8. Based on Student 3's explanation, the same substance composes both of the samples in which of the following pairs?

   F. Samples A and C
   G. Samples B and E
   H. Samples F and G
   J. Samples G and H

9. Suppose that the temperature of Sample A is increased to 250°C at 1 atm of pressure. At 250°C, would Sample A be a solid or a liquid?

   A. Solid, because the melting point of Sample A is 126°C.
   B. Solid, because the melting point of Sample A is 747°C.
   C. Liquid, because the melting point of Sample A is 126°C.
   D. Liquid, because the melting point of Sample A is 747°C.

10. Consider the claim that 2 samples having the same density will always be composed of the same substance, regardless of the values of the other 4 properties. Which of the students, if any, would be likely to agree with this claim?

    F. Students 1 and 2 only
    G. Students 2, 3, and 4 only
    H. All of the students
    J. None of the students

11. Which of Students 2, 3, and 4 would be likely to agree that Sample A and Sample B are composed of the same substance?

    A. Students 2 and 3 only
    B. Students 2 and 4 only
    C. Students 3 and 4 only
    D. Students 2, 3, and 4

12. Consider the statement "Two samples that have the same mass, volume, density, and boiling point are composed of the same substance, even if the two samples have different melting points." Which of Students 2 and 4, if either, would be likely to agree with this statement?

    F. Student 2 only
    G. Student 4 only
    H. Both Student 2 and Student 4
    J. Neither Student 2 nor Student 4

13. Suppose that the temperature of Sample D is increased to 890°C at 1 atm of pressure. Will the sample's density be lower than or higher than it was at 20°C and 1 atm ?

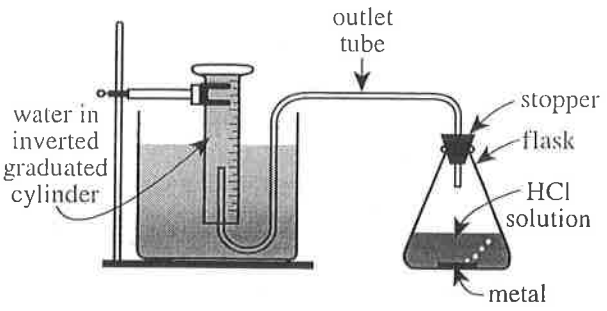
    A. Lower; Sample D will be a gas, and gases generally have lower densities than do solids.
    B. Lower; Sample D will be a liquid, and liquids generally have lower densities than do solids.
    C. Higher; Sample D will be a gas, and gases generally have higher densities than do solids.
    D. Higher; Sample D will be a liquid, and liquids generally have higher densities than do solids.

Passage III

When a solid metal (M) such as iron (Fe), nickel (Ni), or zinc (Zn) is placed in an aqueous hydrochloric acid (HCl) solution, a reaction that produces H_2 gas occurs:

$$M + 2HCl \rightarrow MCl_2 + H_2$$

Two experiments were conducted to study the production of H_2 in this reaction. The apparatus shown in the diagram below was used to collect the H_2 gas produced in each trial.



diagram

As H_2 was produced in the stoppered flask, it exited the flask through the outlet tube and displaced the water that had been trapped in the inverted graduated cylinder. (This displacement occurred because the H_2 did not dissolve in the water.) The volume of water displaced equaled the volume of gas (H_2 and water vapor) collected.

In each trial of the experiments, Steps 1–3 were performed:

1. The apparatus was assembled, and 25 mL of a 4 moles/L HCl solution was poured into the empty flask.
2. A selected mass of Fe, Ni, or Zn was added to the flask, and the stopper was quickly reinserted into the flask.
3. When H_2 production ceased, the volume of water that was displaced from the graduated cylinder was recorded.

The apparatus and its contents were kept at a selected temperature throughout Steps 2 and 3. The atmospheric pressure was 758 mm Hg throughout all 3 steps.

Experiment 1

In each trial, a selected mass of Fe, Ni, or Zn was tested at 30°C (see Figure 1).

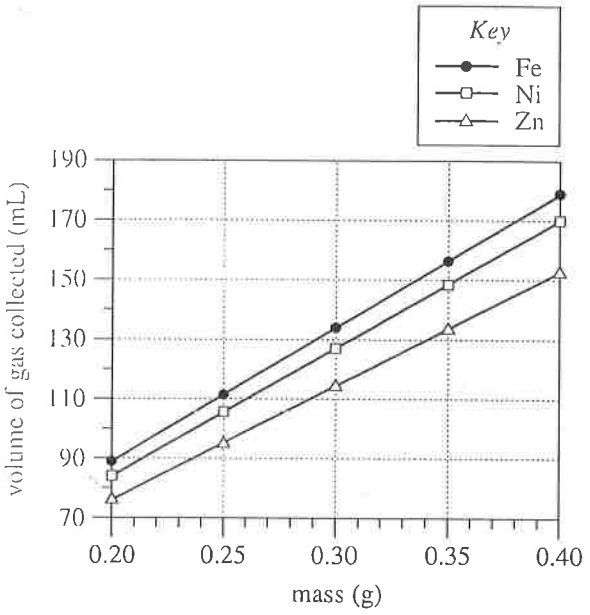


Figure 1

Experiment 2

In each trial, 0.30 g of Fe, Ni, or Zn was tested at a selected temperature (see Figure 2).

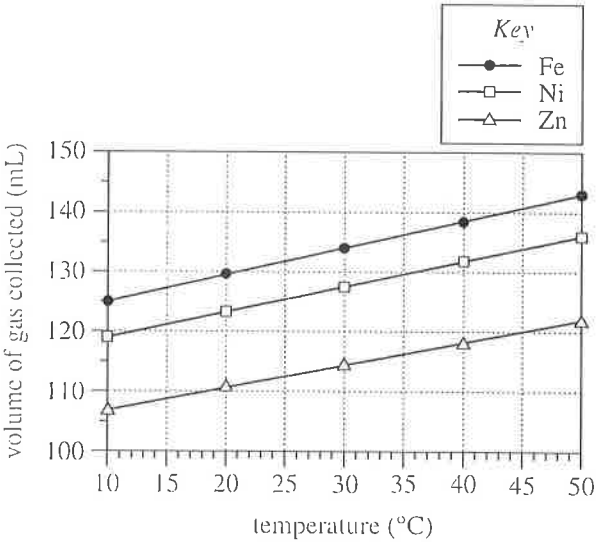


Figure 2

14. Consider the volume of gas collected in the trial in Experiment 2 for Ni at 30°C. The same approximate volume of gas was collected in the trial in Experiment 1 for what mass of Ni ?

F. 0.20 g
G. 0.25 g
H. 0.30 g
J. 0.35 g

15. How many temperatures were tested in Experiment 1, and how many temperatures were tested in Experiment 2 ?

	Experiment 1	Experiment 2
A.	1	1
B.	1	5
C.	5	1
D.	5	5

16. Which of the following statements describes a difference between Experiments 1 and 2 ? In Experiment 1:

F. only Fe was tested, but in Experiment 2, Fe, Ni, and Zn were tested.
G. Fe, Ni, and Zn were tested, but in Experiment 2, only Fe was tested.
H. the same mass value of each metal was tested, but in Experiment 2, multiple mass values of each metal were tested.
J. multiple mass values of each metal were tested, but in Experiment 2, the same mass value of each metal was tested.

17. Which of the following variables remained constant throughout both experiments?

A. Atmospheric pressure
B. Mass of metal
C. Temperature
D. Volume of gas collected

18. If a temperature of 5°C had been tested in Experiment 2, would the volume of gas collected for Zn more likely have been greater than 107 mL or less than 107 mL ?

F. Greater than 107 mL, because for a given metal, the volume of collected gas increased as the temperature decreased.
G. Greater than 107 mL, because for a given metal, the volume of collected gas increased as the temperature increased.
H. Less than 107 mL, because for a given metal, the volume of collected gas decreased as the temperature decreased.
J. Less than 107 mL, because for a given metal, the volume of collected gas decreased as the temperature increased.

19. Consider the balanced chemical equation in the passage. Based on this equation, if 10 moles of HCl are consumed, how many moles of H_2 are produced?

A. 5
B. 10
C. 15
D. 20

20. Suppose that the trial in Experiment 1 with 0.25 g of Zn is repeated, except that the inverted graduated cylinder is replaced by inverted test tubes, each completely filled with 60 mL of water. Based on Figure 1, how many test tubes will be needed to collect all the gas?

F. 1
G. 2
H. 3
J. 4

Passage IV

Figure 1 is a diagram of an *RLC circuit*. The circuit has a power supply and 3 components: a resistor (R), an inductor (L), and a capacitor (C).

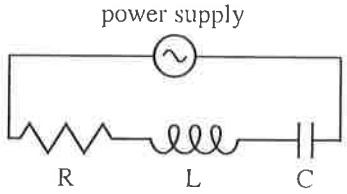


Figure 1

Electric current can flow through the circuit either clockwise (positive current) or counterclockwise (negative current). Figure 2 shows how the electric current in the circuit, I (in amperes, A), and the power supply voltage, V_S (in volts, V), both changed during a 20-millisecond (msec) time interval.

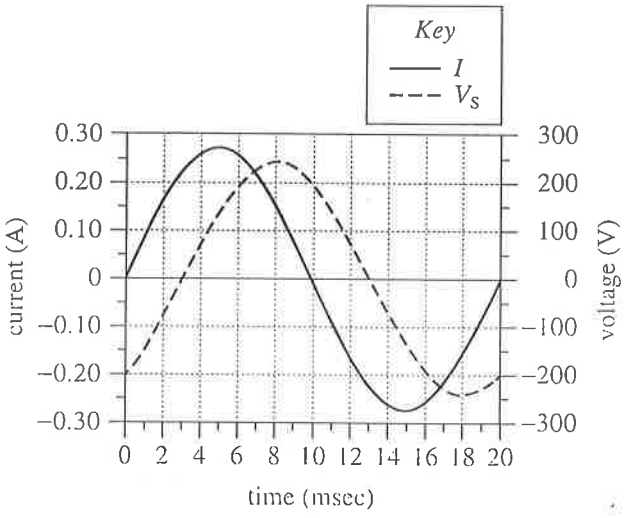


Figure 2

Figure 3 shows how the voltages across the components—V_R, V_L, and V_C, respectively—each changed during the same 20 msec time interval.

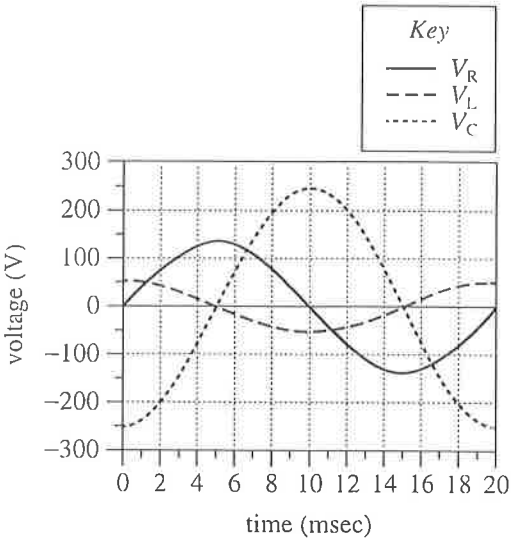


Figure 3

21. According to Figure 2, the maximum positive value of V_S was approximately:

A. 125 V.
B. 200 V.
C. 250 V.
D. 275 V.

22. A *period* is the time required for a wave to complete one full cycle. Based on Figure 3, the period for V_L was:

F. 5 msec.
G. 10 msec.
H. 20 msec.
J. 40 msec.

23. According to Figures 2 and 3, which voltage varied the *least* during the 20 msec interval?

A. V_S
B. V_R
C. V_L
D. V_C

24. *Polarity* refers to whether a voltage is positive or negative (a voltage of 0 V has no polarity and can be ignored). Based on Figures 2 and 3, which 2 voltages were always *opposite* in polarity?

F. V_R and V_L
G. V_R and V_S
H. V_L and V_C
J. V_L and V_S

25. Based on Figure 2, at which of the following times was the current in the circuit flowing counterclockwise?

A. 0 msec
B. 5 msec
C. 10 msec
D. 15 msec

26. The table below lists the electric charge (in microcoulombs, μC) stored on the capacitor at 3 different times during the 20 msec interval.

Time (msec)	Charge (μC)
7	0.51
10	0.87
13	0.51

Based on Figures 2 and 3, from time = 7 msec through time = 13 msec, did the charge on the capacitor more likely change in sync with I or with V_C ?

F. I; over that time interval, both the charge and I decreased and then increased.
G. I; over that time interval, both the charge and I increased and then decreased.
H. V_C; over that time interval, both the charge and V_C decreased and then increased.
J. V_C; over that time interval, both the charge and V_C increased and then decreased.

Passage V

Strains of bacteria carrying a genetic mutation that prevents them from synthesizing the amino acid *histidine* are called *His*$^-$. These strains of bacteria must absorb histidine from their environment in order to sustain their growth. Exposing His$^-$ strains of bacteria to *mutagens* (substances that induce DNA mutations) can cause new mutations that restore the ability of some bacteria to synthesize histidine. Any bacterium that regains the ability to synthesize histidine becomes *His*$^+$ and is known as a *His*$^+$ *revertant*.

The number of His$^+$ revertants in a population of bacteria can indicate the potential of a substance to be mutagenic in humans. Scientists tested 4 substances, each suspected to be a mutagen, on a His$^-$ strain of the bacteria *Salmonella typhimurium*.

Study

A sterile petri dish (Dish 1) containing a nutrient agar lacking histidine was prepared. Then, 1×10^8 cells of His$^-$ *S. typhimurium* were added to Dish 1 and evenly spread over the surface of the nutrient agar. These procedures were repeated for 4 more nutrient agar dishes (Dishes 2–5), except that the bacteria were mixed with 1 of the 4 suspected mutagens before being spread over the surface of the nutrient agar. Table 1 lists, for each of Dishes 2–5, the substance that was mixed with the bacteria before they were added to the dish.

Table 1

Dish	Substance
2	L
3	M
4	N
5	P

The 5 dishes were incubated at 37°C for 2 days. At the end of the incubation period, the number of colonies growing on the nutrient agar in each dish was determined (see Table 2).

Table 2

Dish	Number of colonies
1	2
2	14
3	25
4	107
5	6

27. Based on the results of the study, which of the suspected mutagens resulted in the greatest number of His$^+$ revertants in a dish?

A. Substance L
B. Substance M
C. Substance N
D. Substance P

28. Which dish in the study was intended to serve the purpose of testing whether some of the *S. typhimurium* cells became His$^+$ revertants without the addition of a mutagen?

F. Dish 1
G. Dish 2
H. Dish 3
J. Dish 4

29. Based on the results of the study, what is the order of the suspected mutagens, from the substance with the *least* potential to be mutagenic to the substance with the *most* potential to be mutagenic?

A. P, M, N, L
B. P, L, M, N
C. N, L, P, M
D. N, M, L, P

30. In the study, the scientists tested the effect of Substance P at a concentration of 5×10^{-9} g/mL. After the study, the scientists repeated their test of the effect of Substance P, but at 3 other concentrations. The 3 concentrations and their corresponding results are shown in the table below.

Concentration of Substance P	Number of colonies
10×10^{-9} g/mL	14
50×10^{-9} g/mL	54
100×10^{-9} g/mL	114

What is the relationship, if any, between the concentration of Substance P and its potential to cause mutations?

F. As the concentration of Substance P increases, its potential to cause mutations increases only.
G. As the concentration of Substance P increases, its potential to cause mutations decreases only.
H. As the concentration of Substance P increases, its potential to cause mutations first decreases and then increases.
J. There is no relationship between the concentration of Substance P and its potential to cause mutations.

31. Before bacteria were added to it, the dish that was intended to serve as the control dish in the study lacked which of the substances listed below?

I. Histidine
II. Nutrient agar
III. Suspected mutagen

A. II only
B. III only
C. I and II only
D. I and III only

32. Which of the following statements about the numbers of bacteria that regained the ability to synthesize histidine is consistent with the results of the study for Dishes 2 and 3 ? The number of bacteria that became His^+ revertants after exposure to:

F. Substance M was about 2 times the number of bacteria that became His^+ revertants after exposure to Substance L.
G. Substance L was about 2 times the number of bacteria that became His^+ revertants after exposure to Substance M.
H. Substance M was about 4 times the number of bacteria that became His^+ revertants after exposure to Substance L.
J. Substance L was about 4 times the number of bacteria that became His^+ revertants after exposure to Substance M.

33. The particular strain of *S. typhimurium* chosen for the study lacks normal DNA repair mechanisms. Which of the following statements gives the most likely reason this particular strain was chosen? The scientists:

A. did not want the bacteria in the study to synthesize any DNA.
B. did not want the bacteria in the study to synthesize any proteins.
C. wanted the bacteria in the study to be able to repair the mutations caused by the substances.
D. wanted the bacteria in the study to be unable to repair the mutations caused by the substances.

Passage VI

Three studies examined how the volume of runoff from melting ice is affected by wind speed and by the presence of sand beneath the ice.

In a lab kept at 18°C, runoff was collected from a plastic box containing melting ice. The box was tilted at 10° and had horizontal openings in its lower end. After flowing through the openings, the runoff fell into a trough (see diagram) and was conveyed to a measuring device.

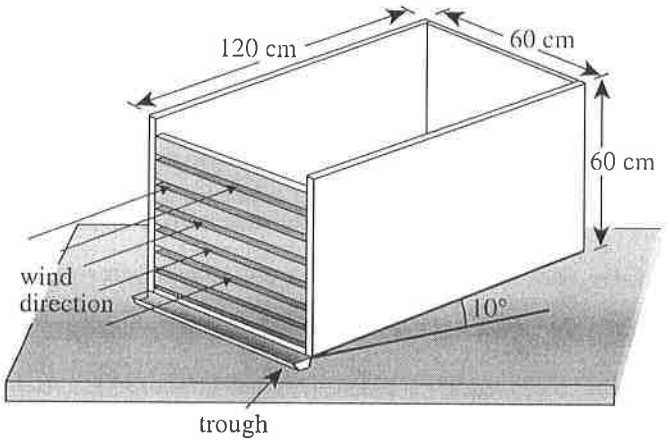


diagram of box

Study 1

In each of the first 3 of 4 trials, the following steps were carried out:

1. A 30 cm deep layer of a particular clean, dry sand was placed in the box.
2. A 30 cm deep layer of *chipped ice* (density 0.4 g/cm^3) was placed in the box on top of the layer of sand.
3. A fan was turned on to blow air at a constant speed onto the trough end of the box.
4. For the next 600 min, the volume of runoff collected over each 20 min period was measured.

The wind speed was 2.5 m/sec, 1.0 m/sec, and 0.5 m/sec in the first, second, and third trials, respectively.

In the fourth trial, all steps except Step 3 were carried out. (The fan was not turned on.)

The results of the 4 trials are shown in Figure 1.

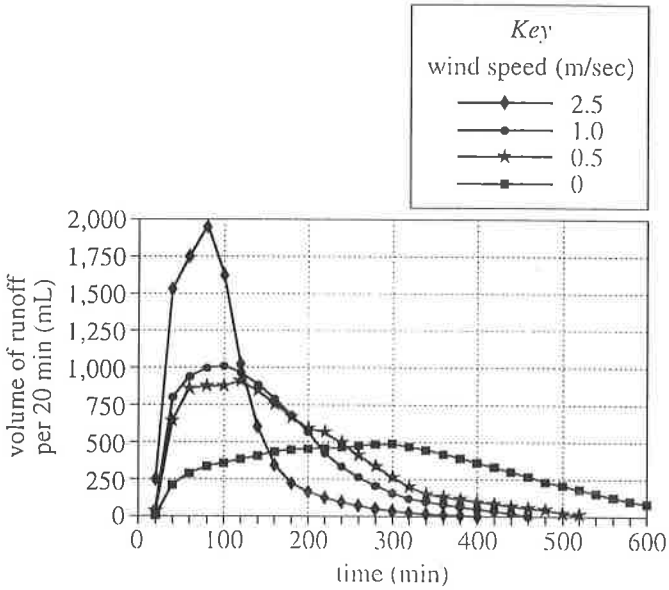


Figure 1

Study 2

The second trial of Study 1 was repeated. Then the second trial of Study 1 was again repeated, except that Step 1 was omitted. (No sand layer was placed in the box.) The results of the 2 trials are shown in Figure 2.

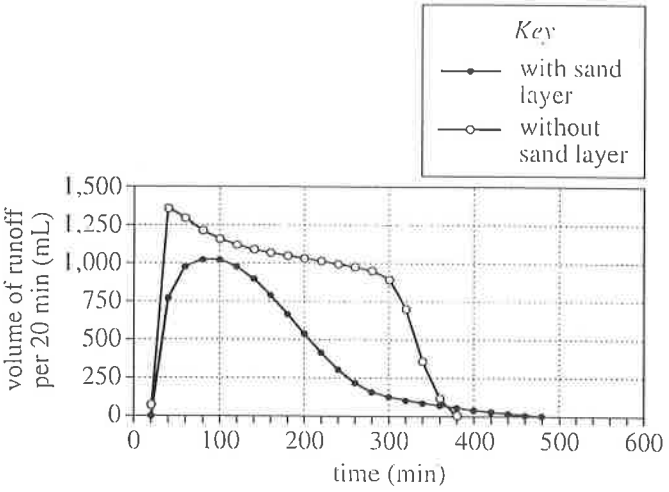


Figure 2

Figures adapted from Masahiko Hasebe and Takanori Kumekawa, "The Effect of Wind Speed on the Snowmelt Runoff Process: Laboratory Experiment." ©1994 by International Association of Hydrological Sciences Publishing.

34. The researchers conducting the studies chose to use a box made of a type of plastic rather than of wood to ensure that all of the water from the melting ice would flow from the box and into the trough. The researchers most likely made that choice because that type of plastic, unlike wood, is:

F. porous and permeable, and therefore incapable of absorbing water.
G. nonporous and impermeable, and therefore incapable of absorbing water.
H. porous and permeable, and therefore capable of absorbing water.
J. nonporous and impermeable, and therefore capable of absorbing water.

35. Suppose Study 2 had been repeated, except in a lab kept at −1°C. The total volume of runoff measured over the 600 min in the repeated study would most likely have been:

A. near or at zero, because −1°C is below the freezing point of water.
B. near or at zero, because −1°C is above the freezing point of water.
C. greater than that in the original study, because −1°C is below the freezing point of water.
D. greater than that in the original study, because −1°C is above the freezing point of water.

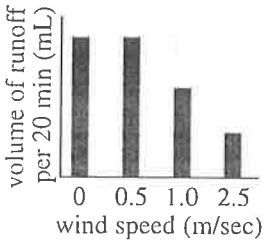
36. According to the results of Study 1, for which of the wind speeds did the runoff volume per 20 min decrease to zero from its maximum value *before* 500 min ?

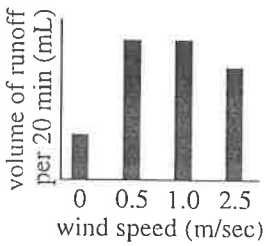
F. 0 m/sec only
G. 2.5 m/sec only
H. 0.5 m/sec and 1.0 m/sec only
J. 1.0 m/sec and 2.5 m/sec only

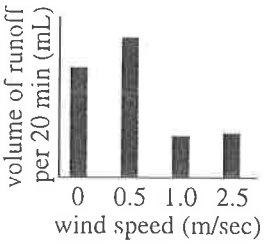
37. Compare the results of the 2 trials in Study 2. In which trial did the volume of runoff per 20 min reach a greater maximum value, and in which trial did the volume of runoff per 20 min decrease to zero from the maximum value in the shorter amount of time?

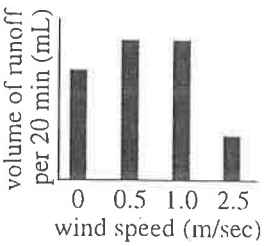
	greater maximum	shorter time to zero
A.	with sand layer	with sand layer
B.	with sand layer	without sand layer
C.	without sand layer	with sand layer
D.	without sand layer	without sand layer

38. The volume of runoff measured at 200 min in Study 1 for the 4 wind speeds is best represented by which of the following graphs?

F.


H.


G.


J.


39. Which factor was varied in Study 1 but kept the same in Study 2 ?

A. Depth of sand layer
B. Wind speed
C. Tilt of box
D. Type of material that melted

40. Based on the diagram and the description of Study 1, which of the following expressions would most likely be used to calculate the *volume* of the sand layer in the plastic box (before chipped ice was placed on top)?

F. 30 cm × 60 cm × 60 cm
G. 30 cm × 60 cm × 120 cm
H. 60 cm × 60 cm × 60 cm
J. 60 cm × 60 cm × 120 cm

END OF TEST 4

STOP! DO NOT RETURN TO ANY OTHER TEST.

[See Note on page 52.]

If you plan to take the ACT with writing, sharpen your pencils and continue with the writing test on page 53.

If you do not plan to take the ACT with writing, skip to page 56 for instructions on scoring your multiple-choice tests.

Practice Writing Test

Your Signature: _____
(Do not print.)

Print Your Name Here: _____

Your Date of Birth:

		–			–				
Month			Day			Year		

Form 18AG24

The ACT® WRITING TEST BOOKLET

You must take the multiple-choice tests before you take the writing test.

Directions

This is a test of your writing skills. You will have **forty** (40) minutes to read the prompt, plan your response, and write an essay in English. Before you begin working, read all material in this test booklet carefully to understand exactly what you are being asked to do.

You will write your essay on the lined pages in the **answer document** provided. Your writing on those pages will be scored. You may use the unlined pages in this test booklet to plan your essay. Your work on these pages will not be scored.

Your essay will be evaluated based on the evidence it provides of your ability to:

- clearly state your own perspective on a complex issue and analyze the relationship between your perspective and at least one other perspective
- develop and support your ideas with reasoning and examples
- organize your ideas clearly and logically
- communicate your ideas effectively in standard written English

Lay your pencil down immediately when time is called.

DO NOT OPEN THIS BOOKLET UNTIL TOLD TO DO SO.

ACT®
PO Box 168
Iowa City, IA 52243-0168

Kid Stuff

Toys are for children, right? Not anymore. In recent years, things that used to be considered "kid stuff" have grown in popularity among grownups. Nowadays, adults regularly play video games, watch animated movies and television shows, purchase dolls and other collectible figures, and read comic books for their own enjoyment. Is adult enjoyment of children's entertainment merely a sign of immaturity? In what ways can playing with kid stuff change the way adults understand today's youth? Given that toys, games, and publications that used to be exclusively for children are growing in popularity among adults, it is worth considering the effects and implications of this trend.

Read and carefully consider these perspectives. Each suggests a particular way of thinking about the trend of adults playing with kid stuff.

Perspective One

It's good for adults to be familiar with kid stuff. They'll understand the lives of children better and be more responsive to their needs, interests, and problems.

Perspective Two

Adults need to be models of maturity and responsibility. When they act and think like children, kids have no one to look to for guidance.

Perspective Three

Children need their own cultural space—their own books, their own toys, their own movies—in which to explore their ideas. When adults start to take over that space, kids lose out.

Essay Task

Write a unified, coherent essay about the trend of adults playing with kid stuff. In your essay, be sure to:

- clearly state your own perspective on the issue and analyze the relationship between your perspective and at least one other perspective
- develop and support your ideas with reasoning and examples
- organize your ideas clearly and logically
- communicate your ideas effectively in standard written English

Your perspective may be in full agreement with any of those given, in partial agreement, or completely different.

Planning Your Essay

Your work on these prewriting pages will not be scored.

Use the space below and on the back cover to generate ideas and plan your essay. You may wish to consider the following as you think critically about the task:

Strengths and weaknesses of different perspectives on the issue

- What insights do they offer, and what do they fail to consider?
- Why might they be persuasive to others, or why might they fail to persuade?

Your own knowledge, experience, and values

- What is your perspective on this issue, and what are its strengths and weaknesses?
- How will you support your perspective in your essay?

Note

- For your practice essay, you will need scratch paper to plan your essay and four lined sheets of paper for your response.
- On test day, if you are taking the paper test, you will receive a test booklet with space to plan your essay and an answer document with four lined pages on which to write your response.
- Read pages 61–62 for information and instructions on scoring your practice writing test.

Scoring Your Tests

How to Score the Multiple-Choice Tests

Follow the instructions below and on the following pages to score your practice multiple-choice tests and review your performance.

Raw Scores

The number of questions you answered correctly on each test and in each reporting category is your **raw score**. Because there are many forms of the ACT, each with different questions, some forms will be slightly easier (and some slightly harder) than others. A raw score of 67 on one form of the English test, for example, may be about as difficult to earn as a raw score of 70 on another form of that test.

To compute your raw scores, check your answers with the scoring keys on pages 57–59. Count the number of correct answers for each of the four tests and seventeen reporting categories and enter the number in the blanks provided on those pages. These numbers are your raw scores on the tests and reporting categories.

Scale Scores

To adjust for the small differences that occur among different forms of the ACT, the raw scores for tests are converted into **scale scores.** Scale scores are printed on the reports sent to you and your college and scholarship choices.

When your raw scores are converted into scale scores, it becomes possible to compare your scores with those of examinees who took different test forms. For example, a scale score of 26 on the English test has the same meaning regardless of the form of the ACT on which it is based.

To determine the scale scores corresponding to your raw scores on the practice test, use Table 1 on page 60, which explains the procedures used to obtain scale scores from raw scores. This table shows the raw-to-scale score conversions for each test. Because each form of the ACT is unique, each form has somewhat different conversion tables. Consequently, this table provides only approximations of the raw-to-scale score conversions that would apply if a different form of the ACT were taken. Therefore, the scale scores obtained from the practice tests don't match precisely the scale scores received from an actual administration of the ACT.

Computing the Composite Score

The **Composite score** is the average of the four scale scores in English, mathematics, reading, and science. If you left any of these tests blank, do not calculate a Composite score. If you take the ACT with writing, your writing results do **not** affect your Composite score.

Comparing Your Scores

Information about comparing your scores on the practice multiple-choice tests with the scores of recent high school graduates who took the ACT can be found at **www.actstudent.org**.

Your scores and percent at or below are only **estimates** of the scores that you will receive during an actual administration of the ACT. Test scores are only one indicator of your level of learning. Consider your scores in connection with your grades, your performance in outside activities, and your career interests.

ACT College and Career Readiness Standards

The ACT College and Career Readiness Standards describe the types of skills, strategies, and understandings you will need to make a successful transition from high school to college. For English, mathematics, reading, and science, standards are provided for six score ranges that reflect the progression and complexity of the skills in each of the academic areas measured by the ACT tests. For writing, standards are provided for five score ranges. The ACT College and Career Readiness Standards and benchmark scores for each test can be found at **www.act.org**.

Reviewing Your Performance on the Multiple-Choice Tests

Consider the following as you review your scores:

- Did you run out of time? Reread the information in this booklet on pacing yourself. You may need to adjust the way you use your time in responding to the questions.
- Did you spend too much time trying to understand the directions for the tests? The directions for the practice tests are the same directions that will appear in your test booklet on test day. Make sure you understand them before test day.
- Review the questions that you missed. Did you select a response that was an incomplete answer or that did not directly respond to the question being asked? Try to figure out what you overlooked in answering the questions.
- Did a particular type of question confuse you? Did the questions you missed come from a particular reporting category? In reviewing your responses, check to see whether a particular type of question or a particular reporting category was more difficult for you.

Scoring Keys for the ACT Practice Tests

Use the scoring key for each test to score your answer document for the multiple-choice tests. Mark a "1" in the blank for each question you answered correctly. Add up the numbers in each reporting category and enter the total number correct for each reporting category in the blanks provided. Also enter the total number correct for each test in the blanks provided. The total number correct for each test is the sum of the number correct in each reporting category.

Test 1: English—Scoring Key

1874FPRE

Key	Reporting Category* POW	KLA	CSE
1. A	___		
2. G			___
3. A		___	
4. F			___
5. C			___
6. F			___
7. D		___	
8. G	___		
9. C			___
10. J		___	
11. C			___
12. F		___	
13. B	___		
14. J			___
15. B			___
16. G			___
17. C			___
18. F			___
19. C	___		
20. G			___
21. D	___		
22. G		___	
23. C			___
24. H	___		
25. B			___
26. F			___
27. C			___
28. F			___
29. D		___	
30. G	___		
31. C		___	
32. J			___
33. C	___		
34. G			___
35. A	___		
36. J			___
37. C	___		
38. F			___

Key	Reporting Category* POW	KLA	CSE
39. D	___		
40. H	___		
41. B			___
42. F			___
43. C	___		
44. G			___
45. A		___	
46. F			___
47. B			___
48. G			___
49. D	___		
50. F			___
51. B			___
52. F		___	
53. D			___
54. H			___
55. D	___		
56. H			___
57. A			___
58. G	___		
59. C	___		
60. J	___		
61. C			___
62. G			___
63. D		___	
64. J			___
65. B	___		
66. F			___
67. B			___
68. F	___		
69. D			___
70. F			___
71. C		___	
72. H	___		
73. D		___	
74. F	___		
75. D	___		

***Reporting Categories**
POW = Production of Writing
KLA = Knowledge of Language
CSE = Conventions of Standard English

Number Correct (Raw Score) for:

Production of Writing (POW) _____ (23)

Knowledge of Language (KLA) _____ (12)

Conventions of Standard English (CSE) _____ (40)

Total Number Correct for English Test (POW + KLA + CSE) _____ (75)

Test 2: Mathematics—Scoring Key

1874FPRE

Key	Reporting Category*						
	PHM					IES	MDL
	N	A	F	G	S		
1. C						—	
2. K					—		—
3. B		—					
4. J			—				
5. D						—	—
6. H		—					
7. D				—			—
8. G						—	
9. D				—			
10. G						—	—
11. D			—				
12. H	—						—
13. B						—	
14. H					—		—
15. D						—	
16. K	—						
17. B		—					
18. K						—	—
19. B				—			
20. K				—			—
21. B						—	—
22. F						—	—
23. C						—	
24. J						—	—
25. A		—					
26. H				—			—
27. A		—					
28. H						—	—
29. E						—	
30. J						—	—

Key	Reporting Category*						
	PHM					IES	MDL
	N	A	F	G	S		
31. E						—	
32. G						—	—
33. E						—	
34. H						—	
35. C						—	—
36. J						—	
37. A					—		
38. K	—						
39. D				—			
40. K		—					
41. A					—		—
42. G			—				
43. C						—	—
44. F			—				—
45. A						—	—
46. J				—			—
47. B						—	
48. G						—	—
49. B				—			
50. J		—					—
51. C					—		
52. F		—					
53. A			—				—
54. H			—				—
55. E			—				
56. H					—		—
57. B	—						
58. F	—						
59. A			—				
60. K						—	—

Combine the totals of these columns and put in the blank for PHM in the box below.

***Reporting Categories**

PHM = Preparing for Higher Math
- N = Number & Quantity
- A = Algebra
- F = Functions
- G = Geometry
- S = Statistics & Probability

IES = Integrating Essential Skills

MDL = Modeling

Number Correct (Raw Score) for:

Preparing for Higher Math (PHM) (N + A + F + G + S)	_____ (35)
Integrating Essential Skills (IES)	_____ (25)
Total Number Correct for Mathematics Test (PHM + IES)	_____ (60)
Modeling (MDL) (Not included in total number correct for mathematics test raw score)	_____ (28)

Test 3: Reading—Scoring Key

1874FPRE

Key	Reporting Category*		
	KID	CS	IKI
1. A			
2. G			
3. A			
4. J			
5. C			
6. G			
7. D			
8. H			
9. C			
10. F			
11. D			
12. G			
13. D			
14. J			
15. A			
16. G			
17. B			
18. H			
19. A			
20. H			

Key	Reporting Category*		
	KID	CS	IKI
21. C			
22. G			
23. D			
24. H			
25. D			
26. F			
27. C			
28. J			
29. A			
30. F			
31. D			
32. H			
33. B			
34. J			
35. C			
36. G			
37. A			
38. G			
39. A			
40. J			

*Reporting Categories
KID = Key Ideas & Details
CS = Craft & Structure
IKI = Integration of Knowledge & Ideas

Number Correct (Raw Score) for:

Key Ideas & Details (KID)	_____ (25)
Craft & Structure (CS)	_____ (11)
Integration of Knowledge & Ideas (IKI)	_____ (4)
Total Number Correct for Reading Test (KID + CS + IKI)	_____ (40)

Test 4: Science—Scoring Key

1874FPRE

Key	Reporting Category*		
	IOD	SIN	EMI
1. C			
2. J			
3. B			
4. J			
5. A			
6. G			
7. C			
8. J			
9. C			
10. J			
11. A			
12. F			
13. A			
14. H			
15. B			
16. J			
17. A			
18. H			
19. A			
20. G			

Key	Reporting Category*		
	IOD	SIN	EMI
21. C			
22. H			
23. C			
24. H			
25. D			
26. J			
27. C			
28. F			
29. B			
30. F			
31. D			
32. F			
33. D			
34. G			
35. A			
36. J			
37. D			
38. J			
39. B			
40. G			

***Reporting Categories**
IOD = Interpretation of Data
SIN = Scientific Investigation
EMI = Evaluation of Models, Inferences & Experimental Results

Number Correct (Raw Score) for:

Interpretation of Data (IOD)	_____ (18)
Scientific Investigation (SIN)	_____ (12)
Evaluation of Models, Inferences & Experimental Results (EMI)	_____ (10)
Total Number Correct for Science Test (IOD + SIN + EMI)	_____ (40)