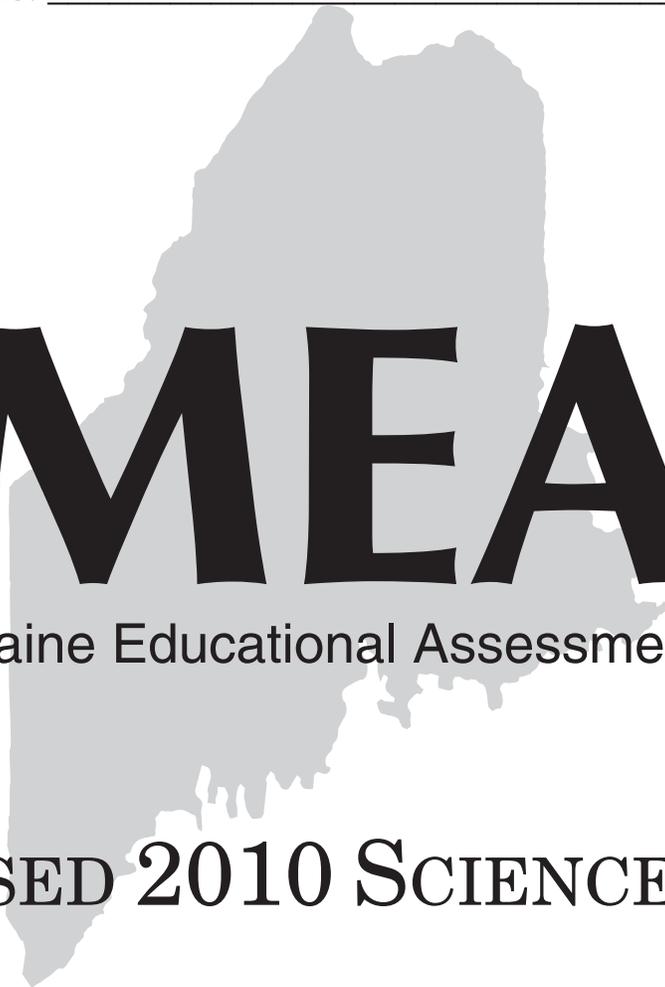


GRADE 8

STUDENT PRACTICE TEST BOOKLET

Student Name: _____



MEA

Maine Educational Assessment

RELEASED 2010 SCIENCE ITEMS

Maine Department of Education

SCIENCE PRACTICE TEST

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

Choose the best answer for each multiple-choice question. Fill in the bubble next to your answer choices for questions 1 through 20 on page 2 of your practice test answer booklet. Multiple-choice questions are worth 1 point each.

- 1 The picture below shows a maple seed.



How will this type of seed **most likely** be spread?

- A. by the Sun
 - B. by birds
 - C. by insects
 - D. by the wind
- 2 Which of the following is found in all living organisms?
- A. cell
 - B. organ
 - C. organ system
 - D. tissue

- 3 The table below shows the approximate wavelengths of violet and red colors.

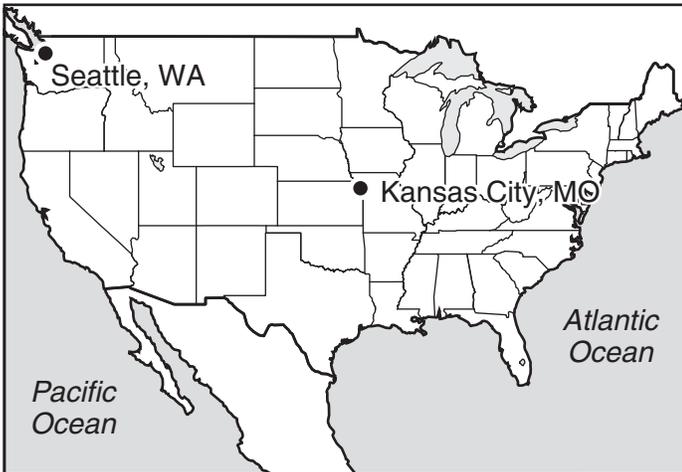
Color	Wavelength
Violet	400 nanometers
Red	700 nanometers

What range of wavelengths is visible to human eyes?

- A. less than 400 nm
 - B. more than 700 nm
 - C. less than 400 nm and more than 700 nm
 - D. more than 400 nm and less than 700 nm
- 4 Which statement describes the location of our Sun in the universe?
- A. Our Sun orbits Earth in the Andromeda galaxy.
 - B. Our Sun orbits Earth in the Milky Way galaxy.
 - C. Our Sun is the center of a solar system in the Milky Way galaxy.
 - D. Our Sun is the center of a solar system in the Andromeda galaxy.

PLEASE GO ON ➔

- 5 The map below shows the locations of Seattle, Washington and Kansas City, Missouri.



Which statement **best** explains why Seattle has warmer winters and cooler summers than Kansas City?

- A. Seattle is closer to an ocean.
 B. Seattle is located at a higher latitude.
 C. Seattle is located near an active volcano.
 D. Seattle has longer summer days and shorter winter days.
- 6 What can scientists learn about the past by studying sedimentary rocks?
- A. how a species changed over time
 B. how animals made a shelter
 C. the color of leaves on a plant
 D. the number of chambers in a dinosaur's heart

- 7 Giant redwood trees change energy from one form to another. How is energy changed by the trees?
- A. They change chemical energy into kinetic energy.
 B. They change solar energy into chemical energy.
 C. They change wind energy into heat energy.
 D. They change mechanical energy into solar energy.

- 8 The table below shows five elements and the way they react with chlorine (Cl).

Element	Compound Formed when Reacted with Chlorine
Sodium (Na)	NaCl
Aluminum (Al)	AlCl ₃
Potassium (K)	KCl
Magnesium (Mg)	MgCl ₂
Calcium (Ca)	CaCl ₂

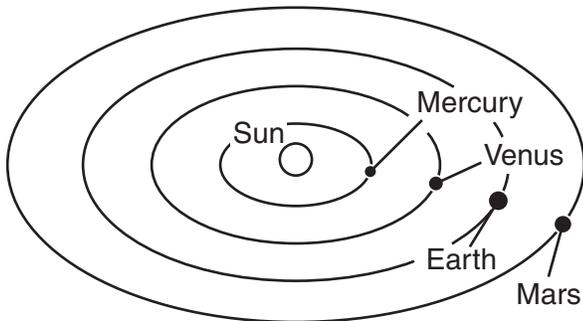
Which two elements are **most likely** from the same family or group in the periodic table?

- A. calcium and chlorine
 B. sodium and potassium
 C. potassium and aluminum
 D. aluminum and magnesium

PLEASE GO ON ➡

- 9 During which process does genetic material come from two parents?
- A. asexual reproduction
 - B. photosynthesis
 - C. respiration
 - D. sexual reproduction

- 10 The diagram below shows some of the planets in our solar system.



Which statement **best** describes these planets?

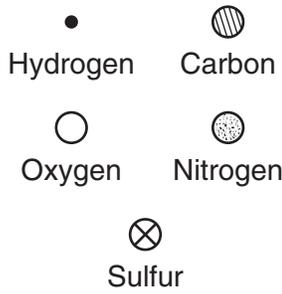
- A. They are made of gases.
- B. They are made of rock.
- C. They move at the same speed around the Sun.
- D. They travel the same distance around the Sun.

- 11 When the motion of liquid water molecules slows, what **most likely** happens?
- A. The liquid water forms a solid.
 - B. The liquid water condenses.
 - C. The liquid water undergoes a chemical change.
 - D. The liquid water becomes a vapor.

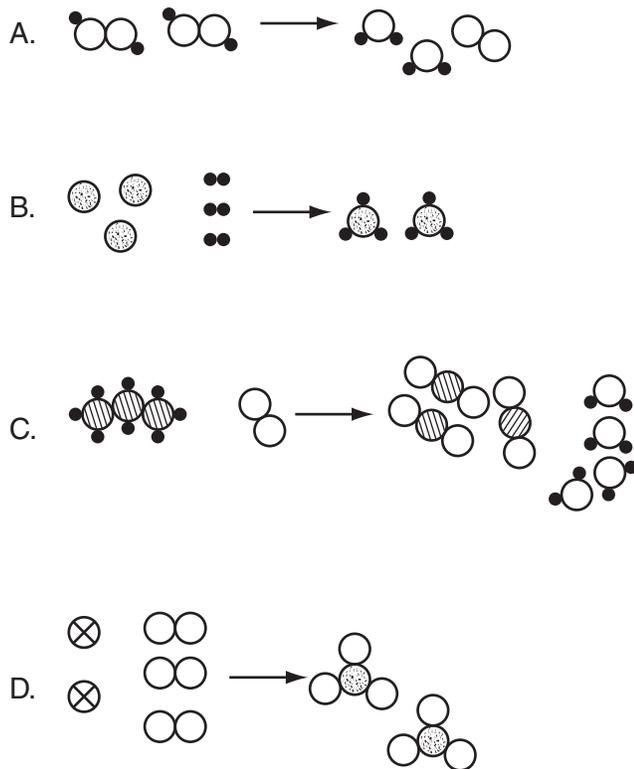
- 12 Which statement explains why a mother's unhealthy diet during pregnancy is harmful to her embryo's development?
- A. The embryo inherits half its chromosomes from its mother.
 - B. The embryo receives its food from its mother through the placenta.
 - C. The embryo receives oxygen through the placenta.
 - D. The embryo receives mutations carried by its mother.

PLEASE GO ON ➔

- 13 Each circle shown below represents a different atom.



Which diagram illustrates that matter is always conserved during a chemical reaction?



- 14 How do warm ocean currents move to cooler ocean regions of Earth?

- A. by conduction
- B. by convection
- C. by evaporation
- D. by radiation

- 15 Which device produces mechanical energy?

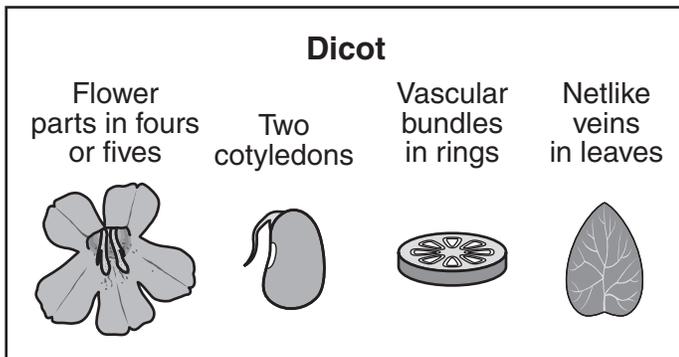
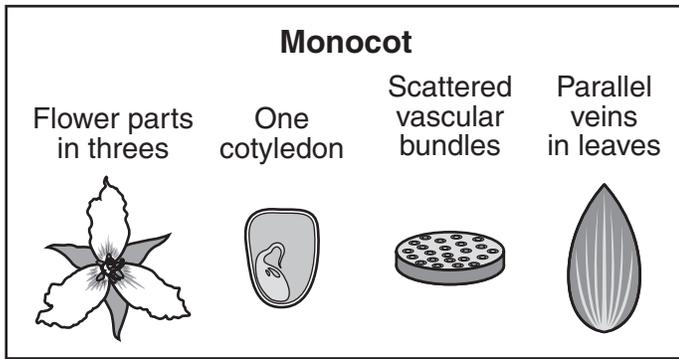
- A. a battery
- B. an electric motor
- C. a lightbulb
- D. a solar cooker

- 16 Which event would **most likely** cause a rapid extinction of organisms?

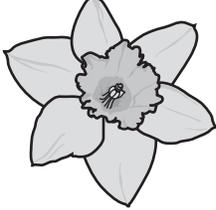
- A. a large asteroid impact
- B. regional drought
- C. new glacier formation
- D. a decrease in the growth of weeds

PLEASE GO ON ➡

- 17 The diagrams below show characteristics of monocot and dicot flowering plants.



Which picture represents a part of a member of the dicot group?

- A. 
- B. 
- C. 
- D. 

- 18 Which statement **best** explains why wood is considered a renewable energy resource and coal is not?

- A. Wood is easier to find than coal.
- B. Wood has less carbon per unit mass than coal.
- C. Wood grows more quickly than coal forms.
- D. Wood has less stored energy per unit mass than coal.

- 19 Which chemical is a compound?

- A. helium (He)
- B. hydrochloric acid (HCl)
- C. hydrogen (H₂)
- D. nitrogen (N₂)

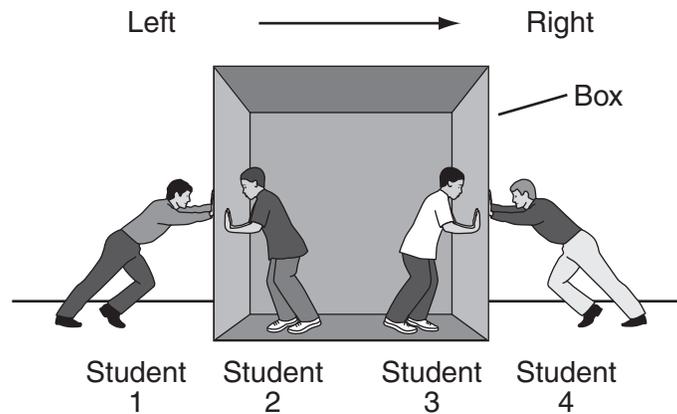
- 20 What is the **most likely** outcome of the Moon moving away from Earth?

- A. A lunar day is shorter.
- B. A lunar eclipse lasts longer.
- C. Earth moves closer to the Sun.
- D. Earth's tides decrease in size.

PLEASE GO ON →

Write your answers to constructed-response questions 21 and 22 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 question. Constructed-response questions are worth up to 4 points each.

- 21 In the diagram below, four students are pushing a rigid box with unequal forces from different positions. As a result, the box starts moving toward the right.



- Identify which student(s) is causing the box to move to the right.
 - Explain what the effect on the box will be if students 2 and 3 stop pushing on the box.
 - Explain what the effect on the box will be if student 1 stops pushing on the box.
- 22 Corn can be genetically modified to contain a chemical that is poisonous to many insects. All parts of the genetically modified corn plant can make this chemical throughout the life of the corn. When an insect eats any part of the corn plant, the insect eats the chemical and dies. This chemical is harmless to humans and other mammals.
- Describe **two** benefits to farmers who use the genetically modified corn.
 - Describe **two** negative environmental impacts of using the genetically modified corn.

