

GRADE 8

STUDENT PRACTICE TEST BOOKLET

Student Name: _____



MEA

Maine Educational Assessment

RELEASED 2018 SCIENCE ITEMS

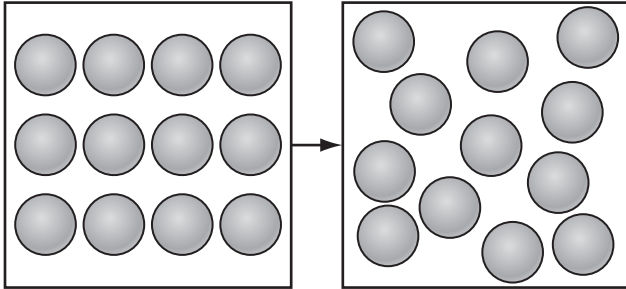
Maine Department of Education

SCIENCE PRACTICE TEST

This practice session has ten multiple-choice and two constructed-response questions.

Choose the best answer for each multiple-choice question and mark your answer choices for questions 1 through 10 in the spaces provided on page 2 of your practice test answer booklet.

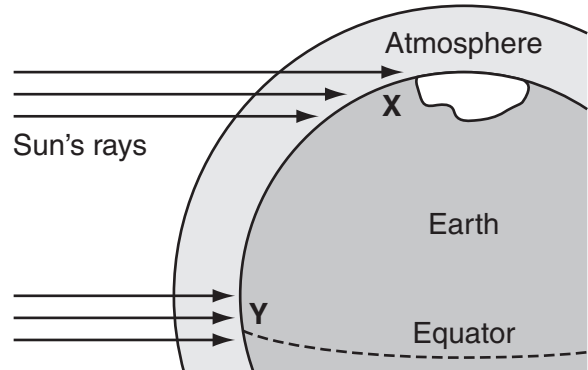
- 1 The diagram below shows a change in the arrangement of atoms within a substance.



What type of change is **most likely** shown in this diagram?

- A. a phase change from gas to liquid
- B. a phase change from solid to liquid
- C. a chemical change in which a metal rusts
- D. a physical change in which a solute dissolves in a solvent

- 2 The diagram of Earth below shows an arctic climate at location X and a tropical climate at location Y.



What is one reason that the climates at location X and location Y are different from each other?

- A. The Sun's rays are less direct at location X.
- B. The Sun's rays are reflected more by the atmosphere at location Y.
- C. The atmosphere is less dense at location X so very little heat is held.
- D. The atmosphere is more dense at location Y so there is less wind circulation.

PLEASE GO ON →

3 The periodic table is shown below.

Periodic Table

| | | | | | | | | | | | | | | | | | |
|---------|----|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|---------|
| 1 1A | | | | | | | | | | | | | | | | | 18 0 |
| 2 2A | | | | | | | | | | | | 13 3A | 14 4A | 15 5A | 16 6A | 17 7A | He |
| Li | Be | | | | | | | | | | | B | C | N | O | F | Ne |
| Na | Mg | 3 3B | 4 4B | 5 5B | 6 6B | 7 7B | 8 8B | 9 8B | 10 8B | 11 1B | 12 2B | Al | Si | P | S | Cl | Ar |
| K | Ca | Sc | Ti | V | Cr | Mn | Fe | Co | Ni | Cu | Zn | Ga | Ge | As | Se | Br | Kr |
| Rb | Sr | Y | Zr | Nb | Mo | Tc | Ru | Rh | Pd | Ag | Cd | In | Sn | Sb | Te | I | Xe |
| Cs | Ba | La | Hf | Ta | W | Re | Os | Ir | Pt | Au | Hg | Tl | Pb | Bi | Po | At | Rn |
| Fr | Ra | Ac | Unq | Unp | Unh | Uns | Uno | Une | | | | | | | | | |

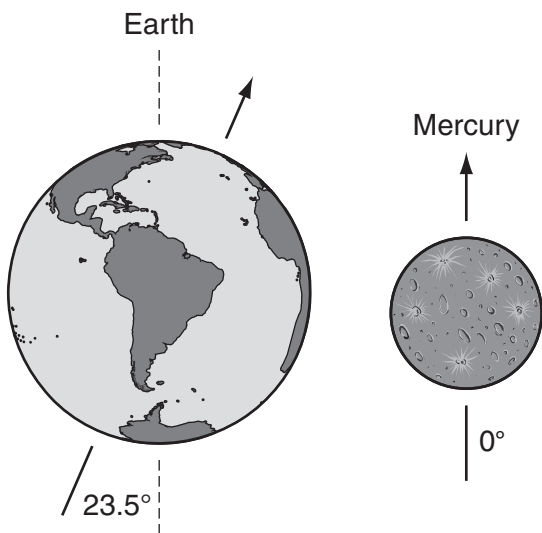
What makes the elements in group 18 different from the elements in other groups?

- A. Group 18 elements are radioactive.
- B. Group 18 elements are not highly reactive.
- C. Group 18 elements are liquids at room temperature.
- D. Group 18 elements are man-made.

PLEASE GO ON →

- 4 What happens to the matter in a tree when the tree dies?
- A. It decomposes and is destroyed completely.
 - B. It evaporates in the form of water and oxygen.
 - C. It becomes hidden under soil but remains intact.
 - D. It decomposes and is recycled into other organisms and substances.

- 5 The diagram below shows Earth and Mercury.



What would be **most** affected on Earth if the angle of its axis were closer to that of Mercury?

- A. solar eclipses and tides
- B. lunar eclipses and solar flares
- C. the seasons and the number of daylight hours
- D. the length of the year and the phases of the Moon

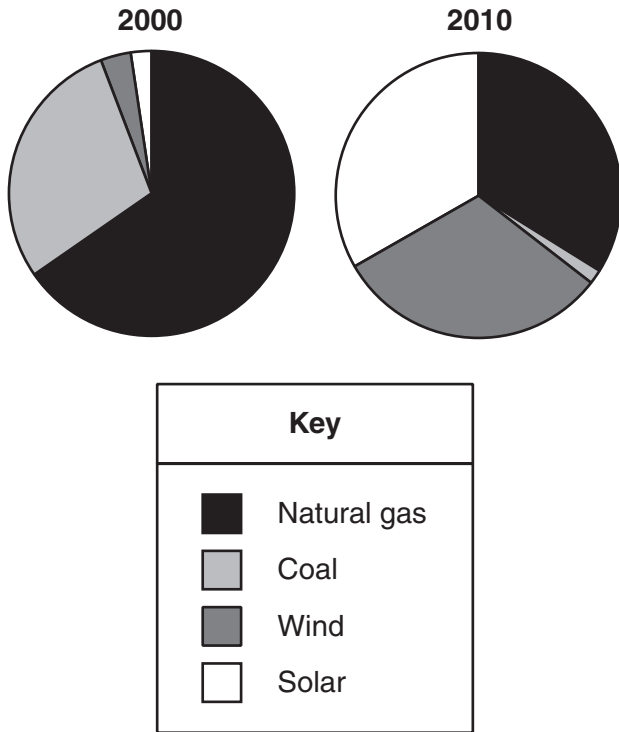
- 6 One student is pulling two classmates on a sled across the snow. The sled stops suddenly when it reaches a sidewalk, and the student can no longer pull her classmates on the sled even when she pulls harder.

Why did the sled stop moving?

- A. The force of gravity increased.
- B. The force of friction increased.
- C. The force of gravity decreased.
- D. The force of friction decreased.

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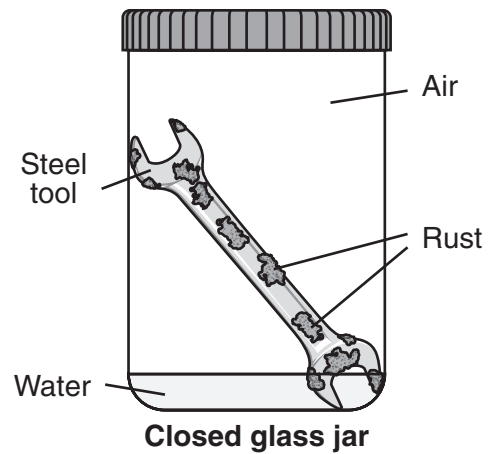
- 7 In 2000, a community decided to make changes to the way it uses energy resources in order to better care for the environment. The pie charts below show the types of energy resources used by households and businesses in the community in 2000 and 2010.



Based on the pie charts, what will **most likely** happen because of the changes made by the community?

- A. There will be no more air pollution in the community.
- B. The residents will no longer have to pay utility bills.
- C. Limited resources will be used at a slower rate.
- D. Renewable resources will be eliminated.

- 8 A student places a steel tool inside a glass jar with air and a small amount of water. The student completely closes the jar and sets it aside for two weeks. During the two-week period, rust forms on the tool, as shown in the diagram below.



Which table shows the atomic changes that would occur as a result of the rust forming on the steel tool?

A.

| Air in Jar | Rusting Steel Tool |
|---------------------------|--------------------------|
| Gains atoms from the rust | Gains atoms from the air |

B.

| Air in Jar | Rusting Steel Tool |
|--------------------------|--------------------------|
| Loses atoms to form rust | Gains atoms from the air |

C.

| Air in Jar | Rusting Steel Tool |
|------------|--------------------|
| No change | No change |

D.

| Air in Jar | Rusting Steel Tool |
|--------------------------|------------------------|
| Loses atoms to form rust | Loses atoms to the air |

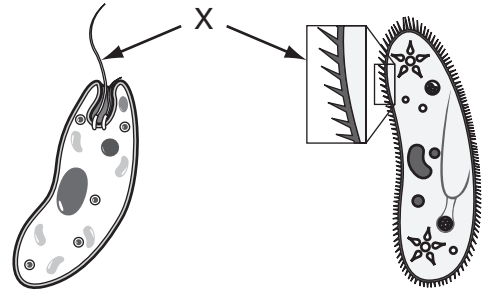
PLEASE GO ON →

- 9 The offspring of a male lion and a female tiger is a liger. They are usually born in zoos because lions and tigers live in different habitats when they are in the wild. Ligers are much larger than either of their parents and cannot reproduce.

Which evidence can be used to determine whether lions and tigers are the same species or different species?

- A. Lions and tigers are different species because ligers cannot produce offspring.
- B. Lions and tigers are the same species because they can produce liger offspring.
- C. Lions and tigers are the same species because ligers are much larger than lions or tigers.
- D. Lions and tigers are different species because they live in different habitats in the wild.

- 10 The diagram below shows two organisms, a euglena and a paramecium.



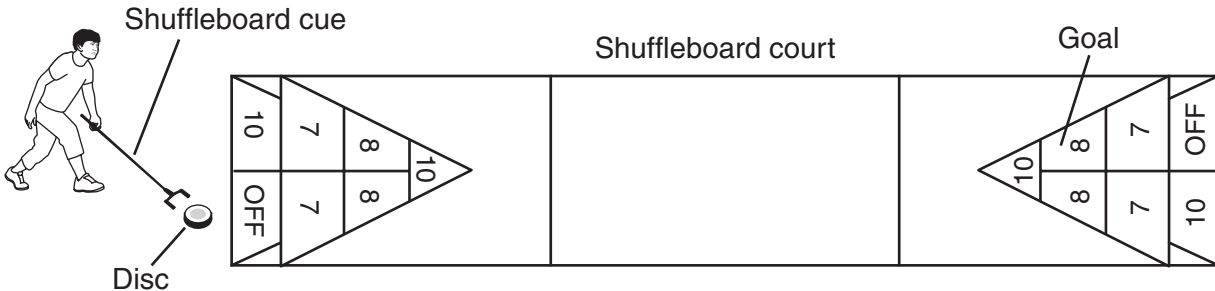
What is the function of the structures labeled X?

- A. asexual reproduction
- B. defense
- C. food production
- D. movement

PLEASE GO ON ➔

Write your answers to constructed-response questions 11 and 12 in the boxes provided on pages 2 and 3 of your practice test answer booklet. Be sure to answer and label all parts (a, b, c, etc.) of the questions.

- 11 Shuffleboard is a game in which players use cues to push a solid flat disc down a smooth flat court into a triangular scoring area at the opposite end of the court. The diagram below illustrates the equipment used on a typical shuffleboard court.



A shuffleboard player applies a force of 5 N to the disc, and the disc lands on the opposite end of the course in the OFF scoring space.

- Make a claim about how the amount of force applied to the disc should change in order for the disc to come to rest in one of the 8-point scoring spaces. Use the diagram to explain your reasoning.
- Identify two forces that act on the disc after it has left the cue, and describe how these forces affect the motion of the disc.

PLEASE GO ON →

- 12 Many plants that are used for food today have been altered by genetic modification. Some of these plants are corn, potatoes, soybeans, and sugar beets. In genetic modification, the genetic makeup of a plant can be altered to give the plant a desirable trait, such as increased resistance to drought, by adding genes to the plant's DNA.
- a. Describe **two** advantages of using new drought-resistant plants created by genetic modification.
 - b. Describe **two** disadvantages of producing new drought-resistant plants created by genetic modification.

