Name: Teacher:

MAP Science Test Prep, Unit C Test

Constructed-Response Items

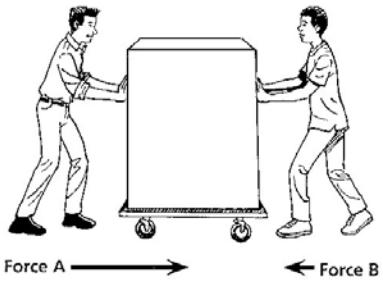
Directions: Type the answer in the square that follows each question.

1. Friction is the force that results when two materials rub against each other.

(a) Look at the drawing above. Does it take more force to skate on smooth ice or on dry pavement? Explain your answer.

(b) Why is it important for a car to have rough treads on its tires?

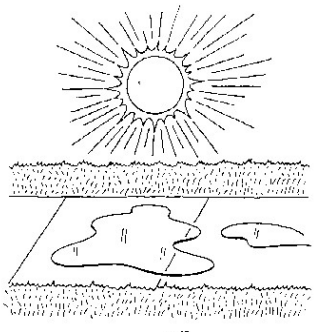
2. The drawing below shows two people pushing on a box. The person on the left is pushing with a greater force (Force A) than the force of the person on the right (Force B).



(a) Identify <u>four</u> forces that are acting on the box.

(b) In which direction do you predict the box will move? Explain your answer.

3. Phase changes occur because of the motion of atoms or molecules.
(a) Explain what process is happening to the water as the Sun warms it.



(b) The motion of the particles in the water changes as the water is heated. What is the difference between the particles before they are heated and after they are heated?

4. Chemists have made important discoveries that affect the way people live.

(a) Give an example of chemical technology that made our modern transportation system possible. What is a positive effect of that technology on humans?

(b) What is a positive effect of Sir Alexander Fleming's work on human health?

Selected-Response Items

Directions: Read each question and answer choice. Mark in the circle next to each correct answer choice.

1. In a liquid thermometer, the liquid expands as the temperature rises. What causes the particles of liquid to expand?
   - ◯ The particles move slower.
   - ◯ The thermal energy of the particles decreases.
   - ◯ The average kinetic energy of the particles increases.
   - ◯ The average potential energy of the particles increases.

2. A student pushed a box up a ramp on the back of a truck. What effect does the ramp have on the amount of work done?
   - ◯ It causes less work to be done.
   - ◯ It causes more work to be done.
   - ◯ It causes the same amount of work to be done over a greater distance.
   - ◯ It causes the same amount of work to be done over a smaller distance.

3. Suppose a room has an air temperature of 20 degrees Celsius. Which statement describes what happens to a tray of ice cubes placed in the room?
   - ◯ Gases change to solids.
   - ◯ Solids change to liquids.
   - ◯ Gases change to liquids.
   - ◯ Liquids change to solids.

4. Which of the following describes work being done?
   - ◯ studying for a test
   - ◯ lifting a book bag
   - ◯ pulling on a locked door
   - ◯ holding a bag of groceries while standing still

5. The picture is an example of which type of simple machine?
   - ◯ lever
   - ◯ inclined plane
   - ◯ pulley
   - ◯ wheel and axle

6. Which statement is true about light?
   - The direction of light cannot be changed.
   - Light cannot travel in a vacuum.
   - Light travels as waves.
   - Light always travels at the same speed.

7. A scientist is experimenting with a substance that has a definite volume and takes the shape of its container. In what state of matter is the substance?
   - compound
   - gas
   - liquid
   - solid

8. As the loudness of sound increases by 10 decibels, the sound carries 10 times more energy. Use the table above to calculate which sound has 100 times more energy than the sound made by a whisper.
   - mosquito
   - normal breathing
   - normal conversation
   - refrigerator humming

Decibel Levels of Some Sounds

Sound	Decibel Level
Normal breathing	10
Mosquito	20
Whisper	30
Refrigerator humming	40
Normal conversation	50

9. Which technology would stop electricity from escaping out of a circuit?
   - conductors
   - insulators
   - power sources
   - resistors

10. A student wants to find the mass of a metal block. What tool should the student use?
    - balance
    - graduated cylinder
    - metric ruler
    - spring scale