

SAT® SUITE OF ASSESSMENTS

Teacher Implementation Guide

SAT®

PSAT/NMSQT®

PSAT™ 10

PSAT™ 8/9



About the College Board

The College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of over 6,000 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, the College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success—including the SAT® and the Advanced Placement Program®. The organization also serves the education community through research and advocacy on behalf of students, educators, and schools. For further information, visit collegeboard.org.

Special thanks to the College Board's K–12 Assessment Redesign Steering Committee for providing feedback on the Teacher Implementation Guide and other resources for educators. The K–12 Committee was convened in spring 2014 to advise the College Board on assessment implementation challenges and opportunities and to advise on the needed tools and resources most important to K–12 educators. Participating districts include:

Bangor School Department, ME

Cincinnati Public Schools, OH

Fort Bend Independent School District, TX

Long Beach Unified School District, CA

Montgomery County Public Schools, MD

Orange County Public Schools, FL

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The SAT Suite of Assessments Teacher Implementation Guide has been created for teachers and curriculum specialists to generate ideas about integrating SAT practice and skill development into challenging coursework through curriculum and instruction. When students engage in challenging coursework, they give themselves the best chance to succeed—not just on the SAT, but also in college and career. Educator feedback is the basis and inspiration for this guide, which covers the whys and hows of the SAT Suite and its benefits for you and your students.

At the heart of this guide are annotated sample SAT questions, highlighting connections to the instruction and best practices occurring in classrooms like yours. We indicate Keys to the SAT (information about test changes), General Instructional Strategies for each test and Skill-Building Strategies linked to specific sample questions from the Reading, Writing and Language, and Math Tests, as well as the optional SAT Essay. In sum, these recommendations are intended to support teachers across all content areas and enhance instruction that builds skills necessary for college and career success for each student.

If you're looking for additional resources, check out sat.org/k12, where you can find several new and valuable assessment resources, including:

- Official SAT Practice on Khan Academy, which offers free, high-quality test practice materials for students.
- Online professional development modules and resources to inform your lesson planning to make sure your students are ready.
- A guide dedicated to understanding and using data in reports from the SAT Suite of Assessments to inform instruction.
- A *Counselor Implementation Guide*, which supports the work of counselors as they help students navigate college and career decisions related to the SAT Suite of Assessments.
- Support from College Board regional staff.

We know how essential you are to the success of your students, and how our goal of propelling students into the success they've earned is only possible with your help. Our College Board team looks forward to strengthening our partnership with you in order to go beyond delivering assessments to delivering opportunity.

If you'd like to send a question, comment, or idea about the *Teacher Implementation Guide*, please email SATinstructionalsupport@collegeboard.org.

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SECTION 1:

The SAT Suite of Assessments

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

Opportunity for All

It is the responsibility of the education community to ensure that students have the learning and life skills they need to meet the challenges they will face after high school. To accomplish our mission in spirit and in fact, the College Board is going beyond delivering assessment to delivering opportunity.

Our primary focus is getting students into college and career training opportunities, ensuring they have the tools they need to successfully complete postsecondary work and to access opportunities for the rest of their lives.



The College Board Readiness and Success System

The SAT Suite of Assessments is part of the College Board Readiness and Success System, a system designed to make it easier for students to navigate a path through high school, college, and career. The system includes a suite of assessments, focused practice activities, and college and career information and opportunities for students. The SAT Suite of Assessments includes assessments at multiple grade levels, all vertically aligned to provide you and your students with actionable feedback about their college and career readiness from eighth grade through graduation. The College Board offers the SAT, PSAT/NMSQT®, PSAT™ 10, and PSAT™ 8/9 as grade-appropriate assessment options for your middle and high school students.

THE SAT SUITE OF ASSESSMENTS

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

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

Research and the SAT Suite of Assessments

Research has been the driving force behind the SAT Suite of Assessments. We examined what the best available evidence indicated were the “essential prerequisites” in reading, writing, language, and mathematics for success in postsecondary education. The test specifications and the research foundation defining what is measured on the test will continue to be refined based on ongoing research.

Essential Prerequisites for College and Career Readiness

Through our research, the College Board has identified a critical set of knowledge, skills, and understandings that consistently predict student success in college and workforce training programs. We have concluded that students must be able to:

- read, analyze, and use reasoning to comprehend challenging literary and informational texts, including texts on science and history/social studies topics, to demonstrate and expand their knowledge and understanding;
- revise and edit extended texts across a range of academic and career-related subjects for expression of ideas and to show facility with a core set of grammar, usage, and punctuation conventions;
- show command of a focused but powerful set of knowledge, skills, and understandings in math and solve problems situated in science, social studies, and career-related contexts;
- make careful and deliberate use of evidence as they read and write;
- demonstrate skill in analyzing data, including data represented graphically in tables, graphs, charts, and the like, in reading, writing, and math contexts; and
- reveal an understanding of words in context and how word choice helps shape meaning and tone.

The knowledge, skills, and understandings identified by this evidence are addressed in every aspect of the College Board’s work.

How Does the SAT Suite Benefit Your Students?

Learning, not memorizing. The SAT Suite requires students to have a stronger command of fewer topics. Rote memorization and “cramming” to learn vocabulary they soon forget are not a part of the SAT Suite. Your students are asked to apply deep understanding of the skills and concepts most important for college and career readiness.

Connection to classroom learning and experience. Students encounter assessments that are closely connected to their classroom experience, that reward focused work and the development of valuable, durable knowledge, skills, and understandings. The questions and approaches they encounter are more familiar to them because they are modeled on the best work of classroom teachers.

Rights-only scoring. Scoring on the assessments is based only on questions that students answer correctly. There is no point-deduction for wrong answers, encouraging students to give the best answer for every question rather than to skip questions about which they are unsure.

Free resources for practice and review. Students have access to free resources that introduce them to the SAT Suite and give them a chance to enhance their preparation with targeted review and authentic practice.

The College Board has partnered with Khan Academy® to develop Official SAT Practice on Khan Academy, providing free practice materials that are personalized, interactive, and engaging to help students prepare for the SAT. (More information can be found in Section 5 of this guide.)

What Does This Mean for You and Your Classroom?

Clearer connections to classroom instruction. What are the most important things students can do to prepare for the SAT? Take the most challenging courses available to them, do their best work, and benefit from daily instruction that prepares them for college and career. See Section 5 (“Preparing Your Students for Success on the SAT”) for some suggestions. What is the single best way you can prepare your students? Continue to develop and focus on the college and career readiness skills—reading comprehension, writing, analysis of text and data, and problem solving—that you’re already teaching in your discipline.

We understand that your students are your priority and that the most important thing you can do is to focus on the work that takes place in your own classroom. The SAT is aligned with classroom instruction, part of our commitment to empowering educators. With its deeper focus on fewer topics and current instructional best practices, the SAT Suite aligns to your instruction, rather than presenting you with more responsibilities. You will not be “teaching to the test”—instead, the test will reflect your teaching.

Test descriptions and sample questions in Section 2 of this guide are annotated to highlight connections to curriculum and instruction; you will also find strategies and information designed to aid you as you help your students approach the assessment in the context of classroom learning.

Better information about your students’ strengths and opportunities for growth. The SAT Suite offers you and your students an improved indicator of their progress through in-depth scores and reports, designed to focus efforts on targeted areas of knowledge and skills with an integrated, personalized plan for practice and growth. Because the assessments reflect shifts in high school instruction, standards, and assessment, they better measure the knowledge, skills, and understandings students need in high school and beyond. The SAT Suite provides rich score reports that give students detailed information about their abilities and helps them focus their efforts to improve. Section 4 of this guide provides details about the scoring system for the SAT Suite of Assessments. More details and helpful suggestions for understanding and using data in the SAT reports are available in the Professional Development Module 6 and guide: “Using Scores and Reporting to Inform Instruction.”

Transparency. The College Board is committed to transparency throughout the development process and beyond. The SAT is not a mystery to be solved or a game to be won (for students or teachers), and we strive to provide clarity about every step.

This guide is one of a number of resources that ensure that you and your students will know exactly what to expect on test day. Online professional development modules, a guide explaining SAT Suite reports, and resources for school and district leaders are available at sat.org/k12. You can also find the full test specifications for the assessments, as well as material focused on particular aspects of the assessments. Email SATinstructionalsupport@collegeboard.org for answers to your specific questions.

SECTION 2:

Getting Familiar with the SAT Suite of Assessments

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

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

SAT SUITE OF ASSESSMENTS—TIMING AND QUESTIONS

		SAT	PSAT/NMSQT and PSAT 10	PSAT 8/9
Total Length		3 hours (+50 minutes optional Essay)	2 hours, 45 minutes	2 hours, 25 minutes
Reading Test				
	Total Questions	52	47	42
	Time Allotted (in minutes)	65	60	55
Writing and Language Test				
	Total Questions	44	44	40
	Time Allotted (in minutes)	35	35	30
Math Test				
Calculator	Total Questions	38	31	25
	Time Allotted (in minutes)	55	45	40
No Calculator	Total Questions	20	17	13
	Time Allotted (in minutes)	25	25	20
Essay (optional)				
	Total Questions	1	N/A	N/A
	Time Allotted (in minutes)	50	N/A	N/A

Eight Key Features

Reflected throughout the SAT Suite is the College Board's deeper focus on fewer topics. All components align to good classroom instruction, demanding deep thinking and rigorous analysis on questions grounded in real-world knowledge. Key features fall into eight categories:



Words in Context

Instead of being asked to define obscure and seemingly random words, commonly called "SAT words," students encounter relevant words and phrases that derive their meanings from the contexts in which they are used. These skills are broadly useful in numerous subjects and careers.



Command of Evidence

Students analyze materials from a variety of content areas (literature and literary nonfiction, science, history, and social studies) and on career-related topics. Students use textual evidence to support their answers, and they apply an understanding of how authors make use of evidence.



Essay Analyzing a Source (SAT Only)

After completing the other three tests, students who take the SAT Essay are given 50 minutes to compose a clear and cogent analysis of text in response to a prompt common to every administration of the SAT. Essays are scored on reading comprehension, writing skill, and argument analysis.



Focus on Math that Matters Most

In keeping with the philosophy of deeper focus on fewer topics, the Math Test focuses on three areas essential for college readiness: Heart of Algebra, Problem Solving and Data Analysis, Passport to Advanced Math.



Problems Grounded in Real-World Contexts

Students engage with questions grounded in the real world and directly related to the work performed in college and career. Both the Reading Test and the Writing and Language Test include literature and literary nonfiction, and they also feature charts, graphs, and passages similar to those that students are likely to encounter in science, social science, and other majors and careers. The Math Test features multistep applications to solve problems in science, social science, career scenarios, and other real-life contexts.



Analysis in Science and Analysis in History/Social Studies

Across all components of the SAT, students are asked to apply their reading, writing, language, and math skills to answer questions in science, history, and social studies contexts.



U.S. Founding Documents and the Great Global Conversation

The U.S. Founding Documents, including the Declaration of Independence, the Bill of Rights, and the Federalist Papers, have helped inspire a conversation that continues to this day about the nature of civic life. Over time, authors, speakers, and thinkers from the United States and around the world, including Edmund Burke, Mary Wollstonecraft, and Mohandas Gandhi, have broadened and deepened the conversation around such vital matters as freedom, justice, and human dignity. Every time students take an assessment in the SAT Suite, they encounter a passage from one of the founding documents or from a text from the global conversation. Our hope is to inspire a close reading of these rich, meaningful, often profound texts not only as a way to develop valuable college and career readiness skills but also as an opportunity to reflect on and deeply engage with issues and concerns central to informed citizenship.



Rights-Only Scoring

The SAT Suite has removed the penalty for guessing that was used to score the SAT in the past. Instead, students earn points for the questions they answer correctly. This move to rights-only scoring encourages students to give the best answer they have to every question.

SECTION 3:

Connecting Test Content and Classroom Instruction

Test Overviews

This portion of the guide is dedicated to a brief overview of the assessment sections (Evidence-Based Reading and Writing, and Math plus the optional SAT Essay) and includes test specifications, general instructional strategies, and sample test questions annotated with relevant information (“Keys to the SAT”) and strategies (“Skill-Building Strategies”) for supporting skills development in the classroom. Additional sample questions, with answer explanations, are available with the full-length SAT Practice Tests, available at sat.org/practice. A compilation of the annotated instructional strategies for all tests can be accessed in Appendix A. All sample passages and questions in this guide have been copied from sample SAT assessments. There are no sample questions from PSAT-related assessments in this guide.

Evidence-Based Reading and Writing Section

The Evidence-Based Reading and Writing Section of the SAT comprises the Reading Test and the Writing and Language Test.

Key elements of both tests include:

- the use of a specified range of text complexity aligned to college and career readiness levels of reading;
- an emphasis on source analysis and use of evidence;
- the inclusion of data and informational graphics, which students must analyze in conjunction with text;
- a focus on words in context and word choice for rhetorical effect;
- attention to a core set of important English language conventions and to effective written expression; and
- the requirement that students work with texts across a wide range of disciplines.

Reading Test

The overall aim of the Reading Test is to determine whether students can demonstrate college and career readiness proficiency in comprehending a broad range of high-quality, appropriately challenging literary and informational texts in the content areas of U.S. and world literature, history/social studies, and science.

The assessments comprise a series of passages and associated multiple-choice questions; to answer the questions, students must refer to what the passages say explicitly and use careful reasoning to draw supportable inferences.

SAT READING TEST CONTENT SPECIFICATIONS

	Number	Percentage of Test
Time Allotted	65 minutes	
Passage Word Count	3,250 words total from 4 single passages and 1 pair; 500–750 words per passage or paired set	
Total Questions	52 questions	100%
Multiple Choice (4 options)		100%
Passage Based		100%
Contribution of Items to Subscores and Scores		
Words in Context (Across Reading and Writing and Language Tests)	10 questions (2 questions per passage/pair)	19%
Command of Evidence (Across Reading and Writing and Language Tests)	10 questions (2 questions per passage/pair)	19%
Analysis in History/Social Studies (Across Math, Reading, and Writing and Language Tests)	21 questions (all history/social studies questions)	40%
Analysis in Science (Across Math, Reading, and Writing and Language Tests)	21 questions (all science questions)	40%
Passage Contents		
U.S. and World Literature	1 passage; 10 questions	20%
History/Social Studies	2 passages, or 1 passage and 1 pair; 10–11 questions each	40%
Science	2 passages, or 1 passage and 1 pair; 10–11 questions each	40%
Graphics		
	1–2 graphics in 1 History/Social Studies passage and in 1 Science passage	
Text and Graphical Complexity		
Text Complexity	A specified range from grades 9–10 to postsecondary entry across 4 passages and 1 pair	
Graphical Data Representations (tables, graphs, charts, etc.)	Somewhat challenging to challenging (moderate to moderately high data density, few to several variables, moderately challenging to moderately complex interactions)	

General Instructional Strategies for Reading:

- Require students to practice reading and analyzing extended passages of text at varied lengths and levels of text complexity. The Reading Test passages span a range of difficulty from the early high school to early postsecondary (college entry, credit bearing) levels of reading.
- Use multiple reading passages to explore ideas in both fiction and nonfiction, giving students the opportunity to practice analysis and synthesis of texts.
- Include graphs, tables, and charts in reading assignments. The Reading Test includes two passages accompanied by one or two related informational graphics. Students will be asked to interpret graphics and make connections between graphics and passages. (They will not need to use mathematical computation to answer the questions.)
- Ask students to investigate the way authors use word choice, structure, and other techniques to create a desired effect in both fiction and nonfiction passages.
- Direct students to analyze history and social studies passages from the U.S. Founding Documents and texts in the Great Global Conversation. Reading selections from such texts helps prepare students for the rigors of making meaning from challenging passages on topics such as rights, duties, and freedoms. The goal here is not to prepare students for specific test passages—the Reading Test does not follow a prescribed list of texts—but instead to acquaint students with the nature and challenges of reading such works and to engage them in the “conversations” these texts inspire. All of the information needed to answer the associated Reading Test questions is found in the passages themselves—the test does not assume that students will have read these passages previously. When useful, a historical note will be provided to contextualize the reading for students.

SAT READING DOMAIN

Content Dimension	Description
Text Complexity	The passages/pair on the SAT Reading Test represent a specified range of text complexities from grades 9–10 to postsecondary entry.
Information and Ideas	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.
Rhetoric	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 how 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).

SAT READING DOMAIN

Content Dimension	Description
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.
Synthesis	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.

Sample Items — Reading Test

Reading Test Sample Passage

CONTENT: Science	TEXT COMPLEXITY: Medium
PASSAGE: Questions 1–5 are based on the following passages.	FOCUS: Students must read and understand a pair of passages on a life science topic.

Passage 1 is adapted from Susan Milius, “A Different Kind of Smart.” © 2013 by Science News. Passage 2 is adapted from Bernd Heinrich, *Mind of the Raven: Investigations and Adventures with Wolf-Birds*. © 2007 by Bernd Heinrich.

Passage 1

In 1894, British psychologist C. Lloyd Morgan published what’s called Morgan’s canon, the principle that suggestions of humanlike mental processes behind an animal’s behavior should be rejected if a simpler explanation will do.

5 Still, people seem to maintain certain expectations, especially when it comes to birds and mammals. “We somehow want to prove they are as ‘smart’ as people,” zoologist Sara Shettleworth says. We want a bird that masters a vexing problem to be employing human-style insight.

10 New Caledonian crows face the high end of these expectations, as possibly the second-best toolmakers on the planet.

Their tools are hooked sticks or strips made from spike-edged leaves, and they use them in the wild to winkle grubs out of crevices. Researcher Russell Gray first saw the process on a cold morning in a mountain forest in New Caledonia, an island chain east of Australia. Over the course of 15 days, he and crow researcher Gavin Hunt had gotten wild crows used to finding meat tidbits in holes in a log. Once the birds were checking the log reliably, the researchers placed a spiky tropical pandanus plant beside the log and hid behind a blind.

A crow arrived. It hopped onto the pandanus plant, grabbed the spiked 20 edge of one of the long straplike leaves and began a series of ripping motions. Instead of just tearing away one long strip, the bird ripped and nipped in a sequence to create a slanting stair-step edge on a leaf segment with a narrow point and a wide base. The process took only seconds. Then the bird dipped the narrow end of its leaf strip into a hole in the log, fished 25 up the meat with the leaf-edge spikes, swallowed its prize and flew off.

“That was my ‘oh wow’ moment,” Gray says. After the crow had vanished, he picked up the tool the bird had left behind. “I had a go, and I couldn’t do it,” he recalls. Fishing the meat out was tricky. It turned out that Gray was moving the leaf shard too forcefully instead of gently stroking the 30 spines against the treat.

The crow’s deft physical manipulation was what inspired Gray and Auckland colleague Alex Taylor to test other wild crows to see if they employed the seemingly insightful string-pulling solutions that some ravens, kea parrots and other brainiac birds are known to employ. Three of 35 four crows passed that test on the first try.

KEY TO THE SAT:

On the SAT Suite of Assessments, reading passages are selected with both quantitative and qualitative measures of text complexity in mind and represent a range of difficulties consistent with effectively measuring students’ college and career readiness.

SKILL-BUILDING STRATEGY:

Students may be unaccustomed to the length and difficulty of Reading Test passages. Assign a range of reading passages that includes some longer and more difficult selections, and provide students with needed scaffolding and support so that they can develop the needed independence in reading such pieces.

Passage 2

For one month after they left the nest, I led my four young ravens at least once and sometimes several times a day on thirty-minute walks. During these walks, I wrote down everything in their environment they pecked at. In the first sessions, I tried to be teacher. I touched specific
40 objects—sticks, moss, rocks—and nothing that I touched remained untouched by them. They came to investigate what I had investigated, leading me to assume that young birds are aided in learning to identify food from the parents' example. They also, however, contacted almost everything else that lay directly in their own paths. They soon became
45 more independent by taking their own routes near mine. Even while walking along on their own, they pulled at leaves, grass stems, flowers, bark, pine needles, seeds, cones, clods of earth, and other objects they encountered. I wrote all this down, converting it to numbers. After they were thoroughly familiar with the background objects in these woods and
50 started to ignore them, I seeded the path we would later walk together with objects they had never before encountered. Some of these were conspicuous food items: raspberries, dead meal worm beetles, and cooked corn kernels. Others were conspicuous and inedible: pebbles, glass chips, red winterberries. Still others were such highly cryptic foods as encased
55 caddisfly larvae and moth cocoons. The results were dramatic.

The four young birds on our daily walks contacted all new objects preferentially. They picked them out at a rate of up to tens of thousands of times greater than background or previously contacted objects. The main initial criterion for pecking or picking anything up was its novelty. In
60 subsequent trials, when the previously novel items were edible, they became preferred and the inedible objects became "background" items, just like the leaves, grass, and pebbles, even if they were highly conspicuous. These experiments showed that ravens' curiosity ensures exposure to all or almost all items in the environment.

SKILL-BUILDING STRATEGY

To help students recognize how an author's selection of words and phrases shapes meaning, style, and tone, ask them to select a particularly meaningful or powerful word or phrase from a reading selection and substitute for it another word or phrase of similar meaning. Discuss how it is uncommon for two words or phrases to have exactly the same impact, nuance, or connotation even when they have similar dictionary definitions.

1

Within Passage 1, the main purpose of the first two paragraphs (lines 1–8) is to

- A) offer historical background in order to question the uniqueness of two researchers' findings.
- B) offer interpretive context in order to frame the discussion of an experiment and its results.
- C) introduce a scientific principle in order to show how an experiment's outcomes validated that principle.
- D) present seemingly contradictory stances in order to show how they can be reconciled empirically.

CONTENT: Rhetoric	OBJECTIVE: Students must determine the main purpose of two paragraphs in relation to the passage as a whole.
KEY: B	

Explanation: Choice B is the best answer. Passage 1 opens with an explanation of Morgan's canon and continues with a discussion of people's expectations regarding animal intelligence. Taken together, the first two paragraphs indicate that despite cautions to the contrary, people still tend to look for humanlike levels of intelligence in many animals, including birds. These two paragraphs provide a framework in which to assess the work of Gray and Hunt, presented in the rest of the passage. The passage's characterization of the experiment Gray and Hunt conduct, in which they observe a crow's tool-making ability and to which Gray responds by trying and failing to mimic the bird's behavior ("I had a go, and I couldn't do it," lines 27–28), suggests that Shettleworth, quoted in the second paragraph, is at least partially correct in her assessment that "We somehow want to prove [birds] are as 'smart' as people" (lines 6–7).

Choice A is not the best answer because while the reference to Morgan's canon in the first paragraph offers a sort of historical background (given that the canon was published in 1894), the second paragraph describes people's continuing expectations regarding animal intelligence. Furthermore, the fact that Gray and Hunt may share with other people the tendency to look for humanlike intelligence in many animals does not by itself establish that the main purpose of the first two paragraphs is to question the uniqueness of Gray and Hunt's findings.

Choice C is not the best answer because while the reference to Morgan's canon in the first paragraph does introduce a scientific principle, the discussion in the second paragraph of people's expectations regarding animal intelligence, as well as the *passage's characterization* of Gray and Hunt's experiment and how the researchers interpret the results, primarily suggest that people tend to violate the canon by attributing humanlike levels of intelligence to many animals.

SKILL-BUILDING STRATEGY

When reading literature passages, primary sources, or current event publications, ask students to use the SOAPSTone* method to analyze the text. Ask students to identify the Speaker, Occasion, Audience, Purpose, Subject, and Tone. Students can deepen their understanding of both content and meaning by comparing these elements across several documents focused on a similar theme or topic. See **Appendix B** for a graphic organizer.

*AP[®] instructional strategy.

Choice D is not the best answer because although the first two paragraphs do present different perspectives, they are not seemingly or genuinely contradictory. The second paragraph, particularly the quotation from Shettleworth, serves mainly to qualify (not contradict) the position staked out in the first paragraph by suggesting that while Morgan's canon is probably a sound principle, people still tend to project humanlike levels of intelligence onto many animals. Moreover, the experiment depicted in the rest of the passage primarily bears out Shettleworth's claim that "We somehow want to prove [birds] are as 'smart' as people" (lines 6–7) and thus does not reconcile the perspectives found in the opening paragraphs.

2

According to the experiment described in Passage 2, whether the author's ravens continued to show interest in a formerly new object was dictated primarily by whether that object was

- A) edible.
- B) plentiful.
- C) conspicuous.
- D) natural.

CONTENT: Information and Ideas/
Understanding relationships

KEY: A

OBJECTIVE: Students must identify
an explicitly stated relationship
between events.

Explanation: Choice A is the best answer. The last paragraph of Passage 2 presents the results of an experiment in which the author scattered unfamiliar objects in the path of some ravens. According to the passage, the birds initially "contacted all new objects preferentially" but in "subsequent trials" only preferred those "previously novel items" that "were edible" (lines 56–60).

Choice B is not the best answer because the ravens studied by the author only preferred those "previously novel items" that "were edible," whereas "the inedible objects became 'background' items, just like the leaves, grass, and pebbles" (lines 60–62). In other words, plentiful items did not continue to interest the ravens unless the items were edible.

Choice C is not the best answer because the ravens studied by the author only preferred those "previously novel items" that "were edible," whereas "the inedible objects became 'background' items, just like the leaves, grass, and pebbles, even if they were highly conspicuous" (lines 60–62). In other words, conspicuous items did not continue to interest the ravens unless the items were edible.

SKILL-BUILDING STRATEGY

Ask students to write questions that investigate understanding of a lesson or unit. Questions should be at various levels: literal, interpretive, and universal questions that prompt deeper thinking.* Students will practice identifying meaningful and relevant information in order to create high-quality questions for their peers to answer. When students answer their peers' questions, require them to provide the evidence that supports their selections.

*AP instructional strategy.

Choice D is not the best answer because the ravens studied by the author only preferred those “previously novel items” that “were edible,” whereas “the inedible objects became ‘background’ items, just like the leaves, grass, and pebbles” (lines 60–62). In other words, natural items did not continue to interest the ravens unless the items were edible.

3

The crows in Passage 1 and the ravens in Passage 2 shared which trait?

- A) They modified their behavior in response to changes in their environment.
- B) They formed a strong bond with the humans who were observing them.
- C) They manufactured useful tools for finding and accessing food.
- D) They mimicked the actions they saw performed around them.

CONTENT: Synthesizing/Analyzing multiple texts	OBJECTIVE: Students must synthesize information and ideas from paired texts.
KEY: A	

Explanation: Choice A is the best answer. Both bird species studied modified their behavior in response to changes in their environment. The researchers described in Passage 1 “had gotten wild crows used to finding meat tidbits in holes in a log” (lines 15–16). In other words, the researchers had repeatedly placed meat in the log — that is, changed the crows’ environment — and the birds had responded by modifying their behavior, a point reinforced in lines 16–17, which noted that the birds began “checking the log reliably.” The ravens in Passage 2 act in analogous fashion, responding to the introduction of new objects in their environment by “pick[ing] them out at a rate of up to tens of thousands of times greater than background or previously contacted objects” (lines 57–58).

Choice B is not the best answer because while there is some evidence that the ravens described in Passage 2 formed a bond with the author, going on walks with him and possibly viewing **him as** their “teacher,” there is no evidence that a similar bond formed between the researchers described in Passage 1 and the crows they studied. Indeed, these researchers “hid behind a blind” (line 18) in an effort to avoid contact with their subjects.

Choice C is not the best answer because while crows’ tool-making ability is the central focus of the experiment described in Passage 1, there is no evidence that the ravens in Passage 2 did anything similar. Passage 1 does mention that “some ravens” use “seemingly insightful string-pulling solutions” (lines 33–34), but nothing in Passage 2 suggests that the ravens in that particular study had or displayed tool-making abilities.

SKILL-BUILDING STRATEGY

Ask students to identify similarities and differences in multiple passages. Have them create a Venn diagram or develop their own graphic organizers to organize their thoughts and facilitate synthesis and analysis of multiple texts. Visual representations can also be used to trace other kinds of relationships, such as sequence and cause-effect. See **Appendix B** for a range of graphic organizers.

Choice D is not the best answer because while there is some evidence that the ravens described in Passage 2 mimicked human behavior, going on walks with the author and possibly viewing him as their “teacher,” there is no evidence that the crows in Passage 1 did any mimicking. Passage 1, in fact, suggests that the ability of the crow to produce the meat-fishing tool was innate rather than a skill it had acquired from either humans or other birds.

4

One difference between the experiments described in the two passages is that unlike the researchers discussed in Passage 1, the author of Passage 2

- A) presented the birds with a problem to solve.
- B) intentionally made the birds aware of his presence.
- C) consciously manipulated the birds’ surroundings.
- D) tested the birds’ tool-using abilities.

CONTENT: Synthesizing/Analyzing multiple texts

KEY: B

OBJECTIVE: Students must synthesize information and ideas from paired texts.

Explanation: Choice B is the best answer. The researchers described in Passage 1 “hid behind a blind” (line 18) to avoid being seen by the crow. The author of Passage 2, on the other hand, made no attempt to conceal his presence; in fact, as he describes it, he “led” the ravens in his study on “walks” (lines 36–37), during which he “touched specific objects” (lines 39–40) and then watched to see whether the birds touched the same objects. The author of Passage 2 notes that the ravens “soon became more independent” (line 44–45), going their own way rather than continuing to follow the author. From this, it is clear that the author of Passage 2, unlike the researchers described in Passage 1, intentionally made the birds aware of his presence.

Choice A is not the best answer because while a case could be made that the author of Passage 2 gave the ravens a problem to solve (Which new objects are best to touch?), the researchers described in Passage 1 presented the crows with a problem as well: how to extract meat from a log. Thus, presenting birds with a problem to solve was not a difference between the experiments.

Choice C is not the best answer because both the researchers described in Passage 1 and the author of Passage 2 consciously manipulated the birds’ surroundings. The crow researchers placed meat pieces in a log and a pandanus plant behind the log (see lines 14–18). The author of Passage 2 put unfamiliar objects on a path for the ravens to find (see lines 50–51). Thus, conscious manipulation of the birds’ surroundings was not a difference between the experiments.

KEY TO THE SAT

The SAT Suite of Assessments offers only four choices, rather than five, for each question.

Choice D is not the best answer because there is no evidence that the author of Passage 2 tested the ravens' tool-using abilities. The passage instead indicates that the author recorded observations about the birds' interactions with objects naturally occurring in and artificially introduced into the environment.

5

Is the main conclusion presented by the author of Passage 2 consistent with Morgan's canon, as described in Passage 1?

- A) Yes, because the conclusion proposes that the ravens' behavior is a product of environmental factors.
- B) Yes, because the conclusion offers a satisfyingly simple explanation of the ravens' behavior.
- C) No, because the conclusion suggests that the ravens exhibit complex behavior patterns.
- D) No, because the conclusion implies that a humanlike quality motivates the ravens' behavior.

CONTENT: Synthesizing/Analyzing Multiple Texts	OBJECTIVE: Students must synthesize information and ideas from paired texts.
KEY: D	

Explanation: Choice D is the best answer. According to Passage 1, Morgan's canon is "the principle that suggestions of humanlike mental processes behind an animal's behavior should be rejected if a simpler explanation will do" (lines 2–4). The main conclusion drawn by the author of Passage 2 is that "ravens' curiosity ensures exposure to all or almost all items in the environment" (lines 63–64). In referring to the ravens' behavior as reflecting "curiosity," a human trait, the author of Passage 2 would seem to be ascribing a humanlike mental process to an animal's behavior without explicitly considering alternate explanations.

Choice A is not the best answer because the main conclusion drawn by the author of Passage 2 is that "ravens' curiosity ensures exposure to all or almost all items in the environment" (lines 63–64). In referring to the ravens' behavior as reflecting "curiosity," a human trait, the author of Passage 2 would seem to be ascribing a humanlike mental process to an animal's behavior without explicitly considering alternate explanations. Morgan's canon holds that such suggestions should be rejected unless a "simpler explanation" cannot be found (lines 3–4); therefore, the conclusion the author of Passage 2 reaches is not consistent with Morgan's canon. Moreover, by ascribing the ravens' behavior to "curiosity," the author of Passage 2 seems to reject environmental factors as the cause.

SKILL-BUILDING STRATEGY

Ask students to locate and present additional texts that support an author's conclusion and to defend their choices by citing textual evidence (e.g., quotations) from the additional texts. This allows students to practice both synthesizing and supporting their ideas with evidence.

Choice B is not the best answer because the main conclusion drawn by the author of Passage 2 is that “ravens’ curiosity ensures exposure to all or almost all items in the environment” (lines 63–64). In referring to the ravens’ behavior as reflecting “curiosity,” a human trait, the author of Passage 2 would seem to be ascribing a humanlike mental process to an animal’s behavior without explicitly considering alternate explanations. Morgan’s canon holds that such suggestions should be rejected unless a “simpler explanation” cannot be found (lines 3–4); therefore, the conclusion the author of Passage 2 reaches cannot be the type of “simpler explanation” Morgan was alluding to.

Choice C is not the best answer because while the main conclusion drawn by the author of Passage 2 is not consistent with Morgan’s canon (see explanation for choice D), nothing about how the canon is described in Passage 1 precludes the possibility that animals can exhibit complex behavior patterns. The canon merely rejects the idea that humanlike mental processes should quickly or easily be attributed to animals.

Writing and Language Test

The overall aim of the Writing and Language Test is to determine whether students can demonstrate college and career readiness proficiency in revising and editing a range of texts in a variety of content areas. The Writing and Language Test does not require students to provide written responses; rather, students will engage in analysis of writing, effective language use, conformity to the conventions of Standard Written English grammar, usage, and punctuation. Students may elect to take the optional Essay, which does require that they complete a direct-writing task (see page 40 for more information).

The test comprises a series of passages and associated multiple-choice questions. Some passages and/or questions are accompanied by one or more graphical representations of data—tables, charts, graphs, etc.—and certain questions require students to make revising and editing decisions to passages in light of information and ideas conveyed graphically. Mathematical computation is not required to answer these questions.

SAT WRITING AND LANGUAGE TEST CONTENT SPECIFICATIONS

	Number	Percentage of Test
Time Allotted	35 minutes	
Passage Word Count	1700 words total from 4 passages; 400–450 words per passage	
Total Questions	44 questions	100%
Multiple Choice (4 options)		100%
Passage Based		100%
Contribution of Items to Subscores and Scores		
Expression of Ideas	24 questions	55%
Standard English Conventions	20 questions	45%
Words in Context (Across Reading and Writing and Language Tests)	8 questions (2 questions per passage)	18%
Command of Evidence (Across Reading and Writing and Language Tests)	8 questions (2 questions per passage)	18%
Analysis in History/Social Studies (Across Math, Reading, and Writing and Language Tests)	6 questions (all Expression of Ideas questions in history/social studies)	14%
Analysis in Science (Across Math, Reading, and Writing and Language Tests)	6 questions (all Expression of Ideas questions in science)	14%
Passage Contents		
Careers	1 passage; 11 questions	25%
History/Social Studies	1 passage; 11 questions	25%
Humanities	1 passage; 11 questions	25%
Science	1 passage; 11 questions	25%
Graphics		
	1 or more graphics in 1 or more sets of questions	
Text Types		
Argument	1–2 passages	25%–50%
Informative/Explanatory Text	1–2 passages	25%–50%
Nonfiction Narrative	1 passage	25%
Text and Graphical Complexity		
Text Complexity	A specified range from grades 9–10 to postsecondary entry across 4 passages	
Graphical Data Representations (tables, charts, graphs, etc.)	Basic to somewhat challenging (low to moderate data density, few variables, simple to moderately challenging interactions)	

General Instructional Strategies for Writing and Language:

- Instruct students to provide quotations from reading passages, data from graphs, tables or charts, or from other relevant text as evidence to support their conclusions in class discussions and on assignments. The SAT Suite of Assessments requires students to analyze passages using relevant evidence in both reading and writing.
- Teach students in all classes to practice writing and language analysis skills—effective language use, expression of ideas, and proper utilization of Standard English Conventions—to develop their analyses of social studies, science, and career-related passages.
- Practice revising and editing during class by asking students to refine their own work, as well as the work of their peers, to build analysis skills related to grammatical conventions, word choice, and sentence structure in extended contexts.
- Give students the opportunity to correct mistakes, both in carefully constructed errors you provide and in their own work. They will be asked to make corrections in word choice, conventions of usage and punctuation, organization, sentence structure, and analysis of graphical data on the SAT Suite of Assessments.

SAT WRITING AND LANGUAGE DOMAIN

Content Dimension	Description
Text Complexity	The passages on the SAT Writing and Language Test represent a specified range of text complexities from grades 9–10 to postsecondary entry.
Expression of Ideas	These questions focus on revision of text for topic development, accuracy (consistency between text and graphic[s]), logic, cohesion, and rhetorically effective use of language.
Development	These questions focus on revising text in relation to rhetorical purpose. (Prior knowledge of the topic is not assessed, though consistency of the material within a passage may be.)
Proposition	The student will add, revise, or retain central ideas, main claims, counterclaims, topic sentences, and the like to structure text and convey arguments, information, and ideas clearly and effectively.
Support	The student will add, revise, or retain information and ideas (e.g., details, facts, statistics) intended to support claims or points in text.
Focus	The student will add, revise, retain, or delete information and ideas in text for the sake of relevance to topic and purpose.
Quantitative information	The student will relate information presented quantitatively in such forms as graphs, charts, and tables to information presented in text.
Organization	These questions focus on revision of text to improve the logic and cohesion of text at the sentence, paragraph, and whole-text levels.
Logical sequence	The student will revise text as needed to ensure that information and ideas are presented in the most logical order.
Introductions, conclusions, and transitions	The student will revise text as needed to improve the beginning or ending of a text or paragraph to ensure that transition words, phrases, or sentences are used effectively to connect information and ideas.
Effective language use	These questions focus on revision of text to improve the use of language to accomplish particular rhetorical purposes.
Precision	The student will revise text as needed to improve the exactness or content appropriateness of word choice.
Concision	The student will revise text as needed to improve the economy of word choice (i.e., to eliminate wordiness and redundancy).
Style and tone	The student will revise text as necessary to ensure consistency of style and tone within a text or to improve the match of style and tone to purpose.
Syntax	The student will use various sentence structures to accomplish needed rhetorical purposes.
Standard English Conventions	These questions focus on editing text to ensure conformity to the conventions of Standard Written English sentence structure, usage, and punctuation.
Sentence structure	These questions focus on editing text to correct problems in sentence formation and inappropriate shifts in construction within and between sentences.
Sentence formation	These questions focus on editing text to correct problems with forming grammatically complete and standard sentences.
Sentence boundaries	The student will recognize and correct grammatically incomplete sentences (e.g., rhetorically inappropriate fragments and run-ons).
Subordination and coordination	The student will recognize and correct problems in coordination and subordination in sentences.
Parallel structure	The student will recognize and correct problems in parallel structure in sentences.

SAT WRITING AND LANGUAGE DOMAIN

Content Dimension	Description
Modifier placement	The student will recognize and correct problems in modifier placement (e.g., misplaced or dangling modifiers).
Inappropriate shifts in construction	These questions focus on editing text to correct inappropriate shifts in verb tense, voice, and mood and pronoun person and number.
Verb tense, mood, and voice	The student will recognize and correct inappropriate shifts in verb tense, voice, and mood within and between sentences.
Pronoun person and number	The student will recognize and correct inappropriate shifts in pronoun person and number within and between sentences.
Conventions of Usage	These questions focus on editing text to ensure conformity to the conventions of Standard Written English usage.
Pronouns	These questions focus on the proper use of pronouns.
Pronoun clarity	The student will recognize and correct pronouns with unclear or ambiguous antecedents.
Possessive determiners	The student will recognize and correct cases in which possessive determiners (<i>its, your, their</i>), contractions (<i>it's, you're, they're</i>), and adverbs (<i>there</i>) are confused with each other.
Agreement	These questions focus on ensuring grammatical agreement.
Pronoun-antecedent agreement	The student will recognize and correct lack of agreement between pronoun and antecedent.
Subject-verb agreement	The student will recognize and correct lack of agreement between subject and verb.
Noun agreement	The student will recognize and correct lack of agreement between nouns.
Frequently confused words	The student will recognize and correct instances in which a word or phrase is confused with another (e.g., <i>accept/except, allusion/illusion</i>).
Logical comparison	The student will recognize and correct cases in which unlike terms are compared.
Conventional expression	The student will recognize and correct cases in which a given expression is inconsistent with Standard Written English.
Conventions of Punctuation	These questions focus on editing text to ensure conformity to the conventions of Standard Written English punctuation.
End-of-sentence punctuation	The student will recognize and correct inappropriate uses of ending punctuation in cases in which the context makes the intent clear.
Within-sentence punctuation	The student will correctly use and recognize and correct inappropriate uses of colons, semicolons, and dashes to indicate sharp breaks in thought within sentences.
Possessive nouns and pronouns	The student will recognize and correct inappropriate uses of possessive nouns and pronouns as well as differentiate between possessive and plural forms.
Items in a series	The student will correctly use and recognize and correct inappropriate uses of punctuation (commas and sometimes semicolons) to separate items in a series.
Nonrestrictive and parenthetical elements	The student will correctly use punctuation (commas, parentheses, dashes) to set off nonrestrictive and parenthetical sentence elements as well as recognize and correct cases in which restrictive or essential sentence elements are inappropriately set off with punctuation.
Unnecessary punctuation	The student will recognize and correct cases in which unnecessary punctuation appears in a sentence.

Writing and Language Test Sample Passage

CONTENT: Careers

FOCUS: Students must make revising and editing decisions in the context of a passage on a topic related to careers.

PASSAGE (400–450 words)

Questions 1–11 are based on the following passage and supplementary material.

A Life in Traffic

A subway system is expanded to provide service to a growing suburb. A bike-sharing program is adopted to encourage nonmotorized transportation. **1** To alleviate rush hour traffic jams in a congested downtown area, stoplight timing is coordinated. When any one of these changes **2** occur, it is likely the result of careful analysis conducted by transportation planners.

The work of transportation planners generally includes evaluating current transportation needs, assessing the effectiveness of existing facilities, and improving those facilities or **3** they design new ones. Most transportation planners work in or near cities, **4** but some are employed in rural areas. Say, for example, a large factory is built on the outskirts of a small town. Traffic to and from that location would increase at the beginning and end of work shifts. The transportation **5** planner's job, might involve conducting a traffic count to determine the daily number of vehicles traveling on the road to the new factory. If analysis of the traffic count indicates that there is more traffic than the **6** current road as it is designed at this time can efficiently accommodate, the transportation planner might recommend widening the road to add another lane.

Transportation planners work closely with a number of community stakeholders, such as government officials and other interested organizations and individuals. **7** Next, representatives from the local public health department might provide input in designing a network of

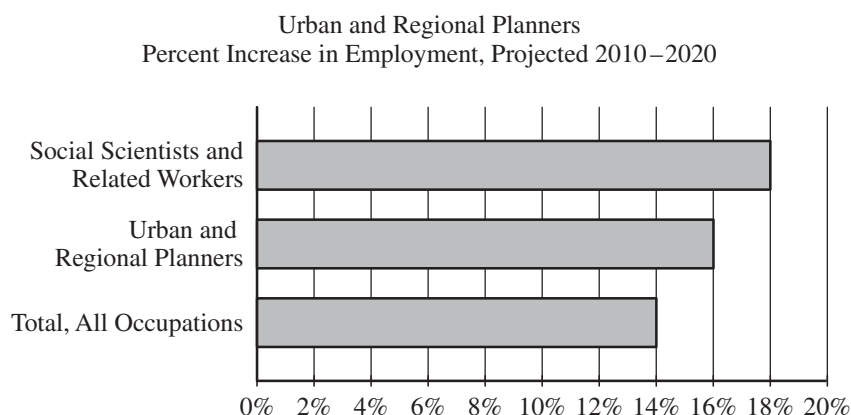
KEY TO THE SAT

The assessments in the SAT Suite frequently refer to informational graphics in Reading and Writing and Language questions. When passages and/or questions are accompanied by graphs, charts, or tables on the Writing and Language Test, students will be asked to draw connections between text and graphics—for example, they may be asked to correct a writer's inaccurate interpretation of data presented in a table. Answers to all questions are anchored in the context of the passage.

trails and sidewalks to encourage people to walk more. **8** According to the American Heart Association, walking provides numerous benefits related to health and well-being. Members of the Chamber of Commerce might share suggestions about designing transportation and parking facilities to support local businesses.

9 People who pursue careers in transportation planning have a wide variety of educational backgrounds. A two-year degree in transportation technology may be sufficient for some entry-level jobs in the field. Most jobs, however, require at least a bachelor's degree; majors of transportation planners are **10** varied, including fields such as urban studies, civil engineering, geography, or transportation and logistics management. For many positions in the field, a master's degree is required.

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



Adapted from *United States Bureau of Labor Statistics, Employment Projections Program*. "All occupations" includes all occupations in the United States economy.

1

Which choice best maintains the sentence pattern already established in the paragraph?

- A) NO CHANGE
- B) Coordinating stoplight timing can help alleviate rush hour traffic jams in a congested downtown area.
- C) Stoplight timing is coordinated to alleviate rush hour traffic jams in a congested downtown area.
- D) In a congested downtown area, stoplight timing is coordinated to alleviate rush hour traffic jams.

CONTENT: Language Use	OBJECTIVE: Students must revise text to ensure consistency of style within a series of sentences.
KEY: C	

Explanation: Choice C is the best answer because it most closely maintains the sentence pattern established by the two preceding sentences, which begin with a noun and passive verb phrase ("A subway system is expanded," "A bike-sharing program is adopted").

Choice A is not the best answer because it does not maintain the sentence pattern established by the two preceding sentences. Instead, it begins the sentence with an infinitive phrase.

Choice B is not the best answer because it does not maintain the sentence pattern established by the two preceding sentences. Rather, it begins the sentence with a gerund.

Choice D is not the best answer because it does not maintain the sentence pattern established by the two preceding sentences. Rather, it shifts the placement of a modifying prepositional phrase, "in a congested downtown area," from the end of the sentence to the beginning of the sentence.

SKILL-BUILDING STRATEGY

Teach students to use OPTIC* to interpret informational graphics:

O — write **O**verview notes about the graphic;

P — zoom in on the **P**arts of the visual and describe important details;

T — highlight the words of the **T**itle;

I — identify **I**nterrelationships among elements of the graphic;

C — draw **C**onclusions about the graphic as a whole.

*SpringBoard® instructional strategy

2

- A) NO CHANGE
- B) occur, they are
- C) occurs, they are
- D) occurs, it is

CONTENT: Conventions of Usage	OBJECTIVE: Students must maintain grammatical agreement between pronoun and antecedent and between subject and verb.
KEY: D	

Explanation: Choice D is the best answer because it maintains agreement between the pronoun ("it") and the antecedent ("any one") and between the subject ("any one") and the verb ("occurs").

Choice A is not the best answer because the plural verb "occur" does not agree with the singular subject "any one."

Choice B is not the best answer because the plural verb "occur" does not agree with the singular subject "any one" and because the plural pronoun "they" does not agree with the singular antecedent "any one."

Choice C is not the best answer because the plural pronoun "they" does not agree with the singular antecedent "any one."

3

- A) NO CHANGE
- B) to design
- C) designing
- D) designs

CONTENT: Sentence Structure	OBJECTIVE: Students must maintain parallel structure.
KEY: C	

Explanation: Choice C is the best answer because "designing" maintains parallelism with "evaluating," "assessing," and "improving."

Choice A is not the best answer because "they design" does not maintain parallelism with "evaluating," "assessing," and "improving."

Choice B is not the best answer because "to design" does not maintain parallelism with "evaluating," "assessing," and "improving."

Choice D is not the best answer because "design" does not maintain parallelism with "evaluating," "assessing," and "improving."

4

Which choice results in the most effective transition to the information that follows in the paragraph?

- A) NO CHANGE
- B) where job opportunities are more plentiful.
- C) and the majority are employed by government agencies.
- D) DELETE the underlined portion and end the sentence with a period.

CONTENT: Sentence Structure	OBJECTIVE: Students must determine the most effective transition between ideas.
KEY: A	

Explanation: Choice A is the best answer because it effectively signals the shift in the paragraph to the example of the work a transportation planner might perform if he or she were employed in a rural area and asked to consider the effects of building a new factory “on the outskirts of a small town.”

Choice B is not the best answer because noting that job opportunities are more plentiful in cities does not effectively signal the shift in the paragraph to the example of the work a transportation planner might perform if he or she were employed in a rural area.

Choice C is not the best answer because noting that most transportation planners work for government agencies does not effectively signal the shift in the paragraph to the example of the work a transportation planner might perform if he or she were employed in a rural area.

Choice D is not the best answer because the proposed deletion would create a jarring shift from the statement “Most transportation planners work in or near cities” to the example of the work a transportation planner might perform if he or she were employed in a rural area.

5

- A) NO CHANGE
- B) planner’s job
- C) planners job,
- D) planners job

CONTENT: Conventions of Punctuation	OBJECTIVE: Students must recognize and correct inappropriate uses of possessive nouns and pronouns as well as differentiate between possessive and plural forms. Students must also recognize and correct cases in which unnecessary punctuation appears in a sentence.
KEY: B	

SKILL-BUILDING STRATEGY

Provide students with a reading passage containing several sentences in need of correction. Ask students to improve the sentences, focusing their attention on the context of the error, its effect on the sentence, and the meaning of the sentence within the passage. You might introduce such issues as dangling and other misplaced modifiers, inappropriate shifts in verb tense, lack of agreement between pronouns and antecedents, and illogical comparisons between unlike terms. After students make corrections, ask them to explain their reasoning. Students are thus simultaneously practicing using language conventions and supporting their answers with evidence. Learn more about Standard English Conventions assessed at **SAT Suite of Assessments**.

Explanation: Choice B is the best answer because it correctly uses an apostrophe to indicate the possessive and doesn't introduce any unnecessary punctuation.

Choice A is not the best answer because, while it correctly indicates the possessive relationship between "transportation planner" and "job," it introduces an unnecessary comma after the word "job."

Choice C is not the best answer because it doesn't indicate the possessive relationship between "transportation planner" and "job," and it introduces an unnecessary comma after the word "job."

Choice D is not the best answer because it doesn't indicate the possessive relationship between "transportation planner" and "job."

6

- A) NO CHANGE
- B) current design of the road right now
- C) road as it is now currently designed
- D) current design of the road

CONTENT: Effective Language Use	OBJECTIVE: Students must improve the economy of expression.
KEY: D	

Explanation: Choice D is the best answer because it offers a clear and concise wording without redundancy.

Choice A is not the best answer because "current" is redundant with "at this time."

Choice B is not the best answer because "current" is redundant with "right now."

Choice C is not the best answer because "now" is redundant with "currently."

SKILL-BUILDING STRATEGY

Encourage students to attend to errors in the application of **Standard English Conventions**. Use released student essay samples from the College Board to practice analyzing text for strength of proposition, support, focus, and effective language use. See **Appendix C** for sample essays.

7

- A) NO CHANGE
- B) For instance,
- C) Furthermore,
- D) Similarly,

CONTENT: Organization	OBJECTIVE: Students must determine the most logical transitional word or phrase.
KEY: B	

Explanation: Choice B is the best answer because the transitional phrase “For instance” logically indicates that what follows provides an example related to the previous sentence. “Representatives from the local public health department” is an example of the kinds of people with whom transportation planners work.

Choice A is not the best answer because the transitional word “Next” indicates sequence, which is not logical given that what follows provides an example related to the previous sentence.

Choice C is not the best answer because the transitional word “Furthermore” indicates addition, which is not logical given that what follows provides an example related to the previous sentence.

Choice D is not the best answer because the transitional word “Similarly” indicates comparison or likeness, which is not logical given that what follows provides an example related to the previous sentence.

8

The writer is considering deleting the underlined sentence. Should the sentence be kept or deleted?

- A) Kept, because it provides supporting evidence about the benefits of walking.
- B) Kept, because it provides an additional example of a community stakeholder with whom transportation planners work.
- C) Deleted, because it blurs the paragraph’s focus on the community stakeholders with whom transportation planners work.
- D) Deleted, because it doesn’t provide specific examples of what the numerous benefits of walking are.

CONTENT: Development	OBJECTIVE: Students must delete information that blurs the focus of the paragraph and weakens cohesion.
KEY: C	

Explanation: Choice C is the best answer because it identifies the best reason the underlined sentence should not be kept. At this point in the passage and paragraph, a general statement about the benefits of walking only serves to interrupt the discussion of the community stakeholders with whom transportation planners work.

Choice A is not the best answer because the underlined sentence should not be kept. Although the sentence could theoretically provide supporting evidence about the benefits of walking, the passage has not made a claim that needs to be supported in this way, and including such a statement only serves to interrupt the

SKILL-BUILDING STRATEGY

Ask students to review text messages, then correct grammatically incomplete sentences; problems with end-of-sentence punctuation and punctuation within sentences; and cases of nonstandard expression (when words and phrases are used in a way not typical of Standard Written English) according to Standard English Conventions. Discuss how these changes influence the tone and meaning of the messages.

discussion of the community stakeholders with whom transportation planners work.

Choice B is not the best answer because the underlined sentence should not be kept. Although the American Heart Association could theoretically be an example of “other interested organizations” that transportation planners work with, the sentence does not suggest that this is the case. Instead, the association is merely the source for the general statement about the benefits of walking, a statement that only serves to interrupt the discussion of the actual community stakeholders with whom transportation planners work.

Choice D is not the best answer because, although the underlined sentence should be deleted, it is not because the sentence lacks specific examples of the numerous benefits of walking. Adding such examples would only serve to blur the focus of the paragraph further with general factual information, as the paragraph’s main purpose is to discuss the community stakeholders with whom transportation planners work.

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- A) NO CHANGE
- B) People, who pursue careers in transportation planning,
- C) People who pursue careers, in transportation planning,
- D) People who pursue careers in transportation planning,

CONTENT: Conventions of Punctuation	OBJECTIVE: Students must distinguish between restrictive/essential and nonrestrictive/nonessential sentence elements and avoid unneeded punctuation.
KEY: A	

Explanation: Choice A is the best answer because “who pursue careers in transportation planning” is, in context, a restrictive clause that should not be set off with punctuation. “Who pursue careers in transportation planning” is essential information defining who the “people” are.

Choice B is not the best answer because it incorrectly sets off the restrictive clause “who pursue careers in transportation planning” with commas as though the clause were nonrestrictive or not essential to defining who the “people” are.

Choice C is not the best answer because it incorrectly sets off the essential sentence element “in transportation planning” with commas as though the phrase were not essential to the meaning of the sentence. “In transportation planning” is essential information defining what the “careers” are.

Choice D is not the best answer because it introduces an unnecessary comma after the word “planning,” incorrectly setting off the subject of the sentence (“people who pursue careers in transportation planning”) from the predicate (“have a wide variety of educational backgrounds”).

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- A) NO CHANGE
- B) varied, and including
- C) varied and which include
- D) varied, which include

CONTENT: Sentence Structure	OBJECTIVE: Students must recognize and correct problems in coordination and subordination in sentences.
KEY: A	

Explanation: Choice A is the best answer because it uses a comma to effectively subordinate the list of varied fields in which transportation planners major.

Choice B is not the best answer because the comma and coordinating conjunction “and” result in an ungrammatical sentence.

Choice C is not the best answer because the coordinating conjunction “and” along with the subordinating conjunction “which” result in an ungrammatical sentence.

Choice D is not the best answer because it is unclear from this construction to what exactly the subordinating conjunction “which” refers.

SKILL-BUILDING STRATEGY

Familiarize students with the analysis of data, graphs, and charts in conjunction with text. Using the informational graphics in a textbook or periodical, provide students with inaccurate interpretations of data and ask them to correct the error(s). Have them explicitly describe the data they used to make each correction.

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

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

CONTENT: Development	OBJECTIVE: Students must evaluate text based on data presented graphically.
KEY: C	

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.

Optional SAT Essay

The optional **SAT Essay** is offered at the conclusion of the required Reading, Writing and Language, and Math Tests. Students may choose not to take this portion of the SAT, and some postsecondary institutions may choose not to require it. Students who are deciding whether to take the Essay should determine whether it is required by one or more schools to which they wish to apply. The SAT Essay is not offered with the PSAT-related assessments.

Unlike many standardized direct-writing assessments, the SAT Essay does not elicit students’ subjective opinions. Instead of simply emulating the form of evidence used by asking students to draw on their own experiences or imaginations, the Essay requires students to make purposeful, substantive use of textual evidence in a way that can be objectively evaluated. The Essay **task will remain consistent** for all administrations of the SAT; only the **passage on which students base their responses will change**. The Essay shares key elements with both the Reading and Writing and Language Tests (see page 14); The Essay connects reading and writing in a manner that both embodies and reinforces the interdependency of these ELA/ literacy skills. The Essay rubric and several sample student essays are available in [Appendix C](#).

In broad terms, essay responses are evaluated across three dimensions: reading (for demonstrated comprehension of the source text), analysis (the quality of analysis of that source text), and writing (the quality of the writing in the response). Scorers evaluate how well students’ responses demonstrate a careful understanding of the passage, effective and selective use of textual evidence to develop and support points, clear organization and expression

of ideas, and a command of the conventions of Standard Written English. The Essay requires students to analyze how an author uses evidence, reasoning, and/or stylistic or persuasive elements (and/or other elements of the students' choosing) to build an argument. Three dimension scores are reported, each on a scale of 2–8, the combined scores of two scorers using the three 1–4 scales in the rubric in [Appendix C](#).

SAT ESSAY CONTENT SPECIFICATIONS

Total Items		
Time Allotted	50 minutes	
	Number	Percentage of test
Prompts	1	100%
Passage Based (each passage 650–750 words)	1	100%
Passage Content		
Arguments Written for a Broad Audience	1	100%
Text Complexity		
High School Reading Level (grades 9–12)	1	100%
Analytic Scoring (Provisional)*		
Reading	1–4 scale	
Analysis	1–4 scale	
Writing	1–4 scale	

* The College Board’s current thinking is represented here. Scores of 2 to 8, the combined scores of two raters each scoring on a scale of 1 to 4, will be reported. The final nature of the scoring is dependent on further research.

General Instructional Strategies for the Optional Essay:

- Use the SAT Essay prompt as a foundation for frequent writing assignments in all content area classes. Students strengthen their learning by writing in science, social studies, math, health, and career-related courses.

Essay Prompt:

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

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

Write an essay in which you explain how [the author] builds an argument to persuade [his/her] audience that [author's claim]. In your essay, analyze how [the author] uses one or more of the features listed in the box above (or features of your own choice) to strengthen the logic and persuasiveness of [his/her] argument. Be sure that your analysis focuses on the most relevant features of the passage.

Your essay should not explain whether you agree with [the author's] claims, but rather explain how [the author] builds an argument to persuade [his/her] audience.

- Practice evaluating evidence for consistent and legitimate supporting arguments. Students must discern whether the evidence they use actually strengthens their arguments.
- Revisit previous writing assignments periodically, and allow students to alter their evidence, their word choices, or otherwise edit their work to strengthen their skills.

KEY TO THE SAT

The prompt used for the SAT Essay will be consistent for all administrations. The passage will differ.

SKILL-BUILDING STRATEGY

Use the SAT Essay prompt with passages relevant to your curriculum (science, social studies, health, career), giving students the opportunity to analyze quality pieces of writing in the content areas, and also practice with the prompt.

SAT ESSAY DOMAIN

Content Dimension	Description
Reading	<p>Comprehension of the source text</p> <p>Understanding of central ideas, important details, and their interrelationship</p> <p>Accuracy in representation of the source text (i.e., no errors of fact or interpretation introduced)</p> <p>Use of textual evidence (quotations, paraphrases, or both) to demonstrate understanding of the source text</p>
Analysis	<p>Analysis of the source text and understanding of the analytical task</p> <p>Evaluation of the author's use of evidence, reasoning, and/or stylistic and persuasive elements, and/or features chosen by the student</p> <p>Support for claims or points made in the response</p> <p>Focus on features of the text most relevant to addressing the task</p>
Writing	<p>Use of a central claim</p> <p>Use of effective organization and progression of ideas</p> <p>Use of varied sentence structures</p> <p>Employment of precise word choice</p> <p>Maintenance of a consistent, appropriate style and tone</p> <p>Command of the conventions of Standard Written English</p>

Essay Passage Sample

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

At my family’s cabin on a Minnesota lake, I knew woods so dark that my hands disappeared before my eyes. I knew night skies in which meteors left smoky trails across sugary spreads of stars. But now, when 8 of 10 children born in the United States will never know a sky dark enough for the Milky Way, I worry we are rapidly losing night’s natural darkness before realizing its worth. This winter solstice, as we cheer the days’ gradual movement back toward light, let us also remember the irreplaceable value of darkness.

All life evolved to the steady rhythm of bright days and dark nights. Today, though, when we feel the closeness of nightfall, we reach quickly for a light switch. And too little darkness, meaning too much artificial light at night, spells trouble for all.

Already the World Health Organization classifies working the night shift as a probable human carcinogen, and the American Medical Association has voiced its unanimous support for “light pollution reduction efforts and glare reduction efforts at both the national and state levels.” Our bodies need darkness to produce the hormone melatonin, which keeps certain cancers from developing, and our bodies need darkness for sleep. Sleep disorders have been linked to diabetes, obesity, cardiovascular disease and depression, and recent research suggests one main cause of “short sleep” is “long light.” Whether we work at night or simply take our tablets, notebooks and smartphones to bed, there isn’t a place for this much artificial light in our lives.

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

In today’s crowded, louder, more fast-paced world, night’s darkness can provide solitude, quiet and stillness, qualities increasingly in short supply. Every religious tradition has considered darkness invaluable for a soulful life, and the chance to witness the universe has inspired artists, philosophers and everyday stargazers since time began. In a world awash with electric light. . . how would Van Gogh have given the world his “Starry Night”? Who knows what this vision of the night sky might inspire in each of us, in our children or grandchildren?

SKILL-BUILDING STRATEGY

To ensure that your students understand the difference between opinion, argument, and analysis, assign all three types of writing. Require students to use evidence to support their analyses of nonfiction documents. Remind them that the SAT Essay will ask for evidence-based claims, not their personal opinions.

Yet all over the world, our nights are growing brighter. In the United States and Western Europe, the amount of light in the sky increases an average of about 6% every year. Computer images of the United States at night, based on NASA photographs, show that what was a very dark country as recently as the 1950s is now nearly covered with a blanket of light. Much of this light is wasted energy, which means wasted dollars. Those of us over 35 are perhaps among the last generation to have known truly dark nights. Even the northern lake where I was lucky to spend my summers has seen its darkness diminish.

It doesn't have to be this way. Light pollution is readily within our ability to solve, using new lighting technologies and shielding existing lights. Already, many cities and towns across North America and Europe are changing to LED streetlights, which offer dramatic possibilities for controlling wasted light. Other communities are finding success with simply turning off portions of their public lighting after midnight. Even Paris, the famed "city of light," which already turns off its monument lighting after 1 a.m., will this summer start to require its shops, offices and public buildings to turn off lights after 2 a.m. Though primarily designed to save energy, such reductions in light will also go far in addressing light pollution. But we will never truly address the problem of light pollution until we become aware of the irreplaceable value and beauty of the darkness we are losing.

SKILL-BUILDING STRATEGY

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

SAMPLE STUDENT ESSAY (300–600 words)

The following essay is reprinted exactly as it was originally written (in response to the prompt above), including grammatical mistakes. An explanation of why the essay received the score it was given follows the essay. Find more sample student essays, the essay rubric, and score explanations in [Appendix C](#).

Bogard builds a very persuasive argument when he talks about all of the effects of light polution. First, he starts out by telling a story from his youth and how he loved the darkness then goes on to say how things have changed. He uses different facts to support his claim that not having enough natural darkness is a very bad thing for not only the human population but also for animals and other species living on the planet. Finally, after listing consequences of the problem he starts to say what different nations are starting to do about it.

To support the theory that Bogard has on light polution he lists some facts about it. He says things like different species of fish, reptiles, insects, mammals and birds need the darkness to survive. However, animals arent the only things that depend on darkness, humans do also. As everyone knows sleep is a very important thing and, usually, darkness is a key part in sleep. This is important because, according to Bogard, sleep disorders have been linked to many diseases including depression and diabetes. Also, the darkness can offer some peace and quiet in todays busy world.

Also in this article the author gives some statistics on how our already bright world is just getting brighter. One of the facts that is stated is that the amout of light in the sky at night is increasing, on average, 6% per year. Along side those facts he tells us some things that we wouldnt have if it wasnt for very dark nights like Van Gogh's "Stary Night". If the world had been lit as much at night as it is now that painting would not exist and generations of people would miss out on seeing it.

Although much of this article is stating facts about the problem, Bogard does give some good news about what certain nations are starting to do to help it. For example, he says that many cities in North America and Europe are changing to LED streetlights to try and cut down on wasted energy. Some communities are turning off lights after midnight. And even one of the buissiest cities in the world, Paris, is requiring shops to turn off lights after two am.

All of the things that Bogard mentions in his article make it very persuasive. He did a very good job on building an argument to show why light polution is such a bad thing. He did this by explaining how things used to be, telling how it effects all of the different species living on th planet. How things changed and how they could be different. And finally, he tells us what other people are doing about the problem. Which, all put together make a very persuasive article and help build an argument that makes readers want to go and help the issue.

Scoring Explanation (400–700 words)

This paper scored a 3/2/3.

Reading — 3: This response demonstrates an effective comprehension of Bogard's text and an understanding of Bogard's central ideas (*"the effects of light pollution"* and the *"consequences of the problem"*). Focusing on the *"consequences of the problem,"* the writer paraphrases important supporting details from throughout Bogard's piece, demonstrating an understanding of the support Bogard offers (*"he starts out by telling a story from his youth and how he loved darkness . . . He uses different facts to support his claim that not having enough natural darkness is a very bad thing for not only the human population but also animals and other different species of fish, reptiles, insects, mammals and birds."*) The response is free from substantive errors and demonstrates some awareness of the interrelation between the passage's central ideas and supporting details (*"As everyone knows sleep is a very important thing and usually darkness is a key part in sleep . . . according to Bogard, sleep disorders have been linked to many diseases including depression and anxiety"*), but the writer does not demonstrate a full understanding of this interrelation. Overall, this paper demonstrates proficient reading comprehension.

Analysis — 2: The writer demonstrates a partial understanding of the analytical task by offering a limited analysis of Bogard's text. Any attempts on the writer's part to analyze do not move past assertions that state the importance of the author's use of "statistics" or "facts." Although focused on relevant features of the source text, the writer praises Bogard's argument without offering much analysis of that argument (*"All of the things Bogard mentions in his article make it very persuasive. He did a very good job on building an argument to show why light pollution is such a bad thing"*), with limited support for these claims. Overall, this paper demonstrates a partial analysis.

Writing — 3: Following a very basic structure, the essay is mostly cohesive and demonstrates effective use and control of language throughout the essay. Choosing to structure his writing around his central claim that *"Bogard builds a very persuasive argument,"* the writer produces a simply structured essay of short, discrete paragraphs that are free of significant language errors that detract from the quality of writing. While not very complex, the sentences demonstrate some varied and complex sentence structures (*"To support the theory that Bogard has on light pollution he lists some facts about it. . . One of the facts that is stated is"*) and word choice remains precise and formal in tone (*"If the world had been lit as much at night as it is now, that painting would not exist and generations of people would miss out on seeing it."*). Overall, this paper demonstrates proficient control of language.

SKILL-BUILDING STRATEGY

Students benefit from using a rubric to analyze their writing — rubrics provide a clear description of the skills, knowledge, and understandings they must demonstrate. Give students the opportunity to compare the rubric to their work, and to the writing of their peers, evaluating areas in which they met the standards of the rubric and areas in which they need improvement. See **Appendix C** for the SAT Essay rubric.

Math Test

The overall aim of the Math Test is to assess fluency with, understanding of, and ability to apply the mathematical concepts that are most strongly prerequisite for and useful across a wide range of college majors and careers.

The test rewards a stronger command of fewer important topics. Students need to exhibit command of mathematical practices, fluency with mathematical procedures, and conceptual understanding of mathematical ideas. The assessment also provides opportunities for richer applied problems.

The Math Test has a calculator portion and a no-calculator portion. In the calculator portion, students can use their calculators to perform routine computations more efficiently, enabling them to focus on mathematical applications and reasoning. However, the calculator is a tool that students must use strategically, deciding when and how to use it. There will be some questions in the calculator portion that can be answered more efficiently *without* a calculator. In these cases, students who make use of structure or their ability to reason will most likely reach the solution more rapidly than students who use a calculator.

SAT MATH TEST CONTENT SPECIFICATIONS

Time Allotted	80 minutes	
Calculator Portion	55 minutes	
No-Calculator Portion	25 minutes	
	Number	Percentage of test
Total Items	58 questions	100%
Multiple Choice (MC, 4 options)	45 questions	78%
Student-Produced Response (SPR — grid-in)	13 questions	22%
Contribution of Items to Subscores		
Heart of Algebra	19 questions	33%
Analyzing and fluently solving linear equations and systems of linear equations		
Creating linear equations and inequalities to represent relationships between quantities and to solve problems		
Understanding and using the relationship between linear equations and inequalities and their graphs to solve problems		
Problem Solving and Data Analysis	17 questions	29%
Creating and analyzing relationships using ratios, proportional relationships, percentages, and units		
Representing and analyzing quantitative data		
Finding and applying probabilities in context		
Passport to Advanced Math	16 questions	28%
Identifying and creating equivalent algebraic expressions		
Creating, analyzing, and fluently solving quadratic and other nonlinear equations		
Creating, using, and graphing exponential, quadratic, and other nonlinear functions		
Additional Topics in Math	6 questions	10%
Solving problems related to area and volume calculations in context		
Applying definitions and theorems related to lines, angles, triangles, and circles		
Working with right triangles, the unit circle, and trigonometric functions		

General Instructional Strategies for Math:

- Ensure that students practice solving multistep problems. Questions on assessments in the SAT Suite often ask them to solve more than one problem to arrive at the correct answer.
- Separate students into small working groups. Ask them to discuss how to arrive at solutions. When their solutions are incorrect, ask them to discuss how to make corrections. Encourage students to express quantitative relationships in meaningful words and sentences to support their arguments and conjectures.
- Vary the types of problems in homework assignments so that students aren't always using the same strategy to find solutions. Students benefit from the practice of determining the right mathematical strategy to solve the problems, in addition to solving the problems correctly.
- Assign students math problems or create classroom-based assessments that do not allow the use of a calculator. This practice encourages greater number sense, probes students' understanding of content on a conceptual level, and aligns to the testing format of the SAT Suite of Assessments.
- Develop interest and facility in math by practicing in science and social studies. Use tables, expressions, and graphs that students encounter in other content areas to present math as a tool that may be applied to many areas of study rather than being relegated to math classes. Provide frequent opportunities for students to interpret and apply mathematical skills and concepts in real-world contexts, particularly in the sciences and social studies.

SAT HEART OF ALGEBRA DOMAIN

Content Dimension	Description
Linear equations in one variable	<ol style="list-style-type: none"> 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, <ol style="list-style-type: none"> 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.
Linear functions	<p>Algebraically, a linear function can be defined by a linear expression in one variable or by a linear equation in two variables. In the first case, the variable is the input and the value of the expression is the output. In the second case, one of the variables is designated as the input and determines a unique value of the other variable, which is the output.</p> <ol style="list-style-type: none"> 1. Create and use linear functions to solve problems in a variety of contexts. 2. Create a linear function to model a relationship between two quantities. 3. For a linear function that represents a context, <ol style="list-style-type: none"> a. interpret the meaning of an input/output pair, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage; b. given an input value, find and/or interpret the output value using the given representation; c. given an output value, find and/or interpret the input value using the given representation if it exists. 4. Make connections between verbal, tabular, algebraic, and graphical representations of a linear function, by <ol style="list-style-type: none"> a. deriving one representation from the other; b. identifying features of one representation given another representation; and c. determining how a graph is affected by a change to its equation. 5. Write the rule for a linear function given two input/output pairs or one input/output pair and the rate of change.

SAT HEART OF ALGEBRA DOMAIN

Content Dimension	Description
Linear equations in two variables	<p>A linear equation in two variables can be used to represent a constraint or condition on two variable quantities in situations where neither of the variables is regarded as an input or an output. A linear equation can also be used to represent a straight line in the coordinate plane.</p> <ol style="list-style-type: none"> 1. Create and use a linear equation in two variables to solve problems in a variety of contexts. 2. Create a linear equation in two variables to model a constraint or condition on two quantities. 3. For a linear equation in two variables that represents a context, <ol style="list-style-type: none"> a. interpret a solution, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage; b. given a value of one quantity in the relationship, find a value of the other, if it exists. 4. Make connections between tabular, algebraic, and graphical representations of a linear equation in two variables by <ol style="list-style-type: none"> a. deriving one representation from the other; b. identifying features of one representation given the other representation; c. determining how a graph is affected by a change to its equation. 5. Write an equation for a line given two points on the line, one point and the slope of the line, or one point and a parallel or perpendicular line.
Systems of two linear equations in two variables	<ol style="list-style-type: none"> 1. Create and use a system of two linear equations in two variables to solve problems in a variety of contexts. 2. Create a system of linear equations in two variables and, when in context, interpret solutions in terms of the context. 3. Make connections between tabular, algebraic, and graphical representations of the system by deriving one representation from the other. 4. Solve a system of two linear equations in two variables, making strategic use of algebraic structure. 5. For a system of linear equations in two variables, <ol style="list-style-type: none"> a. interpret a solution, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage; b. determine the conditions under which the system has no solution, a unique solution, or infinitely many solutions. 6. Fluently solve a system of linear equations in two variables.
Linear inequalities in one or two variables	<ol style="list-style-type: none"> 1. Create and use linear inequalities in one or two variables to solve problems in a variety of contexts. 2. Create linear inequalities in one or two variables and, when in context, interpret the solutions in terms of the context. 3. For linear inequalities in one or two variables, interpret a constant, variable, factor, or term, including situations where seeing structure provides an advantage. 4. Make connections between tabular, algebraic, and graphical representations of linear inequalities in one or two variables by deriving one from the other. 5. Given a linear inequality or system of linear inequalities, interpret a point in the solution set.

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"> 1. 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. 2. Solve problems involving <ol style="list-style-type: none"> a. derived units, including those that arise from products (e.g., kilowatt-hours) and quotients (e.g., population per square kilometer); b. unit conversion, including currency exchange and conversion between different measurement systems. 3. Understand and use the fact that when two quantities are in a proportional relationship, if one changes by a scale factor, then the other also changes by the same scale factor.
Percentages	<ol style="list-style-type: none"> 1. Use percentages to solve problems in a variety of contexts. Examples include, but are not limited to, discounts, interest, taxes, tips, and percentage increases and decreases for many different quantities. 2. Understand and use the relationship between percentage change and growth factor (5% and 1.05, for example); include percentages greater than or equal to 100%.
One-variable data: Distributions and measures of center and spread	<ol style="list-style-type: none"> 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 PROBLEM SOLVING AND DATA ANALYSIS DOMAIN

Content Dimension	Description
Two-variable data: Models and scatterplots	<ol style="list-style-type: none"> Using a model that fits the data in a scatterplot, compare values predicted by the model to values given in the data set. Interpret the slope and intercepts of the line of best fit in context. Given a relationship between two quantities, read and interpret graphs and tables modeling the relationship. Analyze and interpret data represented in a scatterplot or line graph; fit linear, quadratic, and exponential models. Select a graph that represents a context, identify a value on a graph, or interpret information on the graph. For a given function type (linear, quadratic, exponential), choose the function of that type that best fits given data. Compare linear and exponential growth. Estimate the line of best fit for a given scatterplot; use the line to make predictions.
Probability and conditional probability	<p>Use one- and two-way tables, tree diagrams, area models, and other representations to find relative frequency, probabilities, and conditional probabilities.</p> <ol style="list-style-type: none"> Compute and interpret probability and conditional probability in simple contexts. Understand formulas for probability, and conditional probability in terms of frequency.
Inference from sample statistics and margin of error	<ol style="list-style-type: none"> Use sample mean and sample proportion to estimate population mean and population proportion. Utilize, but do not calculate, margin of error. Interpret margin of error; understand that a larger sample size generally leads to a smaller margin of error.
Evaluating statistical claims: Observational studies and experiments	<ol style="list-style-type: none"> With random samples, describe which population the results can be extended to. Given a description of a study with or without random assignment, determine whether there is evidence for a causal relationship. Understand why random assignment provides evidence for a causal relationship. Understand why a result can be extended only to the population from which the sample was selected.

SAT PASSPORT TO ADVANCED MATH DOMAIN

Content Dimension	Description
Equivalent expressions	<ol style="list-style-type: none"> 1. Make strategic use of algebraic structure and the properties of operations to identify and create equivalent expressions, including <ol style="list-style-type: none"> a. rewriting simple rational expressions; b. rewriting expressions with rational exponents and radicals; c. factoring polynomials. 2. Fluently add, subtract, and multiply polynomials.
Nonlinear equations in one variable and systems of equations in two variables	<ol style="list-style-type: none"> 1. Make strategic use of algebraic structure, the properties of operations, and reasoning about equality to <ol style="list-style-type: none"> a. solve quadratic equations in one variable presented in a wide variety of forms; determine the conditions under which a quadratic equation has no real solutions, 1 real solution, or 2 real solutions; b. solve simple rational and radical equations in one variable; c. identify when the procedures used to solve a simple rational or radical equation in one variable lead to an equation with solutions that do not satisfy the original equation (extraneous solutions); d. solve polynomial equations in one variable that are written in factored form; e. solve linear absolute value equations in one variable; f. solve systems of linear and nonlinear equations in two variables, including relating the solutions to the graphs of the equations in the system. 2. Given a nonlinear equation in one variable that represents a context, interpret a solution, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. 3. Given an equation or formula in two or more variables that represents a context, view it as an equation in a single variable of interest where the other variables are parameters and solve for the variable of interest. 4. Fluently solve quadratic equations in one variable, written as a quadratic expression in standard form equal to zero, where using the quadratic formula or completing the square is the most efficient method for solving the equation.

SAT PASSPORT TO ADVANCED MATH DOMAIN

Content Dimension	Description
Nonlinear functions	<ol style="list-style-type: none"> 1. Create and use quadratic or exponential functions to solve problems in a variety of contexts. 2. For a quadratic or exponential function, <ol style="list-style-type: none"> a. identify or create an appropriate function to model a relationship between quantities; b. use function notation to represent and interpret input/output pairs in terms of a context and points on the graph; c. for a function that represents a context, interpret the meaning of an input/output pair, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage; d. determine the most suitable form of the expression representing the output of the function to display key features of the context, including <ol style="list-style-type: none"> i. selecting the form of a quadratic that displays the initial value, the zeros, or the extreme value; ii. selecting the form of an exponential that displays the initial value, the end behavior (for exponential decay), or the doubling or halving time; e. make connections between tabular, algebraic, and graphical representations of the function, by <ol style="list-style-type: none"> i. given one representation, selecting another representation; ii. identifying features of one representation given the another representation, including maximum and minimum values of the function; iii. determining how a graph is affected by a change to its equation, including a vertical shift or scaling of the graph. 3. For a factorable or factored polynomial or simple rational function, <ol style="list-style-type: none"> a. use function notation to represent and interpret input/output pairs in terms of a context and points on the graph; b. understand and use the fact that for the graph of $y = f(x)$, the solutions to $f(x) = 0$ correspond to x-intercepts of the graph and $f(0)$ corresponds to the y-intercept of the graph; interpret these key features in terms of a context; c. identify the graph given an algebraic representation of the function and an algebraic representation given the graph (with or without a context).

SAT ADDITIONAL TOPICS IN MATH DOMAIN

Content Dimension	Description
Area and volume	<ol style="list-style-type: none"> 1. Solve real-world and mathematical problems about a geometric figure or an object that can be modeled by a geometric figure using given information such as length, area, surface area, or volume. a. Apply knowledge that changing by a scale factor of k changes all lengths by a factor of k, changes all areas by a factor of k^2, and changes all volumes by a factor of k^3. b. Demonstrate procedural fluency by selecting the correct area or volume formula and correctly calculating a specified value.
Lines, angles, and triangles	<ol style="list-style-type: none"> 1. Use concepts and theorems relating to congruence and similarity of triangles to solve problems. 2. Determine which statements may be required to prove certain relationships or to satisfy a given theorem. 3. Apply knowledge that changing by a scale factor of k changes all lengths by a factor of k, but angle measures remain unchanged. 4. Know and directly apply relevant theorems such as <ol style="list-style-type: none"> a. the vertical angle theorem; b. triangle similarity and congruence criteria; c. triangle angle sum theorem; d. the relationship of angles formed when a transversal cuts parallel lines.
Right triangles and trigonometry	<ol style="list-style-type: none"> 1. Solve problems in a variety of contexts using <ol style="list-style-type: none"> a. the Pythagorean theorem; b. right triangle trigonometry; c. the properties of special right triangles. 2. Use similarity to calculate values of sine, cosine, and tangent. 3. Understand that when given one side length and one acute angle measure in a right triangle, the remaining values can be determined. 4. Solve problems using the relationship between sine and cosine of complementary angles. 5. Fluently apply properties of special right triangles to determine side-lengths and calculate trigonometric ratios of 30, 45, and 60 degrees.

SAT ADDITIONAL TOPICS IN MATH DOMAIN

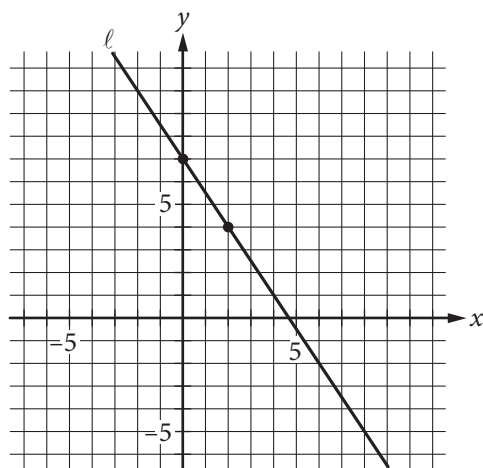
Content Dimension	Description
Circles	<ol style="list-style-type: none"> 1. Use definitions, properties, and theorems relating to circles and parts of circles, such as radii, diameters, tangents, angles, arcs, arc lengths, and sector areas, to solve problems. 2. Solve problems using <ol style="list-style-type: none"> a. radian measure; b. trigonometric ratios in the unit circle. 3. Create an equation to represent a circle in the xy-plane. 4. Describe how <ol style="list-style-type: none"> a. a change to the equation representing a circle in the xy-plane affects the graph of the circle; b. a change in the graph of the circle affects the equation of the circle. 5. Understand that the ordered pairs that satisfy an equation of the form $(x - h)^2 + (y - k)^2 = r^2$ form a circle when plotted in the xy-plane. 6. Convert between angle measures in degrees and radians. 7. Complete the square in an equation representing a circle to determine properties of the circle when it is graphed in the xy-plane, and use the distance formula in problems related to circles.
Complex numbers	<ol style="list-style-type: none"> 1. Apply knowledge and understanding of the complex number system to add, subtract, multiply, and divide with complex numbers and solve problems.

Sample Math Questions

Heart of Algebra

1

Line ℓ is graphed in the xy -plane below.



If line ℓ is translated up 5 units and right 7 units, then what is the slope of the new line?

- A) $-\frac{2}{5}$
- B) $-\frac{3}{2}$
- C) $-\frac{8}{9}$
- D) $-\frac{11}{14}$

CONTENT: Heart of Algebra

KEY: B

CALCULATOR USAGE:

No Calculator

SKILL-BUILDING STRATEGY

Provide students with explanations and/or equations that incorrectly describe a graph. Ask students to identify the errors and provide corrections, citing the reasoning behind the change.

Explanation: Choice B is correct. The slope of a line can be determined by finding the difference in the y -coordinates divided by the difference in the x -coordinates for any two points on the line.

Using the points indicated, the slope of line ℓ is $-\frac{3}{2}$. Translating line ℓ moves all the points on the line the same distance in the same direction, and the image will be a line parallel to ℓ . Therefore, the slope of the image is also $-\frac{3}{2}$.

Choice A is incorrect. This value may result from a combination of errors. You may have erroneously determined the slope of the new line by adding 5 to the numerator and adding 7 to the denominator in the slope of line ℓ and gotten the result $(-3 + 5)/(-2 + 7)$.

Choice C is incorrect. This value may result from a combination of errors. You may have erroneously determined the slope of the new line by subtracting 5 from the numerator and subtracting 7 from the denominator in the slope of line ℓ .

Choice D is incorrect and may result from adding $\frac{5}{7}$ to the slope of line ℓ .

Students can approach this problem conceptually or concretely. The core skill being assessed here is the ability to make a connection between the graphical form of a relationship and a numerical description of a key feature.

Heart of Algebra

2

The toll rates for crossing a bridge are \$6.50 for a car and \$10 for a truck. During a two-hour period, a total of 187 cars and trucks crossed the bridge, and the total collected in tolls was \$1,338. Solving which of the following systems of equations yields the number of cars, x , and the number of trucks, y , that crossed the bridge during the two hours?

A) $x + y = 1,338$

$$6.5x + 10y = 187$$

B) $x + y = 187$

$$6.5x + 10y = \frac{1,338}{2}$$

C) $x + y = 187$

$$6.5x + 10y = 1,338$$

D) $x + y = 187$

$$6.5x + 10y = 1,338 \times 2$$

CONTENT: Heart of Algebra

CALCULATOR USAGE: Calculator

KEY: C

Explanation: Choice C is correct. If x is the number of cars that crossed the bridge during the two hours and y is the number of trucks that crossed the bridge during the two hours, then $x + y$ represents the total number of cars and trucks that crossed the bridge during the two hours, and $6.5x + 10y$ represents the total amount collected in the two hours. Therefore, the correct system of equations is $x + y = 187$ and $6.5x + 10y = 1,338$.

Choice A is not the correct answer. The student may have mismatched the symbolic expressions for total cars and trucks and total tolls collected with the two numerical values given.

SKILL-BUILDING STRATEGY

Students can organize information using multiple tools to present data and answer a question or show a problem solution. Ask students to create pictures, tables, graphs, lists, models, and/or verbal expressions to interpret text and/or data to help them arrive at a solution.

The expression $x + y$ represents the total number of cars and trucks that crossed the bridge, which is 187.

Choice B is not the correct answer. The student may have attempted to use the information that the counts of cars, trucks, and tolls were taken over a period of two hours, but this information is not needed in setting up the correct system of equations. The expression $6.5x + 10y$ represents the total amount of tolls collected, which is \$1,338, not $\frac{\$1,338}{2}$.

Choice D is not the correct answer. The student may have attempted to use the information that the counts of cars, trucks, and tolls were taken over a period of two hours, but this information is not needed in setting up the correct system of equations. The expression $6.5x + 10y$ represents the total amount of tolls collected, which is \$1,338, not $\$1,338 \times 2$.

Heart of Algebra

3

When a scientist dives in salt water to a depth of 9 feet below the surface, the pressure due to the atmosphere and surrounding water is 18.7 pounds per square inch. As the scientist descends, the pressure increases linearly. At a depth of 14 feet, the pressure is 20.9 pounds per square inch. If the pressure increases at a constant rate as the scientist's depth below the surface increases, which of the following linear models best describes the pressure p in pounds per square inch at a depth of d feet below the surface?

- A) $p = 0.44d + 0.77$
- B) $p = 0.44d + 14.74$
- C) $p = 2.2d - 1.1$
- D) $p = 2.2d - 9.9$

CONTENT: Heart of Algebra	CALCULATOR USAGE: Calculator
KEY: B	

Explanation: Choice B is correct. To determine the linear model, one can first determine the rate at which the pressure due to the atmosphere and surrounding water is increasing as the depth of the diver increases. Calculating this gives $\frac{20.9 - 18.7}{14 - 9} = \frac{2.2}{5}$ or 0.44. Then one needs to determine the pressure due to the atmosphere or, in other words, the pressure when the diver is at a depth of 0. Solving the equation $18.7 = 0.44(9) + b$ gives $b = 14.74$. Therefore, the model that can be used to relate the pressure and the depth is $p = 0.44d + 14.74$.

SKILL-BUILDING STRATEGY

Ask students to solve problems that require multiple steps to arrive at the solution. Notice in question #3, students first must determine the rate that pressure in the atmosphere is increasing as depth increases, then determine the pressure due to the atmosphere.

Choice A is not the correct answer. The rate is calculated correctly, but the student may have incorrectly used the ordered pair (18.7, 9) rather than (9, 18.7) to calculate the pressure at a depth of 0 feet.

Choice C is not the correct answer. The rate here is incorrectly calculated by subtracting 20.9 and 18.7 and *not* dividing by 5. The student then uses the coordinate pair $d = 9$ and $p = 18.7$ in conjunction with the incorrect slope of 2.2 to write the equation of the linear model.

Choice D is not the correct answer. The rate here is incorrectly calculated by subtracting 20.9 and 18.7 and *not* dividing by 5. The student then uses the coordinate pair $d = 14$ and $p = 20.9$ in conjunction with the incorrect slope of 2.2 to write the equation of the linear model.

Problem Solving and Data Analysis

Questions 4 and 5 refer to the following information.

A survey was conducted among a randomly chosen sample of U.S. citizens about U.S. voter participation in the November 2012 presidential election. The table below displays a summary of the survey results.

Reported Voting by Age (in thousands)

	Voted	Did not vote	No response	Total
18- to 34-year-olds	30,329	23,211	9,468	63,008
35- to 54-year-olds	47,085	17,721	9,476	74,282
55- to 74-year-olds	43,075	10,092	6,831	59,998
People 75 years old and over	12,459	3,508	1,827	17,794
Total	132,948	54,532	27,602	215,082

4

According to the table, for which age group did the greatest percentage of people report that they had voted?

- A) 18- to 34-year-olds
- B) 35- to 54-year-olds
- C) 55- to 74-year-olds
- D) People 75 years old and over

CONTENT: Problem Solving and Data Analysis

CALCULATOR USAGE: Calculator

KEY: C

Explanation: Choice C is the correct answer. The first question asks students to select the relevant information from the table to compute the percentage of self-reported voters for each age group and then compare the percentages to identify the largest

KEY TO THE SAT

On the SAT Suite of Assessments, students will be asked to answer multiple questions pertaining to the same prompt.

one, choice C. Of the 55- to 74-year-old group's total population (59,998,000), 43,075,000 reported that they had voted, which represents 71.8% and is the highest percentage of reported voters from among the four age groups.

Choice A is not the correct answer. The question is asking for the age group with the largest percentage of self-reported voters. This answer reflects the age group with the smallest percentage of self-reported voters. This group's percentage of self-reported voters is 48.1%, or $\frac{30,329}{63,008}$, which is less than that of the 55- to 74-year-old group.

Choice B is not the correct answer. The question is asking for the age group with the largest percentage of self-reported voters. This answer reflects the age group with the largest number of self-reported voters, not the largest percentage. This group's percentage of self-reported voters is 63.4%, or $\frac{47,085}{74,282}$, which is less than that of the 55- to 74-year-old group.

Choice D is not the correct answer. The question is asking for the age group with the largest percentage of self-reported voters. This answer reflects the age group with the smallest number of self-reported voters, not the largest percentage. This group's percentage of self-reported voters is 70.0%, or $\frac{12,459}{17,794}$, which is less than that of the 55- to 74-year-old group.

Problem Solving and Data Analysis

5

Of the 18- to 34-year-olds who reported voting, 500 people were selected at random to do a follow-up survey where they were asked which candidate they voted for. There were 287 people in this follow-up survey sample who said they voted for Candidate A, and the other 213 people voted for someone else. Using the data from both the follow-up survey and the initial survey, which of the following is most likely to be an accurate statement?

- A) About 123 million people 18 to 34 years old would report voting for Candidate A in the November 2012 presidential election.
- B) About 76 million people 18 to 34 years old would report voting for Candidate A in the November 2012 presidential election.
- C) About 36 million people 18 to 34 years old would report voting for Candidate A in the November 2012 presidential election.
- D) About 17 million people 18 to 34 years old would report voting for Candidate A in the November 2012 presidential election.

SKILL-BUILDING STRATEGY

As students work in small groups to solve problems, facilitate discussions in which they communicate their own thinking and critique the reasoning of others as they work toward a solution. Ask open-ended questions. Direct their attention to real-world situations to provide context for the problem.

CONTENT: Problem Solving and Data Analysis	CALCULATOR USAGE: Calculator
KEY: D	

Explanation: Choice D is the correct answer. The question asks students to extrapolate from a random sample to estimate the number of 18- to 34-year-olds who voted for Candidate A: this is done by multiplying the fraction of people in the random sample who voted for Candidate A by the total population of voting 18- to 34-year-olds: $\frac{287}{500} \times 30,329,000 \approx 17$ million, choice D.

Students without a clear grasp of the context and its representation in the table might easily arrive at one of the other answers listed.

Choice A is not the correct answer. The student may not have multiplied the fraction of the sample by the correct subgroup of people (18- to 34-year-olds who voted). This answer may result from multiplying the fraction by the entire population, which is an incorrect application of the information.

Choice B is not the correct answer. The student may not have multiplied the fraction of the sample by the correct subgroup of people (18- to 34-year-olds who voted). This answer may result from multiplying the fraction by the total number of people who voted, which is an incorrect application of the information.

Choice C is not the correct answer. The student may not have multiplied the fraction of the sample by the correct subgroup of people (18- to 34-year-olds who voted). This answer may result from multiplying the fraction by the total number of 18- to 34-year-olds, which is an incorrect application of the information.

Problem Solving and Data Analysis

6

A typical image taken of the surface of Mars by a camera is 11.2 gigabits in size. A tracking station on Earth can receive data from the spacecraft at a data rate of 3 megabits per second for a maximum of 11 hours each day. If 1 gigabit equals 1,024 megabits, what is the maximum number of typical images that the tracking station could receive from the camera each day?

- A) 3
- B) 10
- C) 56
- D) 144

SKILL-BUILDING STRATEGY

Help students strengthen their skills in problem solving and data analysis by reading and understanding graphics in many contexts. Ask them to find a chart/graph/table from a periodical and write a series of questions about the graphic to be discussed in class. Challenge them to dig deep into the data and the purpose of the graphic, then ask meaningful questions about it. Ask them to present purposefully incorrect interpretations and ask the class to correct their analyses.

KEY TO THE SAT

The Math Test emphasizes students' ability to apply math to solve problems in rich and varied contexts, and features questions that require problem solving and data analysis to solve problems in science, social studies, and career-related contexts. Students must see how the math problems they solve are generated from questions in science, social studies, economics, psychology, health, and other career content areas. Give them many opportunities to practice in all of their classes.

CONTENT: Problem Solving and Data Analysis	CALCULATOR USAGE: Calculator
KEY: B	

Explanation: Choice B is correct. The tracking station can receive 118,800 megabits each day

$\left(\frac{3 \text{ megabits}}{1 \text{ second}} \times \frac{60 \text{ seconds}}{1 \text{ minute}} \times \frac{60 \text{ minutes}}{1 \text{ hour}} \times 11 \text{ hours} \right)$, which is about 116 gigabits each day $\left(\frac{118,800}{1,024} \right)$. If each

image is 11.2 gigabits, then the number of images that can be received each day is $\frac{116}{11.2} \approx 10.4$. Since the question asks for the maximum number of typical images, rounding the answer down to 10 is appropriate because the tracking station will not receive a completed 11th image in one day.

Choice A is not the correct answer. The student may not have synthesized all of the information. This answer may result from multiplying 3 (rate in megabits per second) by 11 (hours receiving) and dividing by 11.2 (size of image in gigabits), neglecting to convert 3 megabits per second into megabits per hour and to utilize the information about 1 gigabit equaling 1,024 megabits.

Choice C is not the correct answer. The student may not have synthesized all of the information. This answer may result from converting the number of gigabits in an image to megabits (11,470), multiplying by the rate of 3 megabits per second (34,410), and then converting 11 hours into minutes (660) instead of seconds.

Choice D is not the correct answer. The student may not have synthesized all of the information. This answer may result from converting 11 hours into seconds (39,600), then dividing the result by 3 gigabits converted into megabits (3,072), and multiplying by the size of one typical image.

Passport to Advanced Math

7

The function f is defined by $f(x) = 2x^3 + 3x^2 + cx + 8$ where c is a constant. In the xy -plane, the graph of f intersects the x -axis at the three points $(-4, 0)$, $\left(\frac{1}{2}, 0\right)$, and $(p, 0)$. What is the value of c ?

- A) -18
- B) -2
- C) 2
- D) 10

CONTENT: Passport to Advanced Math	CALCULATOR USAGE: Calculator
KEY: A	

Explanation: Choice A is correct. The given zeros can be used to set up an equation to solve for c . Substituting -4 for x and 0 for y yields $-4c = 72$, or $c = -18$. Alternatively, since -4 , $\frac{1}{2}$, and p are zeros of the polynomial function, it follows that $f(x) = (2x - 1)(x + 4)(x - p)$. Were this polynomial multiplied out, the constant term would be $(-1)(4)(-9) = 4p$. (We can grasp this without performing the full expansion.) Since it is given that this value is 8 , it goes that $4p = 8$ or, rather, $p = 2$. Substituting 2 for p in the polynomial function yields $f(x) = (2x - 1)(x + 4)(x - 2)$, and after multiplying the factors, one finds that the coefficient of the x term, or the value of c , is -18 .

Choice B is not the correct answer. This value may be the result of solving for $p(p = 2)$ and then misunderstanding the relationship between the constants p and c in the equation.

Choice C is not the correct answer. This is the value of p , not c . Finding the value of p is an intermediate step to finding the value of c , but the value of p is not the final answer.

Choice D is not the correct answer. This value could be the result of an arithmetic error. Using the value of $p(p = 2)$ and the other zeros, $f(x)$ can be factored as $f(x) = (2x - 1)(x + 4)(x - 2)$. If the x terms in the product were erroneously found to be $14x$ and $-4x$, then combining like terms could result in this incorrect answer.

Passport to Advanced Math

8

What is one possible solution to the equation $\frac{24}{x+1} - \frac{12}{x-1} = 1$?

Student-Produced Response Question

CONTENT: Passport to Advanced Math	CALCULATOR USAGE: No Calculator
KEY: 5 or 7	

Explanation: Students should look for the best solution methods for solving rational equations before they begin. Looking for structure and common denominators will prove very useful at the onset, and will help prevent complex computations that do not lead to a solution.

In this problem, multiplying both sides of the equation by the common denominator $(x + 1)(x - 1)$ yields $24(x - 1) - 12(x + 1) =$

SKILL-BUILDING STRATEGY

Use “Guess and Check”* to explore different ways to solve a problem when other strategies for solving are not obvious. Students first guess the solution to a problem, then check that the guess fits the information in the problem and is an accurate solution. They can then work backward to identify proper steps to arrive at the solution.

**SpringBoard instructional strategy*

$(x + 1)(x - 1)$. Multiplication and simplification then yields $12x - 36 = x^2 - 1$, or $x^2 - 12x + 35 = 0$. Factoring the quadratic gives $(x - 5)(x - 7) = 0$, so the solutions occur at $x = 5$ and $x = 7$, both of which should be checked in the original equation to ensure that they are not extraneous. In this case, both values are solutions.

Additional Topics in Math

9

Which of the following is equal to $\sin\left(\frac{\pi}{5}\right)$?

- A) $-\cos\left(\frac{\pi}{5}\right)$
- B) $-\sin\left(\frac{\pi}{5}\right)$
- C) $\cos\left(\frac{3\pi}{10}\right)$
- D) $\sin\left(\frac{7\pi}{10}\right)$

CONTENT: Additional Topics in Math	CALCULATOR USAGE: No Calculator
KEY: C	

This question is solved most efficiently when a student is fluent with radian measure and has a conceptual understanding of the relationship between the sine and cosine functions.

Explanation: Choice C is correct. Sine and cosine are related by the equation: $\sin(x) = \cos\left(\frac{\pi}{2} - x\right)$. Therefore, $\sin\left(\frac{\pi}{5}\right) = \cos\left(\frac{\pi}{2} - \frac{\pi}{5}\right)$, which reduces to $\cos\left(\frac{3\pi}{10}\right)$.

Choice A is not the correct answer. This answer may result from a misunderstanding about trigonometric relationships. A student may think that cosine is the inverse function of sine, and therefore reason that the negative of the cosine of an angle is equivalent to the sine of that angle.

Choice B is not the correct answer. This answer may result from a misunderstanding of the unit circle and how it relates to trigonometric expressions. A student may think that, on a coordinate grid, the negative sign only changes the orientation of the triangle formed, not the value of the trigonometric expression.

Choice D is not the correct answer. The student mistakenly remembers the relationship between sine and cosine and adds $\frac{\pi}{2}$ to the angle measure instead of subtracting the angle measure from $\frac{\pi}{2}$.

SKILL-BUILDING STRATEGY

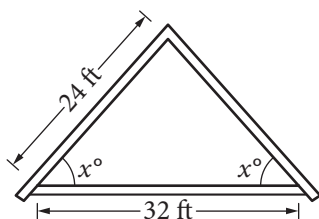
Assign math problems for students to solve without the use of a calculator. Assign problems for which the calculator is actually a deterrent to expedience and give students the choice whether to utilize the calculator. Discuss how to solve both ways, and which method is more advantageous.

Additional Topics in Math

10

Student-Produced Response Question

An architect drew the sketch below while designing a house roof. The dimensions shown are for the interior of the triangle.



Note: Figure not drawn to scale.

What is the value of $\cos x$?

$\frac{\circ}{\circ}$	$\frac{\circ}{\circ}$	$\frac{\circ}{\circ}$	$\frac{\circ}{\circ}$
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

CONTENT: Additional Topics in Math

CALCULATOR USAGE: Calculator

KEY: $\frac{2}{3}$, $\frac{4}{6}$, $\frac{8}{12}$, .666, .667

Explanation: Because the triangle is isosceles, constructing a perpendicular from the top vertex to the opposite side will bisect the base and create two smaller right triangles. In a right triangle, the cosine of an acute angle is equal to the length of the side adjacent to the angle divided by the length of the hypotenuse. This gives $\cos x = \frac{16}{24}$, which can be simplified to $\cos x = \frac{2}{3}$. Note that $\frac{16}{24}$ cannot be entered into the answer grid, so this fraction must be reduced.

KEY TO THE SAT

Although most of the questions on the Math Test are multiple choice, a portion of the questions are student-produced response questions, also known as grid-ins. Instead of choosing a correct answer from a list of options, students are required to solve problems and enter their answers in the grids provided on the answer sheet. Visit **SAT Suite of Assessments** for more information about student-produced response questions.

SECTION 4:

Scoring and the SAT Suite of Assessments

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

The assessments report several scores, including:

Total Score and Section Scores. The assessments in the SAT Suite each report a total score that is the sum of two section scores: Evidence-Based Reading and Writing, and Math.

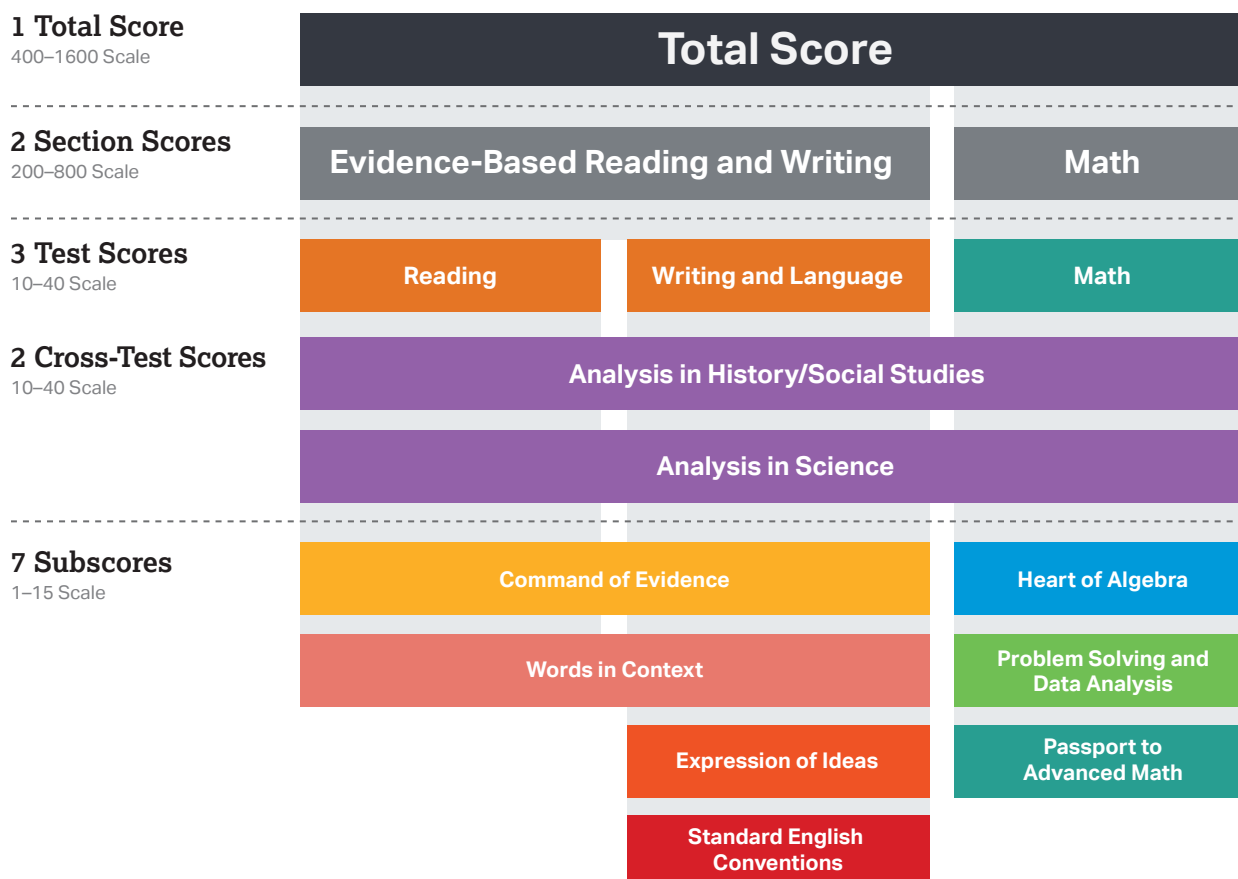
Test Scores. The assessments in the SAT Suite report three test scores: Reading, Writing and Language, and Math.

Cross-Test Scores. The assessments each report two cross-test scores: Analysis in History/Social Studies and Analysis in Science. These scores are generated from questions in the Reading, Writing and Language, and Math Tests that ask students to think analytically about texts, graphics, and problems in these subject areas.

Subscores. The assessments report multiple subscores for Reading, Writing and Language, and Math, each with a score range of 1 to 15 points. Subscores provide detail about student performance. The Reading Test and Writing and Language Test report two subscores: Words in Context and Command of Evidence. In addition to these two subscores, the Writing and Language Test reports two additional subscores: Expression of Ideas and Standard English Conventions. The Math Test reports three subscores: Heart of Algebra, Problem Solving and Data Analysis, and Passport to Advanced Math (PSAT 8/9 does not report a subscore in Passport to Advanced Math). Beyond the scores, teachers and students will have access to cohesive information about test performance.

Essay Scores: The SAT only reports three essay scores for students who opt to take the SAT Essay. Students receive three scores on a 2–8 scale: Reading, Analysis, and Writing.

A combination of numerical and content-based interpretations provide a better picture of what students know and can do, and will help identify areas where they may need to focus. For example, a student's numerical test scores will be interpreted in a content-based explanation that describes the knowledge, skills, and understandings that the student has learned and those the student needs to continue to practice. Providing both numerical and content-based interpretations of student performance not only better defines what students know and can do, it also helps students and teachers identify the knowledge, skills, and understandings students can focus on next to increase their college and career readiness.



Score Reporting Online

In order to help make scoring a useful tool for students, teachers, and schools, the College Board uses online reporting. With online score reporting, students and educators are better equipped to understand and act on test results, developing plans for improvement at the individual and school level.

Student Reports

Students have online access to their own information and may also opt in to receive paper score reports for the SAT. Students are able to access data on their desktop, tablet, and mobile phone and link to Official SAT Practice and BigFuture™. For the PSAT/NMSQT, PSAT 10, and PSAT 8/9, schools are provided a single copy of the student paper score report for distribution to the students and/or parents.

K–12 Score Reporting Portal

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

The portal generates score reports based on student demographics, and this information can be compared with the performance of students in the district and at the state level. Content analysis reports (Instructional Planning and Question Analysis reports) allow you to drill down to the student level and analyze the questions students encountered on the actual assessment, as well as content and skill gaps.

In addition to the standard online score reports, portal users can configure reports with filters, and they are able to export information to Excel or a PDF for additional uses. As a portal user, you can filter by student-provided information, such as race/ethnicity or highest level of parental education, or you can define your own comparison groups of your students and organize student performance records according to your analysis needs. With this capability, you can configure a report that includes, for example, only the students in your U.S. history class. This allows you to hone in on your own students' performance and identify skills that are strong and skills that may need to be an additional focus of instruction in your classroom.

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

To support the alignment of curriculum and assessments, the online portal includes links to your state standards. This resource provides teachers and curriculum specialists with additional tools for analyzing strengths and weaknesses in curriculum and instruction.

In addition to information about accessing the portal, a supplement to this guide, *SAT Suite of Assessments Scores and Reporting: Using Data to Inform Instruction*, provides further information about reports in the online portal and how to use them to inform instruction (available at sat.org/k12).

You will see continual enhancements to these online score reports in the future. The College Board is conducting research studies to provide students and teachers with reliable recommendations to improve performance, and we expect to be able to provide narrative recommendations about what students know and can do and what they should focus on to increase college and career readiness. These recommendations will increase over time as more and more students take the SAT and demonstrate success.

Concordance

Concordance is a valid, proven way to compare scores from different assessments. The College Board has provided concordance tables to compare scores between the new SAT and the old SAT. Concordance tables have been provided for the pre-2015 PSAT/NMSQT and the PSAT/NMSQT, as well as a derived concordance allowing for comparison of scores between the new SAT and the ACT.

Because the new SAT is a different test than the old SAT, it is not possible to perfectly compare the two test scores to each other. A score of 520 on the Critical Reading section of the old SAT is not equivalent to a score of 520 on the new SAT's Evidence-Based Reading and Writing section because each assessment tests a different domain of knowledge and skills. While concordance scores are only estimates, using concordance tables allows educators to compare these scores more accurately.

Concordance Tables

In order to meet the various needs of different schools and institutions, the College Board has released tables for three levels of concordance:

1. Total-to-Total Concordance
2. Section-to-Section Concordance
3. Section-to-Test (or Test-to-Section) Concordance

For each concorded score pair, two tables have been produced: One can be used to concord old SAT scores to new SAT scores, and the other to concord in the opposite direction—from the new SAT to the old SAT.

The College Board provides concordance tables at different levels (total-to-total scores, section-to-section, and test-to-section scores) to compare old SAT scores and new SAT scores because programs and institutions use SAT scores differently.

When evaluating scores on the old SAT, some colleges considered all three section scores (CR+W+M), and some considered only two (CR + W). To accommodate either calculation of a total score, we have provided both a 2400 total concordance table and a 1600 total concordance table.

Concordance Tools and Resources

Concordance tools are available in several formats and can be accessed in print and online.

Concordance Brief: available at <https://collegereadiness.collegeboard.org/pdf/K-12-educator-brief-sat-concordance.pdf>

SAT Score Converter: A mobile app designed for both iPhone and Android phones allows students and counselors to easily compare their scores if they took both the old SAT and the new SAT.

Web-Based Tool: The College Board provides a web-based concordance tool that provides the same functionality as the apps at sat.org/score-converter.

SECTION 5:

Preparing Your Students for Success on the SAT

The most important preparation for the SAT will occur in the course of classroom activities. A closer connection to your curriculum means that skills assessed by the test are those being taught and developed each day. Beyond the classroom, the College Board Readiness and Success System provides students with further support as they prepare for success on the SAT and beyond. Through free resources and programs, including a partnership with Khan Academy, your students have multiple opportunities to focus on reviewing and practicing their skills.

Official SAT Practice—Personalized Study Plans for Your Students

As part of our commitment to creating a clear path to SAT success, the College Board has partnered with Khan Academy to provide a completely free, world-class practice program for all students. Students have access to free resources that support the focused review of relevant knowledge and skills as well as authentic practice with SAT questions and test forms.

When your students create their Official SAT Practice accounts with Khan Academy, they have the option to link their SAT, PSAT/NMSQT, PSAT 10, and PSAT 8/9 scores from their College Board account. This allows Khan Academy to evaluate a student's results and create a practice program that is individually targeted to address the student's greatest areas of need.

The Daily Practice App provides students with the opportunity to make practice part of their daily routine—any place, any time. Students can answer a question a day on the Daily Practice for the SAT app and get immediate feedback. The free app makes it easy for students to:

- Answer an exclusive, official reading, writing and language, or math question.
- Reveal a hint if they're stuck.
- Read answer explanations and learn from their mistakes.

Students can also simulate test day and take the SAT or PSAT 10 on paper. Then, using the app, take a picture of their answer sheet and get an instant score report. Scores are saved so they can track their progress each time they take a full assessment. Score results offer question-by-question details, and connect to Official SAT Practice at Khan Academy for personalized study.

For more information on the College Board–Khan Academy partnership and other practice resources, visit sat.org/practice.

Now What? Making Information Work for You and Your Students

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

You'll be able to use this information to:

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

While you continue to engage in excellent teaching and learning, consider providing students with the following “success-directed” suggestions to help them prepare for the assessments in the SAT Suite (feel free to copy and share with students!):

How to Prepare for the SAT Suite of Assessments

- 1. Register/sign up for Official SAT Practice on Khan Academy.** Get your personalized practice plan to prepare for the SAT.
- 2. Use evidence to support your arguments.** Get in the habit of backing up your answers with relevant quotations or data that support your claims.
- 3. Build your reading stamina.** Passages on the SAT Suite are more complex than in the past. Be persistent in reading long, challenging passages of literature and informational text.
- 4. Always analyze the informational graphics.** Charts and graphs are not just pictures in a textbook. Practice reading and understanding all supporting graphics, and make sure you understand how the graphics relate to the text.
- 5. Get excited about the U.S. Founding Documents.** One of the passages you encounter on the SAT Suite will be from one of the founding documents or a text from the great global conversation they inspire. (Don't worry: You don't need to memorize anything. Just be ready to analyze the documents in the Reading Test.)
- 6. Practice editing and revision.** Focus on precise word choice, sentence structure, and grammatical conventions to support the central themes and arguments in any reading or writing selection.
- 7. Put away the calculator (some of the time).** One portion of the assessments in the SAT Suite requires students to solve equations and engage in mathematical reasoning without the use of a calculator. Use of calculators will be allowed (but not always needed) on the other portion of the Math Test.
- 8. Check your answers.** The SAT Suite Math Tests will use multistep problems. Always try your solution in the problem to be sure you have answered all of the questions in the problem and your solution makes sense.
- 9. Answer every question on the test.** Wrong answers no longer earn a score deduction. The SAT Suite of Assessments uses only right answers to compute your score.
- 10. Take the SAT!** You have taken challenging courses. You have been developing the skills and acquiring the knowledge you need to be successful on the SAT as you do your assignments in your classes. You have more information about the SAT than any other test:

- ◆ You took the PSAT 8/9 and used the results to determine what you needed to do to be college and career ready by the end of high school;
- ◆ You took the PSAT/NMSQT. When it told you that you had AP potential, you took the challenging courses. You got access to scholarships.
- ◆ You have practiced taking the SAT! You are ready to show what you know and open the door to the college and/or career of your choice!

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

APPENDIX A:

Instructional Strategies and Keys to the SAT

General Instructional Strategies for Reading:

- Require students to practice reading and analyzing extended passages of text at varied levels of text complexity. The Reading Test passages span a range of difficulty from the early high school to early postsecondary (college-entry, credit-bearing) levels of reading.
- Use multiple reading passages to explore ideas in both fiction and nonfiction, giving students the opportunity to practice analysis and synthesis of texts.
- Include graphs, tables, and charts in reading assignments. The Reading Test includes two passages accompanied by one or two related informational graphics. Students will be asked to interpret graphics and make connections between graphics and passages. (They will not need to use mathematical computation to answer the questions.)
- Ask students to investigate the way authors use word choice, structure, and other techniques to create a desired effect in both fiction and nonfiction passages.
- Direct students to analyze history and social studies passages from the U.S. Founding Documents and texts in the great global conversation. Reading selections from such texts helps prepare students for the rigors of making meaning from challenging, often abstract texts on serious topics such as rights, duties, and freedoms. The goal here is not to prepare students for specific test passages—the Reading Test does not follow a prescribed

list of texts—but instead to acquaint students with the nature and challenges of reading such works and to engage them in the “conversations” these texts inspire. All of the information needed to answer the associated Reading Test questions is found in the passages themselves—the test does not assume that students will have read these passages previously. When useful, a historical note will be provided to contextualize the reading for students.

Keys to the SAT:

- On the SAT Suite of Assessments, reading passages are selected with both quantitative and qualitative measures of text complexity in mind and represent a range of difficulties consistent with effectively measuring students’ college and career readiness.
- The SAT Suite offers only four choices for each question, rather than five.

Skill-Building Strategies:

- Students may be unaccustomed to the length and challenge of Reading Test passages. Assign a range of reading passages that includes some longer and more difficult selections, and provide students with needed scaffolding and support so that they can develop the needed independence in reading such pieces.
- To help students recognize how an author’s selection of words and phrases shapes meaning, style, and tone, ask them to select a particularly meaningful or powerful word or phrase from a reading selection and then substitute another word or phrase of similar meaning. Discuss how it is uncommon for two words or phrases to have exactly the same impact, nuance, or connotation even when they have similar dictionary definitions.
- When reading literature passages, primary sources, or current event publications, ask students to use the SOAPSTone method to analyze the text. Ask students to identify the Speaker, Occasion, Audience, Purpose, Subject, and Tone. Students can deepen their understanding of both content and meaning by comparing these elements across several documents focused on a similar theme or topic.
- Ask students to write questions that investigate understanding of a lesson or unit. Questions should be at various levels: literal, interpretive, and universal questions that prompt deeper thinking. Students will practice identifying meaningful and relevant information in order to create high-quality questions for their peers to answer. When students answer their peers’ questions, require them to provide the evidence that supports their selection.

- Ask students to identify similarities and differences in multiple passages. Have them create a Venn diagram or develop their own graphic organizers to organize their thoughts and facilitate synthesis and analysis of multiple texts. Visual representations can also be used to trace other kinds of relationships, such as sequence and cause-effect.
- Ask students to locate and present additional texts that support an author's conclusion and to defend their choices by citing textual evidence (e.g., quotations) from the additional texts. This allows students to practice both synthesizing and supporting their ideas with evidence.

General Instructional Strategies for Writing and Language:

- Instruct students to provide quotations from passages, data from graphs, tables, or charts, or other relevant text as evidence to support conclusions in class discussions and on assignments. The SAT Suite requires students to analyze passages using relevant evidence in reading and writing.
- Teach students in all classes to practice writing and language analysis skills—effective language use, expression of ideas, and the proper use of Standard English Conventions—to develop their analyses of social studies, science, and career-related passages.
- Practice revising and editing during class by asking students to refine their own work, as well as the work of their peers, to build analysis skills related to grammatical conventions, word choice, and sentence structure in extended contexts.
- Give students the opportunity to correct mistakes, both in carefully constructed errors you provide and in their own work. They will be asked to make corrections in word choice, conventions of usage and punctuation, organization, sentence structure, and analysis of graphical data on the SAT Suite of Assessments.

Keys to the SAT:

- The SAT Suite of Assessments frequently refers to informational graphics in Reading, Writing and Language, and Math Test questions. When passages and/or questions are accompanied by graphs, tables, or charts on the Writing and Language Test, students will be asked to draw connections between the text and graphics—for example, they may be asked to correct a writer's inaccurate interpretation of data presented in a table. Answers to all questions are anchored in the context of the passage.

Skill-Building Strategies:

- Teach students to use OPTIC to interpret informational graphics:
 - O** – write **O**verview notes about the graphic;
 - P** – zoom in on the **P**arts of the visual and describe important details;
 - T** – highlight the words of the **T**itle;
 - I** – identify **I**nterrelationships among elements of the graphic;
 - C** – draw **C**onclusions about the graphic as a whole.
- Peer editing can be an important part of the writing process and a useful teaching and learning activity for both the writer and the editor. Ensure that students attend to both rhetorical aspects of texts (development, organization, language use) and mechanics (sentence structure, usage, punctuation, capitalization, spelling) as they comment on their classmates' writing. Use rubrics and checklists to remind students of important writing criteria.
- Provide students with a reading passage containing several sentences in need of correction. Ask students to improve the sentences, focusing their attention on the context of the error, its effect on the sentence, and the meaning of the sentence within the passage. You might introduce such issues as dangling and other misplaced modifiers, inappropriate shifts in verb tense, lack of agreement between pronouns and antecedents, and illogical comparisons between unlike terms. After students make corrections, ask them to explain their reasoning. Students are thus simultaneously practicing using language conventions and supporting their answers with evidence. Learn more about Standard English Conventions assessed at SAT Suite of Assessments.
- Encourage students to attend to errors in the application of Standard English Conventions. Use released student essay samples from the College Board to practice analyzing text for strength of proposition, support, focus, and effective language use.
- Ask students to review text messages and then correct grammatically incomplete sentences, problems with end-of-sentence punctuation and punctuation within sentences, and cases of nonstandard expression (when words and phrases are used in a way not typical of Standard Written English) according to Standard English Conventions. Discuss how these changes influence the tone and meaning of the messages.
- Familiarize students with the analysis of data, graphs, and charts in conjunction with text. Using the informational graphics in a textbook or periodical, provide students with inaccurate interpretations of data and ask them to correct the error(s).
- Have them explicitly describe the data they used to make each correction.

General Instructional Strategies for the Optional SAT Essay

- Use the SAT Essay prompt as a foundation for frequent writing assignments in all content-area classes. Students strengthen their learning by writing in science, social studies, math, health, and career-related courses.
- Practice evaluating evidence for consistent and legitimate supporting arguments. Students must discern whether the evidence they use actually strengthens their argument.
- Revisit previous writing assignments periodically, and allow students to alter their evidence, their word choices, or otherwise edit their work to strengthen their skills.

Keys to the SAT:

- The prompt used for the SAT Essay will be consistent for all administrations. The passage will differ.

Skill-Building Strategies:

- Use the SAT Essay prompt with passages relevant to your curriculum (science, social studies, math, health, career), giving students the opportunity to analyze quality pieces of writing in the content area and to practice with the prompt.
- To ensure that your students understand the difference between opinion, argument, and analysis, assign all three types of writing. Require students to use evidence to support their analyses of nonfiction documents. Remind them that the SAT Essay is interested in evidence-based claims, not their personal opinions.
- Students benefit from using a rubric to analyze their writing—rubrics provide a clear description of the skills, knowledge, and understandings they must demonstrate. Give students the opportunity to compare the rubric to their work, and to the writing of their peers, evaluating areas in which they met the standards of the rubric and areas in which they need improvement. See Appendix C for the SAT Essay rubric.
- Use the sample student essays in Appendix C of this guide to extend understanding of the SAT Essay prompt. Immerse students in the samples, and get them to notice components and characteristics common to all, in addition to analyzing and identifying areas for improvement.

General Instructional Strategies for Math:

- Ensure that students practice solving multistep problems. The SAT often asks them to solve more than one problem to arrive at the correct answer.
- Organize students into small working groups. Ask them to discuss how to arrive at solutions. When their solutions are incorrect, ask them to discuss how to make corrections. Encourage them to express quantitative relationships in meaningful words and sentences to support their arguments and conjectures.
- Vary the types of problems in homework assignments so that students are not always using the same strategy to solve every problem. Students benefit from the practice of choosing the right mathematical strategy in addition to solving the problems correctly.
- Assign students math problems or create classroom-based assessments that do not allow the use of a calculator. This practice encourages greater number sense, probes students' understanding of content on a conceptual level, and aligns to the testing format of the SAT Suite of Assessments.
- Develop interest and facility in math by practicing in science and social studies. Use tables, expressions, and graphs that students encounter in other content areas to present math as a tool that may be applied to many areas of study rather than being relegated to math classes. Provide frequent opportunities for students to interpret and apply mathematical skills and concepts in real-world contexts, particularly in the sciences and social studies.

Keys to the SAT:

- On the SAT Suite of Assessments, students are asked to answer multiple questions pertaining to the same prompt.
- The Math Test emphasizes students' ability to apply math to solve problems in rich and varied contexts, and it features questions that require problem solving and data analysis to solve problems in science, social studies, and career-related contexts. Students must see how the math problems they solve are generated from questions in science, social studies, economics, psychology, health, and other career content areas. Give them many opportunities to practice in all of their classes.

- Although many of the questions on the Math Test are multiple choice, a portion of the questions are student-produced response questions, also known as grid-ins. Instead of choosing a correct answer from a list of options, students are required to solve problems and enter their answers in the grids provided on the answer sheet. Visit SAT Suite of Assessments for more information about student-produced response questions.

Skill-Building Strategies:

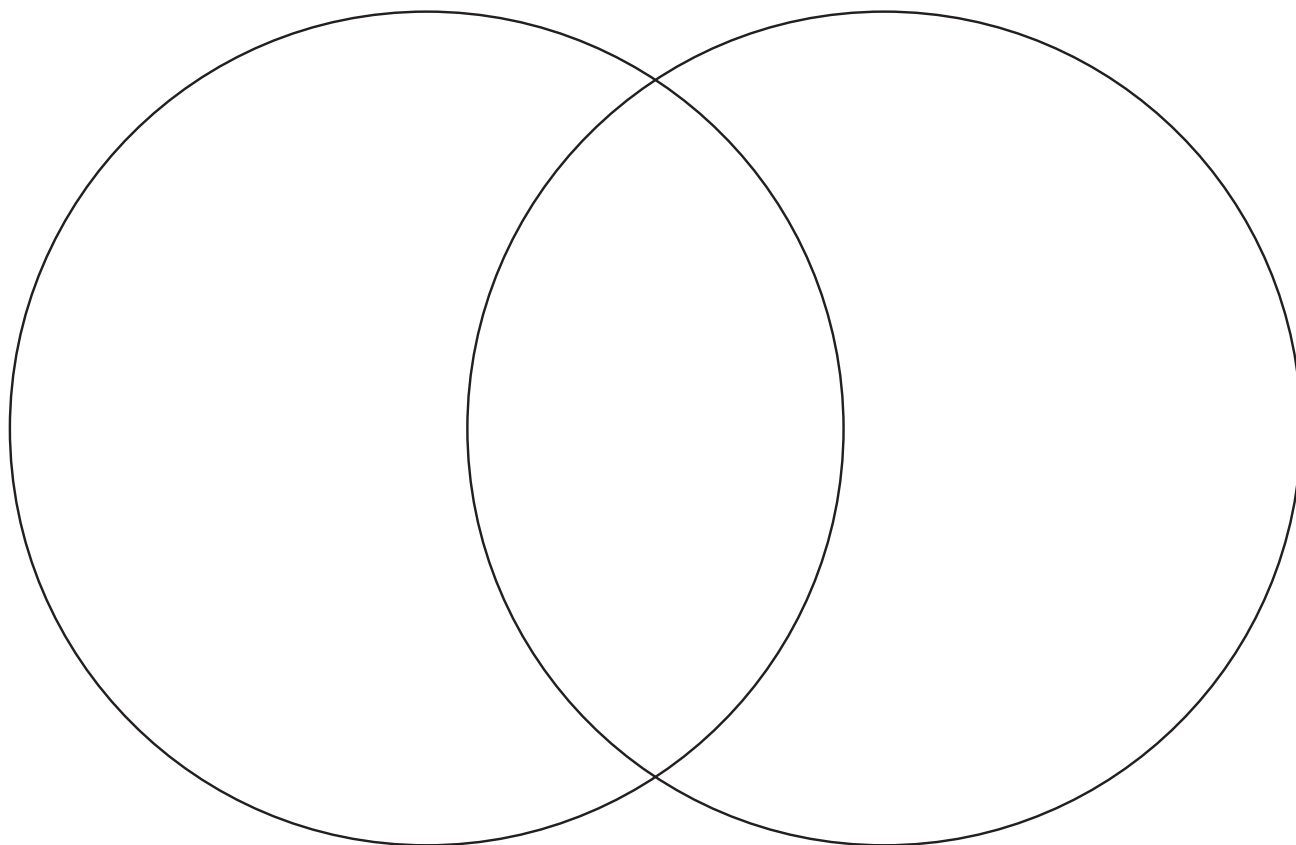
- Provide students with explanations and/or equations that incorrectly describe a graph. Ask students to identify the errors and provide corrections, citing the reasoning behind the change.
- Students can organize information to present data and answer a question or show a problem solution using multiple tools. Ask students to create pictures, tables, graphs, lists, models, and/or verbal expressions to interpret text and/or data to help them arrive at a solution.
- Ask students to solve problems that require multiple steps to arrive at the solution.
- As students work in small groups to solve problems, facilitate discussions in which they communicate their own thinking and critique the reasoning of others as they work toward a solution. Ask open-ended questions. Direct their attention to real-world situations to provide context for the problem.
- Help students strengthen their skills in problem solving and data analysis by reading and understanding graphs in many contexts. Ask them to find a chart/graph/table from a periodical and write a series of questions about the graphic to be discussed in class. Challenge them to dig deep into the data and the purpose of the graphic and then ask meaningful questions about it. Ask them to present purposefully incorrect interpretations, and ask the class to correct their analyses.
- Use “Guess and Check” to explore different ways to solve a problem when other strategies for solving are not obvious. Students first guess the solution to a problem and then check that the guess fits the information in the problem and is an accurate solution. They can then work backward to identify proper steps to arrive at the solution.
- Assign math problems for students to solve without the use of a calculator. Assign problems for which the calculator is actually a deterrent to expedience, and give students the choice whether to utilize the calculator. Discuss how to solve both ways and which method is more advantageous.

Graphic Organizers

APPENDIX B:

SOAPSTone	Analysis	Textual Support
Speaker: What does the reader know about the writer?		
Occasion: What are the circumstances surrounding this text?		
Audience: Who is the target audience?		
Purpose: Why did the author write this text?		
Subject: What is the topic?		
Tone: What is the author's tone or attitude?		
* SpringBoard English Language Arts Teacher Edition		

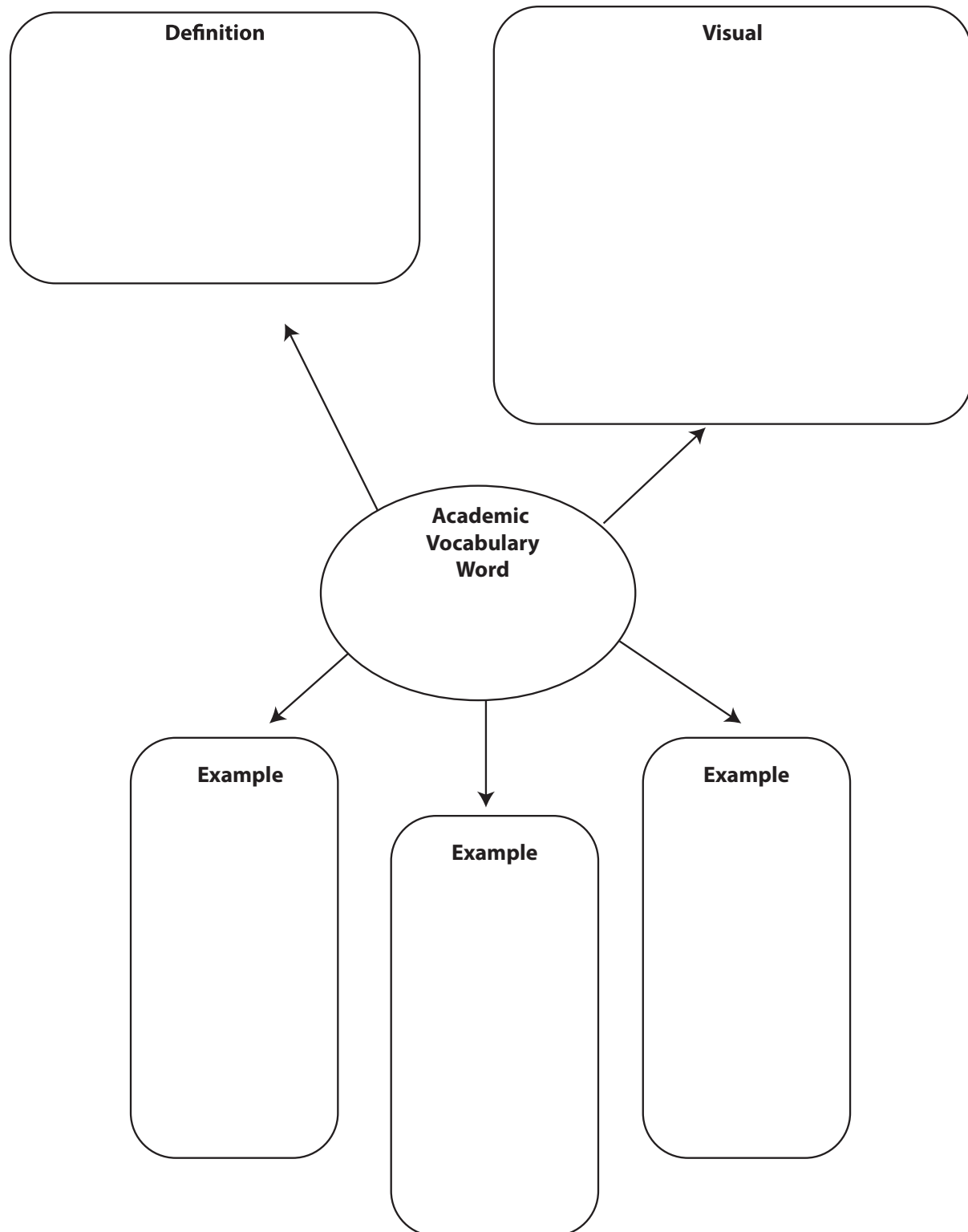
Venn Diagram



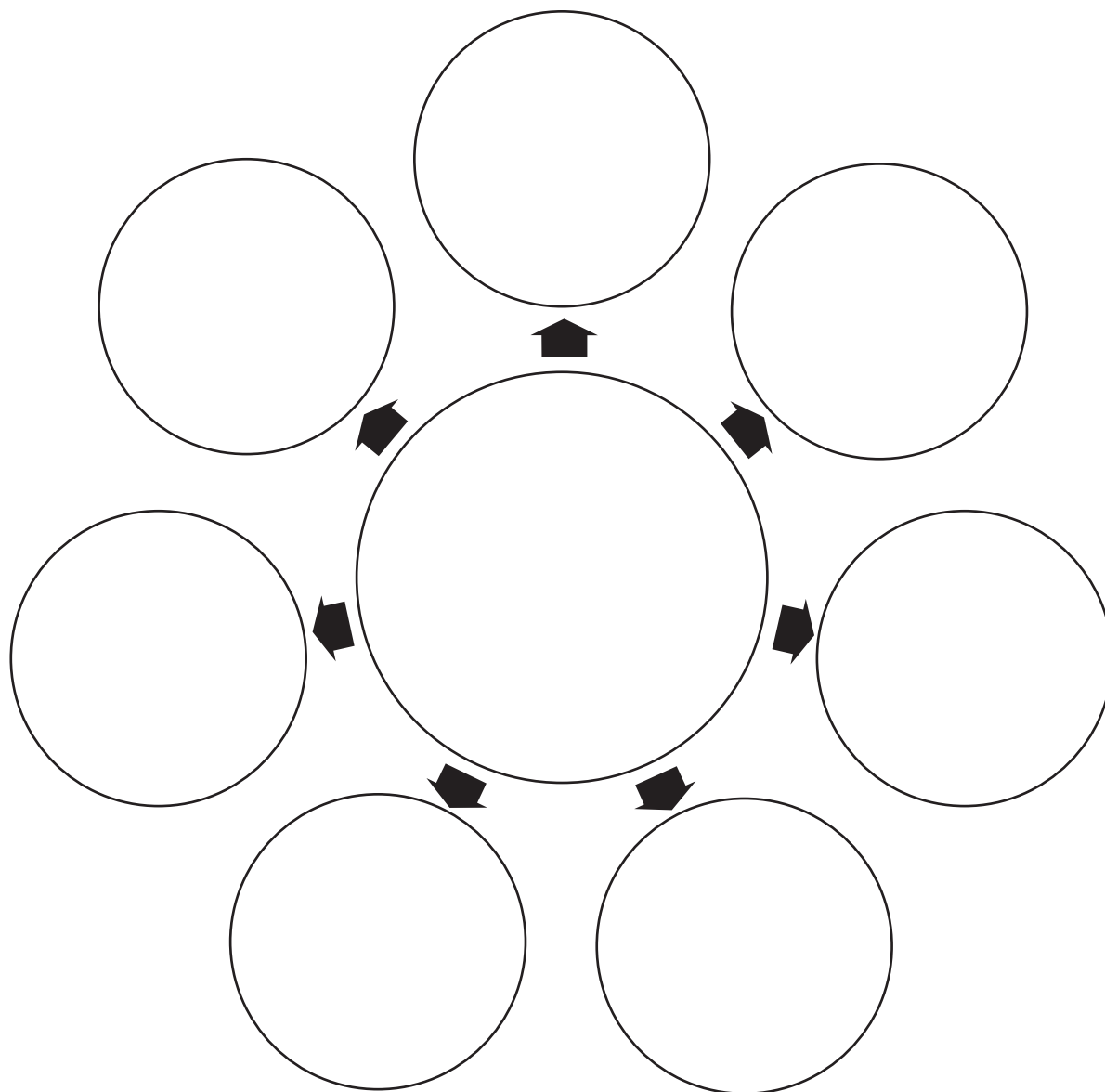
OPTIC

<p>O — Overview</p> <p>Write Overview notes about the informational graphic.</p>	
<p>P — Parts</p> <p>Zoom in on the Parts of the visual and describe important details.</p>	
<p>T — Title</p> <p>Record the Title.</p>	
<p>I — Interrelationships</p> <p>Identify Interrelationships among elements of the graphic.</p>	
<p>C — Conclusions</p> <p>Draw Conclusions about the graphic as a whole.</p>	

Word Map



Web Organizer



* SpringBoard English Language Arts Teacher Edition

APPENDIX C:

SAT Essay Rubric and Sample Essays

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

SAT Essay Rubric

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

Sample 1: This response scored a 4/4/4.

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

Bogard starts his article off by recounting a personal story – a summer spent on a Minnesota lake where there was “woods so dark that [his] hands disappeared before [his] eyes.” In telling this brief anecdote, Bogard challenges the audience to remember a time

where they could fully amass themselves in natural darkness void of artificial light. By drawing in his readers with a personal encounter about night darkness, the author means to establish the potential for beauty, glamour, and awe-inspiring mystery that genuine darkness can possess. He builds his argument for the preservation of natural darkness by reminiscing for his readers a first-hand encounter that proves the “irreplaceable value of darkness.” This anecdote provides a baseline of sorts for readers to find credence with the author’s claims.

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

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

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

Score Explanation

Reading — 4: This response demonstrates thorough comprehension of the source text through skillful use of paraphrases and direct quotations. The writer briefly summarizes the central idea of Bogard's piece (*natural darkness should be preserved; we must preserve true, unaffected darkness*) and presents many details from the text, such as referring to the personal anecdote that opens the passage and citing Bogard's use of *Paris' reputation as "The City of Light."* There are few long direct quotations from the source text; instead, the response succinctly and accurately captures the entirety of Bogard's argument in the writer's own words, and the writer is able to articulate how details in the source text interrelate with Bogard's central claim. The response is also free of errors of fact or interpretation. Overall, the response demonstrates advanced reading comprehension.

Analysis — 4: This response offers an insightful analysis of the source text and demonstrates a sophisticated understanding of the analytical task. In analyzing Bogard's use of *personal anecdote, allusions to art and history, and rhetorical questions*, the writer is able to explain carefully and thoroughly how Bogard builds his argument over the course of the passage. For example, the writer offers a possible reason for why Bogard chose to open his argument with a personal anecdote, and is also able to describe the overall effect of that choice on his audience (*In telling this brief anecdote, Bogard challenges the audience to remember a time where they could fully amass themselves in natural darkness void of artificial light. By drawing in his readers with a personal encounter. . . the author means to establish the potential for beauty, glamour, and awe-inspiring mystery that genuine darkness can possess. . . . This anecdote provides a baseline of sorts for readers to find credence with the author's claims*). The cogent chain of reasoning indicates an understanding of the overall effect of Bogard's personal narrative both in terms of its function in the passage and how it affects his audience. This type of insightful analysis is evident throughout the response and indicates advanced analytical skill.

Writing — 4: The response is cohesive and demonstrates highly effective use and command of language. The response contains a precise central claim (*He effectively builds his argument by using personal anecdote, allusions to art and history, and rhetorical questions*), and the body paragraphs are tightly focused on those three elements of Bogard's text. There is a clear, deliberate progression of ideas within paragraphs and throughout the response. The writer's brief introduction and conclusion are skillfully written and encapsulate the main ideas of Bogard's piece, as well as the overall structure of the writer's analysis. There is a consistent use of both precise word choice and well-chosen turns of phrase (*the natural magnificence of stars in a dark sky is definite, our world consumed by unnatural, vapid lighting, the affecting power of an untainted night sky*). Moreover, the response features a wide variety in sentence structure and many examples of sophisticated sentences

(By doing this, Bogard creates a dichotomy between Paris' traditionally alluded-to name and the reality of what Paris is becoming — no longer "the city of light", but moreso "the city of light. . . before 2AM"). The response demonstrates a strong command of the conventions of Standard Written English. Overall, the response exemplifies advanced writing proficiency.

SAT Essay Rubric

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

Sample 2: This response scored a 3/3/3.

In Paul Bogard's article "Let there be dark" he's building an argument to persuade his audience to preserve natural darkness. Bogard builds his argument in a few different ways. Bogard uses a personal story, appeals to people's emotions, and states benefits of natural darkness.

By using a personal story Bogard allows his audience to connect to him. If his audience can relate or even understand his story they will be more willing to agree with him. The personal story also shows that the issue of preserving natural darkness isn't just another topic to write about but something that he is actually passionate for. In his personal story Bogard uses great imagery making the audience picture what he saw and maybe make them want to experience it too.

Bogard uses pathos by stating examples that appeal to people's emotions. In the article he wrote "Those of us over 35 are perhaps

among the last generation to have known truly dark nights.” This statement appeals more to the younger generations emotion. By stating this people who are younger then 35 might feel that they were robbed of the opportunity to experience the real beauty of natural darkness. This would proably help his younger audience to agree with him because they might want the chance to see the real beauty of natural darkness.

Bogard writes about the benefits that natural darkness actually produces. In the article he talks about how darkens actually helps the body produce a hormone that keeps certain cancers from developing. He also includes how darkness helps and is neccessary for certain animals. These examples will help his audience see that he is arguing for some beneficial for people. This also helps appeal to an audience that might not care for the beauty of darkness but care for their own personal health.

Bogard uses different features in order to persuade his audience. The different features also help him in appealing to a broader audience.

Score Explanation

Reading — 3: This response demonstrates effective understanding of the passage, with increasing evidence as the response continues. In the second paragraph, the writer discusses the personal experience of the night sky that Bogard draws on; although the writer does not recount the experience itself, it is nevertheless clear that the writer understands the story of Bogard’s youth. In the next paragraph, the writer cites and discusses a generational claim that Bogard makes, again demonstrating comprehension. Finally, the writer discusses general points Bogard makes about darkness’s usefulness for both animals and humans, although again, the writer makes a vague reference *that darkness helps and is neccessary for certain animals* without offering any of the specific textual examples that Bogard provides. However, across the whole of this essay, the writer demonstrates effective understanding of the text’s central idea (*he’s building an arguement to persuade his audience to preserve natural darkness*) and important details.

Analysis — 3: The writer demonstrates an understanding of the analytical task by first identifying three ways Bogard builds his argument (*Bogard uses a personal story, appeals to people’s emotions, and states benefits of natural darkness*) and then developing each point in turn. In the response’s body paragraphs, the writer moves beyond mere assertions to a competent evaluation of how pieces of evidence, reasoning, or stylistic or persuasive elements contribute to the argument. For example, in the response’s discussion of the personal story that Bogard opens with, the writer not only argues that the story *allows his audience to connect to him* but also explains the importance of such a connection (*If his audience can relate or even understand his story they will be more*

willing to agree with him). The writer also contends that the use of this personal story shows Bogard's passion and that the imagery included in the story makes *the audience picture what he saw and maybe make them want to experience it too*. The response could have made a stronger point had the writer elaborated on the potential effects of making the audience want to share Bogard's experience. Nevertheless, in this example and others like it in the response, the writer exhibits effective analysis of the source text using relevant and sufficient support.

Writing — 3: This essay is mostly cohesive and demonstrates mostly effective control of language. The brief introduction establishes the writer's central idea and sets up the essay's three points. The essay then follows a clear, if formulaic, format. In each paragraph, the writer demonstrates a progression of ideas, integrating quotations or examples from the source text into the analysis and connecting ideas logically (*Bogard uses pathos by stating examples that appeal to people's emotions. In the article he wrote "Those of us over 35 are perhaps among the last generation to have known truly dark nights." This statement appeals more to the younger generations emotion. By stating this...*). Sentence structure is varied, and some precise phrasing is used to convey ideas (*robbed of the opportunity, their own personal health*). Language control on the whole is good, although there are a few minor errors (*These examples will help his audience see that he is arguing for some beneficial for people*) that do not detract materially from the quality of writing. Overall, the response demonstrates proficient writing.

SAT Essay Rubric

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

Sample 3: This response scored a 2/2/2.

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

Bogard supports his claims about natural darkness's underrated value by providing the reader with evidence of health problems that the opposite replacement, artificial light, can cause. "Our bodies need darkness to produce the hormone melatonin, which keeps certain cancers from developing." Oh, no! Not cancer! Right there is

a quick attention grabber to any reader previously bored by Bogard's constant opinions because now there are facts, and a fact relating to the reader is the best persuasion, especially when it relates to there health or well-being. Cancer, because who wants a terminal illness over an action as simple as flipping a switch on a night light when it's too dark for your comfort?

Score Explanation

Reading — 2: This writer demonstrates some comprehension of the passage. In the first paragraph, the writer conveys the passage's broad central point — *the importance of natural darkness*. The writer also shows an understanding of the comparison Bogard draws between his own past and the present day (*the times have definitely changed and natural darkness's value has been lost in society, replaced with artificial light*). In the paragraph that follows, the writer briefly cites Bogard's point about the negative health implications of too much artificial light. However, this is the last evidence of understanding the writer provides, as the essay ends almost immediately afterward. Overall, the writer has demonstrated partial understanding of the source text.

Analysis — 2: The response offers some limited analysis of the source text, demonstrating partial understanding of the analytical task. The writer identifies Bogard's use of *imagery* in the story of meteors in the night sky and then asserts that this imagery appeals to the reader, but the writer offers no further discussion of Bogard's use of imagery or how imagery contributes to his argument. The writer also refers to the comparison Bogard makes between his youth and current times and says that the comparison gives Bogard a *sense of voice*, but the writer doesn't explain why this comparison contributes to an authorial voice or how establishing a particular voice serves Bogard's argument. The writer offers one additional point of analysis, asserting that Bogard's reference to cancer is a *quick attention grabber* and that the use of a *fact relating to the reader is the best persuasion, especially when it relates to there health or well-being*. However, the writer does not elaborate on this point. In each instance of analysis in this short response, the writer identifies the use of evidence or rhetorical features, but asserts rather than explains the importance of those elements. Overall, this response demonstrates partially successful analysis.

Writing — 2: This response demonstrates limited cohesion and some skill in the use of language. Although the writer offers a central claim that guides the essay, there is no indication of an introduction or conclusion to frame ideas. Overall, sentences are clear and the writer generally observes the conventions of Standard Written English. However, by the end of this short response, the writer has deviated from a formal style and objective tone (*Oh, no! Not cancer! Right there is a quick attention grabber to any reader previously bored by Bogard's constant opinions*). The essay abruptly concludes

with a rhetorical question that also somewhat strays from a formal tone (*Cancer, because who wants a terminal illness over an action as simple as flipping a switch on a night light when it's too dark for your comfort?*). On the whole, this response offers some evidence of cohesion and control of language.

SAT Essay Rubric

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

Sample 4: This response scored a 2/1/1.

In "Let there be dark," Paul Bogard talks about the importance of darkness.

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

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

Score Explanation

Reading — 2: This response demonstrates some comprehension of Bogard’s text. Although this essay consists almost entirely of two quotations taken directly from the passage, the writer does show an understanding of two of Bogard’s main points — darkness is crucial to humans and to animals — by selecting and briefly summarizing two important lines of text. However, the writer demonstrates no deeper understanding of the passage’s main ideas or important details. Overall, this response demonstrates partially successful reading comprehension.

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

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

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