TRIAND

Test Booklet

Subject: SC, Grade: 08
Scientific process skills/Kinetic... Test - copy for Darlyne Howes

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1 Which question can be **most** easily answered by doing a scientific experiment?

A Where is the tallest tree in the world?

B What is the average lifespan of humans?

C Why do humans dream while they are asleep?

D How does heart rate change when a person exercises?

2 Students collected and counted some leaves in a park. They sorted the leaves into two groups—small leaves and large leaves. The students then recorded the shape and color of the leaves. Statements made by the students during this activity are shown below.

1. Most of the large leaves have pointed tips.
2. The small leaves are a darker green than the large leaves.
3. The large leaves have pointed tips to help collect sunlight.
4. We collected ten more small leaves than large leaves.
5. The leaves that are dark green produce food faster than the light-green leaves

Some of these statements are observations and some are inferences.

A. Explain the difference between an observation and an inference.

B. Identify one of the statements that is an inference and one of the statements that is an observation.

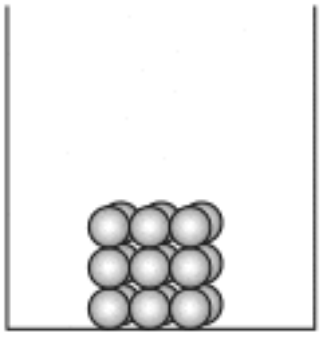
3 Changes that are observed in everyday living are listed below.

• Rusting iron • Cutting paper • Burning wood • Cooking an egg • Charging a battery
• Making lemonade • Melting ice • Mowing grass • Eating food

(a.) Choose **six** changes from the list and identify each change as a physical or a chemical change.

(b.) Explain your reasoning for each of your identifications.

4 The diagram below shows a model in an open container. The model represents the arrangement of particles of matter in a solid phase.



Solid

a.) Draw a diagram showing the arrangement of these particles in a liquid phase. Explain why the particles have this arrangement. Be sure to describe the energy of the particles.

b.) Draw a diagram showing the arrangement of these particles in a gas phase. Explain why the particles have this arrangement. Be sure to describe the energy of the particles.

5 The picture below shows a demonstration of water changing from the liquid phase to the gas phase as it boils in a beaker.

Which of the following statements explains why this demonstration **cannot** be used to prove that matter is conserved during a change of phase?

A The change of phase is incomplete.

B Water is changing both phase and temperature.

C Water in the gas phase is lighter than liquid water.

D The change of phase is taking place in an open system.

6 An open pot of water is heated on the stove. As water boils, the molecules _____.

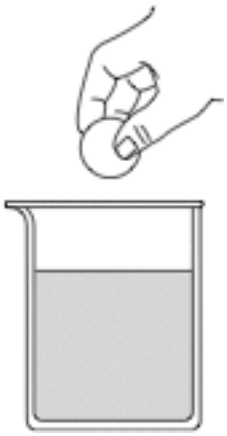
A move slower and closer together

B move faster and farther apart

C get larger

D get smaller

7 A student places a solid effervescent (seltzer) tablet into a liquid. The student knows a chemical change has occurred if



A a gas is produced.

B the solid tablet sinks.

C a mixture is produced.

D the solid tablet dissolves.

8 Nancy sells orange juice and lemonade. She charges different prices for small, medium, and large sizes of these drinks. What are the independent and dependent variables?

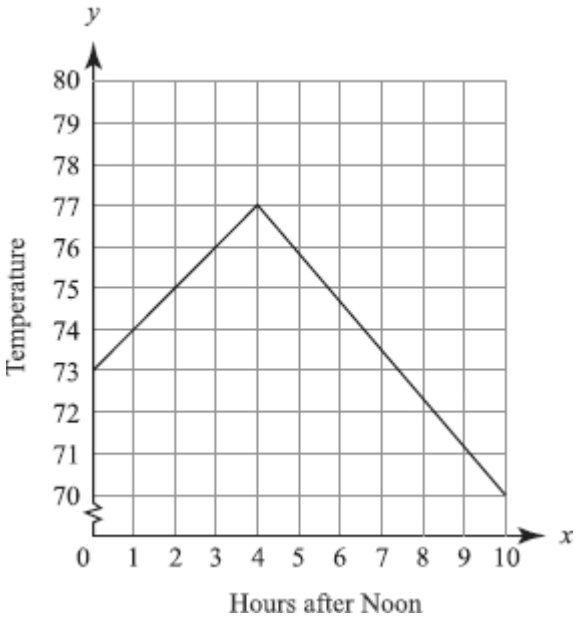
A Independent variable: drink size
Dependent variable: price charged

B Independent variable: type of drink
Dependent variable: price charged

C Independent variable: price charged
Dependent variable: drink size

D Independent variable: price charged
Dependent variable: type of drink

9 Which statement is true for the graph below?



A The hours are the dependent variable.

B The hours are the independent variable.

C The temperature is the independent variable.

D Either temperature or hours can be the dependent variable.

10 Alice conducted a controlled experiment and tested a single variable. She used one earthworm for her experiment and conducted the experiment once. She typed her conclusion and glued it to her science project poster. The next day, Alice was surprised to find out that she received a low grade on her conclusion.

What could Alice do differently to increase her grade on her conclusion?

A test more variables in her experiment

B print her conclusion bigger and in brighter colors

C collect more data by repeating the experiment or using more worms

D copy information on earthworm behavior from the resource materials she used

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11 A student wants to determine if different colored boxes produce the same temperature as a white box. The student places white, blue, and red boxes of the same size in the sunlight. A thermometer is placed inside each box. The student observes and records the temperatures in the boxes throughout the day. Which is the dependent variable in this investigation?

A size of the boxes

B repeated trials

C color of the boxes

D recorded temperatures

12 Students conducted an investigation to determine if mold grows on only certain types of bread. The students dripped water on four types of bread and covered the damp bread with plastic wrap. Each piece of bread was placed in a different dark area. The data table below shows the information the students collected after four days.

BREAD MOLD GROWTH

Type of Bread	Water (milliliters)	Temperature (°Celsius)	Presence of Mold
Rye	5	1	No
Sourdough	5	22	Yes
White	5	24	Yes
Wheat	5	40	Yes

Which of these changes should the students make to their investigation to develop a valid conclusion?

A Use only two types of bread.

B Drip more water on each piece of bread.

C Keep all the bread at the same temperature.

D Place some of the pieces of bread in a lighted area.

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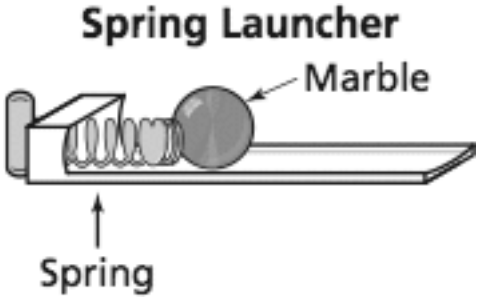
13 Students put a spring launcher on a wooden floor. The students applied different amounts of force on a marble with the spring. They used a meter stick to measure how far the marble rolled.



What is the dependent variable in this investigation?

A mass of the marble

B amount of friction from the floor

C amount of stretch in the spring

D distance traveled by the marble

14 Dennis and Mark obtain two medium-sized containers. They fill both containers with soil, and plant one bean seed in each container. After planting, one container is watered with fertilizer and the other container is watered with plain water. Both containers are placed on a sunny windowsill. Every day for three weeks, Dennis and Mark observe the containers and record their observations.

1. Write a testable hypothesis for Dennis and Mark's experiment.

2. What variable is changed in Dennis and Mark's experiment?

3. List one way Dennis and Mark could improve their experiment.

4. List one more way Dennis and Mark could improve their experiment.

15 Which of these is an example of a chemical reaction?

A A pot of water boiling

B An iron nail rusting

C Corn being ground

D Sugar dissolving in tea