe the effect of outliers on mean and median.</li> <li>Given an appropriate data set, calculate the mean.</li> </ol>
Two-variable data: models and scatterplots	<ol style="list-style-type: none"> <li>Using a model that fits the data in a scatterplot, compare values predicted by the model to values given in the data set.</li> <li>Interpret the slope and intercepts of the line of best fit in context.</li> <li>Given a relationship between two quantities, read and interpret graphs and tables modeling the relationship.</li> <li>Analyze and interpret data represented in a scatterplot or line graph; fit linear, quadratic, and exponential models.</li> <li>Select a graph that represents a context, identify a value on a graph, or interpret information on the graph.</li> <li>For a given function type (linear, quadratic, exponential), choose the function of that type that best fits given data.</li> <li>Compare linear and exponential growth.</li> <li>Estimate the line of best fit for a given scatterplot; use the line to make predictions.</li> </ol>



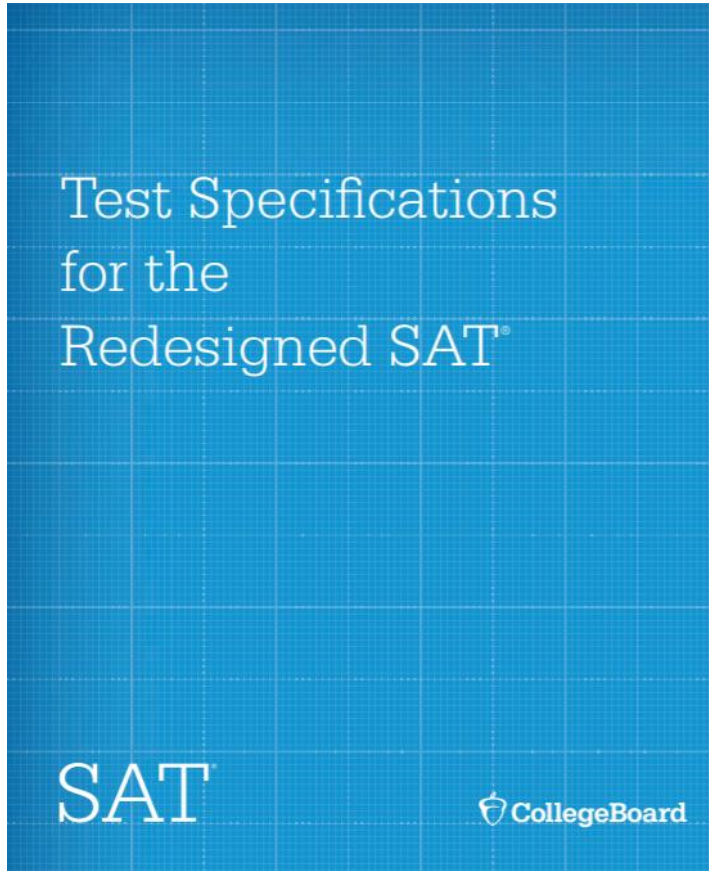
## SAT Suite Skills in High School Science Courses

- Review the SAT Math Domain documents and locate the Problem Solving and Data Analysis section.
- Explore the [curriculum maps](#) and high school science [scope and sequence](#) for Biology, Chemistry, Environmental Science, and Physics to identify how SAT Suite knowledge and skills are relevant to specific units and/or subjects.
- Are the **SAT Math Domain: *Problem Solving and Data Analysis*** skills/knowledge explicitly taught in your curriculum? If “yes,” in which course(s)/grade level(s) is this skill/knowledge explicitly taught? When are students expected to demonstrate proficiency?

Biology	Chemistry	Environmental Science	Physics



# Test Specifications for the Redesigned SAT®



Test Specifications  
for the  
Redesigned SAT®

SAT

CollegeBoard

Test Specifications for the SAT

**Primary Dimensions:** broad categories of the skills and knowledge measured by each test

**Secondary Dimensions:** subcategories of each primary dimension

**Tertiary Dimensions:** categories of each secondary dimension

SAT READING DOMAIN		SAT WRITING AND LANGUAGE DOMAIN		PROBLEM SOLVING AND DATA ANALYSIS: PROPORTIONAL RELATIONSHIPS, PERCENTAGES, COMPLEX MEASUREMENTS, AND DATA INTERPRETATION AND SYNTHESIS	
Content Dimension	Description	Content Dimension	Description	Content Dimension	Description
<b>Text Complexity</b>	The passages/pair on the sat Reading Test represent a specified range of text complexities from grades 9–10 to postsecondary entry.	<b>Text Complexity</b>	The passages on the sat Writing and Language Test represent complexities from grades 9–10 to postsecondary entry.	<b>Ratios, rates, proportional relationships, and units</b>	Items 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. <ol style="list-style-type: none"> <li>Apply proportional relationships, ratios, rates, and units in a wide variety of contexts. Examples include but are not limited to scale drawings and problems in the natural and social sciences.</li> <li>Solve problems involving                             <ol style="list-style-type: none"> <li>derived units, including those that arise from products (e.g., kilowatt-hours) and quotients (e.g., population per square kilometer);</li> <li>unit conversion, including currency exchange and conversion between different measurement systems.</li> </ol> </li> <li>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.</li> </ol>
<b>Information and Ideas</b>	These questions focus on the informational content of text.	<b>Expression of Ideas</b>	These questions focus on revision of text for topic development between text and graphic(s), logic, cohesion, and rhetorical development.	<b>Percentages</b>	<ol style="list-style-type: none"> <li>Use percentages to solve problems in a variety of contexts. Examples include, but are not limited to, discounts, interest, taxes, tips, and percent increases and decreases for many different quantities.</li> <li>Understand and use the relationship between percent change and growth factor (1% and 1.05, for example); include percentages greater than or equal to 100%.</li> </ol>
<b>Reading closely</b>	These questions focus on the explicit and implicit meaning beyond the information and ideas in a text.	<b>Development</b>	These questions focus on revising text in relation to rhetoric of the topic is not assessed, though consistency of the modes.	<b>One-variable data: distributions and measures of center and spread</b>	<ol style="list-style-type: none"> <li>Choose an appropriate graphical representation for a given data set.</li> <li>Interpret information from a given representation of data in context.</li> <li>Analyze and interpret numerical data distributions represented with frequency tables, histograms, dot plots, and boxplots.</li> <li>For quantitative variables, calculate, compare, and interpret mean, median, and range. Interpret (but don't calculate) standard deviation.</li> <li>Compare distributions using measures of center and spread, including distributions with different means and the same standard deviations and ones with the same mean and different standard deviations.</li> <li>Understand and describe the effect of outliers on mean and median.</li> <li>Given an appropriate data set, calculate the mean.</li> </ol>
<b>Determining explicit meanings</b>	The student will identify information and ideas explicitly stated in text.	<b>Proposition</b>	The student will add, revise, or retain central ideas, main clauses, sentences, and the like to structure text and convey arguments clearly and effectively.	<b>Two-variable data: models and scatterplots</b>	<ol style="list-style-type: none"> <li>Using a model that fits the data in a scatterplot, compare values predicted by the model to values given in the data set.</li> <li>Interpret the slope and intercepts of the line of best fit in context.</li> <li>Given a relationship between two quantities, read and interpret graphs and tables modeling the relationship.</li> <li>Analyze and interpret data represented in a scatterplot or line graph; fit linear, quadratic, and exponential models.</li> <li>Select a graph that represents a value on a graph, or interpret information on the graph.</li> <li>For a given function type (linear, quadratic, exponential), choose the function of that type that best fits given data.</li> <li>Compare linear and exponential growth.</li> <li>Estimate the line of best fit for a given scatterplot; use the line to make predictions.</li> </ol>
<b>Determining implicit meanings</b>	The student will draw reasonable inferences and logical conclusions from text.	<b>Support</b>	The student will add, revise, or retain information and ideas intended to support claims or points in text.		
<b>Using analogical reasoning</b>	The student will extrapolate in a reasonable way from the information and ideas in a text to a new, analogous situation.	<b>Focus</b>	The student will add, revise, retain, or delete information as needed to ensure that the text is relevant to the topic and purpose.		
<b>Citing textual evidence</b>	The student will cite the textual evidence that best supports the analysis.	<b>Quantitative information</b>	The student will relate information presented quantitatively in text, such as in tables, charts, and graphs.		
<b>Determining central ideas and themes</b>	The student will identify explicitly stated central ideas or the implicit central ideas or themes from text.	<b>Organization</b>	These questions focus on revision of text to improve the logical sequence of the text.		
<b>Summarizing</b>	The student will identify a reasonable summary of a text or an idea in text.	<b>Logical sequence</b>	The student will revise text as needed to ensure that information is in the most logical order.		
<b>Understanding relationships</b>	The student will identify explicitly stated relationships or those implied between and among individuals, events, or ideas (e.g., cause and effect).	<b>Introductions, conclusions, and transitions</b>	The student will revise text as needed to improve the beginning, end, and transitions of the text.		
<b>Interpreting words and phrases in context</b>	The student will determine the meaning of words and phrases in context.	<b>Effective language use</b>	These questions focus on revision of text to improve the use of language.		
<b>Rhetoric</b>	These questions focus on the rhetorical analysis of text.	<b>Precision</b>	The student will revise text as needed to improve the exactness of word choice.		
<b>Analyzing word choice</b>	The student will determine how the selection of specific words and phrases shapes meaning and tone in a text.	<b>Concision</b>	The student will revise text as needed to improve the economy of language (eliminate wordiness and redundancy).		
<b>Analyzing text structure</b>	These questions focus on the overall structure of a text and a particular part of a text and the whole text.	<b>Style and tone</b>	The student will revise text as necessary to ensure consistency of style and tone to purpose.		
<b>Analyzing overall text structure</b>	The student will describe the overall structure of a text.	<b>Syntax</b>	The student will use various sentence structures to accomplish purposes.		
<b>Analyzing part-whole relationships</b>	The student will analyze the relationship between a particular sentence and the whole text.	<b>Standard English Conventions</b>	These questions focus on editing text to ensure conformity with Standard Written English sentence structure, usage, and punctuation.		
<b>Analyzing point of view</b>	The student will determine the point of view or perspective that influences this point of view or perspective has on content.	<b>Sentence structure</b>	These questions focus on editing text to correct problems in inappropriate shifts in construction within and between sentences.		
<b>Analyzing purpose</b>	The student will determine the main or most likely purpose of a text (typically one or more paragraphs).	<b>Sentence formation</b>	These questions focus on editing text to correct problems with complete and standard sentences.		
<b>Analyzing arguments</b>	These questions focus on analyzing arguments for their central claims and counterclaims explicitly or implicitly.	<b>Sentence boundaries</b>	The student will recognize and correct grammatically incorrect sentence boundaries.		
<b>Assessing reasoning</b>	The student will assess how an author uses or fails to use evidence to support a claim or counterclaim.	<b>Subordination and coordination</b>	The student will recognize and correct problems in coordinating and subordinating constructions.		
<b>Analyzing evidence</b>	These questions focus on synthesizing multiple sources of information.	<b>Parallel structure</b>	The student will recognize and correct problems in parallel structure.		
<b>Synthesis</b>	These questions focus on synthesizing multiple sources of information.	<b>Modifier placement</b>	The student will recognize and correct problems in modifier placement.		
<b>Analyzing multiple texts</b>	The student will synthesize information and ideas from multiple texts. All of the skills listed above may be tested with either text or multiple texts.				
<b>Analyzing quantitative information</b>	The student will analyze information presented quantitatively in text, such as in tables, charts, and graphs, and/or relate that information to information presented in text.				

# Test Specifications for the Redesigned SAT®

- Test Specifications: Reading Domain and Math Domain
- Skills Analysis Sheets for Reading and Math
- SAT® Suite Question Bank

SAT READING DOMAIN	
Content Dimension	Description
<b>Text Complexity</b>	The passages/pair on the SAT Reading Test represent a specified range of text complexities from grades 9–10 to postsecondary entry.
<b>Information and Ideas</b>	These questions focus on the informational content of text.
<b>Reading closely</b>	These questions focus on the explicit and implicit meaning of text and on extrapolating beyond the information and ideas in a text.
<b>Determining explicit meanings</b>	The student will identify information and ideas explicitly stated in text.
<b>Determining implicit meanings</b>	The student will identify information and ideas that are not explicitly stated in text.
<b>Using analogical reasoning</b>	The student will use or apply information from one text to another.
<b>Citing textual evidence</b>	The student will cite specific textual evidence to support an answer.
<b>Determining central ideas and themes</b>	The student will identify implicit central ideas and themes.
<b>Summarizing</b>	The student will identify and summarize the main points of a text.
<b>Understanding relationships</b>	The student will identify relationships between and among ideas, events, and characters.
<b>Interpreting words and phrases in context</b>	The student will interpret the meaning of words and phrases in context.
<b>Rhetoric</b>	These questions focus on the author's style and the text's rhetorical features.
<b>Analyzing word choice</b>	The student will analyze the effect of word choice on the text's meaning and style.
<b>Analyzing text structure</b>	These questions focus on the organization and structure of a text.
<b>Analyzing overall text structure</b>	The student will analyze the overall structure of a text.
<b>Analyzing part-whole relationships</b>	The student will analyze the relationship between parts and the whole of a text.
<b>Analyzing point of view</b>	The student will analyze the influence of the author's point of view on the text's meaning and style.
<b>Analyzing purpose</b>	The student will analyze the purpose of a text and the author's use of rhetorical devices.
<b>Analyzing arguments</b>	These questions focus on the author's use of evidence and reasoning to support a claim or counterclaim.
<b>Analyzing claims and counterclaims</b>	The student will identify implicit claims and counterclaims.
<b>Assessing reasoning</b>	The student will assess the author's use of reasoning to support a claim or counterclaim.
<b>Analyzing evidence</b>	The student will analyze the author's use of evidence to support a claim or counterclaim.
<b>Synthesis</b>	These questions focus on the student's ability to analyze and synthesize information from multiple texts.
<b>Analyzing multiple texts</b>	The student will synthesize information from multiple texts to analyze and synthesize information.
<b>Analyzing quantitative information</b>	The student will analyze quantitative information in tables, and charts.

CollegeBoard

SAT | PSAT/NMSQT | PSAT 10 | PSAT 8/9

## SAT Suite Question Bank:

Create custom, targeted question sets and improve instruction

The SAT Suite Question Bank (SSQB) provides educators with access to over 3,500 questions from the SAT, PSAT/NMSQT, PSAT 10, and PSAT 8/9 assessments.

The SSQB is designed to help educators:

- Become more familiar with the SAT Suite of Assessments.
- Better understand the knowledge and skills assessed to inform instruction, and
- Access sets of questions by subject.

The SSQB is publicly available at [Board account](#) or [access code](#) to

For each question, the following information is available:

- Level of difficulty
- Primary, secondary, and tertiary dimensions
- Passage text complexity level for each question
- Calculator/no calculator for math questions

Educators can use the SSQB in many ways:

- Use the questions in the classroom for professional development, and access to the questions.
- Export questions as PDF files.
- Print individual questions or sets of questions.
- Additional information on the content of the questions is available in the SAT Teacher Implementation Guide.

Take a closer look at these questions: [cb.org/aboutssqb](#).

231 questions in results set.

Select an ID to view a question or check the box to export it to PDF. Add up to 20 questions to a single set.

Show selected questions | Show All | Export PDF

Difficulty: ▼ Please Select ▼ | Passage Text Complexity: ▼ Please Select ▼ | Primary Dimension: ▼ Please Select ▼

Medium X | Grades 11-CCR X | Information and Ideas X | Clear Filters

✓	ID #	Difficulty	Cross-Text and Subscore	Primary Dimension	Secondary Dimension	Tertiary Dimension	Passage Text Complexity
<input type="checkbox"/>	1432795	■ ■ ■	Analysis in Science	Information and Ideas	Interpreting words and phrases in context	N/A	Grades 11-CCR
<input type="checkbox"/>	1432151	■ ■ ■	Analysis in Science	Information and Ideas	Reading closely	Determining implicit meanings	Grades 11-CCR
<input type="checkbox"/>	4782994	■ ■ ■	Analysis in Science	Information and Ideas	Reading closely	Determining explicit meanings	Grades 11-CCR
<input type="checkbox"/>	5441772	■ ■ ■	Analysis in Science	Information and Ideas	Citing textual evidence	N/A	Grades 11-CCR
<input type="checkbox"/>	1432132	■ ■ ■	Analysis in Science	Information and Ideas	Interpreting words and phrases in context	N/A	Grades 11-CCR
<input type="checkbox"/>	422887	■ ■ ■	Analysis in Science	Information and Ideas	Reading closely	Determining implicit meanings	Grades 11-CCR
<input type="checkbox"/>	1434439	■ ■ ■	Analysis in Science	Information and Ideas	Citing textual evidence	N/A	Grades 11-CCR

CollegeBoard SAT SAT Suite Skills in High School Science Courses

1. Review the SAT Reading Domain document.
2. Explore the [curriculum maps](#) and high school science [scope and sequence](#) for Biology, Chemistry, Environmental Science, and Physics to identify how SAT Suite knowledge and skills are relevant to specific units and/or subjects.
3. Are the SAT Reading Domain: skills/knowledge explicitly taught in your curriculum? If "yes," in which course(s)/grade level(s) is this skill/knowledge explicitly taught? When are students expected to demonstrate proficiency?

Biology	Chemistry	Environmental Science	Physics

## Test Specifications for the SAT

# SAT<sup>®</sup> Reading Domain

## Biology

Biology

### SAT Suite Skills in High School Science Courses

1. Review the SAT Reading Domain document.
2. Explore the [curriculum maps](#) and high school science [scope and sequence](#) for Biology, Chemistry, and Environmental Science to identify how SAT Suite knowledge and skills are relevant to specific units and/or subjects.
3. Are the SAT Reading Domain skills/knowledge explicitly taught in your curriculum? If "yes," in what skill/knowledge explicitly taught? When are students expected to demonstrate proficiency?

Biology	Chemistry	Environmental S

CollegeBoard Question ID 4169039

Questions 22-31 are based on the following passage.  
This passage is adapted from Jonathan Shaw, "The Bionic Leaf." ©2015 by Harvard Magazine Inc.

Line Nocera's artificial leaf, which serves as the fuel source in the bionic leaf, works by sandwiching a photovoltaic cell between two thin metal oxide catalysts. When submerged in a glass of water at room temperature and normal atmospheric pressure, the artificial leaf mimics photosynthesis. Current from the silicon solar wafer is fed to the catalysts, which split water molecules: oxygen bubbles off the catalyst on one side of the wafer, while hydrogen rises from the catalyst on the wafer's other side. Nocera has been perfecting the artificial leaf since he first demonstrated it in 2011; today, it is far more efficient than a field-grown plant, which captures only 1 percent of sunlight's energy. He says he can reach efficiencies of 70 percent to 80 percent of the underlying solar-wafer technology, which is improving constantly.

5 The hydrogen it produces is a versatile fuel from a chemical standpoint, Nocera reports, and could easily become the basis of a fuel cell, but it has not been widely adopted, in part because it is a gas. Liquid fuels are much easier to handle and store, hence the new bionic leaf's importance.

10 In the bionic leaf, the hydrogen gas is fed to a metabolically engineered version of a bacterium called *Ralstonia eutropha*. The bacteria combine the hydrogen with carbon dioxide as they divide to make more cells, and then—through a trick of bioengineering pioneered by Anthony Sinskey, professor of microbiology and of health sciences and technology at MIT—produce isopropanol (rubbing alcohol), which can be burned in an engine much like the gasoline additive ethanol.

15 "The advantage of interfacing the inorganic catalyst with biology is you have an unprecedented platform for chemical synthesis that you don't have with inorganic catalysts alone," says Brendan Colón, a graduate student in systems biology in the Silver lab. "Life has evolved for billions of years to produce catalysts capable of making chemical modifications on complicated molecules with surgical precision, many times at room temperature," Colón explains. "If you can use enzymes for building chemicals, you open the door to making many of the natural compounds we rely on every day," such as antibiotics, pesticides, herbicides, fertilizer, and pharmaceuticals.

20 Members of Silver's lab have been working to perfect the tricky interface between the catalyst and the bacteria, so that they will thrive and grow optimally. In its first iteration, the bionic leaf matched the efficiency of photosynthesis in plants, far below the capabilities of Nocera's underlying artificial leaf. Now the team is working to surpass blue-green algae, which—at 5 percent efficiency—do better at photosynthesis than plants. Colón has been developing a strain of the bacterium that grows well even at the lower voltages that might be emitted by the solar wafer at the system's core on a cloudy day, for example; this could dramatically improve overall efficiency.

25

- Test Specifications: Reading Domain
  - Primary Dimension: Information and Ideas
  - Secondary Dimension: Reading Closely
  - Tertiary Dimension: Determining Explicit Meanings
- Focused Skill Area:
  - Identify information and ideas explicitly stated in text.
  - Extrapolate in a reasonable way from the information and ideas in a text or apply information and ideas in a text to a new, analogous situation.
- SAT<sup>®</sup> Suite Question Bank: Reading Passage: The Bionic Leaf

<b>Information and Ideas</b>	These questions focus on the informational content of text.
<b>Reading closely</b>	These questions focus on the explicit and implicit meaning of text and on extrapolating beyond the information and ideas in a text.
<b>Determining explicit meanings</b>	The student will identify information and ideas explicitly stated in text.
<b>Determining implicit meanings</b>	The student will draw reasonable inferences and logical conclusions from text.
<b>Using analogical reasoning</b>	The student will extrapolate in a reasonable way from the information and ideas in a text or apply information and ideas in a text to a new, analogous situation.



# SAT<sup>®</sup> Reading Domain

## Biology

Biology
---------

CollegeBoard SAT<sup>®</sup> SAT Suite Skills in High School Science Courses

1. Review the SAT Reading
2. Explore the curriculum m identify how SAT Suite know
3. Are the SAT Reading Dor skill/knowledge explicitly taug

Biology

Biology
---------

Questions 43-52 are based on the following passages.  
Passage 1 is adapted from Brian Handwerk, "A New Antibiotic Found in Dirt Can Kill Drug-Resistant Bacteria." ©2015 by Smithsonian Institution. Passage 2 is adapted from David Livermore, "This New Antibiotic Is Cause for Celebration—and Caution." ©2015 by Telegraph Media Group Limited.

Line      Passage 1  
"Pathogens are acquiring resistance faster than we can introduce new antibiotics, and this is causing a human health crisis," says biochemist Kim Lewis of Northeastern University.  
Lewis is part of a team that recently unveiled a promising antibiotic, born from a new way to tap the powers of soil microorganisms. In animal tests, teixobactin proved effective at killing off a wide variety of disease-causing bacteria—even those that have developed immunity to other drugs. The scientists' best efforts to create mutant bacteria with resistance to the drug failed, meaning teixobactin could function effectively for decades before pathogens naturally evolve resistance to it.  
Natural microbial substances from soil bacteria and fungi have been at the root of most antibiotic drug development during the past century. But only about one percent of these organisms can be grown in a lab. The rest, in staggering numbers, have remained uncultured and of limited use to medical science, until now. "Instead of trying to figure out the ideal conditions for each and every one of the millions of organisms out there in the environment, to allow them to grow in the lab, we simply grow them in their natural environment where they already have the conditions they need for growth," Lewis says.  
To do this, the team designed a gadget that sandwiches a soil sample between two membranes, each perforated with pores that allow molecules like nutrients to diffuse through but don't allow the passage of cells. "We just use it to trick the bacteria into thinking that they are in their natural environment," Lewis says.  
The team isolated 10,000 strains of uncultured soil bacteria and prepared extracts from them that could be tested against nasty pathogenic bacteria. Teixobactin emerged as the most promising drug. Mice infected with bacteria that cause upper respiratory tract infections (including *Staphylococcus aureus* and *Streptococcus pneumoniae*) were treated with teixobactin, and the drug knocked out the infections with no noticeable toxic effects.  
It's likely that teixobactin is effective because of the way it targets disease: The drug breaks down bacterial cell walls by attacking the lipid molecules that the cell creates organically. Many other antibiotics target the bacteria's proteins, and the genes that encode those proteins can mutate to produce different

Passage 2  
Many good antibiotic families—penicillin, s suspected that, if we could grow more types of find new natural antibiotics. In a recent study, soil bacteria—including types that can't norma minerals. Once the bacteria reached a critica and elegant methodology is their most importa antibiotic-producing bacteria that have never t  
The first new antibiotic that they've found b my mind, though it doesn't look bad. Teixobacti experimental infection in mice. It also killed th resistant tuberculosis in the developing world  
So, what are my caveats? Well, I see three. F as it is too big to cross their complex cell wall. making the antibiotic are so difficult to grow. A of clinical trials: Phase I to see what dose you efficacy to that of "standard of care treatment." That's going to take five years and €500 million and these are numbers we must find ways to reduce (while not compromising safety) if we're to keep ahead of bacteria, which can evolve far more swiftly and cheaply.

### Synthesis

Analyzing multiple texts

Analyzing quantitative information

- Test Specifications: Reading Domain
  - Primary Dimension: Synthesis
  - Secondary Dimension: Analyzing Multiple Texts
- Focused Skill Area:
  - Synthesize information and ideas from paired texts.
- SAT<sup>®</sup> Suite Question Bank: Reading Passage: Paired Passages: A New Antibiotic Found in Dirt Can Kill Drug-Resistant Bacteria and The New Antibiotic Is Cause for Celebration—and Concern

These questions focus on synthesizing multiple sources of information.

The student will synthesize information and ideas from paired texts.  
(Note: All of the skills listed above may be tested with either single or paired passages.)

The student will analyze information presented quantitatively in such forms as graphs, tables, and charts and/or relate that information to information presented in text.

# SAT<sup>®</sup> Reading Domain

## Biology

Biology
---------

CollegeBoard SAT SAT Suite Skills in High School Science Courses

1. Review the SAT Reading Domain document.
2. Explore the curriculum materials to identify how SAT Suite knowledge is explicitly taught.
3. Are the SAT Reading Domain skills/knowledge explicitly taught?

Question ID 19080																
<table border="1"> <tr> <th>Assessment</th> <th>Test</th> <th>Cross-Test and Subscore</th> <th>Difficulty</th> <th>Primary Dimension</th> <th>Secondary Dimension</th> <th>Tertiary Dimension</th> <th>Passage Text Complexity</th> </tr> <tr> <td>SAT</td> <td>Reading</td> <td>Analysis in Science</td> <td>■ ■ ■</td> <td>Synthesis</td> <td>Analyzing quantitative information</td> <td>N/A</td> <td>Grades 11-CCR</td> </tr> </table>	Assessment	Test	Cross-Test and Subscore	Difficulty	Primary Dimension	Secondary Dimension	Tertiary Dimension	Passage Text Complexity	SAT	Reading	Analysis in Science	■ ■ ■	Synthesis	Analyzing quantitative information	N/A	Grades 11-CCR
Assessment	Test	Cross-Test and Subscore	Difficulty	Primary Dimension	Secondary Dimension	Tertiary Dimension	Passage Text Complexity									
SAT	Reading	Analysis in Science	■ ■ ■	Synthesis	Analyzing quantitative information	N/A	Grades 11-CCR									

This passage is adapted from J. D. Watson and F. H. C. Crick, "Genetical Implications of the Structure of Deoxyribonucleic Acid." ©1953 by Nature Publishing Group. Watson and Crick deduced the structure of DNA using evidence from Rosalind Franklin and R. G. Gosling's X-ray crystallography diagrams of DNA and from Erwin Chargaff's data on the base composition of DNA.

*Line* The chemical formula of deoxyribonucleic acid (DNA) is now well established. The molecule is a very long chain, the backbone of which consists of a regular alternation of sugar and phosphate groups. To each sugar is attached a nitrogenous base, which can be of four different types. Two of the possible bases—adenine and guanine—are purines, and the other two—thymine and cytosine—are pyrimidines. So far as is known, the sequence of bases along the chain is irregular. The monomer unit, consisting of phosphate, sugar and base, is known as a nucleotide.

5 The first feature of our structure which is of biological interest is that it consists not of one chain, but of two. These two chains are both coiled around a common fiber axis. It has often been assumed that since there was only one chain in the chemical formula there would only be one in the structural unit. However, the density, taken with the X-ray evidence, suggests very strongly that there are two.

10 The other biologically important feature is the manner in which the two chains are held together. This is done by hydrogen bonds between the bases. The bases are joined together in pairs, a single base from one chain being hydrogen-bonded to a single base from the other. The important point is that only certain pairs of bases will fit into the structure. One member of a pair must be a purine and the other a pyrimidine in order to bridge between

15 it. We believe that the bases will be present at regular intervals along the chain, and that the hydrogen bonds are more restrictive, and the order of bases, for example, can occur on either chain, but with the phosphate-sugar backbone of our model follows that in a long molecule many different sequences of bases are possible, and it is this feature which suggests how the genetic information can be stored in the exact order of the bases on the other chain, and it is this feature which suggests how the genetic information can be stored.

20 The table shows, for various organisms, the percentage of each of the four bases in their DNA.

Organism	Percentage of base in organism's DNA			
	adenine (%)	guanine (%)	cytosine (%)	thymine (%)
Mice	26.0	24.0	25.2	24.8
Octopus	33.2	17.6	17.6	31.6
Chicken	28.0	22.0	21.6	28.4
Sheep	28.0	21.4	20.5	29.9
Human	29.3	20.7	20.0	30.0
Grasshopper	29.3	20.5	20.7	29.5
Sea urchin	32.8	17.7	17.3	32.2
Wheat	27.3	22.7	21.8	28.2
Yeast	31.3	18.7	17.1	32.9
E. coli	24.7	26.0	25.7	23.6

Adapted from Marjju Bansal, "DNA Structure: Revisiting the Watson-Crick Double Helix." ©2003 by Current Science Association, Bangalore.

**Synthesis**

**Analyzing multiple texts**

These questions focus on synthesizing multiple sources of information. The student will synthesize information and ideas from paired texts. (Note: All of the skills listed above may be tested with either single or paired passages.)

**Analyzing quantitative information**

The student will analyze information presented quantitatively in such forms as graphs, tables, and charts and/or relate that information to information presented in text.

- Test Specifications: Reading Domain
  - Primary Dimension: Synthesis
  - Secondary Dimension: Analyzing Quantitative Information
- Focused Skill Area: Synthesizing Information
  - Analyze information presented quantitatively in such forms as graphs, tables, and charts and/or relate that information to information presented in text.
- SAT<sup>®</sup> Suite Question Bank: Reading Passage: Genetical Implications of the Structure of Deoxyribonucleic Acid

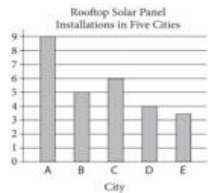
# SAT<sup>®</sup> Math Domain

## Environmental Science

### Environmental Science

#### CollegeBoard SAT SAT Suite Skills in High School Science Courses

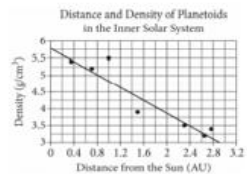
1. Review the SAT Math Domain documents and locate the Problem Solving and Data Analysis section.
2. Explore the curriculum and identify how SAT Suite skills are integrated into your course(s)/grade level.
3. Are the SAT Suite skills in your course(s)/grade level?



The number of rooftops with solar panel installations in 5 cities is shown in the graph above. If the total number of installations is 27,500, what is an appropriate label for the vertical axis of the graph?

- A. Number of installations (in tens)
- B. Number of installations (in hundreds)
- C. Number of installations (in thousands)
- D. Number of installations (in tens of thousands)

**Question Difficulty:** Medium



According to the scatterplot, which of the following statements is true about the relationship between a planetoid's average distance from the Sun and its density?

- A. Planetoids that are more distant from the Sun tend to have lesser densities.
- B. Planetoids that are more distant from the Sun tend to have greater densities.
- C. The density of a planetoid that is twice as far from the Sun as another planetoid is half the density of that other planetoid.
- D. The distance from a planetoid to the Sun is unrelated to its density.

**Question Difficulty:** Medium

- Test Specifications: Math Domain
  - Primary Dimension: Problem Solving Data Analysis
  - Secondary Dimension: One-Variable Data: Distributions and measures of center and spread
  - Tertiary Dimension: Graphical Representations
- Focused Skill Area: Synthesizing Information
  - Choose an appropriate graphical representation for a given data set.
  - Interpret information from a given representation of data in context.
- SAT<sup>®</sup> Suite Question Bank: Math Item: Rooftop Solar Panels in Five Cities

One-variable data: distributions and measures of center and spread

1. Choose an appropriate graphical representation for a given data set.
2. Interpret information from a given representation of data in context.
3. Analyze and interpret numerical data distributions represented with frequency tables, histograms, dot plots, and boxplots.
4. For quantitative variables, calculate, compare, and interpret mean, median, and range. Interpret (but don't calculate) standard deviation.
5. Compare distributions using measures of center and spread, including distributions with different means and the same standard deviations and ones with the same mean and different standard deviations.
6. Understand and describe the effect of outliers on mean and median.
7. Given an appropriate data set, calculate the mean.

# SAT<sup>®</sup> Math Domain

## Chemistry

### Chemistry

CollegeBoard SAT SAT Suite Skills in High School Science Co

1. Review the SAT Math Domain documents and locate the Problem Solving and Data.

2. Explore the curriculum

identify how SAT Suite kno

3. Are the SAT Math Dom

course(s)/grade level(s) is

### Biology

The boiling point of water at sea level is 212 degrees Fahrenheit (°F). For every 550 feet above sea level, the boiling point of water is lowered by about 1°F. Which of the following equations can be used to find the boiling point B of water, in °F, x feet above sea level?

A.  $B = 550 + \frac{x}{212}$

B.  $B = 550 - \frac{x}{212}$

C.  $B = 212 + \frac{x}{550}$

D.  $B = 212 - \frac{x}{550}$

Questions 17 and 18 refer to the following information.

$$m = 2.07v + 0.07$$

A student measured several samples of the element sulfur at a temperature of 293 kelvins (K). The equation above models the relationship between the mass m, in grams, and the volume v, in cubic centimeters, of the samples.

Based on the model, which of the following is closest to the predicted volume of sulfur that has mass of 100 grams at 293 K?

A. 48

B. 98

C. 102

D. 207

A metal rod with an initial temperature of 85 degrees Fahrenheit (°F) is heated at a constant rate of 1.5°F per minute. At the same time, another rod with an initial temperature of 100°F is heated at a constant rate of 0.25°F per minute. After how many minutes will the two rods have the same temperature?

A. 6

B. 7

C. 336

D. 380

Question Difficulty: Hard

### Linear equations in one variable

- Test Specifications: Math Domain
- Primary Dimension: Heart of Algebra
- Secondary Dimension: Linear equations in one-variable
- Tertiary Dimension: Interpret a constant, variable, factor, or term in context.
- Focused Skill Area:
  - Create and use linear equations in one-variable to solve problems in a variety of contexts.
- SAT<sup>®</sup> Suite Question Bank: Math Item: Boiling Point

1. Create and use linear equations in one variable to solve problems in a variety of contexts.
2. Create a linear equation in one variable, and when in context interpret solutions in terms of the context.
3. Solve a linear equation in one variable, making strategic use of algebraic structure.
4. For a linear equation in one variable,
  - a. interpret a constant, variable, factor, or term in a context;
  - b. determine the conditions under which the equation has no solution, a unique solution, or infinitely many solutions.
5. Fluently solve a linear equation in one variable.

# Analysis in Science and Skill Progression



# Curriculum Review Worksheets

## The Curriculum Review Worksheets are designed to help teachers

- understand many of the skills and knowledge that are assessed on the SAT<sup>®</sup> Suite of Assessments;
- review student performance; and
- identify skills and knowledge that need additional instruction and support.

The Curriculum Review Worksheets contain sets of tables addressing most of the skills and knowledge assessed on the SAT<sup>®</sup> Suite Tests: (Reading, Writing and Language, and Math).

Each table includes a description of a skill or knowledge and provides a structure to guide educators to evaluate the placement of that skill or knowledge within the curriculum.

**CollegeBoard SAT**

### SAT<sup>®</sup> Math Test Curriculum Review Worksheets

#### Introduction

Curriculum Review Worksheets are designed to help you

- understand many of the skills and knowledge that are assessed on the SAT Suite of Assessments Math Tests;
- review student performance;
- identify skills and knowledge that need additional instruction and support; and
- develop a plan for implementation.

The curriculum review worksheets consist of a set of tables addressing most of the skills and knowledge assessed on the SAT Suite Math Tests. Each table includes description of a skill or knowledge and provides a structure to guide you as you evaluate the place of that skill or knowledge in your curriculum.

Each skill/knowledge table includes the following elements:

1. The name and definition of the skill or knowledge (or skill/knowledge area)
2. Questions guiding you to consider the place of the skill or knowledge in your curriculum
3. An indication of which SAT Suite subscore(s) the skill or knowledge is associated with  
*Definitions of the subscores appear below.*
4. A series of statements describing the ways in and extent to which students scoring in various score ranges on the Math Test (e.g., 20–34) are typically able to demonstrate attainment of the skill or knowledge, and spaces where you can indicate which of these statements best reflects your students' general level of attainment

**To use these worksheets, please review the following resources:**

- K-12 Score Reporting Portal data
- District/school curriculum maps
- Released SAT practice tests
- Skills Insight for the SAT Suite (<https://collegereadiness.collegeboard.org/pdf/skills-insight-sat-suite.pdf>)
- The College and Career Readiness Benchmarks for the SAT Suite of Assessments (<https://collegereadiness.collegeboard.org/pdf/educator-benchmark-brief.pdf>)

**CollegeBoard SAT**

### SAT<sup>®</sup> Reading Test Curriculum Review Worksheets

#### Introduction

This set of curriculum review worksheets is designed to help you

- understand many of the skills and knowledge that are assessed on the SAT Suite Reading Tests;
- review student performance;
- identify skills and knowledge that need additional instruction and support; and
- develop a plan for implementation.

The Curriculum Review Worksheets contain set of tables addressing most of the skills and knowledge assessed on the SAT Suite Reading Tests. Each table includes description of a skill or knowledge and provides a structure to guide you as you evaluate the place of that skill or knowledge in your curriculum.

Each skill/knowledge table includes the following elements:

1. The name and definition of the skill or knowledge (or skill/knowledge area)
2. Questions guiding you to consider the place of the skill or knowledge in your curriculum
3. An indication of which SAT Suite subscore(s) the skill or knowledge is associated with  
*Definitions of the subscores appear below.*
4. A series of statements describing the ways in and extent to which students scoring in various score ranges on the Reading Tests (e.g., 20–24) are typically able to demonstrate attainment of the skill or knowledge, and spaces where you can indicate which of these statements best reflects your students' general level of attainment

**To use these worksheets, please review the following resources:**

- District/school curriculum maps
- Released SAT practice tests
- Skills Insight for the SAT Suite (<https://collegereadiness.collegeboard.org/pdf/skills-insight-sat-suite.pdf>)
- The College and Career Readiness Benchmarks for the SAT Suite of Assessments (<https://collegereadiness.collegeboard.org/pdf/educator-benchmark-brief.pdf>)

The statements in the tables are taken from Skills Insight for the SAT, linked to above. The Skills Insight describe typical performance of students scoring in various score ranges on the Reading Tests (and other SAT Suite tests). The Skills Insight statements are generalizations based on analysis of hundreds of test questions and on the performance data of thousands of students taking one of the SAT Suite assessments. In a few cases, identified in this set of worksheets by dark gray bands, student performance has to date been too inconsistent to allow for valid generalizations.

In each table, a light gray band signals that the 30–34 score range (and the “complex text” text complexity level) contains the college and career readiness test-level benchmark (30 for the SAT Reading Test). More information about the benchmark, as well as benchmarks by grade for grades 8 through 11, can be found in *The College and Career Readiness Benchmarks for the SAT Suite of Assessments*, also linked to above.

**CollegeBoard SAT**

### SAT<sup>®</sup> Writing and Language Test Curriculum Review Worksheets

#### Introduction

This set of curriculum review worksheets is designed to help you

- understand many of the skills and knowledge that are assessed on the SAT Suite of Assessments Writing and Language Tests;
- review student performance;
- identify skills and knowledge that need additional instruction and support; and
- develop a plan for implementation.

The Curriculum Review Worksheets contain a set of tables addressing most of the skills and knowledge assessed on the SAT Suite Writing and Language Tests. Each table includes description of a skill or knowledge (or broader skill/knowledge area, such as sentence structure) and provides a structure to guide you as you evaluate the place of that skill or knowledge in your curriculum.

Each skill/knowledge table includes the following elements:

1. The name and definition of the skill or knowledge (or skill/knowledge area)
2. Questions guiding you to consider the place of the skill or knowledge in your curriculum
3. An indication of which SAT Suite subscore(s) the skill or knowledge is associated with  
*Definitions of the subscores appear below.*
4. A series of statements describing the ways in and extent to which students scoring in various score ranges on the Writing and Language Tests (e.g., 20–24) are typically able to demonstrate attainment of the skill or knowledge, and spaces where you can indicate which of these statements best reflects your students' general level of attainment

**To use these worksheets, please review the following resources:**

- K-12 Score Reporting Portal data
- District/school curriculum maps
- Released SAT practice tests
- Skills Insight for the SAT Suite (<https://collegereadiness.collegeboard.org/pdf/skills-insight-sat-suite.pdf>)
- The College and Career Readiness Benchmarks for the SAT Suite of Assessments (<https://collegereadiness.collegeboard.org/pdf/educator-benchmark-brief.pdf>)

The statements in the tables are taken from Skills Insight for the SAT, linked to above. The Skills Insight describe typical performance of students scoring in various score ranges on the Writing and Language Tests (and other SAT Suite tests). The Skills Insight statements are generalizations based on analysis of hundreds of test questions and on the performance data of thousands of students taking one of the SAT Suite assessments. In a few cases, identified in this set of worksheets by dark gray bands, student performance has to date been too inconsistent to allow for valid generalizations.

In each table, a light gray band signals that the 30–34 score range contains the college and career readiness test-level benchmark (31 for the SAT Writing and Language Test). More information about the benchmark, as well as benchmarks by grade for grades 8 through 11, can be found in *The College and Career Readiness Benchmarks for the SAT Suite of Assessments*, also linked to above.

**Subscores**

The set of tables below includes abbreviations for the four subscores associated with the SAT Suite Writing and Language Tests. Subscores identify areas of concentration on the tests and consequently have potential instructional value.



# Subscore & Science Skill

## Reading Test: Command of Evidence

The screenshot shows the 'Introduction' section of the SAT Reading Test Curriculum Review Worksheets. It includes a header with 'CollegeBoard SAT' and 'SAT Reading Test Curriculum Review Worksheets'. The text explains the purpose of the worksheets and lists resources for review. A blue box highlights a list of resources: 'K-12 Score Reporting Portal data', 'District/school curriculum maps Released SAT practice tests', 'Skills Insight for the SAT Suite' (with a URL), and 'The College and Career Readiness Benchmarks for the SAT Suite of Assessments' (with a URL). Another blue box at the bottom explains that the statements in the tables are taken from 'Skills Insight for the SAT' and that a light gray band in each table signals the 30-34 score range and the 'complex text' level.

## Subscore: Command of Evidence

Command of Evidence requires students not only to derive information and ideas from a text but also, in some cases, to identify the portion of the text that serves as the best evidence for the conclusions they reach.

In this way, students both interpret text and support their interpretation by citing the most relevant textual support.

## Science Practice: Biology

Students will effectively analyze a claim, locate evidence, and synthesize reasoning from a scientific journal to construct an argument.

# Subscore & Science Skill

## Reading Test: Command of Evidence

**CollegeBoard SAT** SAT Reading Test Curriculum Review Worksheets

**Introduction**

This set of curriculum review worksheets is designed to help you

- understand many of the skills and knowledge that are assessed on the SAT Suite of Assessments

**Reading Tests:**

- review student performance;
- identify skills and knowledge that need additional instruction and support; and
- develop a plan for implementation.

The Curriculum Review Worksheets contain set of tables addressing most of the skills and knowledge assessed on the SAT Suite Reading Tests. Each table includes description of a skill or knowledge and provides a structure to guide you as you evaluate the place of that skill or knowledge in your curriculum.

Each skill/knowledge table includes the following elements:

- The name and definition of the skill or knowledge (or skill/knowledge area)
- Questions guiding you to consider the place of the skill or knowledge in your curriculum
- An indication of which SAT Suite subscore(s) the skill or knowledge is associated with. Definitions of the subscores appear below.
- A series of statements describing the ways in and extent to which students scoring in various score ranges on the Reading Tests (e.g., 20–24) are typically able to demonstrate attainment of the skill or knowledge, and spaces where you can indicate which of these statements best reflects your students' general level of attainment.

The statements in the tables are taken from *Skills Insight for the SAT*, linked to above. The *Skills Insight* describe typical performance of students scoring in various score ranges on the Reading Tests (and other SAT Suite tests). The *Skills Insight* statements are generalizations based on analysis of hundreds of test questions and on the performance data of thousands of students taking one of the SAT Suite assessments. In a few cases, identified in this set of worksheets by **dark gray** bands, student performance has to date been too inconsistent to allow for valid generalizations.

In each table, a light gray band signals that the 30–34 score range (and the “complex text” text complexity level) contains the college and career readiness test-level benchmark (30 for the SAT Reading Test). More information about the benchmark, as well as benchmarks by grade for grades 8 through 11, can be found in *The College and Career Readiness Benchmarks for the SAT Suite of Assessments*, also linked to above.

**To use these worksheets, please review the following resources:**

- K-12 Score Reporting Portal data
- District/school curriculum maps
- Released SAT practice tests
- Skills Insight for the SAT Suite* (<https://collegereadiness.collegeboard.org/pdf/skills-insight-sat-suite.pdf>)
- The College and Career Readiness Benchmarks for the SAT Suite of Assessments* (<https://collegereadiness.collegeboard.org/pdf/educator-benchmark-brief.pdf>)

## Science Practice: Biology

Students will effectively analyze a claim, locate evidence, and synthesize reasoning from a scientific journal to construct an argument.

Score Range	Subscore	Skill
15–19	COE	Determine the best textual evidence for a simple inference.
20–24	COE	Determine the best textual evidence for an inference when both evidence and inference are relatively obvious and direct (e.g., a clearly stated fact as evidence for a simple inference).
25–29	COE	Determine the best textual evidence for an inference when the evidence requires some interpretation or analysis.
30–34	COE	Determine the best textual evidence for an inference when the evidence requires some interpretation or analysis and the inference requires close reading.
35–40	COE	Determine the best textual evidence for an inference when the evidence is subtle, abstract, or figurative and the inference requires multiple steps.

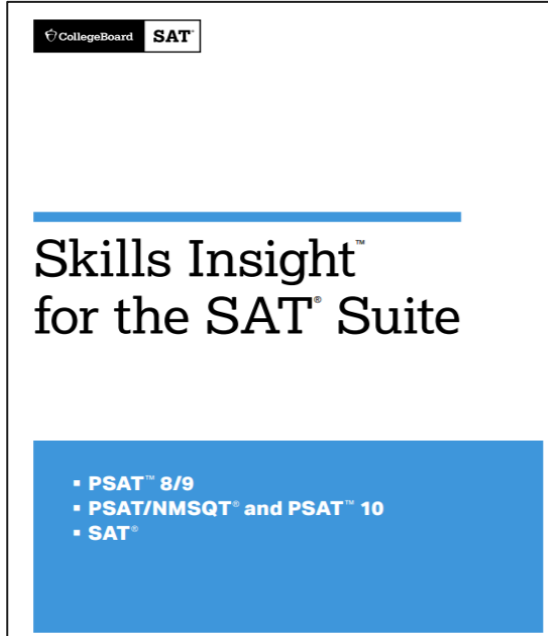
# Subscore & Science Skill

## Reading Test:

Command of Evidence

## Primary Dimension:

Information and Ideas



## NGSS Biology Curriculum Skill and SAT® Suite Skill

**HS-LS1-1.** Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins, which carry out the essential functions of life through systems of specialized cells.

**Score Range:** 15–19

**Skill:** Determine the best textual evidence for a simple inference.

### Suggestion for Improvement:

When you read, look for details in the text that provide support (evidence) for the inferences you draw. For example, if an author suggests that plastic bags are harmful to sea life, look for specific examples in the text that illustrate such harm, and be prepared to cite them as textual evidence in support of your inference. If you cannot find such examples, go back to the text and reconsider your inference.

**Score Range:** 20–24

**Skill:** Determine the best textual evidence for an inference when both evidence and inference are relatively obvious and direct (e.g., a clearly stated fact as evidence for a simple inference).

<https://collegereadiness.collegeboard.org/pdf/skills-insight-sat-suite.pdf>

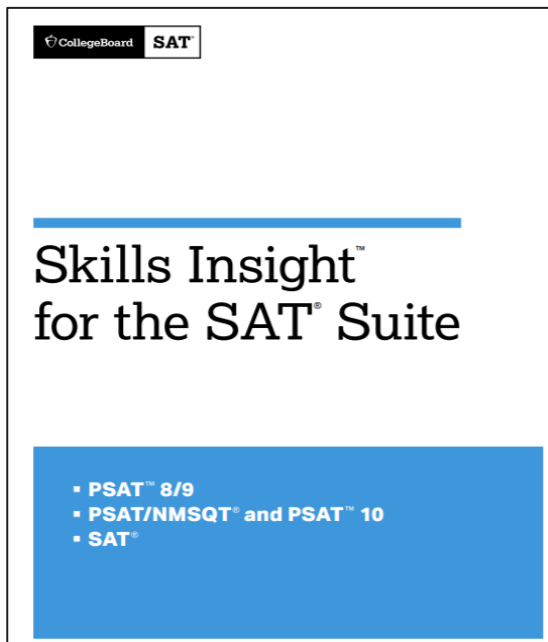
# Subscore & Science Skill

Reading Test Subscore:

Command of Evidence

Primary Dimension:

Synthesis



<https://collegereadiness.collegeboard.org/pdf/skills-insight-sat-suite.pdf>

## NGSS Biology Curriculum Skill and SAT® Suite Skill

**HS-LS2-1.** Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.

**Score Range:** 15–19

**Skill:** Locate data or make a simple accurate interpretation of data in an informational graphic, such as a table, graph, or chart.

### Suggestion for Improvement:

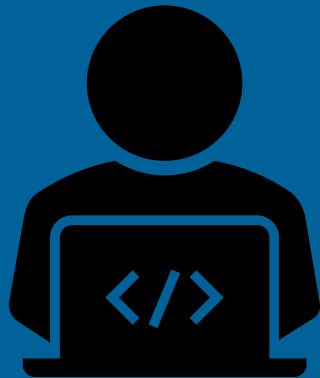
Carefully examine each informational graphic (e.g., table, graph, or chart) you encounter, and be sure you understand what information the graphic is presenting and what the elements of the graphic (such as the bars or lines on a graph) represent. Drawing on this knowledge, locate data and make accurate interpretations using such features as the graphic's title, axis labels, and legend to aid you.

**Score Range:** 20–24

**Skill:** Locate data or make a straightforward accurate interpretation of data in an informational graphic, such as a table, graph, or chart (e.g., comparing the sizes of numerous bars; determining which of two lines, each revealing a clear trend, represents a generally higher value).

# Utilizing the SAT<sup>®</sup> Suite Question Bank





---

# The SAT<sup>®</sup> Suite Question Bank May Be Accessed at

<https://satsuitequestionbank.collegeboard.org>.

Open to the Public

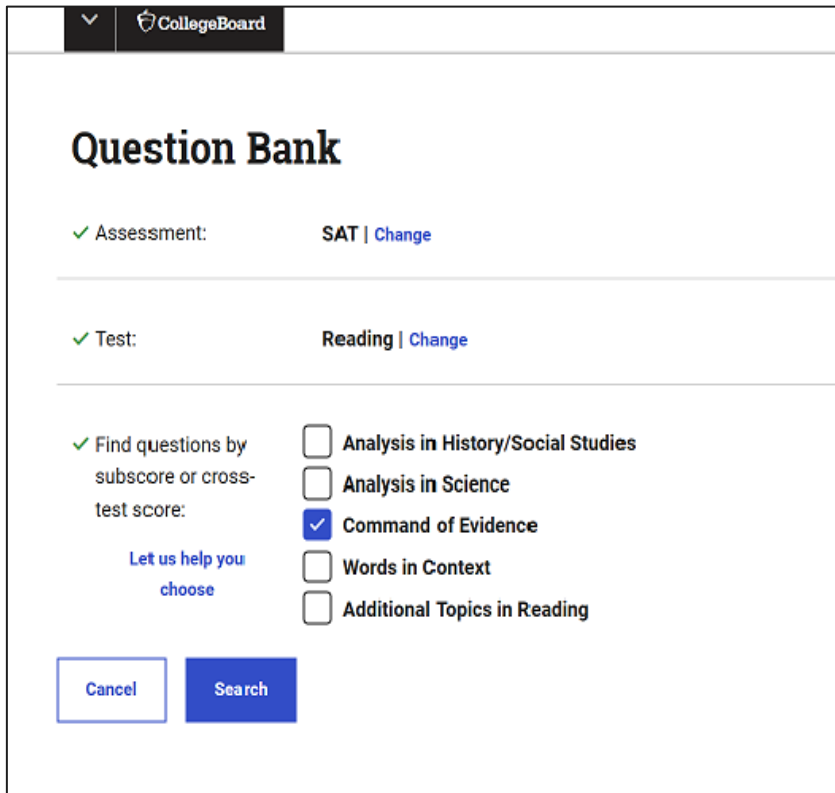
No College Board Account or Access Code Required

# How to Create a Question Set within the SAT<sup>®</sup> Suite Question Bank:

Go to <https://satsuitequestionbank.collegeboard.org>.

To create a question set:

- Use the filters to narrow the list.
- Select question IDs to view question content.
- Check boxes to create the set (up to 20 questions).
- Select the “Export PDF” button.
- Choose to print questions with or without the correct answers and explanations.



The screenshot shows the 'Question Bank' interface on the CollegeBoard website. At the top, there is a 'CollegeBoard' logo and a dropdown arrow. Below the title, there are three filter sections:

- Assessment:** A green checkmark is followed by 'Assessment:' and 'SAT | Change'.
- Test:** A green checkmark is followed by 'Test:' and 'Reading | Change'.
- Find questions by subscore or cross-test score:** A green checkmark is followed by this text and a link 'Let us help you choose'. Below this are five checkboxes:
  - Analysis in History/Social Studies
  - Analysis in Science
  - Command of Evidence
  - Words in Context
  - Additional Topics in Reading

At the bottom of the filter section, there are two buttons: 'Cancel' and 'Search'.

# Filters: Level of Difficulty

Questions are classified as easy, medium, or hard and are based on student performance.

Difficulty: ? Please Select ^

Passage Text Complexity: ? Please Select v

Primary Dimension: ? Please Select v

Clear Filters

		Test and Score	Primary Dimension ?	Secondary Dimension ?	Tertiary Dimension ?	Passage Text Complexity ?	
<input type="checkbox"/>	5441685	■ ■ □	Command of Evidence	Expression of Ideas   Development	Proposition	N/A	Grades 13-14
<input type="checkbox"/>	423182	■ ■ □	Command of Evidence	Expression of Ideas   Development	Focus	N/A	Grades 9-10
<input type="checkbox"/>	18293	■ ■ □	Command of Evidence	Expression of Ideas   Development	Support	N/A	Grades 11-CCR
<input type="checkbox"/>	5439716	■ ■ □	Command of Evidence	Expression of Ideas   Development	Support	N/A	Grades 11-CCR
<input type="checkbox"/>	1473183	■ ■ □	Command of Evidence	Expression of Ideas   Development	Support	N/A	Grades 13-14

# Analysis in Science: Command of Evidence Question

**Question ID 5095221** ×

Assessment	Test	Cross-Test and Subscore	Difficulty	Primary Dimension	Secondary Dimension	Tertiary Dimension	Passage Text Complexity
SAT	Reading	Analysis in Science	■ □ □	Information and Ideas	Interpreting words and phrases in context	N/A	Grades 13-14

**Questions 42-52 are based on the following passage and supplementary material.** This passage is adapted from Dawn Levy, "ORNL Researchers Invent Tougher Plastic with 50 Percent Renewable Content." Published in 2016 by Oak Ridge National Laboratory.

10 by replacing styrene with lignin, a brittle, rigid polymer that, with cellulose, forms the woody cell walls of plants. In doing so, they have invented a solvent-free production process that interconnects equal parts of nanoscale lignin dispersed in a synthetic rubber matrix to produce a meltable, moldable, ductile

15 material that's at least ten times tougher than ABS. The resulting thermoplastic—called ABL for acrylonitrile, butadiene, lignin—is recyclable, as it can be melted three times and still perform well. The results, published in the journal *Advanced*

**5095221**

As used in [line 11](#), "forms" most nearly means

- A. organizes.
- B. composes.
- C. conceives.
- D. acquires.

**Rationale**

Choice B is the best answer. In the second paragraph, the author says lignin is "a brittle, rigid polymer that, with cellulose, forms the woody cell walls of plants." In other words, lignin, with cellulose, makes up or composes the woody cell walls of plants. Therefore, the word "forms," as used in this sentence, most nearly means composes.

# The SAT® Suite Question Bank (SSQB) and Curriculum Review Worksheets



Identify skills on the Curriculum Review Worksheets currently included in the curriculum.



Use the SSQB to associate questions with each of those skills.

Determine whether these questions align with the types of questions that assess the skills in the current curriculum.



Look at questions for skills *not* currently in the curriculum.

Discuss how students can be exposed to these skills and questions.



Include questions from the SSQB in the curriculum planning process.

Decide how to expose students to the skills and questions in the curriculum.

**CollegeBoard SAT**

### SAT® Math Test Curriculum Review Worksheets

**Introduction**

Curriculum Review Worksheets are designed to help you

- understand many of the skills and knowledge that are assessed on the SAT Suite of Assessments Math Tests;
- review student performance;
- identify skills and knowledge that need additional instruction and support; and
- develop a plan for implementation.

The curriculum review worksheets consist of a set of tables addressing most of the skills and knowledge assessed on the SAT Suite Math Tests. Each table includes description of a skill or knowledge and provides a structure to guide you as you evaluate the place of that skill or knowledge in your curriculum.

Each skill/knowledge table includes the following elements:

1. The name and definition of the skill or knowledge (or skill/knowledge area)
2. Questions guiding you to consider the place of that skill or knowledge in your curriculum
3. An indication of which SAT Suite subscore(s) the Definitions of the subscores appear below.
4. A series of statements describing the ways in which various score ranges on the Math Test (e.g., 20– attainment of the skill or knowledge, and spaces statements best reflects your students' general level of attainment

The statements in the tables are taken from *Skills Insight for the SAT*, linked to above. The Skills Insight describes typical performance of students scoring in various score ranges on the Math Test (e.g., 20– attainment of the skill or knowledge, and spaces statements best reflects your students' general level of attainment

In each table, a light gray band signals that the 30–34 score range contains the college and career readiness test-level benchmark (31.5 for the SAT Math Test), as well as benchmarks by grade for grades 8 through 11, can be found in *The College and Career Readiness Benchmarks for the SAT Suite of Assessments*, also linked to above.

To use these worksheets, please review the following resources:

- K-12 Score Reporting Portal data
- District/school curriculum maps
- Released SAT practice tests
- *Skills Insight for the SAT Suite* (<https://collegereadiness.collegeboard.org/pdf/skills-insight-sat-suite.pdf>)
- *The College and Career Readiness Benchmarks for the SAT Suite of Assessments* (<https://collegereadiness.collegeboard.org/pdf/educator-benchmark-brief.pdf>)

**CollegeBoard SAT**

### Curriculum Review Worksheets

**Introduction**

This set of curriculum review worksheets is designed to help you

- understand many of the skills and knowledge that are assessed on the SAT Suite of Assessments Reading Tests;
- review student performance;
- identify skills and knowledge that need additional instruction and support; and
- develop a plan for implementation.

The Curriculum Review Worksheets contain set of tables addressing most of the skills and knowledge assessed on the SAT Suite Reading Tests. Each table includes description of a skill or knowledge and provides a structure to guide you as you evaluate the place of that skill or knowledge in your curriculum.

Each skill/knowledge table includes the following elements:

1. The name and definition of the skill or knowledge (or skill/knowledge area)
2. Questions guiding you to consider the place of that skill or knowledge in your curriculum
3. An indication of which SAT Suite subscore(s) the skill or knowledge is associated with
4. A series of statements describing the ways in which various score ranges on the Reading Tests (e.g., 20–24) are typically able to demonstrate attainment of the skill or knowledge, and spaces where you can indicate which of these statements best reflects your students' general level of attainment

The statements in the tables are taken from *Skills Insight for the SAT*, linked to above. The Skills Insight describes typical performance of students scoring in various score ranges on the Reading Tests (and other SAT Suite tests). The Skills Insight statements are generalizations based on analysis of hundreds of test questions and on the performance data of thousands of students taking one of the SAT Suite assessments. In a few cases, identified in this set of worksheets by dark gray bands, student performance has to date been too inconsistent to allow for valid generalizations.

In each table, a light gray band signals that the 30–34 score range (and the "complex text" text complexity level) contains the college and career readiness test-level benchmark (30 for the SAT Reading Test). More information about the benchmark, as well as benchmarks by grade for grades 8 through 11, can be found in *The College and Career Readiness Benchmarks for the SAT Suite of Assessments*, also linked to above.

**CollegeBoard SAT**

### SAT Writing and Language Test Curriculum Review Worksheets

**Introduction**

This set of curriculum review worksheets is designed to help you

- understand many of the skills and knowledge that are assessed on the SAT Suite of Assessments Writing and Language Tests;
- review student performance;
- identify skills and knowledge that need additional instruction and support; and
- develop a plan for implementation.

The Curriculum Review Worksheets contain a set of tables addressing most of the skills and knowledge assessed on the SAT Suite Writing and Language Tests. Each table includes description of a skill or knowledge (or broader skill/knowledge area, such as sentence structure) and provides a structure to guide you as you evaluate the place of that skill or knowledge in your curriculum.

Each skill/knowledge table includes the following elements:

1. The name and definition of the skill or knowledge (or skill/knowledge area)
2. Questions guiding you to consider the place of the skill or knowledge in your curriculum
3. An indication of which SAT Suite subscore(s) the skill or knowledge is associated with
4. A series of statements describing the ways in which various score ranges on the Writing and Language Tests (e.g., 20–24) are typically able to demonstrate attainment of the skill or knowledge, and spaces where you can indicate which of these statements best reflects your students' general level of attainment

The statements in the tables are taken from *Skills Insight for the SAT*, linked to above. The Skills Insight describes typical performance of students scoring in various score ranges on the Writing and Language Tests (and other SAT Suite tests). The Skills Insight statements are generalizations based on analysis of hundreds of test questions and on the performance data of thousands of students taking one of the SAT Suite assessments. In a few cases, identified in this set of worksheets by dark gray bands, student performance has to date been too inconsistent to allow for valid generalizations.

In each table, a light gray band signals that the 30–34 score range contains the college and career readiness test-level benchmark (31 for the SAT Writing and Language Test). More information about the benchmark, as well as benchmarks by grade for grades 8 through 11, can be found in *The College and Career Readiness Benchmarks for the SAT Suite of Assessments*, also linked to above.

The set of tables below includes abbreviations for the four subscores associated with the SAT Suite Writing and Language Tests. Subscores identify areas of concentration on the tests and consequently have potential instructional value.



---

# Next Steps

## Teacher Toolkit

- Share the Back-to-School Toolkit with staff at <https://www.isbe.net/Pages/sat-psat.aspx>.
- Contact [ILSAT@collegeboard.org](mailto:ILSAT@collegeboard.org) to request the full version of the curriculum worksheets for Reading, Writing and Language, and Math.
- Contact [ILSAT@collegeboard.org](mailto:ILSAT@collegeboard.org) to schedule an in-depth workshop on the Analysis in Science cross-test score.

## SAT® Suite Question Bank

- Access the SAT® Suite Question Bank at <https://satsuitequestionbank.collegeboard.org>.
- Determine the best use of the readily available 3,500 questions.

Please email questions or comments about this presentation to [ILSAT@collegeboard.org](mailto:ILSAT@collegeboard.org).

# Thank You

