

PRACTICE TEST

**Science and
Technology/Engineering**

Grade 8

Student Name

School Name

District Name



Grade 8

Science and Technology/Engineering

PRACTICE TEST

This practice test contains 23 questions.

Directions

Read each question carefully and then answer it as well as you can. You must record all answers in this Practice Test Booklet.

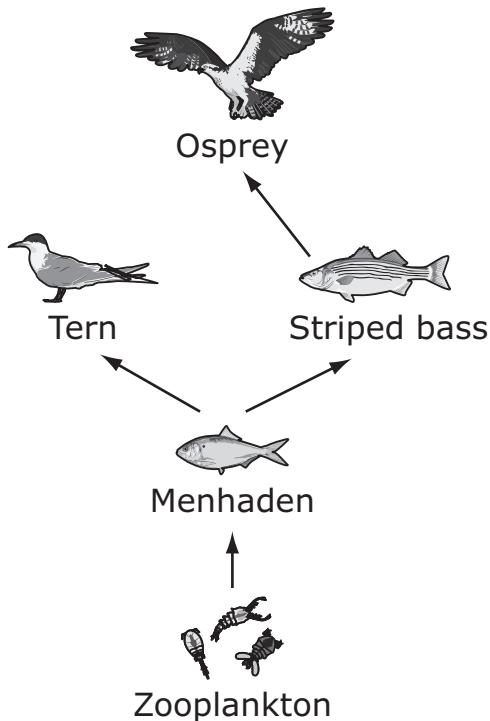
For some questions, you will mark your answers by filling in the circles in your Practice Test Booklet. Make sure you darken the circles completely. Do not make any marks outside of the circles. If you need to change an answer, be sure to erase your first answer completely.

If a question asks you to show or explain your work, you must do so to receive full credit. Write your response in the space provided in this Practice Test Booklet. Only responses written within the provided space will be scored.

If you do not know the answer to a question, you may go on to the next question. When you are finished, you may review your answers and go back to any questions you did not answer.

Science and Technology/Engineering

- 1 The diagram shows part of a food web from the Chesapeake Bay.



Which of the following best describes the ecological relationships of the organisms in the food web?

(A)

Competition	Predator–Prey
zooplankton and menhaden	tern and osprey

(B)

Competition	Predator–Prey
tern and striped bass	striped bass and menhaden

(C)

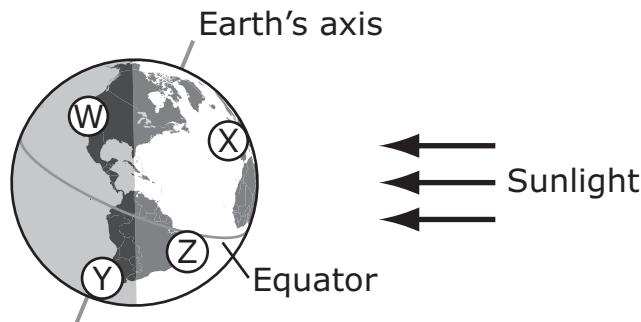
Competition	Predator–Prey
osprey and striped bass	osprey and menhaden

(D)

Competition	Predator–Prey
osprey and zooplankton	zooplankton and tern

Science and Technology/Engineering

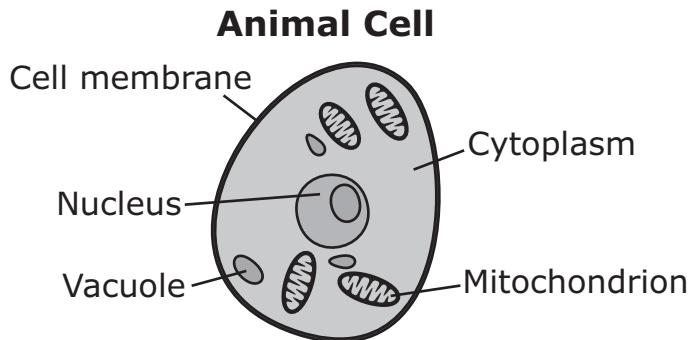
- 2 The diagram shows Earth and the direction of incoming sunlight.



At which two locations is it summer?

- (A) locations W and X
- (B) locations W and Y
- (C) locations X and Z
- (D) locations Y and Z

- 3 A diagram of an animal cell is shown.



Which part of the cell is responsible for releasing energy during cellular respiration?

- (A) cell membrane
- (B) cytoplasm
- (C) mitochondrion
- (D) nucleus
- (E) vacuole

Science and Technology/Engineering

- 4 Which of the following best shows the appearance and positions of Earth and the Moon during a total lunar eclipse?

(A)



(B)



(C)



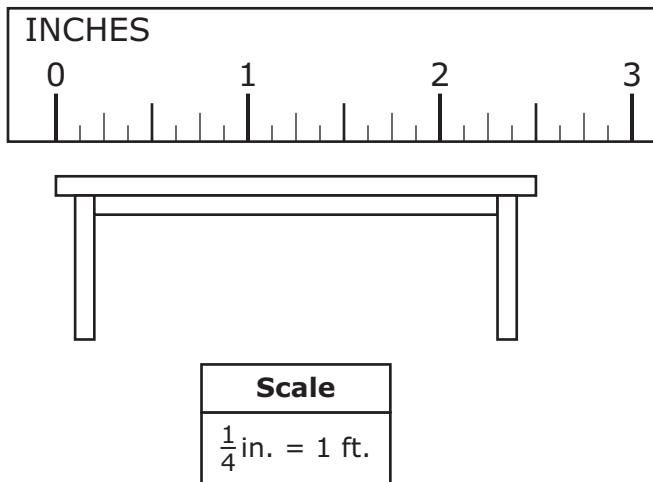
(D)



Science and Technology/Engineering

This question has two parts. Write your response on the next page. Be sure to label each part of your response.

- 5 A student in a woodworking class made a drawing of a table, as shown.



- A. Determine the table's actual length. Show your calculations and include units in your answer.
- B. The student plans to show the design of the table to the other students in the class. The student is deciding whether to show the drawing above or an orthographic projection.

Describe one advantage of showing an orthographic projection instead of the drawing above.

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Science and Technology/Engineering

The following section focuses on how rust forms.

Read the information below and use it to answer the three selected-response questions and one constructed-response question that follow.

At the beginning of summer, some paint was scratched off a student's bicycle. The exposed metal where the bicycle was scratched had a shiny, silvery color. The student kept the bicycle outside all summer. By the end of summer, the exposed metal had changed to rust, which is dark orange in color.

The student did some research to find out what happened to the metal and learned that the bicycle is made of steel, which contains mostly iron. The student conducted two investigations to learn more about the process that changed the steel into rust.

Investigation 1: The student placed equal amounts of iron filings (small pieces of iron) into beakers X, Y, and Z. At the start of the investigation, all of the filings were gray. The student added nothing else to beaker X, water to beaker Y, and table salt (NaCl) and hydrogen peroxide (H_2O_2) to beaker Z. The student's observations over a two-day period are shown in the table.

Investigation 1

Beaker	Substance(s) Added	Color of Filings on Day 1	Color of Filings on Day 2
X	none	all gray	all gray
Y	a few drops of water	all gray	some gray and some dark orange
Z	some table salt and a few drops of hydrogen peroxide	some gray and some dark orange	all dark orange

Science and Technology/Engineering

Investigation 2: The student combined table salt and hydrogen peroxide in a beaker, added small pieces of steel, and placed a thermometer in the beaker. After one minute, the student measured the mass of the contents in the beaker. The student measured the contents in the beaker again at 10 minutes and discovered the mass had decreased slightly. The student's observations are shown in the table.

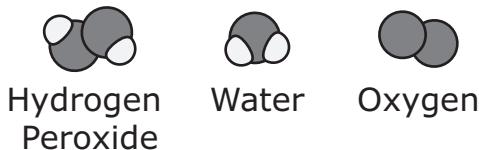
Investigation 2

Beaker Contents at 1 Minute	Beaker Contents at 10 Minutes
a pale orange color	a dark orange color
bubbling	no longer bubbling
25°C	40°C
166.1 g	164.7 g

- 6 Select **all** the beakers from Investigation 1 that show evidence of a chemical change.
- (A) beaker X
 - (B) beaker Y
 - (C) beaker Z

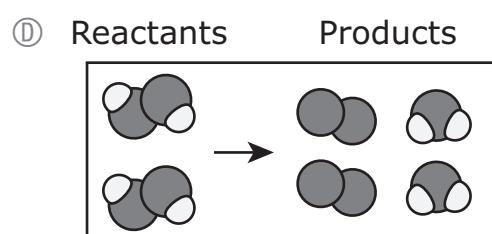
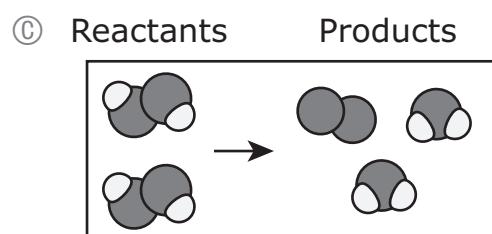
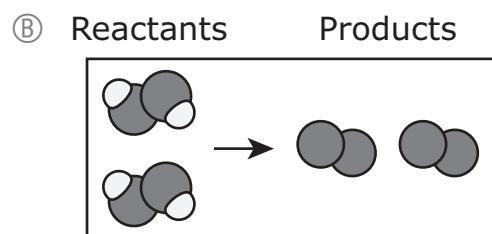
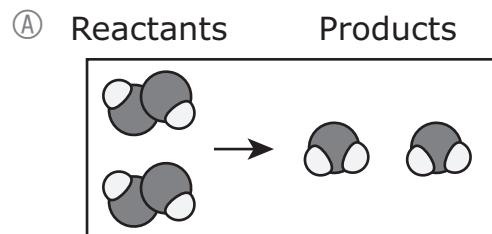
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- 7 When hydrogen peroxide reacts with iron, hydrogen peroxide first breaks apart to form water and oxygen. In the diagrams shown, hydrogen atoms are white and oxygen atoms are gray.



The law of conservation of mass determines the number of water and oxygen molecules produced in the reaction.

Which of the following models shows the correct number of water and oxygen molecules produced in the reaction?



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- 8 In Investigation 2, an exothermic reaction occurred as energy was released. What is the **best** evidence that an exothermic reaction occurred in the beaker?
- (A) The mass decreased.
 - (B) The bubbling stopped.
 - (C) There was a change in the color.
 - (D) There was an increase in temperature.

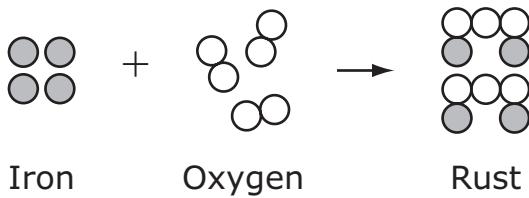
Science and Technology/Engineering

This question has three parts. Write your response on the next page. Be sure to label each part of your response.

- 9 Rust is produced when iron reacts with oxygen. The table shows some characteristics of a sample of iron and of a sample of rust.

Characteristic	Iron Sample	Rust Sample
density (g/cm^3)	7.86	5.26
magnetic	yes	no
mass (g)	563.2	426.7
melting point ($^{\circ}\text{C}$)	1535	1565
temperature ($^{\circ}\text{C}$)	21	21

- A. Identify the **three** characteristics from the table above that can be used to support the claim that iron and rust are different substances.
- B. Explain why the characteristics you identified in Part A help support the claim that iron and rust are different substances.
- C. The model shown represents the reaction between iron and oxygen that results in rust.



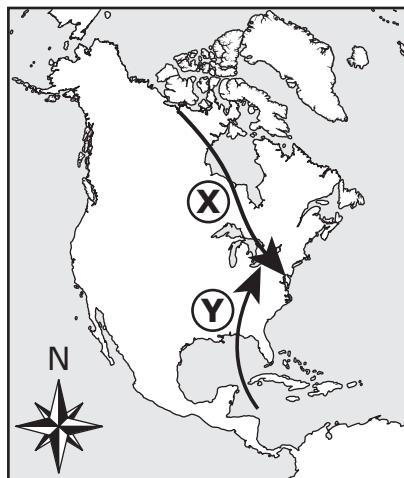
Based on the model, explain why iron and rust are different substances.

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- 10 The paths of two air masses, X and Y, are shown in the diagram.



Air mass X is a cold air mass. Air mass Y is a warm air mass. When the air masses meet, winter storms may be produced.

Which of the following **most likely** contributes to the formation of these storms?

- (A) Cold air mass X moves over warm air mass Y, and evaporation occurs.
- (B) Warm air mass Y moves over cold air mass X, and condensation occurs.
- (C) Cold air mass X mixes with warm air mass Y, and the overall temperature increases.
- (D) Warm air mass Y mixes with cold air mass X, and the overall temperature decreases.

- 11 Which of the following describes what primarily causes the ocean tides in Massachusetts?

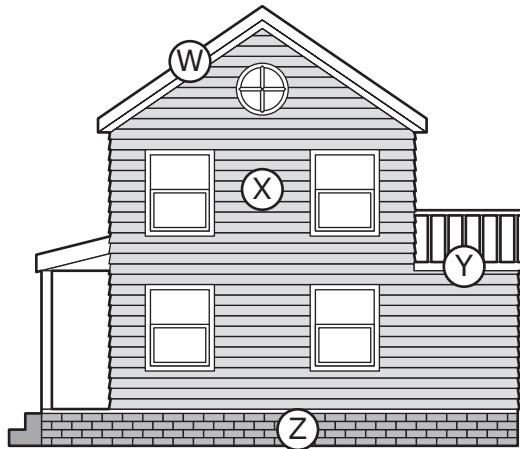
- (A) convection from plate tectonics
- (B) gravity from the Moon and the Sun
- (C) convection from Earth's north and south poles
- (D) magnetism from Earth's north and south poles

Science and Technology/Engineering

This question has two parts.

12 Part A

The diagram shows a building with four parts labeled, W, X, Y, and Z.



Which part of the diagram represents the foundation of the building?

- (A) W
- (B) X
- (C) Y
- (D) Z

Part B

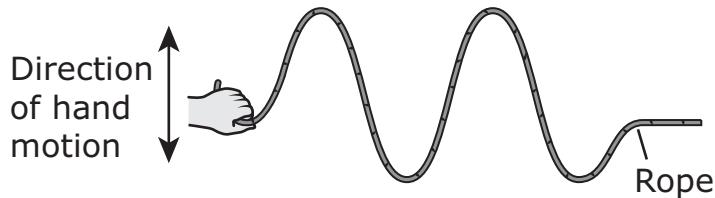
Which of the following describes the foundation?

- (A) It is a flat surface that people can walk on, but it does not help to support the building.
- (B) It is a part that the entire building is built upon, and it keeps the building from sinking into the ground.
- (C) It is a vertical wall that blocks access and visibility, but it provides structural support for the building.
- (D) It is a cover that protects the building, and it shields anything inside from sunlight and precipitation.

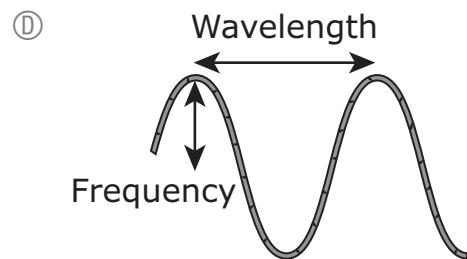
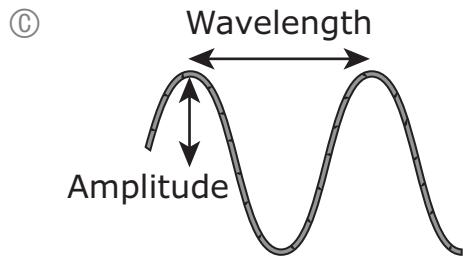
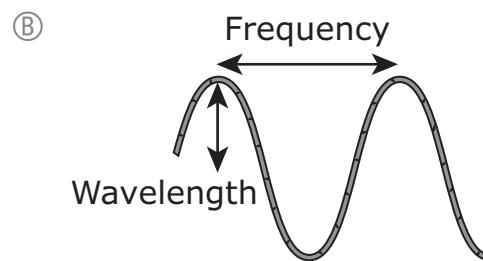
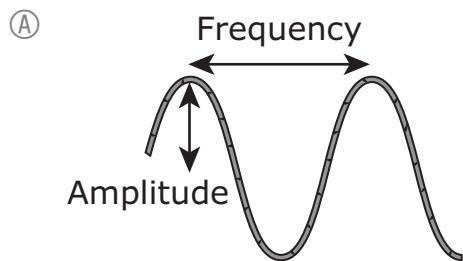
Science and Technology/Engineering

This question has three parts. Mark your answer to Part A by filling in the correct circle and then write your response to Parts B and C on the next page. Be sure to label each part of your written response.

- 13 A student is investigating waves with a piece of rope. The student places the rope on the floor and then moves one end of the rope back and forth, as shown. The wave the student makes has a specific amplitude, frequency, and wavelength.



- A. Which of the following diagrams correctly identifies the different parts of the wave?



- B. Describe how the student's hand motion could be changed to make a wave with a greater frequency.
C. Describe how the student's hand motion could be changed to make a wave that carries more energy in each wavelength. Explain your reasoning.

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Science and Technology/Engineering

- 14 A student uses a keyboard on a laptop to type a message into an instant messaging program. The processor in the laptop runs the instant messaging program's commands. The laptop uses Wi-Fi to connect to the internet. Another student reads the message on a phone.

Which of the following correctly categorizes the parts of the communication system?

(A)

Category	Part of System
source	Wi-Fi
encoder	phone
transmitter	keyboard
receiver	laptop's processor

(B)

Category	Part of System
source	keyboard
encoder	laptop's processor
transmitter	Wi-Fi
receiver	phone

(C)

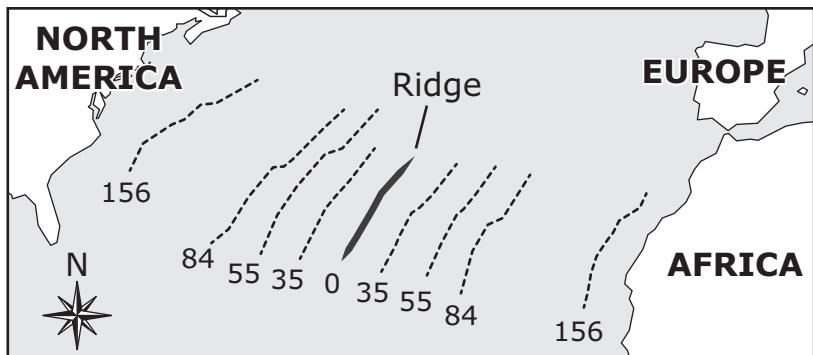
Category	Part of System
source	keyboard
encoder	Wi-Fi
transmitter	laptop's processor
receiver	phone

(D)

Category	Part of System
source	phone
encoder	Wi-Fi
transmitter	laptop's processor
receiver	keyboard

Science and Technology/Engineering

- 15 The map shows a ridge on the ocean floor. The dashed lines on either side of the ridge represent different parts of the ocean floor. The parts of the ocean floor are labeled with their ages in millions of years.



Based on the information in the map, which of the following best describes the ridge?

- (A) The ridge is a young volcanic mountain range formed by two plates colliding.
- (B) The ridge is a boundary between two plates that are moving away from the ridge.
- (C) The ridge is an ancient volcanic mountain range located in the middle of an oceanic plate.
- (D) The ridge is a boundary between two plates that are sliding back and forth along the ridge.

Science and Technology/Engineering

This question has two parts.

- 16 A student is eating an apple.

Part A

Which of the following describes how the student's body systems work together to release energy from the apple?

- (A) The digestive system breaks down the apple into usable molecules, and the circulatory system delivers the usable molecules to the cells.
- (B) The respiratory system breaks down the apple into usable molecules, and the digestive system delivers the usable molecules to the cells.
- (C) The circulatory system breaks down the apple into usable molecules, and the excretory system delivers the usable molecules to the cells.
- (D) The excretory system breaks down the apple into usable molecules, and the respiratory system delivers the usable molecules to the cells.

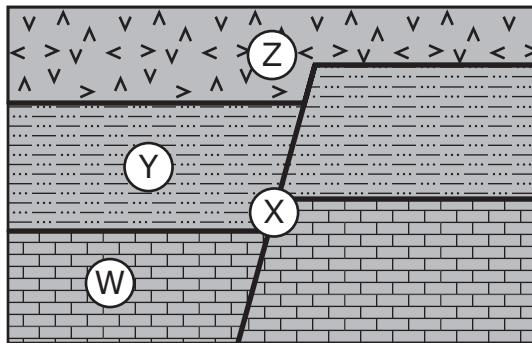
Part B

Body cells use oxygen to release energy from the molecules that were part of the apple. Which body system brings in oxygen from the environment, and how do body cells use the oxygen to release energy?

- (A) The circulatory system brings in oxygen, and body cells use the oxygen for cell division.
- (B) The excretory system brings in oxygen, and body cells use the oxygen for cell digestion.
- (C) The digestive system brings in oxygen, and body cells use the oxygen for cellular respiration.
- (D) The respiratory system brings in oxygen, and body cells use the oxygen for cellular respiration.

Science and Technology/Engineering

- 17 Rock layers W, Y, and Z and fault X are shown. The rock layers and the fault were formed at different times.



Which of the following shows the order of formation from oldest to youngest?

- (A) W → X → Y → Z
- (B) Z → Y → X → W
- (C) W → Y → X → Z
- (D) Z → X → Y → W

Science and Technology/Engineering

This question has two parts. Write your response on the next page. Be sure to label each part of your response.

- 18 A farmer tested the effect of fertilizer on the growth of 1000 pea plants. The farmer recorded the following observations.

	Plants without Fertilizer	Plants with Fertilizer
Number of Plants	500	500
Height (cm)	10–20	15–30
Flower Color	75% purple 25% white	75% purple 25% white

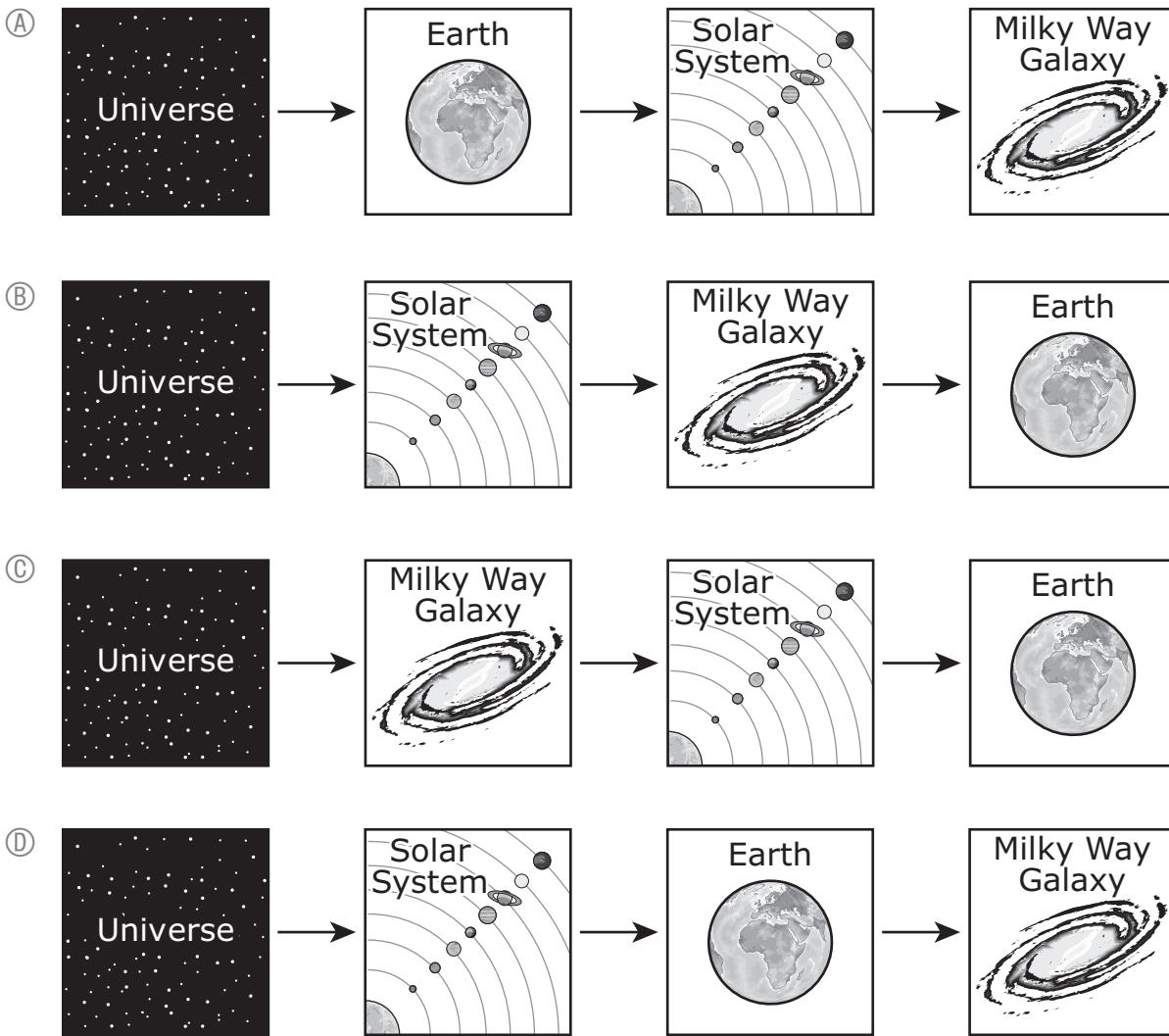
- A. Based on the observations, identify one characteristic of the pea plants that was mainly influenced by genetics. Support your answer with evidence from the information in the table.
- B. Based on the observations, identify one characteristic of the pea plants that was influenced by **both** genetics and the environment. Support your answer with evidence from the information in the table.

Science and Technology/Engineering

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Science and Technology/Engineering

- 19 Which of the following best shows the structure of the universe?



Science and Technology/Engineering

- 20 A manufacturer is considering using four different materials to construct a pan for cooking on a stove. The table shows the thermal conductivity and melting point of each material. A material with a higher thermal conductivity value conducts more thermal energy.

Material	Thermal Conductivity (W/K•m)	Melting Point (K)
aluminum	236	933
copper	400	1357
iron	68	1422
stainless steel	17	1783

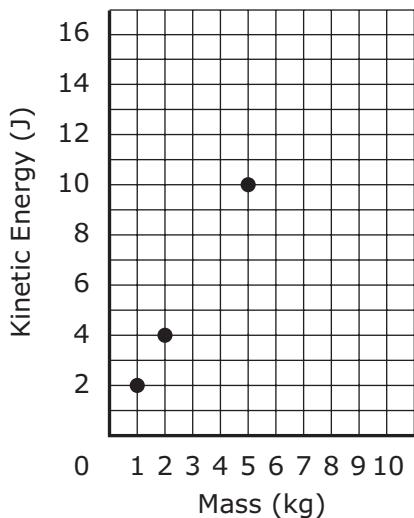
Which materials should be used for the pan?

- (A) The manufacturer should use aluminum for the bottom of the pan and iron for the handle.
- (B) The manufacturer should use aluminum for the bottom of the pan and copper for the handle.
- (C) The manufacturer should use iron for the bottom of the pan and stainless steel for the handle.
- (D) The manufacturer should use copper for the bottom of the pan and stainless steel for the handle.

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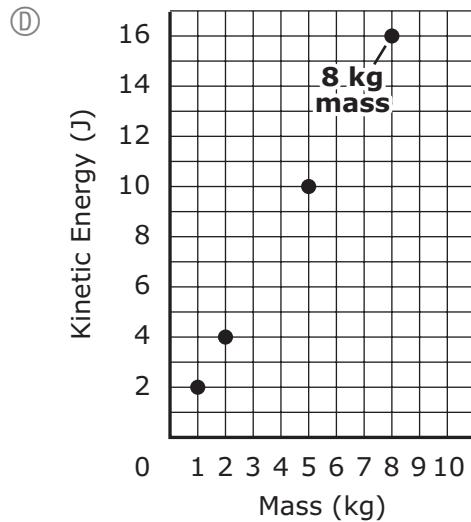
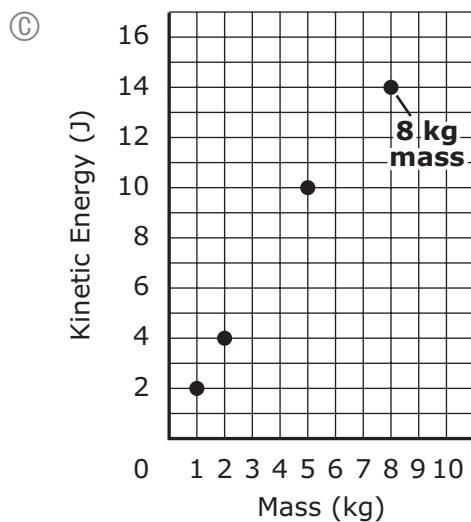
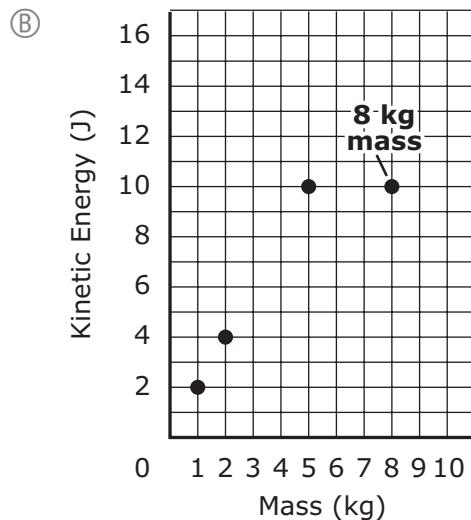
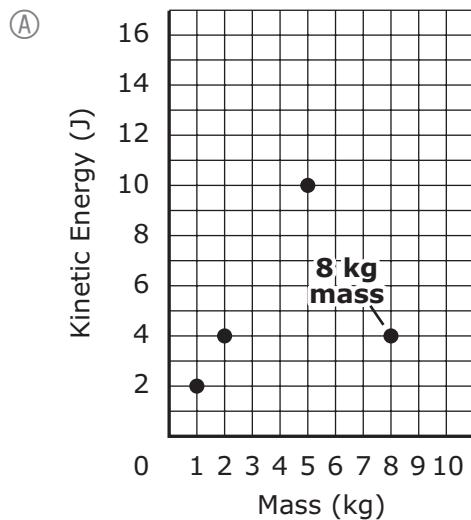
- 21 A student used a computer simulation to investigate how the kinetic energy of an object changes as the object's mass changes. The object moves at a constant speed during the simulation. The graph shows the kinetic energy of the object with three different masses. The student also ran the simulation with a fourth mass of 8 kg, which is not shown on the graph.

Kinetic Energy of an Object



Science and Technology/Engineering

Which graph shows the kinetic energy of the object with the 8 kg mass?



Science and Technology/Engineering

This question has two parts.

- 22 A plant species produces two types of seeds, rounded seeds and wrinkled seeds. The allele for rounded seeds (**R**) is dominant to the allele for wrinkled seeds (**r**). A plant heterozygous for this trait (**Rr**) is crossed with a homozygous plant (**rr**).

Part A

Which Punnett square correctly shows this cross?

(A)

	R	r
r	Rr	rr
r	Rr	rr

(B)

	R	R
r	Rr	Rr
r	Rr	Rr

(C)

	R	r
r	Rr	rr
r	rr	rr

(D)

	R	r
R	RR	Rr
r	Rr	rr

Part B

What is the probability that an offspring will have rounded seeds?

(A) 0

(B) $\frac{1}{4}$

(C) $\frac{1}{2}$

(D) $\frac{3}{4}$

(E) 1

Science and Technology/Engineering

- 23 A computer touch screen allows users to enter information. Users have complained that the touch screen is too difficult to operate because the system does not indicate when a choice has been selected.

The complaints are which element of the universal systems model?

- (A) feedback
- (B) goal
- (C) inputs
- (D) processes



MCAS Grade 8 Science & Technology/Engineering (STE) Paper-based Practice Test Answer Key

The practice test is approximately equal to the number of questions students experience in a single session of the MCAS Grade 8 STE test. Information about the test design is posted [here](#).

The following pages include the reporting category, [standard alignment](#), and practice (if applicable) for each question on the practice test. An answer is also provided for each selected-response item. A rubric and sample student responses are included for constructed-response items.

Item Number	Reporting Category	2016 Standard	Practice	Correct Answer and Number of Points
1	Life Science	7.MS- LS2-2	Evidence, Reasoning, & Modeling	B (1 point)
2	Earth & Space Science	8.MS-ESS1-1 b	Evidence, Reasoning, & Modeling	A (1 point)
3	Life Science	6.MS- LS1-2	Evidence, Reasoning, & Modeling	C (1 point)
4	Earth & Space Science	6.MS- ESS1-1a	Evidence, Reasoning, & Modeling	A (1 point)
5	Technology/ Engineering	6.MS-ETS1-5 (MA)	Mathematics & Data	See scoring guide and sample student responses below. (Maximum of 2 points)

Module: Students read about a scientific scenario or phenomenon and then answered three 1-point questions and one constructed response question worth 3 points.

Item Number	Reporting Category	2016 Standard	Practice	Correct Answer and Number of Points
6	Physical Science	8.MS- PS1-2	Mathematics & Data	B, C (1 point)
7	Physical Science	8.MS- PS1-5	Evidence, Reasoning, & Modeling	C (1 point)
8	Physical Science	6.MS- PS1-6	Evidence, Reasoning, & Modeling	D (1 point)
9	Physical Science	8.MS- PS1-2	Mathematics & Data	See scoring guide and sample student responses below. (Maximum of 3 points)

10	Earth & Space Science	8.MS-ESS2-5	Evidence, Reasoning, & Modeling	B (1 point)	
Item Number	Reporting Category	2016 Standard	Practice	Correct Answer and Number of Points	
11	Earth & Space Science	8.MS- ESS1-2	No practice	B (1 point)	
12	Technology/ Engineering	7.MS- ETS3-4 (MA)	Evidence, Reasoning, & Modeling	Part A	D (1 point)
				Part B	B (1 point)
13	Physical Science	6.MS-PS4-1	Evidence, Reasoning, & Modeling	See scoring guide and sample student responses below. (Maximum of 3 points)	
14	Technology/ Engineering	7.MS- ETS3-1 (MA)	Evidence, Reasoning, & Modeling	B (1 point)	
15	Earth & Space Science	6.MS-ESS2-3	Evidence, Reasoning, & Modeling	B (1 point)	
16	Life Science	6.MS- LS1-3	No practice	Part A	A (1 point)
				Part B	D (1 point)
17	Earth & Space Science	6.MS- ESS1-4	Evidence, Reasoning, & Modeling	C (1 point)	
18	Life Science	8.MS- LS1-5	Mathematics & Data	See scoring guide and sample student responses below. (Maximum of 2 points)	
19	Earth & Space Science	6.-MS-ESS1-5 (MA)	Evidence, Reasoning, & Modeling	C (1 point)	
20	Technology/ Engineering	6.MS- ETS2-1 (MA)	Mathematics & Data	D (1 point)	
21	Physical Science	7.MS- PS3-1	Mathematics & Data	D (1 point)	
22	Life Science	8.MS- LS3-4 (MA)	Mathematics & Data	Part A	A (1 point)
				Part B	C (1 point)

23	Technology/ Engineering	7.MS-ETS3-5(MA)	No practice	A (1 point)
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Question 5: Scoring Guide

Score	Description
2	The response demonstrates a thorough understanding of representations of a solution to a design problem and how to accurately apply scale to visual representations. The response correctly determines the table's actual length and clearly describes one advantage of showing an orthographic projection instead of the drawing shown.
1	The response demonstrates a limited understanding of representations of a solution to a design problem and how to accurately apply scale to visual representations.
0	The response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

Question 5: Sample Student Responses (Actual Student Responses)

Score	Part	Student Response
2	A	$\frac{2}{4} \div \frac{1}{4} = 10 \text{ ft.}$
	B	One advantage of using an orthographic projection as opposed to drawing is that showing all angles of a design can make it easier for others to understand and see all the different measurements.
1	A	$2.5 \text{ in} \div 0.25 \text{ in} = 10 \text{ ft}$
	B	Using an orthographic projection will be better than using the drawing above because an orthographic projection would give more of an accurate representation of the size of the table than the drawing would.
0	A	$\frac{1}{2}$
	B	The one advantage of showing an orthographic projection is that all the students can see the drawing with a projection than on a piece of paper.

Question 9: Scoring Guide

Score	Description
3	The response demonstrates a thorough understanding of how to analyze data on the properties of substances and how atoms are rearranged in a chemical reaction. The response correctly identifies the three characteristics that can be used to support the claim that iron and rust are different substances. The response clearly explains why the three properties and the model help support the claim.
2	The response demonstrates a partial understanding of how to analyze data on the properties of substances and how atoms are rearranged in a chemical reaction.
1	The response demonstrates a minimal understanding of how to analyze data on the properties of substances and how atoms are rearranged in a chemical reaction.
0	The response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

Question 9: Sample Student Responses (Actual Student Responses)

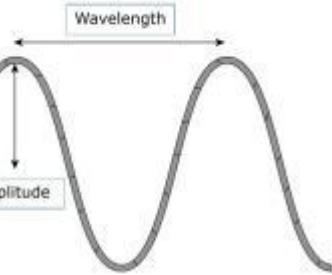
Score	Part	Student Response
3	A	One can see that the two substances are different because the density is different. Density never changes if the substance stays the same. Another change that shows iron and rust are different substances is that iron is magnetic and rust is not. The last piece of evidence showing that rust and iron are different substances is that the melting point of rust is higher than that of iron.
	B	The melting points, densities, and magnetism of rust and iron being different shows that the two are different substances. This is because these three characteristics always stay the same, as long as the substance doesn't change. The other measurements listed (mass and temperature) change depending on the amount of the substance you have and the environment you are in.
	C	Iron and rust have chemical makeups that differ greatly. Iron has no oxygen in it, but rust has 3 oxygen atoms per molecule. Also, the shape of the molecules are completely different.
2	A	Iron and rust are different substances because they have different melting points, different densities, and difference in magnetism.
	B	The characters identified in Part A help to support the claim that iron and rust are different substances because all substances have defined chemical properties such as melting point, density, and magnetism despite the amount of that substance. For this to vary in the chart shows that the two are different substances.
	C	Based on the model, the two substances are different because iron is a solid whose atoms are neatly organized, while oxygen is a substance whose atoms are not neatly arranged which shows that it is a gas.
1	A	Density, magnetic, mass
	B	If the three characteristics were the same, then the substances would also likely by the same. These characteristics help identify substances, which is how I know that they are different.
	C	They are different because the model shows that iron is an element, and rust is a compound of iron and oxygen, making different substances.
0	A	Temperature melting point

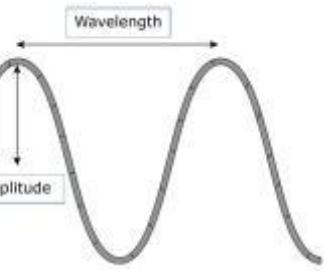
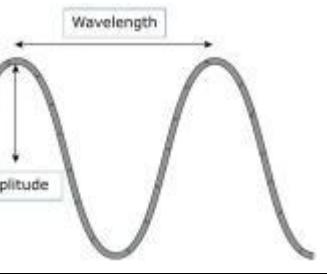
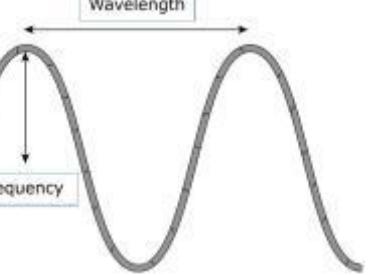
	mass
B	because they all have to do with chemical change
C	they are made up of different things

Question 13: Scoring Guide

Score	Description
3	The response demonstrates a thorough understanding that a wave has a specific pattern with a specific amplitude, frequency, and wavelength, and the amplitude of a wave is related to the energy of the wave. The response correctly labels the wavelength and frequency of a wave in a diagram. The response clearly describes how the student's hand motion could be changed to make a wave with a greater frequency. The response clearly describes how the student's hand motion could be changed to make a wave that carries more energy in each wavelength.
2	The response demonstrates a partial understanding that a wave has a specific pattern with a specific amplitude, frequency, and wavelength, and the amplitude of a wave is related to the energy of the wave.
1	The response demonstrates a minimal understanding of using a diagram of a simple wave to explain that a wave has a specific pattern with a specific amplitude, frequency, and wavelength, and the amplitude of a wave is related to the energy of the wave.
0	The response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

Question 13: Sample Student Responses (Actual Student Responses)

Score	Part	Student Response
3	A	
	B	The student could move the rope back and forth faster than he/she was before.
	C	The student could move the rope back and forth but higher than he/she was doing it before. This will make it so the amplitude of the wave is larger.

Score	Part	Student Response
2	A	 A diagram of a transverse wave. A double-headed arrow above the wave is labeled "Wavelength". A vertical double-headed arrow from the trough to the crest is labeled "Amplitude".
	B	If the student moves it faster
	C	The student's hand motion could be changed to carry more energy if moved the opposite way possibly
1	A	 A diagram of a transverse wave. A double-headed arrow above the wave is labeled "Wavelength". A vertical double-headed arrow from the trough to the crest is labeled "Amplitude".
	B	The student could have made different motions with his hands. He could have moved the rope very fast or slow. If the student moves it fast the wave could be smaller.
	C	He could have changed the speed of the hand motions.
0	A	 A diagram of a transverse wave. A double-headed arrow above the wave is labeled "Wavelength". A double-headed arrow between the crests is labeled "Frequency".
	B	The student would increase how forcefully s/he moves their hand back and forth.
	C	If you do the strokes back and forth forceful and small, each wave is going to have more energy.

Question 18: Scoring Guide

Score	Description
2	The response demonstrates a thorough understanding of how environmental and genetic factors influence the growth of organisms. The response correctly identifies one characteristic of the pea plants that was mainly influenced by genetics and clearly supports the answer with evidence. The response correctly identifies one characteristic of the pea plants that was influenced by both genetics and the environment and clearly supports the answer with evidence.
1	The response demonstrates a partial understanding of how environmental and genetic factors influence the growth of organisms.
0	The response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

Question 18: Sample Student Responses (Actual Student Responses)

Score	Part	Student Response
2	A	The color of the plant was mainly influenced by genetics. It doesn't change, even when fertilizer is added. The colors are still 75% purple and 25% white.
	B	The height of the flowers was influenced by both the environment because their natural height was 10-20 cm tall, but when the fertilizer is added, their height increases to an average of 15-30 cm. This means they were naturally up to 20 cm, but the environment (fertilizer) added extra height.
1	A	one characteristic that was mainly influenced by genetics is the flower color this is because no matter if it was planted with fertilizer or without, the plant color was 75% purple and 25% white. this was not an acquired trait, but an inherited trait from genetics.
	B	one characteristic of the pea plants that was influenced by both genetics and the environment is the number of plants. this is because there were 500 plants on each side meaning that genetics produced one plant per seed and the environment kept them all alive.
0	A	The color of the plants are just like Mendel experiments but his was based on height. There is a dominant allele in there because 75% of them were purple so the dominant trait is purple or PP.
	B	The place where the plants are is a very good place for growing flowers and the environment helps these plants thrive in their area. Both plants were between 10-30 cm tall and they were both 75% purple and 25% white