

PDF STUDY GUIDE

SHSAT Study Guide

250+ High-Yield Terms & Concepts for the NYC
Specialized High Schools Admissions Test



TemplateForge
Study Guide Series

SHSAT Study Guide -- High-Yield Terms & Concepts -- 250+ Exam Essentials

Price: \$29 | Format: Markdown + PDF Workbook

Category: NYC Specialized High Schools Admissions Test (SHSAT) -- English Language Arts & Mathematics

Design: Cobalt blue #1d4ed8 + gold

Disclaimer: This independent study aid is not affiliated with, endorsed by, or sponsored by the New York City Department of Education (NYC DOE / NYCPS), the Specialized High Schools Admissions process, any specialized high school, or any testing vendor. The SHSAT is administered by the New York City Department of Education, and its format, dates, registration windows, scoring, and policies can change from year to year -- always confirm current details on the official DOE pages (schools.nyc.gov, MySchools, and the NYC SHSAT Portal) before registering, before test day, and before relying on anything in this guide.

How to Use This Guide

This guide distills the high-yield terms, concepts, and skills an SHSAT candidate needs to master -- the test itself, eligibility and registration, how the score is built and how offers actually work, the full English Language Arts skill set behind Revising & Editing and Reading Comprehension, and every Mathematics content area the DOE lists for the exam (ratios and proportional relationships; the number system and expressions; equations and inequalities; statistics and probability; and geometry). The format facts in Parts 1-3 were verified on the date of writing against the official DOE Specialized High Schools page (schools.nyc.gov), the official NYC SHSAT Portal (nycshsat.myassessmentsupport.com), and the DOE's official SHSAT General Directions documents, which describe the current digital (computer-based) test in use since the fall 2025 administration. Where the DOE has not published an exact figure or date (registration windows, School Day date, scaled-score conversion, yearly cutoffs, score-release dates), the guide says so honestly and tells you to confirm the current cycle's details on the official pages instead of inventing a number. Each concept pairs key facts with a strategy tip and a worked example, so the same page works for a first pass and a last-week review. The guide maps the test the way it actually runs: Parts 1-3 cover what the SHSAT is, who can take it, how to register, what happens on test day, and how scores become offers; Parts 4-9 cover the ELA skills (sentence-level editing, then passage-based reading); Parts 10-14 cover the Mathematics content areas; Part 15 is the strategy and test-day playbook. Honest positioning: this is an independent study aid, NOT approved, endorsed, or produced by the NYC DOE, any specialized high school, or any testing vendor -- confirm everything with the official DOE pages.

Part 1 -- The SHSAT & the Digital (Computer-Based) Format (17 Concepts)

The SHSAT is the New York City Department of Education's admissions exam for eight of the city's nine specialized high schools. Since the fall 2025 administration the test is delivered digitally on DOE-provided computers, and the current cycle continues that digital format: two sections, 114 questions, 180 minutes. Know the structure cold before you prep a single skill.

#	Term	Key Facts	Strategy Tip	Example
1	SHSAT	The Specialized High Schools Admissions Test, administered by the New York City Department of Education (NYC DOE). It is the sole factor used to determine admissions to the city's testing specialized high schools (except LaGuardia, which admits by audition).	Treat the SHSAT as an admissions exam, not a pass/fail credential -- your score is ranked against every other applicant.	A Brooklyn 8th grader learns that the fall SHSAT score alone, not grades or attendance, decides whether she is admitted to Stuyvesant.
2	The Eight Testing Schools	Bronx High School of Science, Brooklyn Latin School, Brooklyn Technical High School, High School for Math, Science and Engineering at City College, High School of American Studies at Lehman College, Queens High School for Sciences at York College, Staten Island Technical High School, and Stuyvesant High School.	Rank all eight honestly by preference -- your single score is matched against all of them at once.	A candidate ranks Stuyvesant first and Brooklyn Tech second on her SHSAT registration because she is honest about her preferences.
3	LaGuardia High School	Fiorello H. LaGuardia High School of Music & Art and Performing Arts is the ninth specialized high school, but it is the audition school: admissions are decided by audition or portfolio, not by the SHSAT.	You can apply to LaGuardia and still take the SHSAT for the eight testing schools -- the two paths are separate.	A student with a strong vocal audition also sits for the SHSAT, keeping two doors open.

4	SHSAT Study Guide	Digital (Computer-Based) Format	Since the fall 2025 administration, the SHSAT is delivered digitally on DOE-provided computers. The DOE announced the fall 2025 SHSAT as the "Newly Digital" administration, the official NYC SHSAT Portal describes "the digital test," and the DOE's accommodations page states students "will test on computer." No current official DOE document describes the SHSAT as computer-adaptive -- treat any claim that it is as unverified.	Prepare on the official digital practice tests so the platform and its tools are familiar before test day.	A student reads the DOE Morning Bell article about the fall 2025 "Newly Digital SHSAT" and notes the test is computer-based, not paper.
5		Two Sections, 114 Questions	The official SHSAT General Directions state: "This test consists of 114 questions across two subjects, English Language Arts and Mathematics." ELA has 57 questions (Reading Comprehension Qs 1-48; Revising/Editing Qs 49-57); Mathematics has 57 questions (Qs 58-114).	Memorize the section blueprint -- with the question split fixed, your time plan and practice mix follow directly.	A student tracks 48 reading-comp items, 9 revising/editing items, and 57 math items as her study targets.
6		Same Structure for Every Student	Every eligible student takes the same two sections with the same question counts in the current digital administration; the official directions are the same for all test-takers.	Do not chase rumors of format changes -- the official General Directions and Readiness Tool are the only sources that matter.	Two students at different sites both see ELA 57 + Math 57 = 114 questions per the official directions.
7		Section-Start Choice	You choose which section you begin with. The official directions say: "How you divide the time between the English Language Arts and Mathematics sections is up to you."	Start with your stronger section to bank confidence, or your weaker section while you are fresh -- decide during a full practice test, not on test day.	A math-strong student starts with Mathematics and attacks it first while her focus is sharpest.
8		57 Questions per Section	The current digital administration has 57 ELA questions and 57 math questions (114 total, per the official General Directions).	At about 1.6 minutes per question on average, section management is time management.	A student budgets about 90 minutes per section and warns herself: every single question counts.
9		Standard Test Time -- 180 Minutes	The standard test time is 180 minutes total for both sections; there is no break in the standard administration, and students remain in the testing room for the full time except for restroom use.	Plan a continuous 3-hour mental effort -- hydrate and rest the night before; there is no mid-test snack break.	A candidate treats every full-length practice test as a nonstop 180-minute session so test day feels familiar.
10		ELA Section Content	The ELA section includes Reading Comprehension questions on passages (48 items) and Revising & Editing questions (9 items) covering sentence-level grammar, clarity, and organization.	Split your ELA prep to match the blueprint: roughly 5 of every 6 ELA items are reading comprehension, about 1 in 6 is revising/editing.	A student drills comma and agreement rules on Monday and reads two passages for main idea on Tuesday.
11		Math Section Content	Per the DOE, the math section covers ratios and proportional relationships; the number system and expressions; equations and inequalities; statistics and probability; and geometry.	Review every announced content area -- even the buckets you like least will appear.	A student who dislikes probability still reviews box plots and probability basics because the DOE lists them.
12		Item Formats	Items are delivered in the digital testing platform; the official Student Readiness Tool (SRT) tutorial and the official practice tests show the exact item formats used on test day.	Work through the SRT before you start studying so no item type or platform tool surprises you.	A student completes the SRT tutorial and the four official practice tests, then builds her plan around the formats she saw.
13		Reviewing Your Work	The official directions say: "If you complete the test before the test time (180 minutes) is over, you may go back to review questions in either section."	Budget time at the end of each section for review -- flagged items get a second look while you can still change them.	A student finishes the math section at the 80-minute mark and rechecks three items she had flagged.
14		No Essays, No Answer			

accommodations page states:
"The SHSAT contains no
extended response questions
and no answer document
bubbling."

Practice on a computer, not a

A student confirms there is no

15	SHSAT Study Guide	Guessing Strategy	Scoring is based on the number of questions you answer correctly, so a blank question always earns nothing and a reasoned guess can only help.	Never leave an item blank -- when stuck, eliminate what you can and choose; every correct response improves your raw count.	Unsure on a math item, a student eliminates two choices, picks the better of the remaining two, and moves on.
16		Official Prep Resources	The DOE publishes the official NYC SHSAT Portal (nycshsat.myassessmentsupport.com) with the Student Readiness Tool (SRT) tutorial, official practice tests, and official General Directions documents for Grades 8 and 9, plus a SHSAT Digital Readiness Activity for NYC public 8th graders: "This activity will help students become familiar with the digital testing experience before taking the SHSAT." The NYC Guide to the SHSAT is posted on the DOE Specialized High Schools page each cycle -- as of this writing the DOE notes the Guide for Fall 2026 administration "is still in development."	Take the official practice tests under full 180-minute timing before you build your own study plan, and complete the Readiness Activity when your school offers it.	A student completes the SRT tutorial, then takes an official practice test timed to find her baseline score.
17		Formats Change -- Confirm Each Cycle	The SHSAT has changed before (the fall 2025 administration moved the test to the digital platform) and could change again; the DOE publishes the current format in the cycle's Guide and General Directions -- and notes the Fall 2026 Guide "is still in development" as of this writing (schools.nyc.gov/shs).	Each fall, check the official portal and the current NYC Guide to the SHSAT for the format you will actually sit for.	Before registering, a student opens the current NYC Guide and confirms the two-section, 114-question structure still stands.
18		NYC Residency	All current New York City residents in 8th grade or in 9th grade for the first time who plan to apply to one of the testing specialized high schools must take the SHSAT, whether they attend public, private, or parochial schools.	Residency is what makes you eligible -- your school can be anywhere, but you must live in NYC.	A student who lives in Queens and attends a private school in Manhattan registers for the SHSAT like any NYC resident.
19		Current Eighth Grader	The first eligible group: students currently in 8th grade, regardless of borough or school type.	If you are in 8th grade, this is your primary chance -- the 8th-grade pool is where nearly all offers go.	A Manhattan 8th grader registers in October and sits for the test on School Day in November.
20		First-Time Ninth Grader	The second eligible group: students currently in 9th grade for the first time (not repeating the grade).	You can take the SHSAT once more in 9th grade if you did not get an offer in 8th grade -- but the seats are far fewer.	A student who missed the cutoff in 8th grade tries again in 9th grade as a first-time 9th grader.
21		Public, Private & Parochial Students	Eligibility does not depend on school type: DOE students, charter students, private school students, and homeschooled students all take the same exam, just at different administration types.	Know your path: DOE 8th graders test on School Day; charter/private/homeschool students test at weekend sites.	A charter school student waits for the announced weekend testing date rather than the School Day date.
22		MySchools	The DOE's online application platform (MySchools.nyc) where families apply to schools and where SHSAT registration happens.	Set up or confirm your MySchools account before the registration window opens -- do not wait until opening day.	A family logs into MySchools during the registration window and starts the SHSAT registration form.
23		Fall 2026 Registration Window	Registration for the fall 2026 SHSAT opens October 6, 2026 and closes October 30, 2026, per the DOE Specialized High Schools page (schools.nyc.gov/shs). Registration runs through MySchools, and the DOE posts the exact window on that page each cycle.	Put the closing date on the calendar a week ahead -- registration is a hard window, not a rolling sign-up.	A student confirms the fall 2026 window (October 6-30) on schools.nyc.gov, then completes his registration in MySchools before the deadline.
24		Registration Steps	During registration you provide student details and indicate your school preferences; your		

school confirms any approved testing accommodations in MySchools during the same period.

Check the registration form twice -- preference order is the single most consequential

A student reviews her ranked list of eight schools before submitting, then rechecks it the

25	SHSAT School Day	The SHSAT School Day is scheduled for November 18,
----	------------------	--

If you are a NYCPS middle schooler, expect to test at your

dates are announced later in the fall for students attending charter schools, private schools, or who are homeschooled.

If you are in this group, check

27	SHSAT Study Guide	Rank-Order Preference List	During SHSAT registration you indicate your preference order for the testing specialized high schools (up to eight).	Order matters: your score places you at the highest school on your list that still has seats, so rank by true preference.	A student who prefers Bronx Science over Brooklyn Tech lists Bronx Science first even though its cutoff is higher.
28		Where You Test	Students test on DOE-provided computers either at their home school during School Day administration or at a testing site on a designated weekend date.	You may not use your own computer and may not sit at a location the DOE did not specify -- plan to go where you are assigned.	A student arrives at her assigned weekend testing site and is shown to a DOE-provisioned workstation.
29		Your Test Ticket	Your registration confirmation and test ticket confirm your testing date, site, time, and any approved accommodations.	Bring the ticket and the items the official Guide lists; approved accommodations appear on the ticket.	A student with approved extended time sees the accommodation listed on her test ticket before test day.
30		What to Bring	The official NYC Guide to the SHSAT lists what you can and cannot bring on test day; personal electronic devices and study materials are not permitted in the room.	Pack only what the current Guide allows, and leave phones and smartwatches at home or secured.	A student packs a photo ID and a clear water bottle per the Guide and leaves her phone at home.
31		IEP & 504 Accommodations	Students with testing accommodations in an IEP or 504 Plan receive those accommodations on the SHSAT, provided through the testing platform (tests read, breaks, magnification, and more).	Confirm with your school counselor that your accommodations are entered in MySchools during registration -- and that they appear on your ticket.	A student with a 504 Plan that includes extra breaks sees the breaks listed on her test ticket.
32		English Language Learner Accommodations	ELLs and eligible former ELLs receive extended time totaling 360 minutes (2x standard), two 15-minute breaks after the first 180 minutes, translated directions, ELA-footnote translations in the digital platform, and provided bilingual glossaries.	If you qualify as an ELL, work with your school so the accommodation is coded correctly at registration -- it is not automatic.	An ELL student receives her bilingual glossary on test day; she is not allowed to bring her own.
33		Extended-Time Administration Rules	All students stay in the testing room for the entire standard 180 minutes; extended-time students may leave after 180 minutes if finished (signing out), and get breaks at the 180-minute mark and again after another 90 minutes.	If you have extended time, assume you will use it: do not rush to submit at the 180-minute mark unless you are truly done.	A student with extended time uses her first bonus 90 minutes to recheck the math section.
34		Paper Versions	Paper exams are available only for the extremely limited number of students whose IEP or 504 accommodations require a paper format to access the exam; otherwise all exams are administered on computer.	Do not assume paper is an option -- the standard path is digital, and paper is a last-resort accommodation.	A student whose IEP documents a paper-format need receives a paper version through her approved accommodation.

Part 3 -- How the SHSAT Is Scored & How Offers Work (17 Concepts)

The DOE does not publish a raw-to-scaled conversion formula. What the DOE does document is that SHSAT scores are based on the number of questions answered correctly and that each section is reported as a scaled score; the two section scores are combined into a composite used to rank applicants.

#	Term	Key Facts	Strategy Tip	Example
35	Scored from Number Correct	The DOE describes SHSAT scoring as based on the number of questions you answer correctly; it does not publish any other weighting or formula.	Do not hunt for a hidden "hard-question bonus" -- answer every question as best you can and move on.	A student stops worrying about which questions were hard and simply answers every item carefully.
36	Raw Correct Count	The starting point for your score is the number of correct responses in each section; a wrong answer and a blank both simply add nothing to the count.	Every correct response is equally valuable -- resist the urge to rush past "easy" items.	A student who answers 45 of 57 math items correctly knows her math raw count is 45.
37	Scaled Scores	Raw section counts are converted into scaled scores for ELA and Math through a process the DOE does not publish, so results stay comparable across years and		

You cannot compute your scaled score by hand from raw correct counts -- use the official practice tests to calibrate instead.	A student uses her official practice-test results to estimate her range rather than trying to reverse-engineer the scale.
---	---

38	SHSAT Study Guide	Composite Score	The scaled ELA and scaled Math scores are combined into a composite score used for rank ordering all applicants.	The composite is what competes: grow either section and your composite grows, so shore up your weaker side.	A student with a strong math scaled score and a mid ELA score focuses her last two weeks on ELA to lift the composite.
39	No Wrong-Answer Penalty	Because scores are based on the number of questions answered correctly, there is no penalty for a wrong answer: a wrong guess and a blank both earn nothing, but a correct guess earns full credit.	Never leave an item unanswered -- a blank is the only response guaranteed to earn nothing.	A student unsure on her final math item picks her best option instead of leaving it blank.	
40	Score Conversion Formula Is Not Public	The DOE does not release the formula that converts raw correct counts into scaled scores, and it can vary from year to year.	Ignore any source claiming "exactly N correct = score X" -- treat such tables as rough illustrations only.	A student reads a forum claiming 45 correct equals a certain score and files it as anecdotal, not fact.	
41	Rank-Order Placement	Offers are made in descending order of SHSAT score combined with each student's preference list: the highest scorer gets first choice, then the next, until all seats are filled.	A higher preference that is also realistic can matter more than a perfect score -- rank order drives which school you land at.	The top scorer in the pool is placed at Stuyvesant; the next at her first choice; and so on down the list.	
42	Cutoff Scores	The cutoff for each school is the lowest composite admitted there in a given year; cutoffs are set by the number of seats and how candidates score, so they change yearly.	A cutoff is a report of what happened, not a promise -- aim above last year's numbers, never at them.	A student targets far above her target school's most recent cutoff because she knows the line moves.	
43	Illustrative Cutoffs (2022 Cycle)	The DOE released the cutoffs for the 2022 results (test taken in 2021): Stuyvesant 563, HSMSE 532, Staten Island Tech 527, Bronx Science 524, Queens Science 523, HSAS at Lehman 516, Brooklyn Tech 506, Brooklyn Latin 497.	Use these only as an illustration of ordering and scale -- never as current-year targets.	A student notices Stuyvesant's 2022 cutoff was the highest of the eight and plans accordingly.	
44	Score Release	Scores are released in the spring after the fall administration (historically March); the DOE confirms each cycle's exact date on MySchools and the SHSAT pages.	Check MySchools rather than forums for the release date, and keep your account access current.	A student checks MySchools in early spring and finds her SHSAT score posted.	
45	Test View	In recent cycles the DOE has offered eligible students a Test View of their scored exam after release, arranged through the SHSAT Family Survey; availability and timing are confirmed by the DOE each cycle.	If you want to see your exam after scoring, sign up through the official survey link when the DOE announces it -- do not expect to see it at release.	A student completes the Family Survey when it opens and schedules her Test View for the announced window.	
46	Offer Timing	Offers are made in the spring; in recent cycles families decide whether to accept by the middle of March, with seats confirmed for September.	Keep the decision window free -- you will know your outcome and your choices within days.	A student receives her offer to Brooklyn Tech in the spring and accepts within the decision window.	
47	One Administration Per Eligibility	The SHSAT is offered once per year; eligible students sit for it once in 8th grade and, if they are first-time 9th graders, once in 9th grade -- a maximum of two administrations.	There is no retake within a year, so approach each sitting as your one shot for that grade.	A student who misses the cutoff in 8th grade knows her only remaining chance is the 9th-grade SHSAT the next fall.	
48	9th-Grade Seats	The 9th-grade SHSAT fills only the few seats schools have for incoming 10th graders, and 9th-grade cutoffs have historically run higher; most test-takers are 8th graders.	If you are a 9th grader, treat preparation as a serious long shot until your second chance arrives -- school counselor advice can help.	A 9th-grade candidate studies knowing the pool of 10th-grade seats is small and cutoffs tend to be higher.	
49	Discovery Program	Discovery is a summer enrichment program for rising 9th graders from low-income backgrounds and schools who take the SHSAT and score below the cutoff; students who complete it successfully can enroll in a specialized high school in September, and the DOE contacts eligible students			

			If you think you may qualify, make sure your family's eligibility information is accurate at registration -- you cannot apply directly.	A student who scores just below the cutoff is contacted in the spring about a Discovery summer program and completes it successfully.
50	DREAM Program	DREAM (Determination, Resiliency, Enthusiasm, Ambition, Motivation) is a DOE extracurricular academic program that prepares eligible		

SHSI is a free city-run program

for middle school students with strong test scores and report-card grades that offers test-taking tips and extra lessons over about 16 months; anyone can apply.

Apply in 6th/7th grade if eligible

Sentence-level conventions are the foundation of the Revising & Editing questions: if you can name the error, you can fix it. These are standard written-English conventions, not exam secrets.

#	Term	Key Facts	Strategy Tip	Example
52	Subject-Verb Agreement	A verb must agree in number with its subject: singular subjects take singular verbs, plural subjects take plural verbs.	Find the true subject before choosing the verb -- ignore interrupting phrases like "along with" or "as well as."	Correct: "The basket of apples is on the table." Not "the basket of apples are."
53	Pronoun-Antecedent Agreement	A pronoun must agree with its antecedent in number, gender, and person.	Check every pronoun against the noun it replaces; "every student... they" is a classic mismatch.	Correct: "Every student must bring his or her own calculator" (or a rewritten plural).
54	Pronoun Case	Pronouns take subject, object, or possessive form depending on their role (I/me, she/her, who/whom).	Test by removing the other person: "between you and I" becomes "between I" -- wrong; it is "between you and me."	Correct: "The prize went to Maria and me."
55	Verb Tense Consistency	Do not shift tense without a reason; a passage told in the past should stay in the past.	When a choice changes tense, ask whether the timeline of the passage justifies it.	Wrong: "She opened the door and walks inside." Right: "...and walked inside."
56	Irregular Verbs	Verbs like go/went/gone, see/saw/seen, and bring/brought/brought do not follow the -ed pattern.	Memorize the irregular past forms you use daily; they appear in editing questions over and over.	Correct: "He had already swum across the lake" (not "swam" after "had").
57	Modifier Placement	Modifiers must sit next to what they modify; a misplaced or dangling modifier creates illogical, often funny, sentences.	When you read a sentence with an -ing opener, ask: who is doing the action?	Wrong: "Running late, the bus was missed." Right: "Running late, Sam missed the bus."
58	Parallelism	Items in a list or a comparison must share the same grammatical form.	Check that every item in a series starts the same way: "reading, writing, and arithmetic" not "reading, writing, and to do arithmetic."	Correct: "She likes hiking, biking, and swimming."
59	Commas with Clauses & Series	Use commas between items in a series, after introductory elements, and before coordinating conjunctions joining independent clauses.	In revising questions, the decision is usually between a clear comma structure and an option that fuses or splits clauses incorrectly.	Correct: "After the rain stopped, we went outside."
60	Apostrophes: Possessives & Contractions	Use apostrophes for possessives (the dog's toy) and contractions (it's = it is); do not use them for simple plurals.	The it's/its test: replace "it's" with "it is"; if the sentence still works, keep it.	Correct: "Its tail is long" (possessive) vs "It's raining" (contraction).
61	Quotation Marks & Dialogue	Dialogue is set off by quotation marks with commas and periods inside the quotes; each new speaker starts a new paragraph.	Punctuate the tag: "Hello," she said -- the comma goes inside the quotes.	Correct: "Let's eat," Grandma said.
62	Capitalization	Capitalize proper nouns, the first word of a sentence, and the pronoun I; common nouns stay lowercase.	In editing questions, look at whether a capitalized common noun is masquerading as a proper noun.	Correct: "We visited the Statue of Liberty in New York."
63	Commonly Confused Words	Pairs like its/it's, their/there/they're, your/you're, to/too/two, and affect/effect are frequent traps.	Build a personal list of the pairs you miss and drill them weekly.	Correct: "They're going to bring their books there."
64	Fragments	A fragment is an incomplete sentence -- missing a subject, a verb, or both, or beginning with a subordinator without a main clause.	Ask: does this group of words stand alone? If not, attach it to a nearby clause.	Fragment: "Because she was tired." Fixed: "She went home early because she was tired."
65	Run-Ons & Comma Splices	A run-on fuses two independent clauses with no punctuation; a comma splice joins them with only a comma.	Fix with a period, a semicolon, or a coordinating conjunction -- not with a comma alone.	Splice: "It was late, we left." Fixed: "It was late, so we left."
66	Adjectives vs Adverbs	Adjectives modify nouns; adverbs modify verbs, adjectives, and other adverbs.	If the word describes how an action is done, use the adverb (quickly, not quick).	Correct: "She ran quickly" (adverb), not "She ran quick."
67	Prepositions & Idiom	Prepositions (in, on, at, for, with) pair with specific words by idiom: agree with, differ from, capable of, interested in.	Idiom errors sound wrong to a practiced ear -- read the sentence aloud in your head.	Correct: "She is interested in science" (not "interested on").
68	Double Negatives	Two negatives in one clause cancel into a positive or create illogical meaning; standard English uses one negative.	If you see "not...no" or "never...nothing," one of them must go.	Correct: "He did not say anything" or "He said nothing," never "didn't say nothing."

The middle layer of Revising & Editing: combining ideas cleanly, cutting clutter, and placing every sentence where it belongs.

#	Term	Key Facts	Strategy Tip	Example
69	Independent Clause	A group of words with a subject and verb that stands alone as a complete sentence.	Your editing decisions are easier when you can label clauses -- independent clauses can be joined with and/or/but.	"The test was hard" is independent; "because I studied" is not.
70	Dependent Clause	A clause with a subject and verb that cannot stand alone because it begins with a subordinator (because, although, when, while, since, if).	A dependent clause needs an independent clause to lean on.	"Although she studied every night" is a fragment on its own.
71	Coordinating Conjunctions (FANBOYS)	For, and, nor, but, or, yet, so -- the seven words that join two independent clauses with a comma.	A comma before FANBOYS signals two complete sentences; no comma needed for a compound predicate.	"She studied, so she passed" -- comma before "so" joining two clauses.
72	Subordinating Conjunctions	Words (because, although, unless, since, while) that turn a clause into a dependent one.	Moving a subordinator to the front changes sentence emphasis but not the logic.	"Because it rained, the game was postponed."
73	Sentence Combining	The best revision may merge two short, choppy sentences into one smooth sentence.	Combine to show the relationship (cause, contrast, sequence) -- never just to pile up words.	Choppy: "It rained. We stayed home." Combined: "Because it rained, we stayed home."
74	Relative Clauses	Clauses beginning with who, whom, whose, which, or that that modify a noun.	Use "who" for people, "that/which" for things; commas frame nonessential clauses.	"The student who studies daily will improve."
75	Redundancy	Saying the same thing twice ("free gift," "end result," "advance planning").	In editing questions, the wrong answer often repeats an idea already stated; choose the option that says it once.	Redundant: "a true fact that is real." Better: "a fact."
76	Wordiness & Concision	The best answer on a revising question is almost always the shortest that keeps full meaning.	Compare length only after checking meaning -- trim empty phrases like "due to the fact that" to "because."	Wordy: "In today's modern world, technology is very important." Concise: "Technology matters today."
77	Clarity & Ambiguity	A sentence is clear when the reader cannot mistake who did what to whom.	If two readings are possible, that is ambiguity; revise to name the actor.	Ambiguous: "Visiting relatives can be tiring." Clear: "Visiting our relatives is tiring."
78	Logical Comparison	Comparisons must compare like things: apples to apples, not apples to days.	Complete the comparison mentally: "Her score was higher than mine" (score vs score), not "...than me."	Correct: "His results were better than hers."
79	Participial Phrases	An -ing or -ed phrase that acts as a modifier and must attach to the noun it modifies.	When a sentence opens with a participial phrase, the next noun must be its subject.	Correct: "Exhausted after the climb, Lena collapsed."
80	Appositives	A noun or noun phrase that renames another noun, often set off by commas.	A correctly punctuated appositive adds a description without creating a fragment.	"Stuyvesant, the oldest specialized high school, opened in 1904."
81	Transitional Words & Phrases	Words like however, therefore, meanwhile, in contrast, and as a result signal logical relationships between sentences.	Match the transition to the actual relationship: contrast gets "however," not "therefore."	Wrong linking: "She studied; therefore, she failed." Right: "...however, she failed."
82	Topic Sentence	The sentence that states the main point of a paragraph, usually first.	When asked which sentence to add as the opener, pick the one that covers every detail that follows.	A paragraph about the test's format should open with: "The SHSAT has a distinct structure."
83	Sequencing Sentences	The clearest order (chronological, logical, or general-to-specific) makes a passage coherent.	Look for time words (first, then, finally) and pronoun references (this, those) to anchor the order.	"First mix the dry ingredients, then add the eggs" -- time markers fix the order.
84	Adding & Removing Sentences	Some questions ask whether a sentence belongs and where; the test rewards sentences that advance the main idea.	A sentence that repeats, drifts, or introduces a new topic is usually the one to cut.	In a paragraph about testing accommodations, a sentence about lunch menus should be removed.
85	Choosing the Best Revision	The ideal revision preserves the writer's meaning while fixing errors cleanly.	Reject options that are grammatically fine but change the meaning or add nonsense.	Original: "The boys each has a book." Best revision: "The boys each have a book."

Part 6 -- ELA: Revising & Editing -- Style, Tone & Organization (17 Concepts)

Passage-level editing: keeping one voice, one purpose, and a shape that holds together.

#	Term	Key Facts	Strategy Tip	Example
86	Register	Formal vs informal register: academic writing avoids slang, contractions, and casual phrasing.	Match the register the passage has already set -- an academic paragraph does not suddenly say "awesome."	Formal: "The results indicate progress" vs informal: "The results are pretty good."
87	Audience Awareness	Writing is shaped by who reads it: a school essay addresses teachers; a newsletter addresses peers.	Before editing for tone, ask what audience the passage is written for.	A note to a principal stays courteous and formal; a note to a friend can be casual.
88	Diction (Word Choice)	Precise words carry exact meaning: "sauntered" beats "walked" when the point is a leisurely pace.	The best revision often swaps a vague word for a precise one that matches the context.	Vague: "The animal made a noise." Precise: "The owl hooted."
89	Active vs Passive Voice	Active voice names the actor (The mayor signed the bill); passive hides it (The bill was signed).	Prefer active voice; keep passive only when the actor is unknown or unimportant.	Passive: "Mistakes were made." Active: "We made mistakes."
90	Paragraph Organization	A paragraph develops one idea: topic sentence, supporting details, and a wrap-up.	When a question asks where a sentence fits best, match its content to the paragraph that idea develops.	A sentence about math skills belongs in the paragraph about the math section.
91	Introduction / Body / Conclusion	A passage moves from an opener that sets the topic to a body that supports it to a close that lands it.	The best added introduction names the topic without starting the details early.	A strong opener: "Every fall, thousands of NYC 8th graders take the SHSAT."
92	Controlling Idea / Thesis	The central claim that every paragraph supports.	When choosing an intro or conclusion, pick the sentence that states the claim all paragraphs serve.	In an essay about prep routines, the thesis is: "A consistent prep routine builds SHSAT readiness."
93	Evidence & Support	Details, examples, and data make a claim convincing.	A support question asks which sentence proves the preceding claim -- choose the concrete example.	Claim: "Prep helps." Support: "Students who practiced weekly scored higher on average."
94	Vague Language	Words like "things," "stuff," and "some people" blur meaning.	When editing, replace vague references with the specific noun.	Vague: "She did a bunch of stuff." Clear: "She completed three practice tests."
95	Connotation vs Denotation	Denotation is the dictionary meaning; connotation is the emotional shading (slim vs skinny vs scrawny).	The right word fits both the meaning and the feeling the passage intends.	"Youthful" sounds positive; "immature" sounds negative -- same denotation, different connotation.
96	Idiom & Standard Usage	Standard English usage is what educated writers accept; grammar-check your ear against the formal standard.	If a phrase sounds off in formal writing, it usually is off -- trust but verify.	Standard: "try to do" not "try and do" in formal writing.
97	Consistency of Style	A passage with one voice does not waver between formal and casual, or between contractions and full forms.	Scan a passage for the first phrase that breaks its established style -- that is often the target.	A formal passage that suddenly says "kids these days" needs a formal rewrite.
98	Sentence Variety	Good writing mixes short, punchy sentences with longer, complex ones.	A revising question may ask which sentence best concludes -- matching the passage's rhythm helps.	After three long sentences, a short one lands the point.
99	Opening Effectively	The first sentence sets the hook and the topic; the strongest opener is specific, not generic.	Choose the opener that gives the reader a reason to continue.	Weak: "There are many tests." Strong: "One test decides who enters eight of NYC's most selective high schools."
100	Closing Effectively	A conclusion restates the point and leaves the reader with the takeaway -- not new facts.	The wrong conclusion introduces new information; the right one wraps up.	Closing: "Preparation, practiced consistently, is what moves scores."
101	Cohesive Devices	Pronouns, synonyms, and repeated key terms tie sentences together so the reader follows the thread.	If a paragraph feels choppy, the fix is usually a linking word or repeated term, not new content.	"The SHSAT... the test... the exam" -- the chain keeps the reader anchored.
102	Punctuation of Titles & Lists	Titles are italicized or quoted depending on type, and lists use consistent punctuation.	On editing questions, look for items in a list that break the established pattern.	"She reads novels, essays, and poems" -- note the consistent commas.

Part 7 -- ELA: Reading Comprehension -- Main Idea, Purpose & Structure (17 Concepts)

Reading Comprehension rewards readers who can name what a passage is doing -- its main idea, its purpose, and the way it is built -- before they hunt for details.

#	Term	Key Facts	Strategy Tip	Example
103	Main Idea	The central point a passage makes -- the one claim every paragraph serves.	Read the first and last sentences of each paragraph, then ask: what one idea ties them all together?	A passage profiling three specialized high schools has the main idea that NYC offers several distinct advanced options.
104	Author's Purpose	The reason the author wrote the passage: to inform, explain,		

Identify the genre first -- an article informs, an editorial

105	Text Structure	How a passage is organized: cause and effect, compare and contrast, problem and solution, chronological sequence, or description.	Ask how ideas connect -- "because" signals cause-effect; "unlike" signals compare-contrast.	A passage that explains why cutoffs rose (more applicants, fixed seats) uses cause-and-effect structure.
106	Problem-Solution Pattern	The author states a problem, then presents one or more solutions.	Look for the pivot word -- "one solution is," "the city responded by."	"Competition for seats is fierce; Discovery and DREAM are two ways the city widens access."
107	Compare & Contrast	A structure built on similarities (both schools...) and differences (unlike...).	When asked how a passage is organized, check for explicit comparison markers.	A passage comparing Bronx Science with Brooklyn Tech uses contrast words throughout.
108	Chronological / Sequence	Events or steps presented in time order.	Signal words: first, next, then, finally, after, before.	A how-to passage about registering for the SHSAT walks through steps in order.
109	Informational Text	Nonfiction writing built on facts, data, definitions, and explanations.	For informational passages, map the topic sentence of each paragraph to build a skeleton.	An encyclopedia-style entry on the SHSAT's history is informational text.
110	Argument Structure	A persuasive passage has a claim, reasons, and evidence, and it may acknowledge a counterargument.	Separate the claim (what the author wants) from the support (why).	An editorial argues the SHSAT should change (claim) because of research on access (reason).
111	Claim & Evidence	A claim is an assertion; evidence is the fact or example that supports it.	A "best evidence" question pairs a claim with the sentence that proves it.	Claim: "Prep improves scores." Evidence: "Students in DREAM averaged higher than peers who did not join."
112	Topic vs Theme	Topic is what a story is about (friendship); theme is the message about it (loyalty requires sacrifice).	Theme is a full statement, not a one-word label.	Topic: courage. Theme: "Courage means acting despite fear."
113	Plot & Sequence (Fiction)	The story's events: exposition, rising action, climax, falling action, resolution.	Track who wants what and what blocks them -- that is the engine of plot.	A story's climax arrives when the protagonist finally sits for the exam she feared.
114	Setting & Mood	Setting is where and when; mood is the feeling the scene creates (tense, hopeful, eerie).	Ask what the details make you feel, then name that feeling -- that is mood.	A dim hallway with ticking clocks creates a tense mood.
115	Narrator & Point of View	First person (I), second (you), third limited (one character's thoughts), third omniscient (all thoughts).	Questions about "the narrator" test what the reader knows that characters may not.	A first-person narrator describes her own test-day nerves directly.
116	Tone vs Mood	Tone is the author's attitude toward the subject; mood is the feeling created in the reader.	Tone answers "how does the author feel?"; mood answers "how does the reader feel?"	An author's sarcastic tone (about the traffic) creates a frustrated mood in the reader.
117	Paragraph Function	A question may ask what a specific paragraph does: introduces the topic, provides an example, concedes a point, concludes.	Name the job of the paragraph in the argument -- not what it says, but what it does.	A paragraph full of statistics functions as evidence for the preceding claim.
118	Transition Logic	How one idea connects to the next: addition, contrast, cause, example, conclusion.	When asked for a transition, choose the word that matches the real relationship.	"The school is rigorous; nonetheless, students report strong support" -- contrast.
119	Summarizing	A good summary states the main points without opinions or minor details.	The correct summary covers the whole passage; wrong summaries grab one paragraph.	Summary: "The article explains the SHSAT's format, eligibility, and how offers are made."

Part 8 -- ELA: Reading Comprehension -- Inference, Detail & Craft (17 Concepts)

Reading below the surface: what the passage implies, what the details prove, and how the author's craft creates meaning.

#	Term	Key Facts	Strategy Tip	Example
120	Inference	A conclusion the text supports without stating directly.	Find the evidence first, then choose the answer the evidence forces -- not a thought it merely permits.	If the passage says she scored above all her friends, you can infer she was a top scorer -- not that she was happy.
121	Explicit vs Implicit	Explicit information is stated outright; implicit meaning must be derived.	Label each answer as stated or suggested; a "must be true" question requires explicit support.	"The test begins at 8 a.m." is explicit; "arriving early is a good idea" is implicit.
122	Supporting Details	The facts, examples, and specifics that develop the main idea.	A detail question rewards a quick scan for names, numbers, and dates -- read the question first.	Asked what time the test starts, you scan the passage for "8 a.m."
123	Locating Evidence	Finding the exact sentence that supports an answer.	Quote the support silently before you choose -- if you cannot point to a line, the answer is suspect.	For the claim "the test is digital," the evidence line says "the SHSAT is administered on DOE-provided computers."
124	Paraphrasing	Restating an idea in your own words without changing meaning.	The right answer often paraphrases the passage; the wrong one echoes its exact	

Passage says "offers are made
in descending score order" --
correct paraphrase: "higher

125	Close Reading	Reading for what the words do, not just what they say -- connotation, pattern, structure.	On craft questions, reread the quoted sentence and name its technique.	A repeated "again and again" emphasizes the endlessness of the practice sessions.
126	Figurative Language	Simile (like/as), metaphor (direct comparison), personification (human traits to things), hyperbole (exaggeration).	Label the device first; the question usually asks what effect it creates.	"The test loomed like a storm" -- simile comparing the test to a storm to suggest threat.
127	Imagery & Sensory Language	Language that appeals to the senses -- sight, sound, smell, taste, touch.	When a passage lingers on sensory detail, the author is building a scene, not padding.	"The cold metal desk, the hum of the AC, the smell of pencil shavings" -- imagery.
128	Symbol	An object that stands for an idea (a blank page for potential).	A symbol question asks what the object represents in the story's world.	The marathon finisher's medal symbolizes perseverance, not just a race result.
129	Irony	A gap between what is said and what is meant (verbal), or between expectation and outcome (situational).	If an answer says the author literally means X, but X contradicts the passage, the effect is likely irony.	A test-prep ad claiming "no preparation needed" is ironic.
130	Foreshadowing	Early details hint at what comes later.	When asked "why does the author mention this early detail," look for how it pays off later.	The early mention of a forgotten pencil foreshadows the character's disorganized test morning.
131	Direct vs Indirect Characterization	Direct: the author tells you a trait. Indirect: you infer it from speech, actions, thoughts, and reactions.	A characterization question tests what a character's actions reveal.	"She reviewed her notes twice each night" indirectly shows diligence.
132	Conflict Types	Person vs person, self, society, nature.	Name the opposing force to classify the conflict.	A student fighting her own test anxiety is person vs self.
133	Theme Development	Themes unfold across a passage through repeated ideas and turning points.	Track what the main character learns by the end -- that lesson is usually the theme.	By the story's end, the protagonist learns that effort, not luck, earned her the seat.
134	Author's Craft	The deliberate choices -- word choice, structure, repetition, detail -- that create meaning.	A craft question asks "how," so describe the technique and its effect in the answer.	The author's short, clipped sentences in the climax quicken the pace.
135	Rhetorical Question	A question asked for effect, not for an answer.	Do not mistake a rhetorical question for a genuine request -- it usually states the author's point.	"Who wouldn't want a free path to a top school?" asserts that everyone would.
136	Evidence From One Source	A passage's internal consistency: claims must be checked against that passage's own facts.	On single-passage questions, all support must come from that passage -- outside knowledge can mislead.	A history passage that omits a famous event cannot support an answer claiming that event caused a change.
137	Authorial Bias	The author's leaning or perspective that shapes what is included and how it is framed.	Ask which side the author's word choices favor (warns vs notes, inevitable vs possible).	A passage calling the test "elitist" reveals a skeptical bias; calling it "meritocratic" reveals a supportive one.

Part 9 -- ELA: Reading Comprehension -- Evidence, Vocabulary & Tone (17 Concepts)

The final ELA layer: how words work in context, how evidence interacts with claims, and how tone and stance are signaled.

#	Term	Key Facts	Strategy Tip	Example
138	Word in Context	A word's meaning is set by its sentence and paragraph, not just its dictionary entry.	Replace the word with each answer choice in the sentence; the one that keeps the meaning wins.	"The exam is rigorous" -- rigorous means demanding here, not exact.
139	Context Clues	Definition, contrast, example, and inference clues are built into the surrounding text.	Look right after the word for a comma-definition, an "or," or an example signal.	"She felt ebullient -- bursting with joy -- after the news."
140	Contrast Clues	Words like but, however, yet, and unlike flag a shift, so the unknown word often means the opposite of a nearby known word.	If the sentence contrasts two things, the unknown word is the opposite of the known one.	"He was terse, unlike his usually chatty sister" -- terse means brief.
141	Multiple-Meaning Words	One spelling, many meanings (run a race, run a machine, run a school).	Try the most common meaning first; if it fails, try a less common one that fits the context.	"She ran the numbers" -- ran means calculated, not jogged.
142	Roots & Affixes	Word parts carry meaning: pre- (before), -spect (look), -tion (noun), un- (not).	Break unknown words into prefix + root + suffix to approximate meaning.	"Prospect" = pro (forward) + spect (look) = look ahead.
143	Academic Vocabulary	The formal words of school and test text: analyze, evaluate, significant, consistent, implies.	Build a running list of academic words you meet in practice passages and review them weekly.	"The data are consistent with the claim" -- consistent means in agreement.
144	Diction & Tone Shifts	A change in word choice can mark a change in the author's attitude mid-passage.	When the tone shifts, the author is signaling a turning point in the argument.	An article that moves from "concerns" to "warnings" has escalated its tone.
145	Point of View & Bias	Perspective shapes selection: what is included, what is		

Ask what a differently
positioned author might have

A school's own brochure
emphasizes successes; an

146	Author's Attitude	The author's stance toward the
-----	-------------------	--------------------------------

Scan for judgment words; their

147	SHSAT Study Guide	Connotation in Passages	The emotional weight of word choices shapes the reader's response.	A craft question about word choice asks what feeling the chosen word adds.	"Determined" sounds admirable; "stubborn" sounds difficult -- same core, different charge.
148		Interpreting Quoted Data	Passages may cite statistics; questions test whether you read the numbers correctly.	Read what the numbers compare -- and what they do not compare -- before choosing.	"25,678 took the test; 4,072 qualified" -- about 16% qualified, not 25,678 qualified.
149		Paired Passages	Two passages on a shared topic; questions ask how they relate -- agree, disagree, or approach differently.	Summarize each passage in one sentence first; the relationship is usually clear once you do.	Passage A defends the SHSAT; passage B questions it; they disagree on whether the test is fair.
150		Evaluating Arguments	Testing the soundness of an argument: is the evidence relevant, sufficient, and fair?	A "weakens/strengthens" question targets the link between evidence and claim.	A claim that prep works is weakened by the fact that motivated students prep AND score well anyway.
151		Counterargument	The author anticipates and addresses an opposing point.	When the author concedes ("critics say..."), expect a follow-up rebuttal.	"Critics say the test narrows admissions; however, the data show steady diversity gains."
152		Fact vs Opinion	Facts are verifiable; opinions are judgments.	Signal words -- should, best, clearly -- usually flag an opinion.	"The SHSAT has two sections" (fact) vs "The SHSAT is the fairest test in NYC" (opinion).
153		Summary Synthesis	Combining claims across a passage or pair into one coherent takeaway.	The best synthesis answer uses ideas from both sources, not just one.	"Both authors agree the test drives admissions but disagree about its consequences."

Part 10 -- Math: The Number System & Operations (17 Concepts)

The number-sense layer of the math section: integers, fractions, decimals, exponents, and the order of operations. Accuracy here compounds into every other content area.

#	Term	Key Facts	Strategy Tip	Example
154	Integers & Rational Numbers	Integers are whole numbers and their opposites; rational numbers are any number that can be written as a fraction of two integers.	Classify the number first -- the operation rules differ for negatives, fractions, and decimals.	-3, 0, 7 are integers; 3/4 and 2.5 are rational but not integers.
155	Absolute Value	The distance a number is from zero on the number line; always nonnegative.	The equation $\text{abs}(x) = 5$ means $x = 5$ or $x = -5$ -- two cases, not one.	The absolute value of -8 is 8; its distance from 0 on the number line is 8.
156	Order of Operations (PEMDAS)	Parentheses, Exponents, Multiplication/Division (left to right), Addition/Subtraction (left to right).	Work left to right within each tier -- $8 / 4 \times 2 = 4$, not 1.	$2 + 3 \times 4 = 2 + 12 = 14$.
157	Exponent Rules	Multiply powers: add exponents; divide powers: subtract; power of a power: multiply; anything to the zero power is 1.	Write the expansion if you are unsure: $2^3 \times 2^2 = (2 \times 2 \times 2)(2 \times 2) = 2^5$.	$x^3 \times x^4 = x^7$; $x^8 / x^2 = x^6$.
158	Negative Exponents	A negative exponent means the reciprocal: $x^{-n} = 1 / x^n$.	Flip the base into the denominator and make the exponent positive.	$2^{-3} = 1/8$; $10^{-2} = 1/100 = 0.01$.
159	Square Roots & Perfect Squares	The square root of n is the number whose square is n; perfect squares like 1, 4, 9, 16, 25 have integer roots.	Memorize squares through 15^2 to speed root work.	$\sqrt{144} = 12$; $\sqrt{50} = 5 \times \sqrt{2}$ (simplified).
160	Divisibility Rules	Quick tests: divisible by 2 (even), by 3 (digit sum), by 5 (ends 0 or 5), by 9 (digit sum), by 10 (ends 0).	Use digit-sum tests for factor and remainder questions instead of long division.	342 is divisible by 3 because $3+4+2 = 9$.
161	Prime Factorization	Writing a number as a product of primes; the building block for GCF and LCM.	Break down step by step: start with the smallest prime that divides evenly.	$60 = 2 \times 2 \times 3 \times 5 = 2^2 \times 3 \times 5$.
162	GCF & LCM	Greatest common factor is the largest factor shared; least common multiple is the smallest shared multiple.	For two numbers, $\text{LCM} \times \text{GCF} = \text{their product}$ -- a fast check.	$\text{GCF}(12, 18) = 6$; $\text{LCM}(12, 18) = 36$.
163	Fraction Operations	Multiply straight across; divide by multiplying by the reciprocal; add/subtract only after finding a common denominator.	In word problems, translate "of" as multiplication: $2/3$ of 12 = 8.	$3/4 \times 2/5 = 6/20 = 3/10$; $3/4 / 1/2 = 3/4 \times 2/1 = 3/2$.
164	Decimals	Place value governs decimal arithmetic; align decimal points for addition and subtraction.	For multiplication, count total decimal places in the factors for the product.	$0.3 \times 0.4 = 0.12$ (two decimal places total).
165	Comparing Rationals	Compare fractions by cross-multiplying or converting to decimals; compare decimals digit by digit.	Cross-multiply: $3/7$ vs $2/5$ gives 15 vs 14, so $3/7$ is slightly larger.	$3/7$ is greater than $2/5$ because $15 > 14$.
166	Signed Number Arithmetic	Same signs add to a stronger		

"Minus a negative" is a plus: 8 -

$(-6) \times (-4) = 24; (-6) \times 4 = -24.$

167	Properties of Operations	Commutative ($a+b = b+a$), associative (grouping), distributive ($a(b+c) = ab+ac$).	Distributive property is the engine of algebra -- practice expanding in both directions.	$3(x+4) = 3x+12$
168	Estimation & Rounding	Round to friendly numbers to sanity-check answers, especially on multiple choice.	Estimate first, then compute -- a quick mental round catches sign and magnitude errors.	51×0.98 is about $50 \times 1 = 50$, so 49.98 is plausible.
169	Scientific Notation	A number written as $a \times 10^n$ with $1 \leq a < 10$; used for very large and very small values.	Moving the decimal left increases the exponent; right decreases it.	$4,500 = 4.5 \times 10^3$; $0.00025 = 2.5 \times 10^{-4}$.
170	Units & Precision	Track units through every calculation; convert consistently before operating.	Write the unit next to each number as you work -- mismatched units are a classic trap.	2 feet + 18 inches = $24 + 18 = 42$ inches, not 20 feet.

Part 11 -- Math: Ratios, Rates & Proportional Relationships (17 Concepts)

The DOE lists ratios and proportional relationships as a core SHSAT math area. These questions test the same idea many ways: two quantities changing together.

#	Term	Key Facts	Strategy Tip	Example
171	Ratio	A comparison of two quantities, often written $a:b$ or a/b .	Keep the order straight: "the ratio of cats to dogs" is cats over dogs.	If there are 3 cats and 4 dogs, the ratio of cats to dogs is 3:4.
172	Equivalent Ratios	Ratios that name the same relationship ($2:3 = 4:6 = 10:15$).	Scale up or down by the same factor; check equivalence by cross-products.	2:3 and 10:15 are equivalent because $2 \times 15 = 3 \times 10$.
173	Unit Rate	A rate with a denominator of one unit, like miles per hour or dollars per pound.	Divide the first quantity by the second: "120 miles in 2 hours" = 60 mph.	120 miles / 2 hours = 60 miles per hour.
174	Proportion	An equation stating two ratios are equal: $a/b = c/d$.	Cross-multiply to solve: $ad = bc$.	$3/4 = x/12$ gives $3 \times 12 = 4x$, so $x = 9$.
175	Constant of Proportionality	In $y = kx$, k is the constant ratio y/x for every pair.	Find k by dividing y by x for any known pair, then use it for the rest.	If $y = 15$ when $x = 3$, then $k = 5$ and $y = 5x$.
176	Proportional vs Non-Proportional	Proportional relationships pass through the origin and have a constant ratio; non-proportional ones have a starting value.	Test with (0,0): if $x = 0$ forces $y = 0$, the relationship is proportional.	$y = 3x$ is proportional; $y = 3x + 5$ is not (at $x = 0$, $y = 5$).
177	Scale Factor & Scale Drawings	A scale drawing shrinks or enlarges every dimension by the same factor.	Set up the proportion (model / real = scale) and solve; units must match.	A 1:200 floor plan: 2 cm on the plan = $2 \times 200 = 400$ cm = 4 m real.
178	Unit Conversion	Converting between units (feet to inches, minutes to hours, pounds to ounces) uses multiplication or division by a conversion factor.	Write the conversion as a fraction so units cancel: 60 min / 1 hr.	90 minutes = $90 \times (1 \text{ hr} / 60 \text{ min}) = 1.5$ hours.
179	Speed & Distance	distance = rate $\times$ time; rearrange for rate or time as needed.	Keep time units consistent -- convert minutes to hours before using mph.	45 mph for 20 minutes = $45 \times (20/60) = 15$ miles.
180	Work & Combined Rates	Two workers doing the same job add their rates (jobs per hour).	Rate = $1/\text{time}$; combined rate = sum of individual rates.	A fills a tank in 3 hr, B in 6 hr: $1/3 + 1/6 = 1/2$ tank per hour, so 2 hours together.
181	Percent as a Ratio	Percent means per hundred: $25\% = 25/100 = 1/4$.	Convert percents to decimals before multiplying.	30% of 50 = $0.30 \times 50 = 15$.
182	Percent Change	Percent change = $(\text{new} - \text{original}) / \text{original} \times 100$; use the ORIGINAL as the denominator.	Read whether the question asks increase or decrease, and of what base.	A price rises from \$40 to \$50: $(50-40)/40 = 25\%$ increase.
183	Percent of a Number	Find the part, the whole, or the percent using part = percent $\times$ whole.	Identify which two of the three (part, whole, percent) you know first.	15 is what percent of 60? $15/60 = 0.25 = 25\%$.
184	Markup & Discount	Markup adds a percent of cost; discount subtracts a percent of the original price.	Apply the percent to the correct base: discount on the original, markup on the cost.	A \$50 item at 20% off: $50 \times 0.80 = \$40$.
185	Simple Interest	Interest = principal $\times$ rate $\times$ time ($I = PRT$), with rate as a decimal and time in years.	Convert the rate percent to a decimal and months to years before multiplying.	\$200 at 5% for 3 years: $200 \times 0.05 \times 3 = \$30$ interest.
186	Direct Variation	y varies directly with x when $y = kx$; doubling x doubles y .	If the question says "varies directly," write $y = kx$ and solve for k first.	$y = 4$ when $x = 2$, so $k = 2$ and $y = 2x$; at $x = 7$, $y = 14$.
187	Mixture & Total-Value Problems	Combining quantities of different values (nuts, coins, tickets) yields equations in total count and total value.	Set up two equations: count equation and value equation; solve the system.	10 coins of nickels (5c) and dimes (10c) worth 80c: $n + d = 10$ and $5n + 10d = 80$.

Part 12 -- Math: Expressions, Equations & Inequalities (17 Concepts)

The algebra layer: translating words into math, solving for unknowns, and working with linear relationships.

#	Term	Key Facts	Strategy Tip	Example
188	Variable & Expression	A variable is a symbol for an unknown; an expression is a combination of terms without an equals sign.	An expression can be simplified but not "solved" -- only equations have solutions.	$3x + 5$ is an expression; $3x + 5 = 20$ is an equation.
189	Evaluating Expressions	Substitute the given value for the variable, then follow the order of operations.	Write the substitution with parentheses to avoid sign errors: $2(-3)^2$.	Evaluate $3x + 4$ for $x = 5$: $3(5) + 4 = 19$.
190	Combining Like Terms	Terms with the same variable part add or subtract by their coefficients.	Circle like terms ($3x$ and $-2x$) and combine only those; constants combine separately.	$3x + 5 - 2x + 2 = x + 7$.
191	Distributive Property	Multiply each term inside the parentheses by the factor outside.	Watch the sign: $-(x - 4) = -x + 4$.	$2(3x - 1) = 6x - 2$.
192	One-Step Equations	Solve by undoing the single operation: add/subtract or multiply/divide both sides.	Whatever you do to one side, do to the other -- the equation stays balanced.	$x + 7 = 12$ gives $x = 5$; $3x = 21$ gives $x = 7$.
193	Two-Step Equations	Two operations in sequence: undo addition/subtraction first, then multiplication/division.	Work backward through the order of operations.	$2x + 5 = 17$ gives $2x = 12$, so $x = 6$.
194	Multi-Step Equations	Combine like terms and distribute before isolating the variable.	Simplify each side fully before moving terms across the equals sign.	$3(x + 2) = 2x + 9$ gives $3x + 6 = 2x + 9$, so $x = 3$.
195	Variables on Both Sides	Move variable terms to one side and constants to the other, then solve.	Choose the side that leaves the coefficient positive when possible.	$5x - 3 = 2x + 9$ gives $3x = 12$, so $x = 4$.
196	Literal Equations	Formulas with multiple variables ($A = lw$, $d = rt$) solved for any one of them.	Isolate the target variable exactly as if it were x .	Solve $A = lw$ for w : $w = A / l$.
197	Inequalities on the Number Line	An inequality solution is a range; $<$ and $>$ use open circles, $\leq$ and $\geq$ use closed circles.	Flip the inequality sign when you multiply or divide by a negative.	$-2x \geq 6$ gives $x \leq -3$ (sign flipped).
198	Translating Word Problems	Key words map to operations: sum (add), difference (subtract), times (multiply), is (equals), more than (add to).	Define the variable, write the equation, solve, then check against the words.	"Twice a number plus 5 is 17" gives $2n + 5 = 17$, so $n = 6$.
199	Slope	Slope = rise/run = change in y over change in x ; it measures how steeply a line changes.	Compute slope from two points: $(y_2 - y_1)/(x_2 - x_1)$, in the same order both times.	Points (1, 3) and (3, 7): slope = $(7-3)/(3-1) = 2$.
200	Slope-Intercept Form	$y = mx + b$ where m is the slope and b is the y -intercept.	Read m and b directly when an equation is in this form.	$y = -2x + 5$: slope -2, y -intercept 5.
201	x - and y -Intercepts	The y -intercept is where $x = 0$; the x -intercept is where $y = 0$.	To find the x -intercept, set $y = 0$ and solve; to find the y -intercept, set $x = 0$.	$y = 2x - 6$: x -intercept at (3, 0), y -intercept at (0, -6).
202	Systems of Equations	Two equations, two unknowns; solve by substitution or elimination (adding the equations to cancel a variable).	Line up like terms and look for a variable with matching coefficients to eliminate.	$x + y = 10$ and $x - y = 4$: add to get $2x = 14$, so $x = 7$, $y = 3$.
203	Testing a Solution	To check whether a value solves an equation or inequality, substitute it in.	On multiple choice, plugging answer choices back in can be faster than solving.	For $2x + 3 = 15$, try $x = 6$: $2(6) + 3 = 15$ -- correct.
204	Equivalent Forms	Different-looking expressions can name the same value ($x(x+2) = x^2 + 2x$).	When asked which expression is equivalent, expand or factor until the forms match.	$(x + 3)^2 = x^2 + 6x + 9$.

Part 13 -- Math: Geometry -- Angles, Area & Volume (17 Concepts)

The geometry bucket of the math section: flat shapes first, then circles and three-dimensional figures with their measures.

#	Term	Key Facts	Strategy Tip	Example
205	Angle Types	Acute (under 90 degrees), right (exactly 90), obtuse (over 90 and under 180), straight (180).	Classify the angle before using any relationship -- complementary and supplementary rules depend on it.	A 35-degree angle is acute; 145 degrees is obtuse; together they form a straight 180.
206	Complementary & Supplementary	Complementary angles sum to 90 degrees; supplementary sum to 180.	"Complementary" pairs with "corner" (90); "supplementary" pairs with "straight" (180).	30 and 60 degrees are complementary; 130 and 50 degrees are supplementary.
207	Vertical & Adjacent Angles	Vertical angles (across an intersection) are equal; adjacent angles on a line sum to 180 degrees.	At any X intersection, opposite angles match -- find one angle and you know three more.	Two lines cross: one angle is 70 degrees, its vertical angle is 70, each adjacent angle is 110.
208	Parallel Lines & Transversals	A line cutting parallel lines creates equal corresponding angles, equal alternate interior angles, and supplementary same-side interior angles.	Spot the Z or F shapes: alternate interior angles make a Z, corresponding make an F.	If a transversal makes a 60-degree angle, the alternate interior angle is also 60.
209	Triangle Angle Sum	The three angles of any triangle sum to 180 degrees.	When two angles are given, the third is 180 minus their	

Angles of 50 and 70 degrees
leave 60 for the third.

210	SSAT Study Guide	Triangle Classification	By sides: equilateral (3 equal), isosceles (2 equal), scalene (none). By angles: acute, right, obtuse.	An equilateral triangle is also equiangular -- three 60-degree angles.	A triangle with two equal legs is isosceles; if one angle is 90 degrees, it is also right.
211		Pythagorean Theorem	In a right triangle, $a^2 + b^2 = c^2$ where c is the hypotenuse.	Memorize common triples (3-4-5, 5-12-13, 8-15-17); they speed up many problems.	Legs 6 and 8 give hypotenuse 10 (double the 3-4-5 triple).
212		Quadrilaterals	Four-sided figures: squares, rectangles, parallelograms, rhombi, trapezoids; angles sum to 360 degrees.	Check which parallel sides a shape has -- that defines its formulas.	A rectangle has two pairs of parallel sides and four right angles.
213		Perimeter	The distance around a figure: sum of all side lengths.	In word problems, confirm the units and whether sides are missing and must be deduced.	A rectangle 5 by 3 has perimeter $2(5 + 3) = 16$.
214		Area of Rectangles & Triangles	Rectangle area = length x width; triangle area = $\frac{1}{2} \times \text{base} \times \text{height}$.	In a triangle, height is perpendicular to the base -- not a slanted side.	Triangle with base 8 and height 5 has area $\frac{1}{2} \times 8 \times 5 = 20$.
215		Area of Parallelograms & Trapezoids	Parallelogram = base x height; trapezoid = $\frac{1}{2} \times (\text{sum of bases}) \times \text{height}$.	The height is always perpendicular to the bases.	Trapezoid with bases 6 and 10 and height 4: $\frac{1}{2} \times 16 \times 4 = 32$.
216		Circles: Circumference & Area	Circumference = $2 \times \pi \times r$ (or $\pi \times d$); area = $\pi \times r^2$.	Leave pi in your answer when choices contain pi; estimate with 3.14 only for sanity checks.	Circle radius 3: circumference $6 \times \pi$, area $9 \times \pi$.
217		Composite Figures	Split an irregular shape into rectangles, triangles, and circles; find each area, then add or subtract.	Draw the split; label every dimension; check for a missing side to deduce.	An L-shaped plot = one large rectangle minus the cut-out rectangle.
218		Surface Area of Prisms	Total area of all faces; for a rectangular prism: $2(lw + lh + wh)$.	Sketch the net if needed -- six faces, three pairs of equal area.	A box $4 \times 3 \times 2$ has surface area $2(12 + 8 + 6) = 52$.
219		Volume of Prisms & Cylinders	Rectangular prism = $l \times w \times h$; cylinder = $\pi \times r^2 \times h$.	Volume is always cubic units -- check the units in the answer choices.	Cylinder radius 2, height 5: volume = $4 \times \pi \times 5 = 20 \times \pi$.
220		Coordinate Distance	Distance between two points can be found with the Pythagorean theorem on the difference of coordinates.	Draw the right triangle: legs are the x-difference and y-difference.	From (1, 2) to (4, 6): legs 3 and 4, distance 5.
221		Similar Figures	Similar shapes have equal angles and proportional side lengths; the ratio is the scale factor.	Set up a side ratio, find the scale factor, then scale every unknown side.	Triangle A sides 3-4-5 similar to B with scale 2: B is 6-8-10.

Part 14 -- Math: Statistics, Probability & Data (17 Concepts)

The statistics and probability bucket: reading data displays, measuring centers, and counting outcomes. These questions reward careful reading as much as arithmetic.

#	Term	Key Facts	Strategy Tip	Example
222	Mean	The average: sum of values divided by the count.	On tests, use totals: if the mean of 5 values is 12, their sum is 60.	Values 2, 4, 6, 8, 10: mean = $30/5 = 6$.
223	Median	The middle value when data are ordered; with an even count, the average of the two middle values.	Sort the list before finding the median -- unsorted lists hide the middle.	Data 1, 3, 7, 9: median = $(3 + 7)/2 = 5$.
224	Mode & Range	Mode is the most frequent value; range is max - min.	A data set can have no mode, one mode, or several; range cares only about the extremes.	Data 2, 2, 5, 9: mode 2, range 7.
225	Mean as Balance Point	The mean is the point where the total distance above equals total distance below.	When a value is far from the mean, check whether the mean shifts toward it.	Data 4, 5, 6 has mean 5; adding 100 pulls the mean far above the others.
226	Dot Plots & Histograms	Dot plots show each value; histograms group values into bins by frequency.	Read the axis labels first -- a histogram's scale decides everything.	A dot plot with three dots above 7 means the value 7 appeared three times.
227	Box Plots	A box plot shows min, first quartile, median, third quartile, and max.	The box spans the middle 50% of the data (Q1 to Q3).	A box from 20 to 60 with median 35 means half the data lies from 20 to 60.
228	Stem-and-Leaf Plots	Each value is split into a stem (leading digits) and a leaf (last digit).	To find the median, count leaves from each end until you meet in the middle.	A stem of 1 with leaves 2 and 3 means the values 12 and 13.
229	Interpreting Tables & Charts	Bar graphs, line graphs, and tables compare quantities visually.	Read the question, then read the display -- locate the exact row or bar before computing.	A bar graph of test takers by borough lets you compare Queens vs Brooklyn directly.
230	Scatter Plots & Correlation	Points on a scatter plot show the relationship: positive trend, negative trend, or no trend.	Correlation is about direction and strength, not proof of cause.	Rising hours studied vs rising practice scores shows a positive trend.
231	Trend Lines	A trend line summarizes a scatter plot's general direction, used to make predictions.	To predict, read the trend line's value at the given x -- not a data point.	On the trend line, $x = 5$ hours predicts $y = 620$ points.

232	SHSAT Study Guide	Probability Basics	Probability = favorable outcomes / total possible outcomes; between 0 and 1.	Count the total outcomes carefully -- the denominator is where errors hide.	Rolling a 3 on a fair die: 1 favorable / 6 total = 1/6.
233		Complementary Events	The probability an event happens plus the probability it does not equals 1.	"At least one" problems are often easier as 1 minus the probability of none.	P(no ace in one draw) = 48/52, so P(ace) = 1 - 48/52 = 4/52.
234		Compound (Independent) Probability	For independent events, multiply probabilities: P(A and B) = P(A) x P(B).	Independence means one outcome does not affect the other -- like coins and dice.	P(heads then even die) = 1/2 x 1/2 = 1/4.
235		Theoretical vs Experimental	Theoretical probability is what should happen; experimental is what happened in trials.	As trials grow, experimental probability tends toward theoretical.	A coin flipped 10 times showing 7 heads gives experimental 0.7, theoretical 0.5.
236		Sample Spaces & Tree Diagrams	List all possible outcomes (sample space) or branch them on a tree to count total outcomes.	Draw the tree for small cases; multiply branch counts for larger ones.	Two flips: HH, HT, TH, TT -- four equally likely outcomes.
237		Combinations & Permutations	Permutations order matters; combinations do not.	For small counts, list them; for larger, use n! and the counting formulas.	Choosing 2 of 3 students (order ignored) = 3 pairs; arranging 3 students in a row = 6 orders.
238		Quartiles & Percentiles	Quartiles split data into fourths; a percentile says the percent of values at or below a point.	Percentile is a rank, not a score on the SHSAT scale -- do not confuse the two.	Scoring at the 80th percentile means you beat 80% of the group.
239		Misleading Statistics	Averages, scales, and axes can be chosen to mislead.	Ask what the display hides: a broken y-axis, a cherry-picked measure, a tiny sample.	A chart starting its y-axis at 90 makes a 3-point rise look enormous.

Part 15 -- Strategy & Test-Day Playbook (17 Concepts)

The whole test, wrapped: how to study, how to pace, and how to walk in ready. Every strategy here is based on the verified digital (computer-based) SHSAT format in use since the fall 2025 administration.

#	Term	Key Facts	Strategy Tip	Example
240	Baseline Diagnosis	Take a full official practice test under exact timing before any study plan.	Log your raw correct counts per section and per content area -- the gaps run your schedule.	A student's baseline shows strong math but weak reading inference; inference goes on the plan.
241	The Error Log	Track every missed question by topic, mistake type, and the correct reasoning.	Review the log weekly; a recurring mistake type is your highest-value study target.	A student notices she misses percent change questions every time -- she drills that one rule.
242	Spaced Practice	Short, frequent sessions over weeks beat marathon cramming; review old errors on a schedule.	Study 30-45 minutes daily rather than 6 hours on Sundays.	A student reviews Monday's errors on Wednesday and again on Saturday.
243	Pacing by Section	With 57 questions per section (114 total) and 180 minutes total, plan roughly 90 minutes per section; the clock is shared, so reallocate only from a surplus.	Check the clock at the midpoint of each section and adjust before you fall behind.	At 45 minutes, a student is 28 questions into the 57-question math section and speeds up slightly.
244	Answer-Everything Discipline	Scoring is based on the number of questions you answer correctly, so an unanswered item can never help you; a reasoned guess always can.	When stuck, eliminate what you can, pick, and move -- a blank is the only answer guaranteed to earn nothing.	Unsure on item 32 of math, a student eliminates two choices, chooses the better option, and proceeds.
245	Process of Elimination	Wrong answers often violate a rule, misread the math, or reverse the relationships.	Cross out impossible options even if you do not know the right one yet.	On a grammar item, a student eliminates the tense-shift option immediately.
246	Plugging In & Back-Solving	Substitute answer choices into the question, or pick friendly numbers for variables.	On algebra word problems, plugging choices in is often faster than solving symbolically.	For "which value of x makes $2x + 3 = 15$," a student tries 6 and confirms.
247	Previewing Passage Questions	Read the questions for a passage before reading the passage to know what to hunt for.	Skim question stems only -- not the answer choices -- to keep focus.	A student sees three detail questions, so she reads the passage hunting dates and names.
248	Annotation for Passages	Mark the main idea, surprising details, and emotional word choices as you read.	Write 3-5 words per paragraph; the act of naming ideas fixes them in memory.	A student writes "cause of cutoffs" next to the paragraph explaining rising scores.
249	Mental Math & Estimation	Estimate before computing; rounding to friendly numbers validates sign, size, and unit.	If your computed answer is off by 10x from your estimate, recompute.	48×0.99 estimated as 48; a computed 475 is obviously wrong.
250	Checking Units & Signs	Wrong units and dropped negatives are classic math-section mistakes.	Before you move on from a computed answer, restate it with its unit and sign.	A student computes 4.5 and confirms the question asked for hours, not minutes.
251	Digital-Test Mindset	The SHSAT is a computer-based test scored		

from the number of questions
you answer correctly -- every
item earns the same, and no
platform "path" gives anyone
an edge.

Stay calm and answer steadily:
platform familiarity from the

A student who finds an item
easy does not second-guess it

TemplateForge \$29

choose which section to begin with (per the official General Directions).

Decide during practice: starting

with your stronger section
banks confidence; starting with
the weaker one uses your
freshest focus.

A student who tires late starts

253	SHSAT Study Guide	The Night Before	Sleep, hydration, and logistics beat last-minute cramming.	Pack your ticket, ID, and approved items; set two alarms; eat a steady breakfast.	A student reviews her agenda lightly at 7 pm, then stops studying entirely and sleeps 9 hours.
254		Test-Day Environment	You test on DOE-provided computers with tools inside the platform; the room runs on DOE rules.	Trust the platform's built-in tools and work the tutorial early; follow every proctor instruction exactly.	A student uses the note-taking tool during the ELA section and skips the paper scratch sheet.
255		After the Test	Scores and offers arrive in the spring, on the schedule the DOE announces each cycle; sign up for Test View through the Family Survey if you want to see your exam.	Do not judge your result by your own memory of difficulty -- wait for the official score instead.	After the fall sitting, a student completes the Family Survey, then waits for spring scores on MySchools.