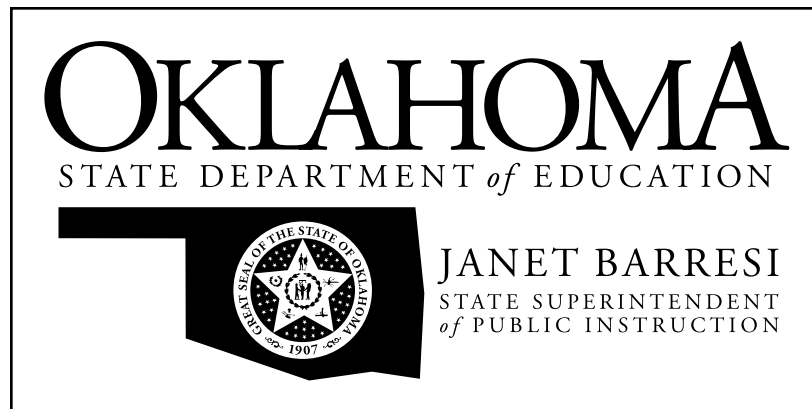


# Oklahoma School Testing Program



Oklahoma Core Curriculum Tests

## 2011–2012 Released Items

Grade 8  
Science

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**Oklahoma State Department of Education  
Oklahoma City, Oklahoma**

**PEARSON**

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# Science



# Directions

Read each question and choose the best answer.

**1** Students collected pond water samples.

534055\_2

Which of the following safety procedures is the most appropriate for this activity?

- A** proper chemical disposal
- B** washing hands when finished
- C** proper ventilation of work area
- D** use of insulated gloves or mitts

**2** Which treatment should be first when acid is spilled on the skin?

534001\_3

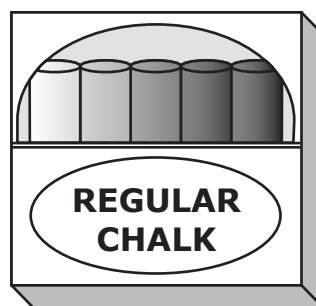
- A** apply burn ointment
- B** cool the skin with ice
- C** rinse the skin with water
- D** put a bandage on the skin



- 3** Mary conducted an investigation in which she tested a piece of chalk from each of the four eighth-grade classrooms at her school to determine if it was made from calcium carbonate or calcium sulfate.



Made from  
calcium  
carbonate



Made from  
calcium  
sulfate

The calcium carbonate in anti-dust chalk reacts with vinegar and produces bubbles of carbon dioxide. The calcium sulfate in regular chalk does not react with vinegar. Mary's experimental procedure is shown below.

- |   |
|---|
| 1. Collect and label four pieces of chalk.                              |
| 2. Label four identical beakers: 1, 2, 3, and 4.                        |
| 3. Place a piece of each sample of chalk into its corresponding beaker. |
| 4. Pour 20 mL of vinegar into each beaker.                              |
| 5. Observe whether bubbles form.  |
| 6. Record results.  |

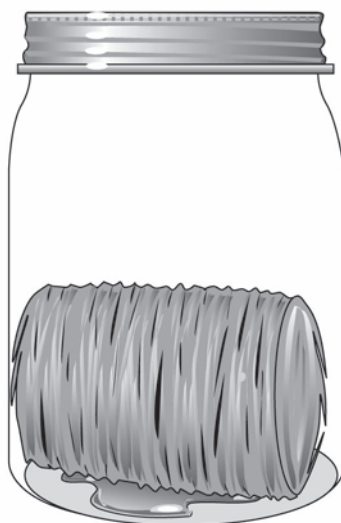
**Which of the following was the experimental variable in Mary's investigation?**

- A** size of beaker
- B** type of chalk
- C** amount of vinegar
- D** number of bubbles produced



- 4** A student wanted to know if steel wool reacts with air and water. The student did the activity by performing these steps:

- 1.** Placed the steel wool in a clear jar and screwed on the cap
- 2.** Let the jar stand for one full day
- 3.** Recorded the observations
- 4.** Wet the steel wool in some water



**In which order should the student have completed the steps listed above?**

- A** 2, 3, 4, 1
- B** 4, 2, 3, 1
- C** 4, 1, 2, 3
- D** 1, 2, 3, 4



- 5** A scientist measures the mass and volume of a sample of matter as its temperature is increased.

613950\_2

**Properties of a Sample of Matter**

Temperature of Sample (°C)	Mass (g)	Volume (mL)
0	5	10
25	5	15
50	5	20
100	5	25

Which statement best describes the change in volume and how this will affect the density of the sample of matter?

- A** Since volume increased, density will increase.
- B** Since volume increased, density will decrease.
- C** Since volume decreased, density will increase.
- D** Since volume decreased, density will decrease.



**6** A student wanted to see if two brands of carbonated drink contained the same amount of dissolved gas. She performed the following steps in her experiment.

534036\_1

- A. Recorded the price of each bottle of soda**
- B. Opened soda bottles and put empty balloons over the bottle mouths**
- C. Set bottles in a sunny place for 2 hours**
- D. Compared the size of the full balloons**

Which step would not help her find out if the hypothesis is correct?

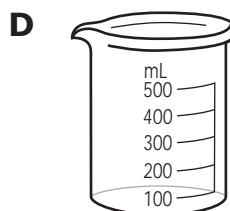
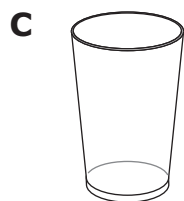
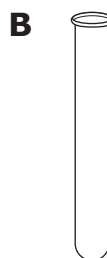
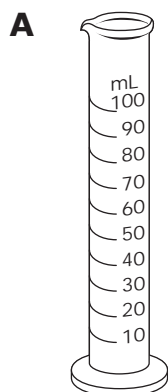
- A** A
- B** B
- C** C
- D** D





- 7** Which piece of equipment would accurately measure 50 milliliters of liquid?

534058\_1





- 8** Mrs. Young's class experimented with the distance toy cars traveled using different heights of ramps. The class got the following results from their experiment.

Height of Ramp (cm)	Distance Traveled (cm)			
	Trial 1	Trial 2	Trial 3	Average
5	4.9	5.0	4.5	4.8
10	9.7	10.0	9.7	9.8
15	14.6	14.8	15.0	14.8
20	?	?	?	

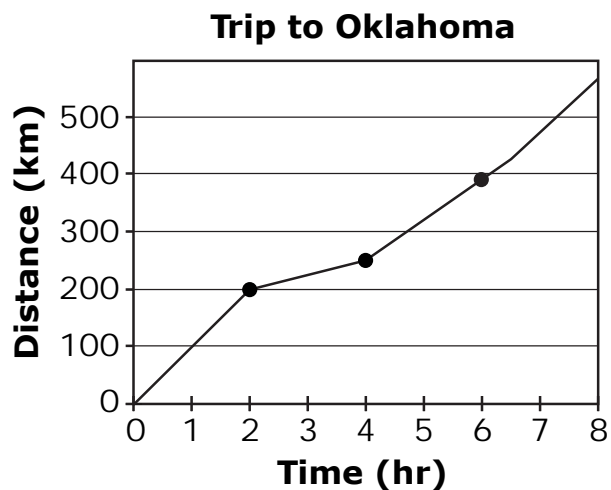
**If Mrs. Young's class changed the height of the ramp to 20 cm , what would you expect the three trial distances to be approximately?**

- A** 15.6 cm, 16.0 cm, 15.4 cm
- B** 17.7 cm, 17.8 cm, 17.7 cm
- C** 19.1 cm, 19.2 cm, 19.0 cm
- D** 21.7 cm, 21.9 cm, 22.0 cm



- 9 Michael left Texas and took a trip to Oklahoma. Every two hours he noted how far he had traveled. His data is graphed below.

533640\_2



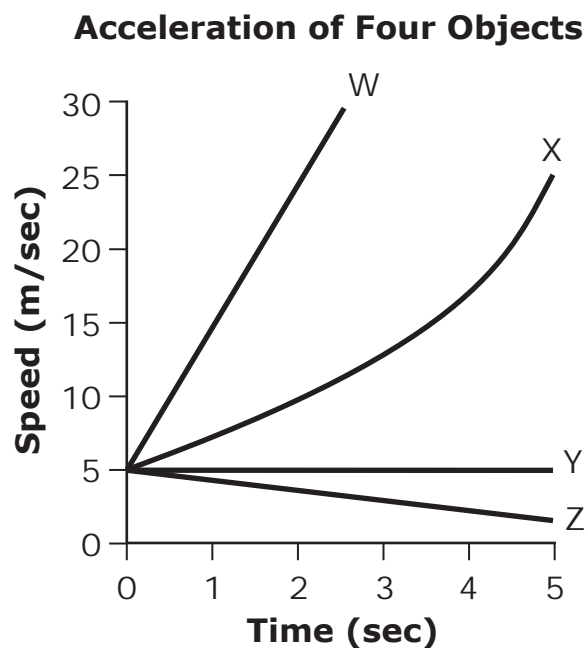
During which time interval was Michael's average speed the slowest?

- A 0 hour–2 hour
- B 2 hour–4 hour
- C 4 hour–6 hour
- D 6 hour–8 hour



**10** The motion of four objects is shown in the graph.

617818\_4



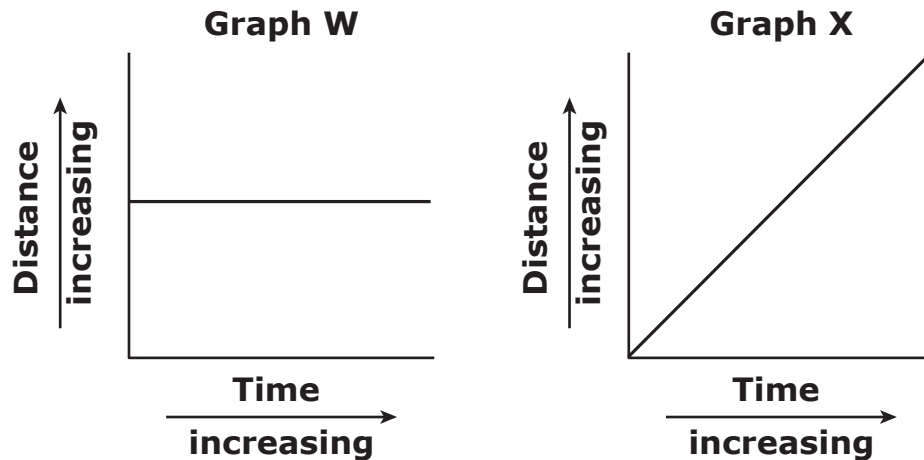
Which sequence orders the forces that are acting on the objects from least net force to greatest net force?

- A** W, X, Y, Z
- B** W, Z, Y, X
- C** Y, X, W, Z
- D** Y, Z, X, W



**11** Two motion graphs of an object are shown.

599540\_1

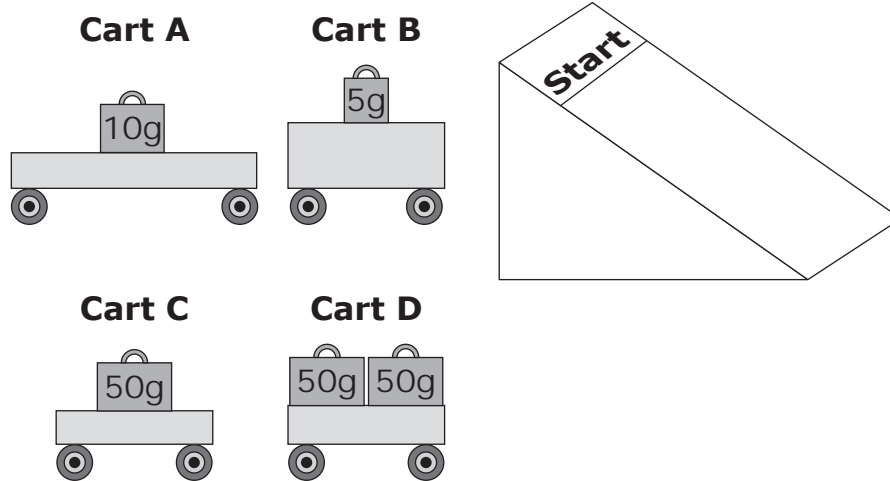


Which statement best explains the effect of forces on the motion of the object?

- A** Both graphs show that the forces acting on the object are balanced because the object has a constant velocity.
- B** Both graphs show that the forces acting on the object are unbalanced because the object has a constant velocity.
- C** Only Graph W shows that the forces acting on the object are balanced because the object is stationary.
- D** Only Graph X shows that the forces acting on the object are unbalanced because the distance the object travels increases.



- 12** Warren conducted the experiment shown below to test the effect of mass on time traveled by carts down a ramp. He added different masses to the four carts and let each cart roll down the ramp. The distance each one traveled was recorded.



Which of these would most improve the design of the experiment?

- A** Use carts that are the same color.
- B** Use ramps that have different heights.
- C** Use carts that are exactly the same.
- D** Use ramps that have different surfaces.

**Pendulum Experiment Results**

<b>Mass of Washer (g)</b>	<b>Color of String</b>	<b>String Material</b>	<b>Length of String (cm)</b>	<b>Number of Complete Swings in 15 Seconds</b>
50	red	cotton	10	22
50	black	cotton	20	16
100	black	cotton	30	14
100	red	cotton	40	11

**The chart shows how many times a pendulum swings in 15 seconds under different conditions.**

**What net force is responsible for the motion of the pendulum, and based on the data in the chart, what caused the number of complete swings of the pendulum to change?**

- A** gravity and length of the string
- B** gravity and mass of the washer
- C** air resistance and length of the string
- D** air resistance and mass of the washer



- 14** Students are classifying four birds during an investigation. They make a list of possible data they could collect.

615205\_4

**Possible Data to Collect**

1. number of wings
2. shape of beak
3. color of bird feathers
4. average mass of adult bird
5. size of nest
6. type of bone structure: hollow or solid

**Which two sets of data would produce the best information to help classify the four birds?**

- A** observation 1 and observation 3
- B** observation 1 and observation 4
- C** observation 2 and observation 5
- D** observation 2 and observation 6





- 15** In her garden, Michelle wants to plant flowers that attract butterflies and thrive in a sunny location. She wants the flowers to have small to medium blooms and would like to attract hummingbirds to her garden. Michelle uses the identification key below to make her plant selection.

**Identification Key**

Step	Characteristic	Identification
1a	attracts butterflies or moths	go to 2
1b	does not attract butterflies	indigo
2a	prefer sunny location	go to 3
2b	prefer shaded location	cardinal flower
3a	flower bloom is large	mallow
3b	flower bloom is small to medium in size	go to 4
4a	attracts hummingbirds	bee balm
4b	seeds are a food source for wildlife	go to 5
5a	flowers are yellow	coreopsis
5b	flowers are pink	coneflower

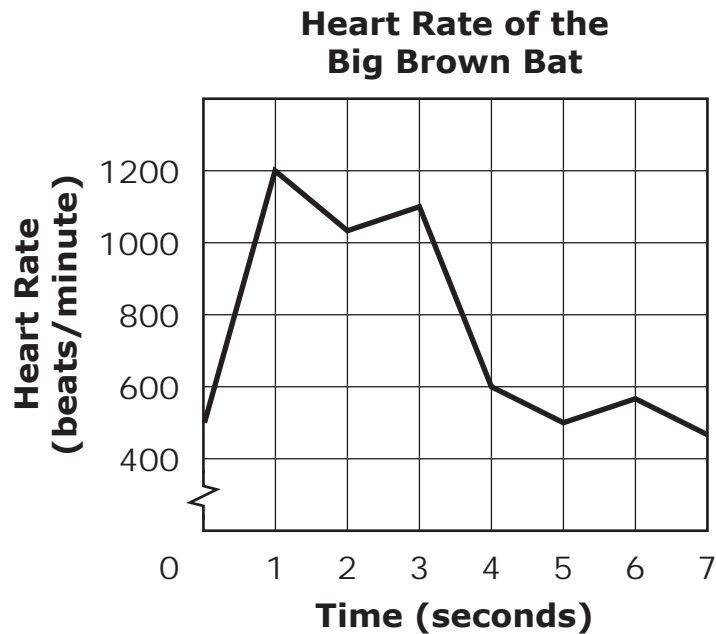
**According to this identification key, which flower did Michelle most likely choose for her garden?**

- A** indigo
- B** cardinal flower
- C** mallow
- D** bee balm



- 16** Scientists have measured the heart rate of the big brown bat at rest and during flight. They discovered that the bat's heart rate goes up during flight. The graph below shows an example of the heart rate data for the big brown bat.

530232\_3



**During which of the following intervals was the bat at rest?**

- A** 0-1 second
- B** 2-3 seconds
- C** 3-4 seconds
- D** 5-6 seconds



- 17** The movement of sediment in a stream depends on the size of the sediment and the speed of the stream.

616860\_4

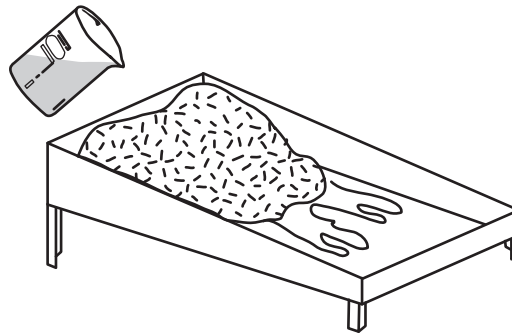
**Sediment Size**

<b>Sediment</b>	<b>Approximate Size</b>
silt	3.9 micrometers–62.4 micrometers
sand	62.5 micrometers–1.9 millimeters
gravel	2 millimeters–64 millimeters

**A stream's path becomes partially blocked, which causes the speed of the stream to decrease.**

**Which statement best describes the sediment that would deposit first on the bottom of the stream?**

- A** silt that formed from folding and faulting
- B** silt that formed from weathering and erosion
- C** gravel that formed from folding and faulting
- D** gravel that formed from weathering and erosion



**A science class investigated how the energy of different amounts of running water changed the land around the water.**

- They propped up one end of a stream table 5 cm.
- They filled the raised end of the stream table with fine sand.
- They poured 50 mL water slowly from a beaker held 6 cm above the high end.
- They repeated this experiment using 100 mL and 150 mL of water.
- They observed the small stream that formed in the sand and made detailed sketches of the results as each amount of water was used.

**In this experiment, what variable is not being controlled?**

- A** the amount of sand used
- B** the amount of water used
- C** the distance the stream table was propped
- D** the distance the beaker was held over the stream table



- 19** A group of students measured the mass of four different rock samples. Then they crushed each sample and measured the mass again. The table below shows their data.

Sample	Solid Mass (g)	Crushed Mass (g)
chalk	109.5	109.5
gypsum	112.0	112.0
limestone	88.6	88.6
graphite	72.3	72.3

**What question was this procedure most likely trying to test?**

- A** Do rocks change shape when they lose mass?
- B** How is a change in state affected by rock mass?
- C** Can rocks change form without changing mass?
- D** Is crushed mass measured differently than solid mass?



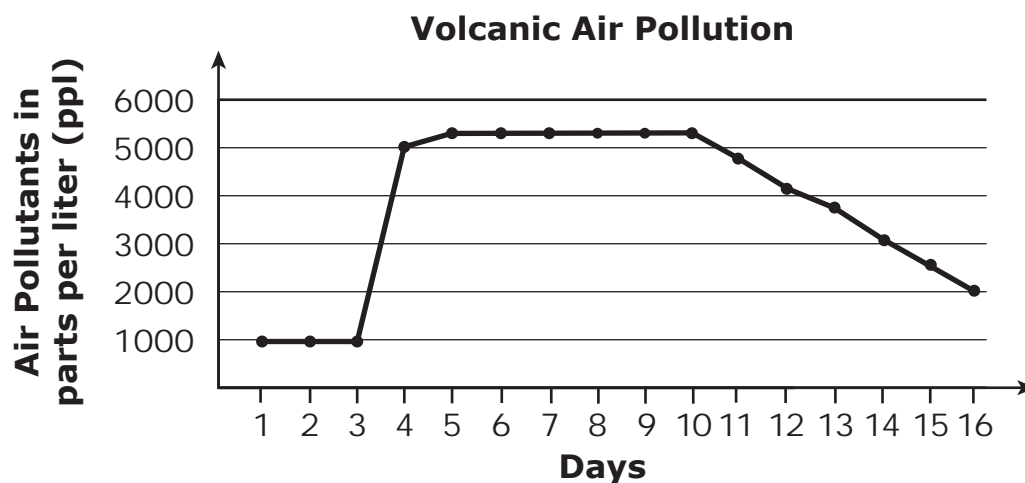
- 20** Tim went to a remote beach to collect rocks. He went alone on foot and planned to be gone all day. Tim did an investigation to determine the hardness of each of the rocks.

In what order did he do the steps shown?

**Investigation Steps**

- A. Made sure he had the necessary tools.**
- B. Measured the hardness of each rock.**
- C. Figured out how to measure the hardness of rocks.**
- D. Recorded the results in a table.**

- A** A B C D
- B** C B A D
- C** D C B A
- D** C A B D



Scientists collected this pollution data before, during, and after a volcanic eruption. Pollution data are measured in particles per liter.

When did the particles per liter (ppl) begin to decrease after the eruption?

- A** between days 3 and 4
- B** between days 5 and 6
- C** between days 10 and 11
- D** between days 14 and 15



### Eras and Periods of Geologic Time

Era	Precambrian	Paleozoic							Mesozoic			Cenozoic	
Period		Cambrian	Ordovician	Silurian	Devonian	Mississippian	Pennsylvanian	Permian	Triassic	Jurassic	Cretaceous	Tertiary	Quaternary
Millions of years ago		545	490	443	408	360	325	286	251	208	144	65	1.6

**Fossil evidence shows that the first animals to live on land lived about 400 million years ago.**

**In which period did the first animals live on land?**

- A** Ordovician
- B** Devonian
- C** Mississippian
- D** Permian





### Eras and Periods of Geologic Time

Era	Precambrian	Paleozoic							Mesozoic			Cenozoic	
Period		Cambrian	Ordovician	Silurian	Devonian	Mississippian	Pennsylvanian	Permian	Triassic	Jurassic	Cretaceous	Tertiary	Quaternary
Millions of years ago		545	490	443	408	360	325	286	251	208	144	65	1.6

### Fossil Evidence

Many organisms became extinct around 245 million years ago.  
Flowering plants first appeared toward the end of the Mesozoic era.  
First vertebrates were fish-like organisms that appeared in the Ordovician period.

**Which sequence of events shows the correct order, in geologic time, from earliest to most recent?**

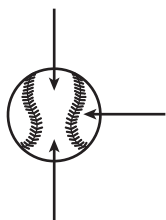
- A** first vertebrates — mass organism extinction — flowering plants first appeared
- B** flowering plants first appeared — mass organism extinction — first vertebrates
- C** first vertebrates — flowering plants first appeared — mass organism extinction
- D** flowering plants first appeared — first vertebrates — mass organism extinction



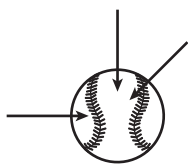
24 Which diagram of a baseball shows balanced net forces?

533621\_4

A



B



C



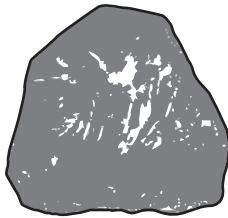
D





**Sedimentary rocks are formed when layers of loose sediment cement together. Many contain fossils.**

**Use the information provided above to determine which of these is most likely a sedimentary rock.**

**A****B****C****D**

