

PRACTICE EXAM 7: NYSTCE MULTI-SUBJECT TEACHERS OF CHILDHOOD (GRADES 1-6) (120 QUESTIONS)

This practice exam contains 120 selected-response questions: 40 Literacy and English Language Arts, 40 Mathematics, and 40 Arts and Sciences. The official NYSTCE Multi-Subject: Teachers of Childhood (Grades 1-6) test also includes one constructed-response item in Part One and one in Part Two. Official testing times are 2 hours for Part One, 2 hours 15 minutes for Part Two, and 1 hour for Part Three; the passing score is 520 for each part. Choose the best answer for each question.

1. A child says the word flag slowly as /f/ /l/ /a/ /g/ and counts four separate sounds. Which phonological-awareness skill is the child demonstrating?

- A. Syllable blending
- B. Onset-rime substitution
- C. Print-direction awareness
- D. Phoneme segmentation

2. In the word knight, which feature explains why the first letter is not pronounced?

- A. The word begins with a vowel team.
- B. The word contains a silent-letter spelling pattern.
- C. The word contains only open syllables.
- D. The final consonant changes the first sound.

3. A student explains that the -ed in jumped shows that the action happened in the past. What kind of language knowledge is the student applying?

- A. Knowledge of an inflectional morpheme
- B. Knowledge of alphabetical order
- C. Knowledge of sentence indentation
- D. Knowledge of a figurative comparison

4. A science paragraph explains that heavy rainfall loosened soil on a hillside, which caused mud to wash into a nearby stream. Which text structure is most prominent?

- A. Compare and contrast
- B. Chronological biography
- C. Cause and effect
- D. Question and answer only

5. A memoir begins, 'I still remember the smell of the bakery on the morning we left our old neighborhood.' Which point of view is used?

- A. Second-person point of view
- B. Third-person omniscient point of view
- C. Third-person objective point of view
- D. First-person point of view

6. In a story, a student shares a prized set of art supplies with a classmate who cannot afford materials, even though the student had planned to keep them untouched. Which theme is best supported?

- A. Generosity can matter more than protecting possessions.
- B. Valuable objects should never be used.
- C. Friendship depends on owning identical things.
- D. People should avoid helping classmates with problems.

7. An article argues that planting shade trees near playgrounds can reduce heat exposure and includes temperature measurements from shaded and unshaded play areas. What is the main function of the measurements?

- A. They replace the claim with a fictional story.
- B. They provide evidence supporting the article's claim.
- C. They show the article has no central position.
- D. They introduce an unrelated topic about rainfall.

8. An author writes, 'At dismissal, the hallway became a river of backpacks flowing toward the doors.' Which figure of speech is used in the phrase 'a river of backpacks'?

- A. A literal definition
- B. A simile
- C. A metaphor
- D. An example of alliteration only

9. A writer changes 'The puppy was thin after being rescued' to 'The puppy was gaunt after being rescued.' What does the revision most clearly add?

- A. A stronger connotation of unhealthy thinness
- B. A change from past to future tense
- C. A new plural subject
- D. A more cheerful emotional tone

10. A dictionary entry lists bark as the outer covering of a tree and also as the sharp sound a dog makes. Which property of words does this illustrate?

- A. Every word has only one denotation.
- B. Meaning is determined only by syllable count.
- C. A single spelling can have multiple meanings.
- D. Nouns cannot share spelling with verbs.

11. Students are researching a civil-rights march held in 1965. Which source would provide the strongest primary-source evidence about what participants heard during the event?

- A. A modern textbook chapter about the movement
- B. An audio recording made along the march route that day
- C. A recent museum website summarizing the march
- D. A historical novel published decades afterward

12. A student finds a health article shared widely online but cannot identify the author or any sources for its statistics. What is the best first step before using the article in a report?

- A. Assume the article is accurate because it is popular.
- B. Use only the headline and ignore the body.
- C. Cite the article repeatedly so it becomes more reliable.
- D. Check the claim against identifiable, credible sources with evidence.

13. Which sentence uses pronouns so that their antecedents are clear and grammatically consistent?

- A. When Elena finished the model, they placed it on the display table.
- B. When Elena finished the model, she placed it on the display table.
- C. When the students finished the model, she placed it on the display table.
- D. When Elena and Rosa finished the model, it placed them on the display table.

14. Which sentence correctly uses a comma after an introductory phrase?

- A. After the final rehearsal the cast, returned the props to storage.
- B. After, the final rehearsal the cast returned the props to storage.
- C. After the final, rehearsal the cast returned the props to storage.
- D. After the final rehearsal, the cast returned the props to storage.

15. A student is emailing the principal to request permission for a school club event. Which opening uses the most appropriate formal register?

- A. Dear Principal Chen, I am writing to request permission for our club event.
- B. Hey! We wanna do this cool thing, okay?
- C. Yo, can the club use the gym or what?
- D. Guess what—we have a thing we want to do!

16. A teacher times a student's oral reading of a grade-level passage for one minute and records the number of words read correctly. What aspect of reading is the measure designed to sample most directly?

- A. Handwriting formation
- B. Listening vocabulary only
- C. Oral reading fluency
- D. Knowledge of alphabetical order

17. A student says, 'My family says *y'all* at home, but I know formal school writing usually uses *you*.' What language understanding is the student demonstrating?

- A. A belief that home dialects are grammatical errors
- B. An inability to distinguish spoken and written language
- C. Awareness that language varieties and registers can vary by context
- D. Knowledge that every context requires identical word choices

18. A first grader can blend spoken syllables but has difficulty separating a simple word into individual sounds. Which activity most directly targets the need?

- A. Have the student move one counter for each phoneme heard in a word such as sun.
- B. Have the student copy the word sun ten times.
- C. Have the student alphabetize a list of picture names.
- D. Have the student memorize the names of punctuation marks.

19. A beginning reader can say the sounds /m/, /a/, and /p/ separately but does not combine them into a word. Which teacher prompt is most appropriate?

- A. Ask the student to identify the word's antonym before reading it.
- B. Have the student count the sentences on the page.
- C. Tell the student to memorize the entire paragraph by sight.
- D. Guide the student to sweep a finger under the letters while blending /m/ /a/ /p/ into map.

20. A student reads the word rid as red and often confuses short i and short e in CVC words. Which instruction would most directly address the pattern?

- A. Teach only the names of capital letters.
- B. Contrast rid/red while mapping each vowel sound to its spelling.
- C. Practice locating commas in long sentences.
- D. Have the student memorize unrelated multisyllabic words.

21. A student reads the word train by pronouncing a and i as separate vowel sounds. Which lesson would best address the error?

- A. Teach that every vowel must begin a new syllable.
- B. Teach that the final consonant always controls the first vowel.
- C. Teach ai as one vowel team in words such as train and paint.
- D. Teach the student to ignore interior letters when decoding.

22. A reader accurately decodes picnic but struggles with the unfamiliar word fantastic. Which strategy is most likely to support efficient decoding?

- A. Skip the word permanently whenever it appears.
- B. Divide the word into pronounceable syllables and blend the syllables together.
- C. Use only the first letter to guess the word.
- D. Replace the word with a shorter synonym before reading.

23. While reading geography, a student recognizes geo- in geology, geographer, and geothermal. Which instruction best builds on this observation?

- A. Teach that every word beginning with g has the same meaning.
- B. Have the student sort the words only by total letter count.
- C. Ask the student to memorize each word without examining parts.
- D. Teach the recurring Greek root geo and connect it with the meaning earth.

24. A student can sound out regular CVC words but repeatedly misreads the high-frequency word said. Which routine best supports accurate long-term recognition?

- A. Map the regular and unexpected sounds in said, then practice reading and spelling it in meaningful phrases.
- B. Tell the student that said should never be analyzed.
- C. Have the student guess said from the picture each time.
- D. Replace every occurrence of said with a different word.

25. A student reads many grade-level words accurately but slowly and must consciously sound out the same common words each time they appear. Which practice most directly builds automatic word recognition?

- A. Increase the number of unfamiliar words without review.
- B. Ask the student to copy definitions from a dictionary.
- C. Stop all oral reading until the student reaches the next grade.
- D. Provide brief repeated reading of appropriately chosen words and connected text with feedback.

26. A reader pronounces every word correctly but ignores punctuation and reads a dialogue passage in one flat, unbroken stream. Which support best targets the weakness?

- A. Assign more silent alphabetizing practice.
- B. Teach only the meanings of isolated prefixes.
- C. Model expressive phrasing, then echo-read the dialogue using punctuation cues.
- D. Ask the student to read faster without changing phrasing.

27. A student encounters the word charge in a passage about a battery and chooses the meaning 'ask a price.' Which instructional response best builds flexible vocabulary use?

- A. Compare dictionary meanings of charge and use the surrounding science context to select the meaning that fits.
- B. Teach that the first dictionary meaning is always correct.
- C. Tell the student to ignore the rest of the sentence.
- D. Have the student replace every multiple-meaning word with a synonym.

28. After reading a short story, a student can name characters and settings but cannot retell the important events in order. Which scaffold would be most useful?

- A. Have the student copy every sentence from the story.
- B. Use a beginning-middle-end organizer and have the student retell the major events with sequence words.
- C. Ask only for a list of words with two syllables.
- D. Teach the student to sort character names alphabetically.

29. A character repeatedly checks the clock, packs lunch the night before, and lays out a uniform by the door. Which teacher question best prompts an inference about the character?

- A. How many letters are in the word uniform?
- B. Which sentence has the most commas?
- C. What color should the clock be in an illustration?
- D. Ask what the actions suggest and require supporting details from the text.

30. Before students read an informational article, the teacher asks them to study a diagram, its caption, and the section heading beside it. What is the main instructional purpose?

- A. Help students use text features to anticipate and organize important information.
- B. Teach students to ignore the article's paragraphs.
- C. Replace comprehension with memorization of labels only.
- D. Show that captions and headings are unrelated to meaning.

31. A student writes hop + ing as hoping when the intended word is hopping. Which spelling instruction most directly addresses the error?

- A. Teach that every suffix requires deleting the final consonant.
- B. Teach that vowels are never followed by doubled consonants.
- C. Teach that a one-syllable short-vowel word ending in one consonant often doubles the final consonant before adding -ing.
- D. Teach that -ing can be added only to words ending in e.

32. During dictation, a child stretches the word ship into /sh/ /i/ /p/ but is unsure what to write. Which teacher response best supports mapping the sounds to print?

- A. Ask for a word with the same number of letters.
- B. Prompt for the spelling of /sh/, then /i/, then /p/ in sequence.
- C. Have the child copy an unrelated sentence.
- D. Ask whether ship comes before shoe alphabetically.

33. A second grader shows persistent difficulty reading unfamiliar words despite adequate instruction and has weaknesses in phonemic awareness and decoding. Which intervention is most appropriate?

- A. Rely mainly on guessing words from pictures.
- B. Remove phonics practice because it may be frustrating.
- C. Provide explicit, systematic instruction in phoneme awareness and sound-spelling patterns with cumulative practice.
- D. Wait several years before offering targeted support.

34. A teacher gives a short decoding measure every other week during an intervention and plots the student's scores over time. What is the most important use of the data?

- A. Assign a permanent intelligence label from one score.
- B. Use the trend to judge response to instruction and adjust intervention.
- C. Replace all classroom observation with the graph.
- D. Compare handwriting neatness with reading rate.

35. Students are planning personal narratives about a memorable challenge. Which prewriting activity would best help them develop a coherent sequence before drafting?

- A. Make a timeline of key events, reactions, and the turning point.
- B. Copy five unrelated dictionary definitions.
- C. List punctuation marks without using them.
- D. Choose a font before deciding what happened.

36. A student writes, 'The experiment was good and the results were good.' Which revision would most improve precision in a science explanation?

- A. Add several exclamation points after good.
- B. Repeat the word good three more times.
- C. Remove all references to what the experiment showed.
- D. Replace vague words with specific descriptions of the procedure and results.

37. Two students disagree about why a character hides a letter from her brother. Which discussion move best demonstrates literary analysis?

- A. The louder student is declared correct without evidence.
- B. Cite story actions and dialogue and explain how they support each interpretation.
- C. Both students ignore the story and vote on the answer.
- D. The class chooses whichever interpretation is shortest.

38. A class is analyzing a poem in which a repeated phrase appears at the end of every stanza. Which question would best focus students on the effect of that structural choice?

- A. How many pages are in the poetry book?
- B. Which student can recite the phrase fastest?
- C. What is the alphabetical position of the phrase's first word?
- D. How does repeating the phrase at each stanza's end reinforce the poem's mood or central idea?

39. Students have notes from three credible sources about reducing cafeteria food waste. Which next step best supports synthesis rather than simple copying?

- A. Copy one entire source and omit citations.
- B. Use only the first sentence from each source.
- C. Group related ideas across sources, compare them, and paraphrase a synthesis.
- D. Arrange the source titles alphabetically and stop.

40. A multilingual learner understands a social-studies topic but gives very short oral responses because academic vocabulary is still developing. Which support best preserves the content goal while building language?

- A. Provide key vocabulary and sentence frames, then require an evidence-based historical explanation.
- B. Excuse the student from all content discussion.
- C. Grade only pronunciation and ignore historical understanding.
- D. Replace the topic with unrelated beginner vocabulary drills.

41. A trail guide has $4\frac{1}{6}$ liters of water and uses $2\frac{3}{4}$ liters. How many liters remain?

- A. $1\frac{1}{12}$ liters
- B. $1\frac{7}{12}$ liters
- C. $2\frac{5}{12}$ liters
- D. $1\frac{5}{12}$ liters

42. A printing center places 1,764 brochures equally into 28 bundles. How many brochures are in each bundle?

- A. 56 brochures
- B. 72 brochures
- C. 63 brochures
- D. 49 brochures

43. A rectangular label is 12.6 centimeters long and 0.4 centimeter wide. What is its area?

- A. 5.04 square centimeters
- B. 50.4 square centimeters
- C. 3.15 square centimeters
- D. 13.0 square centimeters

44. A park crew marks 18 kilometers of trail in 3 hours at a constant rate. How many kilometers does the crew mark per hour?

- A. 5 kilometers per hour
- B. 6 kilometers per hour
- C. 9 kilometers per hour
- D. 54 kilometers per hour

45. A school has 350 students, and 22% participate in the spring music program. How many students participate?

- A. 72 students
- B. 77 students
- C. 82 students
- D. 63 students

46. A mural mixture uses 5 liters of blue paint for every 2 liters of white paint. At the same ratio, how many liters of blue paint are needed with 14 liters of white paint?

- A. 35 liters
- B. 28 liters
- C. 21 liters
- D. 70 liters

47. A bracelet uses green and yellow beads in a ratio of 3:7. If the bracelet has 80 beads altogether, how many are green?

- A. 30 green beads
- B. 32 green beads
- C. 24 green beads
- D. 56 green beads

48. On a regional map, 2.5 centimeters represents 15 kilometers. A road measures 7.5 centimeters on the map. What actual distance does the road represent?

- A. 30 kilometers
- B. 22.5 kilometers
- C. 112.5 kilometers
- D. 45 kilometers

49. A recreation program's enrollment falls from 480 participants to 360 participants. What percent decrease does this represent?

- A. 25%
- B. 20%
- C. 30%
- D. 60%

50. A storage tank is 37.5% full. Which fraction in simplest form represents the portion of the tank that is filled?

- A. $\frac{3}{5}$
- B. $\frac{5}{8}$
- C. $\frac{3}{8}$
- D. $\frac{37}{50}$

51. Which value is greatest: $-\frac{5}{8}$, -0.61, $-\frac{3}{5}$, or -0.59?

- A. $-\frac{5}{8}$
- B. -0.59
- C. -0.61
- D. $-\frac{3}{5}$

52. An elevator moves from level -7 in an underground garage to level 12 in a tower. How many levels does it move upward?

- A. 5 levels
- B. 12 levels
- C. 7 levels
- D. 19 levels

53. On a number line, exactly two numbers are 5 units away from 3. Which pair contains both numbers?

- A. 2 and 8
- B. -8 and 2
- C. -2 and 5
- D. -2 and 8

54. A 27.30-meter ribbon is cut into 14 equal pieces. How long is each piece?

- A. 1.85 meters
- B. 2.05 meters
- C. 1.95 meters
- D. 2.15 meters

55. An annual museum pass normally costs \$64. During a promotion, the pass sells for 85% of its regular price. What is the promotional price?

- A. \$48.40
- B. \$54.40
- C. \$55.60
- D. \$9.60

56. A train travels 150 miles in 2.5 hours at a constant speed. How far will it travel in 4 hours at that speed?

- A. 240 miles
- B. 180 miles
- C. 225 miles
- D. 375 miles

57. At the same time of day, a 6-meter tree casts a 4-meter shadow and a flagpole casts a 10-meter shadow. Assuming matching sun angles, how tall is the flagpole?

- A. 12 meters
- B. 16 meters
- C. 24 meters
- D. 15 meters

58. A restaurant bill is \$50 before tip. A customer leaves an 18% tip. How much is the tip?

- A. \$9.00
- B. \$8.00
- C. \$10.00
- D. \$59.00

59. A number machine doubles an input, subtracts 5, multiplies that result by 3, and then adds 4. What output does the machine produce for an input of 6?

- A. 17
- B. 25
- C. 31
- D. 43

60. Five times a mystery number, increased by 9, equals 44. What is the mystery number?

- A. 5
- B. 9
- C. 7
- D. 11

61. A theater orders 6 packages containing y programs and 2 flyers each, then removes $3y$ programs for another event. Which expression represents what remains?

- A. $3y + 2$
- B. $3y + 12$
- C. $9y + 12$
- D. $6y + 9$

62. Point P is at $(-4, 7)$. What are the coordinates of its reflection across the y-axis?

- A. $(-4, -7)$
- B. $(7, -4)$
- C. $(4, 7)$
- D. $(4, -7)$

63. A slanted glass panel has a 13-centimeter base. The perpendicular distance between its two horizontal parallel sides is 6 centimeters. If the panel is a parallelogram, what area does it cover?

- A. 38 square centimeters
- B. 39 square centimeters
- C. 156 square centimeters
- D. 78 square centimeters

64. A triangular prism has a triangular base with base 8 centimeters and height 5 centimeters. The prism is 9 centimeters long. What is its volume?

- A. 180 cubic centimeters
- B. 90 cubic centimeters
- C. 360 cubic centimeters
- D. 22 cubic centimeters

65. A bicycle wheel has a radius of 7 inches. Using $\frac{22}{7}$ for π , approximately how far does a point on the rim travel in one complete revolution?

- A. 22 inches
- B. 44 inches
- C. 88 inches
- D. 154 inches

66. A straight walkway and a ray from the same point create a linear pair of angles. If the larger angle is 134 degrees, how large is the neighboring angle?

- A. 46 degrees
- B. 36 degrees
- C. 56 degrees
- D. 134 degrees

67. A regular octagonal tabletop has side length 6.5 inches. What is its perimeter?

- A. 39 inches
- B. 45.5 inches
- C. 52 inches
- D. 26 inches

68. Five days of visitor counts are 12, 15, 15, 18, and 20. If the counts are shared equally across the five days, what equal daily count represents their average?

- A. 15
- B. 17
- C. 18
- D. 16

69. Six runners finish a drill in 3, 7, 9, 10, 12, and 15 minutes. What time lies at the center of the ordered data set?

- A. 9 minutes
- B. 9.5 minutes
- C. 10 minutes
- D. 11 minutes

70. A spinner has 10 equal sectors, 4 of which are blue. What is the probability that one spin lands on blue?

- A. $\frac{2}{5}$
- B. $\frac{1}{5}$
- C. $\frac{3}{5}$
- D. $\frac{2}{3}$

71. A spinner lands on a striped section about 25% of the time. Over 160 spins, about how many striped results would be expected?

- A. 25
- B. 64
- C. 40
- D. 120

72. Five delivery times were 14, 19, 23, 29, and 31 minutes. What is the range of the data?

- A. 12 minutes
- B. 17 minutes
- C. 18 minutes
- D. 45 minutes

73. A number rule triples the input and then subtracts 4. What output is produced when the input is -2?

- A. -2
- B. 2
- C. 10
- D. -10

74. Which value of x makes $2x + 5$ less than 13?

- A. $x = 4$
- B. $x = 5$
- C. $x = 3$
- D. $x = 6$

75. A scatterplot contains the points (1, 4), (2, 7), (3, 10), (4, 13), and (5, 16). Which description best fits the relationship?

- A. A strong negative linear relationship
- B. No apparent relationship
- C. A curved relationship that decreases
- D. A strong positive linear relationship

76. A student compares $\frac{5}{12}$ with $\frac{5}{8}$ and says $\frac{5}{12}$ must be larger because 12 is the larger denominator. Which representation would best challenge that reasoning?

- A. Use equal-size area models divided into twelfths and eighths, shading five parts in each.
- B. Tell the student that larger denominators always make larger fractions.
- C. Compare only the numerators and ignore the wholes.
- D. Draw two different-size wholes so five pieces look equal.

77. A student insists that $13 + 7 = 10 + 10$ is wrong because 'the answer has to come after the equal sign.' Which instructional focus is most appropriate?

- A. Emphasize that the equal sign means both expressions have the same value.
- B. Teach that the equal sign always means 'calculate next.'
- C. Avoid equations with expressions on both sides.
- D. Replace the equal sign with an arrow in every problem.

78. A student reads 0.306 as 'three hundred six hundredths.' Which representation would best clarify the place-value error?

- A. A clock face labeled only with hours
- B. A multiplication table from 1 to 10
- C. A list of unrelated whole-number facts
- D. A place-value chart showing 3 tenths, 0 hundredths, and 6 thousandths

79. Students are beginning to learn why the area formula for a parallelogram is base times height. Which activity best develops conceptual understanding?

- A. Require students to memorize $A = bh$ before seeing any shapes.
- B. Measure only the slanted side and call it the height.
- C. Rearrange a paper parallelogram into a rectangle with the same base and height.
- D. Count the letters in the word parallelogram.

80. Several students compute $503 - 278$ by subtracting the smaller digit from the larger digit in each column, regardless of place. What should the teacher do next?

- A. Tell students to reverse every subtraction problem instead.
- B. Model regrouping across zeroes with base-ten materials, then connect to the written algorithm.
- C. Give only easier problems that never require regrouping.
- D. Have students memorize the incorrect column rule more quickly.

81. Students want to test how the height of a ramp affects the distance a toy car rolls after leaving the ramp. Which plan creates the fairest test?

- A. Change only ramp height; keep the car, surface, release, and measurement method constant.
- B. Change the ramp height, car, and floor surface together.
- C. Use a different measuring tool for each trial.
- D. Push the car with different force each time.

82. In an experiment, students place identical ice cubes under lamps at different distances and record how many minutes each cube takes to melt. What is the dependent variable?

- A. The distance between each lamp and ice cube
- B. The time required for each ice cube to melt
- C. The type of lamp kept the same
- D. The size of the identical ice cubes

83. Students observe four events in a laboratory. Which event most strongly indicates that the substances' identities changed rather than only their form or state?

- A. A cube of ice turns into liquid water.
- B. A metal sheet is cut into narrow strips.
- C. Mixing two clear solutions produces an insoluble solid.
- D. Salt dissolves and is later recovered by evaporation.

84. A battery-powered flashlight is switched on. Which sequence best describes the major energy transformations?

- A. Light energy becomes chemical energy and then sound only.
- B. Thermal energy becomes gravitational energy and then light.
- C. Electrical energy disappears without producing another form.
- D. Chemical energy in the battery becomes electrical energy, then light and thermal energy.

85. A student pushes identical blocks across smooth tile and rough carpet with the same starting motion. The block travels a shorter distance on the carpet. Which explanation is best?

- A. The carpet removes the block's mass.
- B. Gravity acts only on the block while it is on carpet.
- C. The carpet exerts greater friction that opposes the block's motion.
- D. The tile creates more friction than the carpet in this observation.

86. A decorative light string has two bulbs in a single conducting loop. If one bulb is unscrewed so the loop is open, what happens to the second bulb?

- A. It becomes brighter because the current automatically doubles.
- B. It remains unchanged because it has a separate branch.
- C. It glows even though no closed path remains.
- D. It goes out because the only path for current is interrupted.

87. A teacher shines a stationary lamp on a classroom globe while a student slowly turns the globe in place. Which Earth phenomenon is this model best suited to demonstrate?

- A. The yearly change of seasons by revolution
- B. The alternation of day and night
- C. The Moon's phases
- D. The formation of ocean tides only

88. Water vapor cools on the outside of a cold drinking glass and forms liquid droplets. Which process is occurring?

- A. Condensation
- B. Evaporation
- C. Sublimation
- D. Freezing

89. Over time, layers of sediment are compressed and cemented together. Which type of rock is most directly formed by this process?

- A. Sedimentary rock
- B. Igneous rock
- C. Magma
- D. Metamorphic rock only from melting

90. Which cell structure controls what substances enter and leave the cell?

- A. The chromosome only
- B. The cell wall only
- C. The vacuole only
- D. The cell membrane

91. In a meadow food web, which organisms capture energy from sunlight and make organic food that supports other trophic levels?

- A. Only top predators
- B. Decomposers only
- C. Producers such as grasses
- D. Consumers such as rabbits

92. In a plant species, purple flowers (P) are dominant to white flowers (p). Which genotype will produce white flowers under simple dominance?

- A. PP
- B. pp
- C. Pp
- D. Either PP or Pp

93. A population of shorebirds varies in beak length. During many generations, birds whose beaks best reach the available food survive and leave more offspring. What process does this describe?

- A. Instant inheritance of acquired traits
- B. Random disappearance of all variation
- C. Artificial selection by human breeders
- D. Natural selection

94. A design team must build a model tower that holds at least 5 kilograms and uses no more than 30 craft sticks. Which statement describes a constraint?

- A. The model should hold at least 5 kilograms.
- B. The model should be tested several times.
- C. The model may use no more than 30 craft sticks.
- D. The model should be described in a written reflection.

95. A thermostat turns a heater on when room temperature drops below a set point and turns it off after the set point is reached. Which systems idea is illustrated?

- A. Feedback control
- B. A system with no input or output
- C. A one-time chemical reaction only
- D. Random change without measurement

96. Which energy source is renewable on a human timescale and produces electricity without burning fuel during operation?

- A. Coal
- B. Wind energy
- C. Petroleum
- D. Natural gas

97. A student is studying civilian life in the United States during World War II. Which source would be a primary source for learning how rationing affected a particular family?

- A. A modern textbook chapter about the home front
- B. The family's original wartime ration book with handwritten notes
- C. A recent documentary summarizing rationing policies
- D. An encyclopedia article written decades after the war

98. Why did many major port cities develop at natural harbors along coastlines?

- A. Harbors prevented all movement of goods by water.
- B. Coastal locations eliminated the need for transportation networks.
- C. Natural harbors made agriculture impossible everywhere nearby.
- D. Harbors provided sheltered access for ships, supporting trade and transportation.

99. A proposed federal transportation bill must be debated, amended, and voted on before it can become law. Which branch of government performs those congressional lawmaking steps?

- A. The legislative branch
- B. The executive branch alone
- C. The judicial branch
- D. A private corporation

100. The president nominates a federal judge, and the Senate votes on whether to confirm the nominee. Which constitutional principle is most clearly illustrated?

- A. Direct democracy
- B. Judicial supremacy over elections
- C. Checks and balances
- D. Hereditary succession

101. New York State sets many rules for public schools, while the federal government handles national defense. Which constitutional principle does this arrangement illustrate?

- A. Federalism
- B. Judicial review
- C. Monarchy
- D. Unicameralism

102. A neighborhood learns that a public park may close because of budget cuts. Which response best shows informed participation in local decision-making?

- A. Damage city property to attract attention.
- B. Invent statistics and circulate them anonymously.
- C. Review the proposal, document park use, and speak at the public hearing.
- D. Declare that local budget rules no longer apply.

103. A map lists a location as 43° N, 76° W. What type of information do these coordinates provide?

- A. Relative location based only on nearby landmarks
- B. Population density
- C. Elevation above sea level
- D. Absolute location using latitude and longitude

104. A map legend shows a blue line for rivers, a black line for roads, and a star for the state capital. What is the legend's purpose?

- A. Show the exact age of every road
- B. Explain what the map's symbols and colors represent
- C. Calculate population growth automatically
- D. Replace the map scale with a written history

105. A musical style that developed in one region becomes popular in distant countries through migration, recordings, and social media. Which geographic-cultural process is illustrated?

- A. Cultural diffusion
- B. Isolation from all outside influence
- C. Absolute location
- D. Judicial review

106. A freeze destroys much of an orange crop while consumer demand for oranges remains about the same. What price effect would basic supply-and-demand reasoning predict?

- A. Orange prices must fall because supply has decreased.
- B. Orange prices are likely to rise because supply has decreased.
- C. Price cannot change when supply changes.
- D. Oranges become free because fewer are available.

107. A student spends Saturday volunteering at a park instead of working a shift that would have paid \$60. In economic terms, what is the opportunity cost of volunteering?

- A. Only the transportation cost to the park
- B. The total city budget for parks
- C. The \$60 in wages the student gave up
- D. Any money the student earned on Friday

108. Making one kayak costs Island A the production of 2 fishing nets; on Island B, one kayak costs 5 fishing nets. Which island has the lower opportunity cost of producing kayaks?

- A. Island B
- B. Both islands have the same opportunity cost
- C. Neither island can have comparative advantage
- D. Island A

109. A community can fund either a new fire station or a major park renovation this year, but current resources are insufficient to do both. Which economic concept is illustrated most directly?

- A. Scarcity
- B. Unlimited resources
- C. Price fixing
- D. Barter only

110. During the Industrial Revolution, factories expanded in many cities and drew workers from rural areas. What was one major demographic effect?

- A. Cities disappeared because factories required rural isolation.
- B. All farm work ended immediately.
- C. Urban populations grew as people moved toward industrial jobs.
- D. Population movement stopped because transportation declined everywhere.

111. What did the Fifteenth Amendment to the U.S. Constitution prohibit states from doing?

- A. Requiring the president to serve only one term
- B. Denying voting rights because of race, color, or previous servitude
- C. Creating a national income tax
- D. Establishing public schools in every county

112. Students compare a mayor's speech, neighborhood petitions, and newspaper reports about the same historical redevelopment project. Which practice best strengthens their historical conclusion?

- A. Use only the source with the strongest emotional language.
- B. Assume every source has identical motives and reliability.
- C. Ignore disagreements among sources so the account stays simple.
- D. Corroborate claims across the sources while considering each source's perspective and purpose.

113. A painter wants a landscape to feel calm and cool. Which color group would most directly support that effect?

- A. Blues, greens, and violets
- B. Reds, oranges, and yellows
- C. Only black and white checkerboard patterns
- D. Random colors chosen without regard to temperature

114. In musical notation, what does a crescendo indicate?

- A. Gradually slow the tempo
- B. Gradually increase the loudness
- C. Repeat the entire piece from the beginning
- D. Perform every note at exactly the same volume

115. During a drama exercise, one actor speaks a sustained passage alone while other characters listen. What is this kind of speech called?

- A. A stage direction
- B. A prop
- C. A monologue
- D. A costume change

116. Which movement is locomotor because it carries the body from one place to another?

- A. Twisting while standing in place
- B. Bending at the waist without traveling
- C. Stretching one arm overhead while stationary
- D. Skipping across the gym

117. In the FITT framework for planning physical activity, what does F represent?

- A. Flavor of the food eaten afterward
- B. Floor type used for every exercise
- C. Finish time in a competitive race only
- D. Frequency, or how often the activity is performed

118. A student is comparing two breakfast cereals with the same serving size. Which label information is most useful for choosing the cereal with less added sugar?

- A. The package's front color
- B. The size of the brand logo
- C. The grams of added sugars per serving
- D. The number of letters in the cereal name

119. While preparing raw chicken and salad, which practice best reduces the risk of cross-contamination?

- A. Use separate cutting surfaces and wash hands and utensils before handling the ready-to-eat salad.
- B. Cut the salad on the unwashed board used for raw chicken.
- C. Rinse the same knife quickly with cold water only and continue.
- D. Place cooked food back on the plate that held raw chicken.

120. A student wants to learn what an occupational therapist actually does each day and what education the career requires. Which action would provide the most direct career information?

- A. Choose a career solely from a television character.
- B. Conduct an informational interview with a practicing occupational therapist and ask about duties and preparation.
- C. Ignore education requirements and guess from the job title.
- D. Select the career only because a friend mentioned it once.

Practice Exam 7: Answer Key and Explanations

- 1. D** — The child is breaking one spoken word into its individual speech sounds, which is phoneme segmentation. Flag contains four phonemes even though its initial consonants form a blend. Syllable blending combines larger spoken units, onset-rime substitution changes parts of a word, and print direction concerns written text rather than sound analysis.
- 2. B** — In knight, the initial k is part of a conventional silent-letter pattern in which kn represents /n/ at the beginning of the word. A vowel team involves adjacent vowels, an open syllable ends in a vowel sound, and the final consonant does not determine whether the initial k is pronounced.
- 3. A** — The suffix -ed is an inflectional morpheme because it changes grammatical information, marking past tense without creating a fundamentally new word class. Alphabetical order concerns dictionary arrangement, indentation is a formatting convention, and figurative comparison concerns meaning across phrases rather than the grammatical function of a bound morpheme. That evidence directly identifies the targeted literacy skill.
- 4. C** — The paragraph links one event to its consequence: heavy rainfall loosens soil, and the loosened soil washes into the stream. That causal relationship defines a cause-and-effect structure. Compare-and-contrast emphasizes similarities and differences, biography follows a person's life, and a question-answer structure would explicitly organize information around posed questions. That evidence directly identifies the targeted literacy skill.
- 5. D** — The narrator uses the pronoun I and recounts a personal memory, so the passage is written in first person. Second person addresses a reader as you, while third-person forms use he, she, they, or character names. Omniscient and objective are both third-person perspectives and do not fit the quoted narration.
- 6. A** — The character gives up exclusive use of something personally valuable in order to help another person, supporting a theme about generosity and priorities. The plot does not suggest that objects should remain unused, that friendship requires identical possessions, or that classmates should refuse help when someone faces a difficulty. That evidence directly identifies the targeted literacy skill.
- 7. B** — The temperature measurements are relevant data that can support the claim that shade trees reduce heat exposure. Evidence strengthens an argument by providing information connected to the claim. A fictional story would serve a different purpose, absence of a central position contradicts the stated argument, and rainfall is not the issue being measured.
- 8. C** — The phrase directly identifies the crowd of backpacks as a river without using like or as, so it is a metaphor. The comparison suggests continuous, crowded movement. A simile would use an explicit comparison word, a literal definition would not be figurative, and alliteration depends on repeated initial sounds rather than comparison. That evidence directly identifies the targeted literacy skill.

9. A — Gaunt carries a stronger negative connotation than thin, often suggesting an unhealthy or worn appearance. The revision does not change the tense, number of the subject, or basic sentence structure. Word choice can shift emotional associations even when two words have related denotations, which is the key effect in this revision.

10. C — Bark has more than one established meaning, and context tells readers which meaning applies. This illustrates lexical ambiguity or multiple-meaning words. Words are not limited to one denotation, syllable count does not determine meaning, and the same spelling can function in different grammatical roles depending on how it is used in a sentence.

11. B — An audio recording created during the event preserves sounds and voices from the time, making it a primary source for what participants could hear. Textbooks and museum summaries interpret evidence later, while a historical novel is a creative reconstruction rather than direct documentation of the 1965 event itself. That evidence directly identifies the targeted literacy skill.

12. D — Popularity does not establish reliability, especially when authorship and evidence are unclear. The student should corroborate the claims with credible sources that identify evidence and expertise. Headlines can oversimplify content, and repeating a weak source does not strengthen it. Source evaluation requires considering authority, evidence, currency, purpose, and corroboration. That evidence directly identifies the targeted literacy skill.

13. B — In the correct sentence, she clearly refers to Elena and it clearly refers to the model, creating consistent and logical pronoun-antecedent relationships. The other choices introduce mismatched number or unclear reference, making it difficult to determine who performed the action or what was placed on the table. That evidence directly identifies the targeted literacy skill.

14. D — The introductory phrase 'After the final rehearsal' is followed by a comma before the independent clause begins. The other choices place commas inside the phrase or between the subject and verb, where they interrupt the sentence incorrectly. Commas after introductory elements help readers see the boundary between setup information and the main clause.

15. A — A formal request to a principal should use respectful address, standard grammar, and clear purpose. The keyed opening identifies the audience and states the request appropriately. The alternatives use slang, conversational fragments, or an overly casual tone that would not fit the relationship, purpose, and expectations of a formal school communication.

16. C — Words read correctly per minute is commonly used as a brief indicator of oral reading fluency because it combines accurate word recognition with rate during connected-text reading. It does not measure handwriting, vocabulary in isolation, or alphabetic sequencing. Interpretation should still consider accuracy, phrasing, comprehension, and the student's instructional context.

17. C — The student recognizes that language varies across communities and situations and can shift choices according to audience and purpose. A home dialect is not simply an error, and knowing when formal written conventions differ from conversational speech demonstrates linguistic flexibility. Effective instruction can value students' language varieties while teaching additional academic registers.

18. A — Moving one counter for each sound makes phoneme segmentation concrete and directly addresses difficulty separating a spoken word into individual phonemes. Copying print, alphabetizing words, and naming punctuation do not require the learner to analyze the internal sound structure of a word, so they would not target the identified foundational need.

19. D — The student already knows the component sounds, so the next step is blending them continuously to form the word map. A guided sweep can support attention to left-to-right letter-sound sequence. Antonyms, sentence counting, and paragraph memorization do not practice the phoneme-blending process needed for accurate decoding. That evidence directly identifies the targeted literacy skill.

20. B — The error reflects confusion between two short-vowel phonemes and their graphemes, so explicit contrast with minimal pairs can sharpen both listening discrimination and sound-symbol mapping. Capital-letter names, punctuation work, and memorizing unrelated long words do not directly address the vowel distinction causing the student's decoding errors. That evidence directly identifies the targeted literacy skill.

21. C — The student needs knowledge that the letters ai can work together as a vowel team to represent a single vowel sound. Treating every vowel as a new syllable, using the final consonant to control the first vowel, or ignoring interior letters would create additional decoding errors rather than explain the pattern in train.

22. B — For a longer unfamiliar word, dividing it into syllable-sized units can reduce processing demands and support accurate decoding before the parts are blended. Skipping, guessing from the first letter, or substituting a synonym bypasses the printed word and does not build a transferable strategy for reading multisyllabic words independently. That evidence directly identifies the targeted literacy skill.

23. D — Teaching the root geo- helps the student use meaningful word parts to infer relationships among unfamiliar academic words. The initial letter g alone does not carry the shared meaning, letter count is irrelevant to meaning, and isolated memorization misses the transferable morphological knowledge that can support vocabulary across content areas.

24. A — Said contains a less predictable vowel spelling, so an effective routine draws attention to the known and unexpected sound-spelling relationships and then provides repeated reading and spelling practice. Guessing from pictures or replacing the word avoids orthographic learning, while saying the word cannot be analyzed removes useful information about its letters and sounds.

25. D — Repeated successful encounters with words in controlled and connected text can strengthen efficient retrieval so the student no longer needs to laboriously decode the same words every time. Increasing novelty, copying definitions, or stopping reading does not provide the repeated accurate practice needed to develop automaticity and smoother fluent reading.

26. C — The difficulty is prosody rather than decoding accuracy. Modeling and echo reading can demonstrate phrasing, pauses, stress, and expression that correspond to punctuation and dialogue. Alphabetizing and prefix study address different skills, while simply demanding greater speed may worsen the flat, unphrased reading instead of improving fluent expression. That evidence directly identifies the targeted literacy skill.

27. A — Multiple-meaning words require readers to coordinate lexical knowledge with context. Comparing meanings and testing them against the battery passage helps the student select the relevant sense of charge. Always choosing the first entry, ignoring context, or replacing every ambiguous word prevents the flexible semantic reasoning that proficient readers need. That evidence directly identifies the targeted literacy skill.

28. B — A beginning-middle-end organizer focuses attention on the sequence and importance of events, while transition words support coherent retelling. Copying all sentences does not require selection or organization, and syllable counting or alphabetizing names targets unrelated skills. The scaffold directly supports narrative structure and temporal sequencing. That evidence directly identifies the targeted literacy skill.

29. D — The best prompt asks students to combine several textual details and explain an unstated conclusion with evidence, which is the essence of inference. Counting letters, locating commas, or choosing an illustration color does not require reasoning about the character's actions, motives, or likely situation. That evidence directly identifies the targeted literacy skill.

30. A — Headings, diagrams, and captions are informational text features that signal organization and preview key ideas. Examining them before reading can activate relevant knowledge and establish a framework for comprehension. They supplement rather than replace paragraphs, and their labels are meaningful because they connect visual or structural information to the article's content.

31. C — Hopping follows the consonant-doubling pattern for a one-syllable base with a short vowel followed by one final consonant. Doubling helps preserve the short vowel pronunciation. The alternative rules are inaccurate generalizations and would cause errors across many common words when suffixes are added. The distractors describe genuine literacy ideas, yet each would require different evidence from the learner or text.

32. B — The child has already segmented ship into its phonemes, so the teacher should connect each sound in sequence with the grapheme or grapheme pair that spells it. Prompting /sh/, /i/, and /p/ supports encoding. Letter-count matching, copying unrelated text, and alphabetizing do not map the sounds in the target word to print. That evidence directly identifies the targeted literacy skill.

33. C — Persistent word-reading difficulty linked to phonemic awareness and decoding calls for explicit, systematic, cumulative instruction in the underlying sound-spelling system. Guessing from pictures does not build accurate decoding, removing phonics avoids the need, and delaying support can allow the gap to widen rather than responding to evidence of risk. That evidence directly identifies the targeted literacy skill.

34. B — Frequent progress-monitoring data show the student's rate and pattern of growth during intervention, helping the teacher decide whether current instruction is effective or needs adjustment. One score should not create a permanent label, graphs do not replace broader evidence, and handwriting neatness is unrelated to the decoding outcome being monitored.

35. A — A timeline helps writers select and order the events that will form the narrative arc, including a turning point and reactions that matter to the experience. Dictionary copying, punctuation listing, and font selection do not develop content or sequence. Effective prewriting organizes ideas before attention shifts to surface-level presentation choices.

36. D — Scientific writing benefits from precise language that tells readers what was successful and what evidence was observed or measured. Replacing vague repetition with specific description strengthens clarity and accuracy. Exclamation points, additional repetition, or deleting the results would not help readers understand the procedure, findings, or reasoning. That evidence directly identifies the targeted literacy skill.

37. B — Literary interpretations should be grounded in textual evidence and reasoning. Citing actions and dialogue allows each student to connect an interpretation to the author's details and compare competing explanations. Volume, voting without evidence, or answer length does not establish which interpretation is better supported by the text. That evidence directly identifies the targeted literacy skill.

38. D — The repeated phrase is a structural feature, so analysis should consider how repetition shapes emphasis, rhythm, mood, or meaning across the poem. Page count, recitation speed, and alphabetical position do not address the artistic function of the repeated language within the poem's organization. The distractors describe genuine literacy ideas, yet each would require different evidence from the learner or text.

39. C — Synthesis combines information from multiple sources into a new, coherent understanding. Grouping related evidence, comparing perspectives, and paraphrasing with appropriate attribution requires students to integrate ideas rather than reproduce them. Copying, extracting isolated first sentences, or alphabetizing titles does not create a meaningful cross-source explanation. That evidence directly identifies the targeted literacy skill.

40. A — Vocabulary support and sentence frames reduce language-production demands without lowering the intellectual goal: the student still explains the historical idea and uses evidence. Removing discussion, grading pronunciation alone, or substituting unrelated drills would separate language development from meaningful content learning rather than scaffold participation in grade-level work. That evidence directly identifies the targeted literacy skill.

41. D — Convert the mixed numbers to improper fractions: $4 \frac{1}{6} = \frac{25}{6}$ and $2 \frac{3}{4} = \frac{11}{4}$. With denominator 12, these become $\frac{50}{12}$ and $\frac{33}{12}$. Their difference is $\frac{17}{12}$, or $1 \frac{5}{12}$ liters. The other choices result from incorrect common-denominator or subtraction steps, and the answer has a reasonable magnitude for the original quantities.

42. C — Equal grouping requires division: 1,764 divided by 28. Since 28 times 60 is 1,680 and 28 times 3 is 84, the total is 1,764, so the quotient is 63. The other choices fail the multiplication check because multiplying them by 28 does not recover the original total of 1,764 brochures.

43. A — Rectangle area equals length times width. Multiplying 12.6 by 0.4 gives 5.04, so the label's area is 5.04 square centimeters. Moving the decimal incorrectly can produce 50.4, division gives 31.5, and addition gives 13.0. Those operations do not represent area, and the product is reasonable because one factor is less than 1.

44. B — A unit rate compares the amount of trail with one hour. Divide 18 kilometers by 3 hours to obtain 6 kilometers per hour. Five and nine do not preserve the stated ratio, while 54 results from multiplying rather than dividing. The units kilometers per hour also confirm the intended calculation.

45. B — Twenty-two percent is 0.22. Multiplying 350 by 0.22 gives 77 students. A quick estimate supports the result: 20% of 350 is 70, so 22% should be slightly greater than 70. The other choices represent nearby arithmetic errors or percentages that do not equal the stated 22% of the student total.

46. A — The ratio of blue paint to white paint is 5:2. Increasing white paint from 2 liters to 14 liters uses a scale factor of 7. Apply the same factor to the blue amount: 5 times 7 equals 35 liters. The other choices do not preserve the original proportional relationship between the two paint quantities.

47. C — The ratio contains $3 + 7 = 10$ equal parts. With 80 beads total, each part represents 8 beads. Green beads occupy 3 parts, so 3 times 8 equals 24 green beads. Fifty-six is the yellow-bead count, while 30 and 32 do not result from partitioning 80 into ten equal ratio parts.

48. D — The map length 7.5 centimeters is three times 2.5 centimeters, so the actual distance is three times 15 kilometers, or 45 kilometers. This preserves the scale exactly. The alternatives come from using the wrong scale factor or multiplying quantities without matching corresponding map and actual distances. The result also passes a quick reasonableness check.

49. A — Enrollment decreases by $480 - 360 = 120$ participants. Percent decrease compares that change with the original enrollment, so 120 divided by 480 equals 0.25, or 25%. Sixty is unrelated to the percentage calculation, while 20% and 30% would correspond to different decreases from the original 480 participants. The result also passes a quick reasonableness check.

50. C — Convert 37.5% to the decimal 0.375, then write it as $375/1000$. Dividing numerator and denominator by 125 gives $3/8$. Three-fifths equals 0.6, five-eighths equals 0.625, and $37/50$ equals 0.74, so none matches 0.375. Converting each fraction to a decimal provides a direct equivalence check for the tank's stated percentage exactly.

51. B — For negative numbers, the value closest to zero is greatest. Convert the fractions: $-5/8 = -0.625$ and $-3/5 = -0.60$. Comparing -0.625, -0.61, -0.60, and -0.59 shows that -0.59 lies farthest to the right on the number line. Therefore -0.59 is the greatest of the four values among these choices.

52. D — The upward change is the final level minus the initial level: $12 - (-7) = 19$. Subtracting a negative adds its absolute value. Five comes from combining the numbers incorrectly, while 12 and 7 use only one endpoint rather than the distance between the two levels. The result also passes a quick reasonableness check.

53. D — Numbers 5 units from 3 lie 5 units to the left and 5 units to the right. Subtracting gives $3 - 5 = -2$, and adding gives $3 + 5 = 8$. The other pairs include at least one number whose distance from 3 is not 5. A number-line check confirms both endpoints. The result also passes a reasonableness check.

54. C — To find the length of each equal piece, divide the total ribbon length by the number of pieces: 27.30 meters divided by 14 equals 1.95 meters. Multiplying 1.95 by 14 returns 27.30, providing an inverse check. The other lengths do not reproduce the full ribbon when multiplied by 14, so they cannot represent equal pieces.

55. B — Paying 85% of the regular price is equivalent to receiving a 15% discount. Multiply \$64 by 0.85 to obtain \$54.40. The \$9.60 option is the amount saved rather than the price paid, and the other amounts correspond to incorrect percentages of the original cost. The result also passes a quick reasonableness check.

56. A — First find the unit rate: 150 miles divided by 2.5 hours equals 60 miles per hour. At the same speed for 4 hours, multiply 60 by 4 to get 240 miles. The other distances do not preserve the constant relationship between time and distance described in the problem. The result also passes a quick reasonableness check.

57. D — The objects and shadows form similar triangles, so height-to-shadow ratios are equal. Set $6/4 = h/10$. Multiplying 10 by $6/4$ gives $h = 15$ meters. The alternatives come from adding lengths, using an incorrect scale factor, or reversing part of the proportion. Writing the relationship symbolically before calculating helps separate the intended operation from plausible but incorrect alternatives.

58. A — Convert 18% to 0.18 and multiply by the \$50 bill: 0.18 times 50 equals \$9.00. The question asks for the tip amount, not the total after adding the tip, so \$59.00 is inappropriate. Eight and ten dollars correspond to different percentages, while the remaining distractor reflects an incorrect operation on the given quantities.

59. B — Follow the machine operations in order. Doubling 6 gives 12, subtracting 5 gives 7, multiplying by 3 gives 21, and adding 4 gives 25. The distractors result from skipping a step or changing the order of operations. Writing the process as $3(2x - 5) + 4$ gives the same result. The result also passes a quick reasonableness check.

60. C — Translate the statement as $5x + 9 = 44$. Subtracting 9 leaves $5x = 35$, and dividing by 5 gives $x = 7$. Substitution verifies the result because five times 7 plus 9 is 44. The other values make the expression either smaller or larger than the stated total. The result also passes a quick reasonableness check.

61. B — Six packages containing y programs and 2 flyers each are represented by $6(y + 2)$. Removing $3y$ programs gives $6(y + 2) - 3y$. Distributing yields $6y + 12 - 3y$, which combines to $3y + 12$. The distractors come from incomplete distribution or incorrect combination of like terms. This symbolic model preserves every quantity in the situation.

62. C — Reflecting a point across the y -axis changes the sign of the x -coordinate while keeping the y -coordinate unchanged. Therefore $(-4, 7)$ becomes $(4, 7)$. Changing the y sign reflects across the x -axis, and swapping coordinates is not the rule for reflection across either coordinate axis. Writing the relationship symbolically before calculating helps separate the intended operation from plausible but incorrect alternatives.

63. D — For a parallelogram, area equals base times perpendicular height, not base times the slanted side. Multiplying 13 centimeters by 6 centimeters gives 78 square centimeters. Thirty-nine uses the one-half factor for a triangle, 156 doubles the correct area, and 38 does not follow the relevant formula. The result also passes a quick reasonableness check.

64. A — First find the area of the triangular base: one-half times 8 times 5 equals 20 square centimeters. Multiply that base area by the prism length, 9 centimeters, to get 180 cubic centimeters. Ninety omits part of the base calculation, 360 doubles it, and 22 combines dimensions additively. The result also passes a quick reasonableness check.

65. B — One complete wheel revolution covers one circumference. With radius 7 inches, circumference is $2\pi r = 2$ times $22/7$ times $7 = 44$ inches. Twenty-two uses only π , 88 doubles the correct circumference, and 154 comes from combining the numbers without the circumference formula. Thus 44 inches is the distance traveled in one revolution.

66. A — A linear pair forms a straight angle, so the two angle measures total 180 degrees. Subtract 134 from 180 to obtain 46 degrees for the neighboring angle. The other choices fail the 180-degree sum condition, and repeating 134 would make the combined measure much greater than a straight angle. The result also passes a quick reasonableness check.

67. C — A regular octagon has eight equal sides. Perimeter is the sum of all side lengths, so 8 times 6.5 inches equals 52 inches. The distractors correspond to six or seven sides, or to halving the correct total, rather than adding all eight equal sides of the octagon. The result also passes a quick reasonableness check.

68. D — Add the five visitor counts to get 80. Sharing that total equally among five days gives 80 divided by 5 = 16, which is the mean. Fifteen is the most frequent value, while 17 and 18 do not result from equal sharing of the total across all observations. The result also passes a quick reasonableness check.

69. B — With six ordered values, the center lies halfway between the third and fourth values rather than on a single observation. Those middle values are 9 and 10, whose average is 9.5 minutes. Choosing 9 or 10 ignores the even-sized-data rule, and 11 is not halfway between the middle pair. The result also passes a quick reasonableness check.

70. A — Four of the ten equally likely sectors are blue, so the probability is $\frac{4}{10}$. Dividing numerator and denominator by 2 simplifies the fraction to $\frac{2}{5}$. One-fifth counts only two blue sectors, three-fifths represents six, and two-thirds does not correspond to the stated ten-sector spinner. The result also passes a quick reasonableness check.

71. C — Expected frequency is probability times number of trials. Twenty-five percent is 0.25, and 0.25 times 160 equals 40. Twenty-five confuses the percentage with a count, 64 represents 40% of the trials, and 120 represents 75%, the complement of the stated probability. This calculation preserves the stated relationship and produces a result with the correct magnitude and units.

72. B — Range is the maximum value minus the minimum value. The greatest delivery time is 31 minutes and the least is 14 minutes, so the range is $31 - 14 = 17$ minutes. The other choices result from using interior data values or combining times in ways that do not match the mathematical definition of range.

73. D — Apply the rule in order. Tripling the input -2 gives -6, and subtracting 4 gives -10. The negative sign matters because a positive multiplier times a negative input remains negative. The distractors come from dropping the sign, skipping the subtraction, or reporting only the magnitude instead of the signed output. The result also passes a quick reasonableness check.

74. C — Solve the inequality: $2x + 5 < 13$ gives $2x < 8$ and therefore $x < 4$. Of the listed choices, only $x = 3$ satisfies that condition. Substituting 4 produces equality rather than a value less than 13, while 5 and 6 make the left side greater than 13. That confirms the correct choice.

75. D — As x increases by 1, y increases by 3 for every listed point. The points therefore lie exactly on an increasing straight line, demonstrating a strong positive linear relationship. A negative relationship would decrease, no relationship would lack a consistent trend, and a decreasing curve does not match the coordinate pattern.

76. A — Equal-size area models show that dividing the same whole into more parts creates smaller pieces. With five parts shaded in each model, five twelfths covers less area than five eighths. The representation directly addresses denominator meaning. A false memorized rule, ignoring the whole, or using unequal wholes would preserve rather than correct the misconception.

77. A — The equation is true because both sides equal 20. The student's statement reveals an operational view of the equal sign rather than a relational understanding of equivalence. Using balance models and true equations with expressions on both sides can show that $=$ means 'has the same value as,' not 'write the answer next.'

78. D — A place-value chart aligns each digit with tenths, hundredths, and thousandths, making the zero placeholder visible. In 0.306, the 3 represents three tenths and the 6 represents six thousandths. A clock, multiplication table, or unrelated fact list does not represent decimal place value or explain the student's reading error. The result also passes a quick reasonableness check.

79. C — Rearranging a parallelogram into a rectangle preserves area while making the base-height relationship visible, so students can connect the formula to a geometric transformation. Memorization alone does not explain why the formula works, the slanted side is not generally the perpendicular height, and word length is irrelevant to area. The result also passes a quick reasonableness check.

80. B — The error shows weak understanding of place value and regrouping, especially when a zero is involved. Base-ten models or place-value drawings can show decomposing hundreds and tens before linking that reasoning to the standard algorithm. Reversing problems, avoiding regrouping, or practicing the misconception would not address the underlying mathematical structure.

81. A — A fair test changes the independent variable of interest, ramp height, while controlling other factors that could affect distance. Using the same car, surface, release procedure, and measurement method isolates the effect of ramp height. Changing several variables or pushing differently would make it difficult to identify the cause of any distance change.

82. B — The dependent variable is the outcome measured in response to the manipulated condition. Here, students change lamp distance and measure melting time, so time to melt is dependent. Lamp distance is the independent variable, while lamp type and ice-cube size are controlled conditions intended to remain constant. The evidence and mechanism therefore align clearly.

83. C — Producing an insoluble solid from two clear solutions indicates that new substances formed, which is strong evidence of a chemical change. Melting ice, cutting metal, and dissolving salt are physical changes because the original substances can retain their chemical identities. The appearance of a new product distinguishes the reaction from changes in state, size, or distribution.

84. D — The battery stores chemical energy that is converted to electrical energy in the circuit. The bulb or LED then converts part of that electrical energy to light, with some thermal energy also produced. Energy is transformed rather than disappearing, and the other sequences begin with energy forms not supplied by the battery.

85. C — Friction acts opposite motion, and a rougher surface generally produces greater resistance between the contacting materials. Greater friction on the carpet causes the block's kinetic energy to be dissipated more quickly, shortening its travel. Mass and gravity do not switch off between surfaces, and the observation contradicts the claim that tile provides more friction.

86. D — A single conducting loop is a series circuit, so all components share the same current path. Unscrewing one bulb opens that loop and stops current everywhere, causing the second bulb to go out. A separate branch would describe a parallel circuit, and current cannot continue through an open circuit simply because another bulb remains connected.

87. B — Turning the globe models Earth's rotation. As a location rotates toward the lamp it enters daylight, and as it turns away it experiences darkness, demonstrating the day-night cycle. Seasons depend on axial tilt and revolution, Moon phases involve Sun-Earth-Moon geometry, and tides primarily involve gravitational interactions rather than the globe's daily rotation alone. The evidence and mechanism therefore align clearly.

88. A — Condensation occurs when water vapor loses thermal energy and changes from gas to liquid, forming droplets on the cold surface. Evaporation is liquid to gas, sublimation is solid directly to gas, and freezing is liquid to solid. The observed gas-to-liquid change identifies condensation. The keyed response is supported by the causal relationship described, whereas the alternatives would predict different outcomes.

89. A — Sedimentary rock commonly forms when sediments are deposited, compacted, and cemented into solid rock. Igneous rock forms from cooling molten material, while magma is molten rock rather than a rock type formed by cementation. Metamorphic rock forms when existing rock changes under heat and pressure without fully melting. The evidence and mechanism therefore align clearly.

90. D — The cell membrane forms a selectively permeable boundary that regulates movement of substances into and out of the cell. Chromosomes carry genetic information, cell walls provide structural support in organisms that have them, and vacuoles mainly store materials. Those structures do not serve as the primary selective boundary for exchange with the environment.

91. C — Producers such as grasses use photosynthesis to convert light energy into chemical energy stored in organic molecules. Consumers obtain energy by eating other organisms, and decomposers break down dead material. Because producers introduce most usable energy into the food web, they form the energetic base that supports higher trophic levels.

92. B — A recessive phenotype appears under simple dominance when an individual has two recessive alleles, so white flowers require pp. PP and Pp each contain at least one dominant P allele and therefore produce the dominant purple phenotype. The genotype-phenotype relationship follows directly from the dominance information supplied in the stem.

93. D — Natural selection occurs when heritable variation affects survival or reproductive success in a particular environment, causing advantageous traits to become more common over generations. The birds are not intentionally changing acquired traits, variation does not disappear instantly, and no human breeder is choosing which birds reproduce. The evidence and mechanism therefore align clearly.

94. C — A constraint is a limitation on the design, such as the maximum number of materials permitted. Holding at least 5 kilograms is a performance criterion the design must achieve. Testing and reflection may be useful engineering practices, but they are not the stated material limit that restricts possible solutions. The evidence and mechanism therefore align clearly.

95. A — The thermostat measures temperature, compares it with a desired set point, and changes heater operation based on that information. This is feedback control because system output influences subsequent action. A system with no inputs, a one-time reaction, or random unmeasured change lacks the sensing-and-response loop described in the situation. The evidence and mechanism therefore align clearly.

96. B — Wind is continually replenished by atmospheric processes driven largely by solar heating, so it is renewable on a human timescale. Wind turbines generate electricity without combusting fuel during operation. Coal, petroleum, and natural gas are fossil fuels formed over geologic time and are depleted much faster than natural processes replace them.

97. B — An original ration book used by the family during the war is a firsthand artifact from the historical period and can provide direct evidence about rationing. Textbooks, documentaries, and encyclopedia articles are later interpretations or syntheses. They can be useful secondary sources but do not replace the contemporaneous family record.

98. D — Natural harbors offer protected water where ships can anchor, load, and unload more safely, making them advantageous locations for trade and transportation. Ports often grow where maritime routes connect with inland networks. The alternatives reverse these benefits or make absolute claims that do not follow from coastal geography. The historical or civic context supports that conclusion.

99. A — Congress is the federal legislative branch, and debating, amending, and voting on bills are core legislative functions. The executive branch can recommend policies and the president participates through signing or vetoing legislation, while courts interpret laws in cases. A private corporation has no constitutional authority to enact federal statutes. The historical or civic context supports that conclusion.

100. C — The appointment process divides power between branches: the president nominates, while the Senate provides advice and consent. Requiring participation by both executive and legislative institutions is an example of checks and balances. Direct democracy, hereditary succession, and a claim of judicial control over elections do not describe the nomination-confirmation process.

101. A — Federalism divides governmental authority between the national government and state governments, with different responsibilities assigned or exercised at each level. National defense is a federal function, while states retain broad authority over education. Judicial review concerns courts, monarchy is hereditary rule, and unicameralism describes a one-house legislature rather than divided sovereignty.

102. C — Informed civic participation uses accurate evidence and lawful opportunities to influence public decisions. Reviewing the proposal and speaking at a scheduled hearing lets residents communicate with officials through an established democratic process. Property damage, invented statistics, or private declarations that rules do not apply undermine responsible participation rather than contributing reliable information to community decision-making.

103. D — Latitude and longitude identify a position on Earth's surface using a global coordinate system, so 43° N, 76° W describes absolute location. Relative location uses relationships such as 'north of the river,' while population density and elevation describe different geographic characteristics not encoded by latitude-longitude coordinates alone. The historical or civic context supports that conclusion.

104. B — A legend or key explains the meaning of symbols, colors, and line styles used on a map, allowing readers to interpret features correctly. It does not provide road ages, calculate demographic change, or replace scale. Those functions require other data or map elements beyond symbol definitions. The historical or civic context supports that conclusion.

105. A — Cultural diffusion is the spread of cultural traits, ideas, practices, or products from one place or group to another. Migration and communication technologies can accelerate that exchange. Isolation would limit diffusion, absolute location identifies a position on Earth, and judicial review is a governmental concept unrelated to the spread of music.

106. B — When supply decreases while demand remains roughly unchanged, fewer oranges are available at each price, creating upward pressure on market price. A lower price would be more consistent with increased supply or decreased demand. Price can respond to supply changes, and scarcity does not make a good free. The historical or civic context supports that conclusion.

107. C — Opportunity cost is the value of the next-best alternative forgone when a choice is made. By volunteering instead of working the available shift, the student gives up \$60 in wages. Transportation costs may be additional expenses, while the city budget and Friday earnings are not the alternative sacrificed by Saturday's decision.

108. D — Comparative advantage depends on opportunity cost. Island A gives up 2 fishing nets for each kayak, while Island B gives up 5, so Island A sacrifices less of the alternative good and has the lower opportunity cost. Equal opportunity cost would require the same tradeoff, and comparative advantage can exist even when both producers can make both goods.

109. A — Scarcity exists because available resources are limited relative to competing wants. The community must choose between two valued projects because it cannot fund both at once. Unlimited resources would remove the need for choice, while price fixing and barter describe different economic arrangements and do not explain the budget limitation.

110. C — Industrialization concentrated many jobs and production facilities in urban areas, encouraging migration from rural communities and contributing to city growth. Factories did not cause cities to disappear, agriculture did not end, and transportation generally expanded rather than halting all movement. Urbanization was therefore a major demographic consequence of industrial development.

111. B — The Fifteenth Amendment, ratified in 1870, prohibits the United States and states from denying or abridging voting rights on account of race, color, or previous condition of servitude. Presidential term limits come from the Twenty-Second Amendment, federal income-tax authority from the Sixteenth, and public-school organization is not established by the Fifteenth.

112. D — Corroboration asks historians to compare evidence across sources, while sourcing considers who created each document, for what audience, and for what purpose. Using multiple perspectives can reveal agreements and contradictions. Emotional intensity alone does not determine reliability, and ignoring differences would discard evidence that could improve or complicate the historical interpretation.

113. A — In traditional color theory, blues, greens, and violets are generally described as cool colors and are often used to suggest calmness, distance, water, or shade. Reds, oranges, and yellows are warm colors. A black-white pattern or random selection does not specifically use color temperature to create the requested mood. That choice most directly serves the stated goal.

114. B — A crescendo is a dynamic instruction directing performers to become gradually louder over a passage. Tempo concerns speed rather than volume, repetition is indicated by other notation, and unchanging volume is the opposite of a gradual dynamic increase. Recognizing the difference between dynamics and tempo is central to reading musical directions.

115. C — A monologue is an extended speech delivered by one character, often revealing thoughts, recounting events, or addressing others. Stage directions are written instructions for performance, props are objects used onstage, and costume changes alter clothing. Those production elements are not names for a sustained solo speech within dramatic action. That choice most directly serves the stated goal.

116. D — Locomotor movements transport the body through space, as in walking, running, hopping, galloping, or skipping. Twisting, bending, and stretching can be nonlocomotor when performed without traveling from one location to another. Skipping across the gym therefore fits the defining movement pattern most directly. The situation emphasizes function, so the best answer is the practice that directly produces the intended outcome.

117. D — FITT stands for frequency, intensity, time, and type. Frequency refers to how often physical activity or exercise occurs, such as sessions per week. Flavor, floor type, and race finish time are not the variables represented by F. The framework helps organize adjustable components of an activity plan. That choice most directly serves the stated goal.

118. C — Nutrition Facts labels list added sugars per serving, allowing a direct comparison when serving sizes are the same. Package color, logo size, and name length are marketing or design features and do not quantify added sugar. Reading the relevant nutrient line provides evidence tied directly to the student's stated nutrition goal.

119. A — Raw poultry can carry harmful microorganisms, so hands, utensils, plates, and cutting surfaces that contact it should not contaminate foods that will be eaten without further cooking. Separating equipment and washing appropriately reduces transfer. Reusing an unwashed board, knife, or raw-meat plate can move contaminants directly to ready-to-eat food. That choice most directly serves the stated goal.

120. B — An informational interview allows the student to ask a practitioner specific questions about daily tasks, work settings, education, and preparation, producing realistic firsthand career information. Television portrayals, guesses from a title, or a friend's casual mention are less reliable and do not systematically address the student's questions about responsibilities and training.