

## CISD Grade 6 Science Unit 06

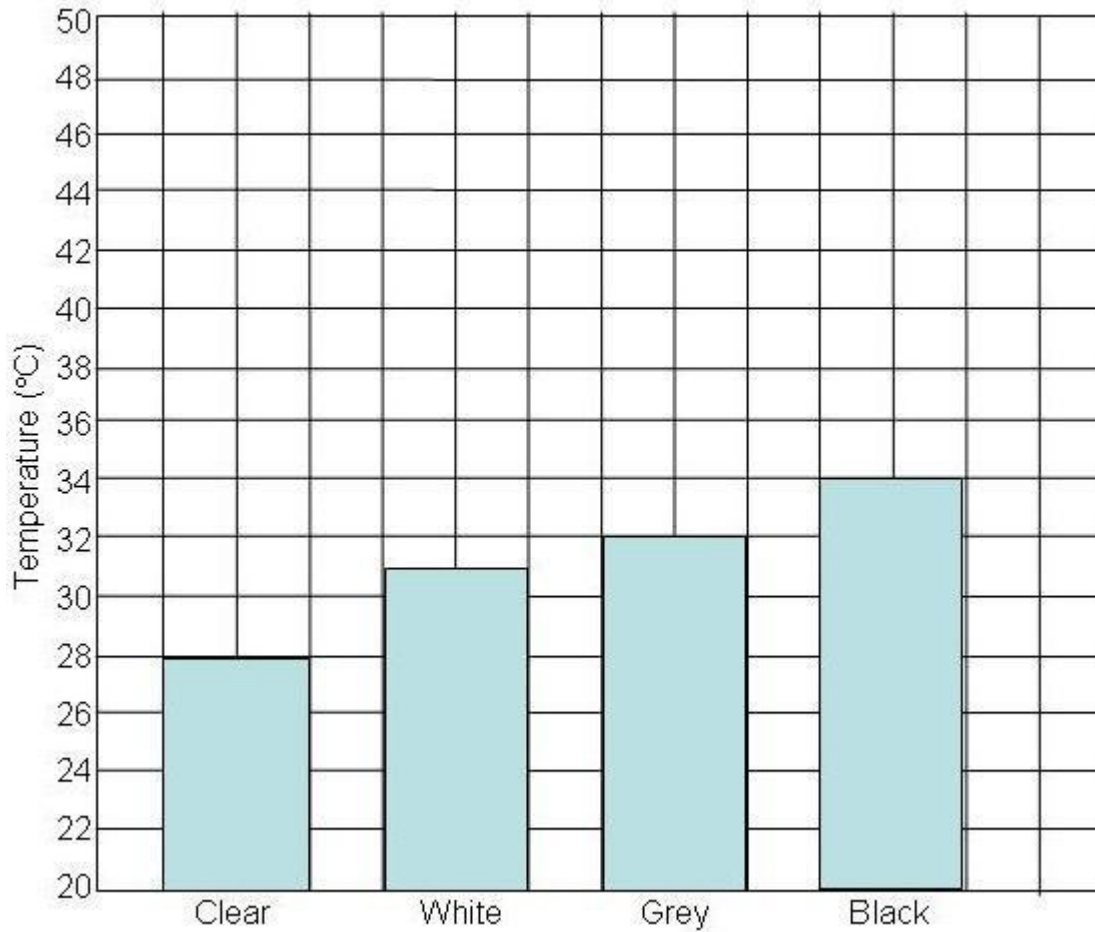
Some questions (c) 2012 by CSCOPE.

- 1** Which action in the science laboratory transforms chemical energy to heat energy?
- A** using a hot plate to boil a beaker of water
  - B** using a candle to melt sulfur in a test tube
  - C** growing potted plants near a window
  - D** flipping the light switch to turn on classroom lights
- 2** The Law of Conservation of Energy states that —
- F** energy is totally lost
  - G** more energy is produced
  - H** energy changes to matter like chemicals
  - J** energy changes form, but is not lost or gained

- 3** Sally is roasting a marshmallow over a campfire on the end of a piece of wire. She knows that the energy from the fire causes the molecules in the end of the wire that are closest to the fire to move faster. These molecules transfer some of their extra kinetic energy to other molecules close by, and these, in turn, affect still more molecules. Sally knows that this method of energy transfer is —
- A** convection
  - B** condensation
  - C** conduction
  - D** radiation

**Use the graph for questions 4-7.**

Jacob designed an experiment to see how the color of a surface affects the amount of heat absorbed. He filled 4 different colored beakers with 20 °C water and exposed them to a heat source for 60 minutes. The graph illustrates Jacob's data at the end of the experiment.



**4** What is the final temperature of the water in the white jar?

- F** 28 °C
- G** 31 °C
- H** 33 °C
- J** 34 °C

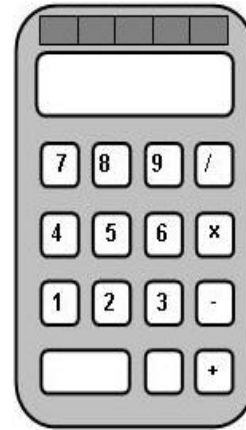
- 5 Which step should be Jacob's last step in his experiment?
- A Record the temperature of the water at 15-minute intervals.
  - B Place the beakers 10 centimeters from a heat lamp.
  - C Measure the initial temperature of the water.
  - D Cover one beaker with white paper, one beaker with grey paper, one beaker with black paper, and leave one jar uncovered.
- 6 What is the BEST title for Jacob's graph?
- F Colors Matter
  - G How the Color of a Container Affects Energy Transfer
  - H The Four Jar Experiment
  - J Why Does Water Heat Up in Different Types of Containers?
- 7 What should be the label of the x-axis?
- A Increase
  - B Energy Transfer
  - C Color of Jars
  - D Comparison

- 8 Which of the following energy transformations is most similar to an electric pencil sharpener?

F



G



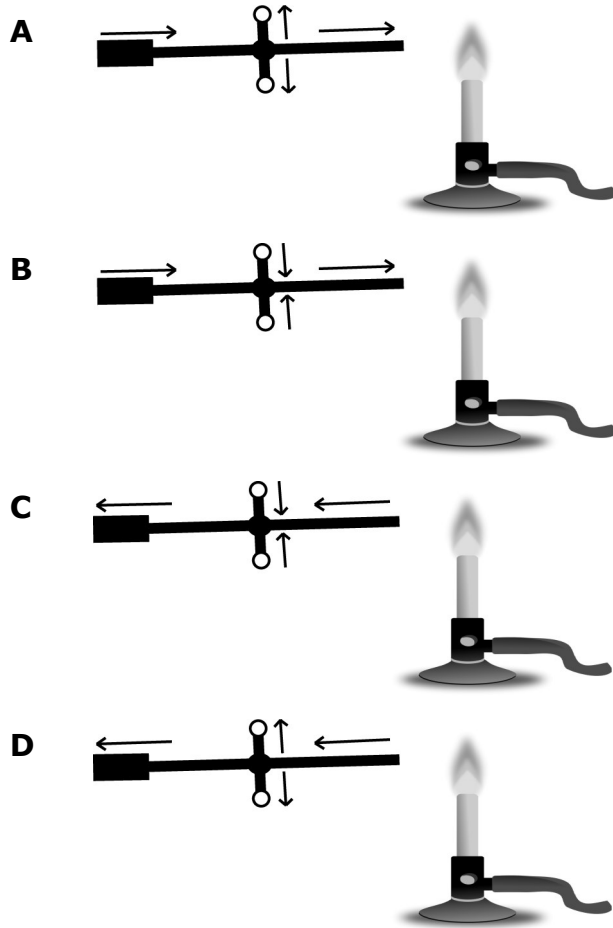
H



J



9 What diagram most accurately shows the movement of thermal energy?



10 Jacob is standing with his back facing a campfire. He notices that his back is much warmer than his chest. He knows that heat energy is being transferred from the fire and that this method of energy transfer can happen even if no air is present. This method of energy transfer is —

- F convection
- G condensation
- H conduction
- J radiation

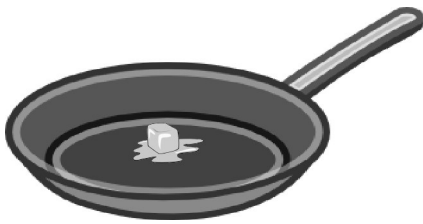
11 Bobby is drinking a cup of hot chocolate as he sits by a campfire on a chilly evening. He knows that the cup of hot chocolate transfers thermal energy to the surrounding air. The heated air over his cup of hot chocolate expands and rises and is replaced by cooler, denser, air. This method of energy transfer is —

- A convection
- B condensation
- C conduction
- D radiation

**12** Two friends decide to go to the park and watch a movie on a computer. The computer runs on battery power. What energy conversion is occurring from the battery to the light being given off by the computer?

- F** chemical, electrical, light
- G** chemical, electrical, sound
- H** electrical, light, sound
- J** electrical, chemical, light

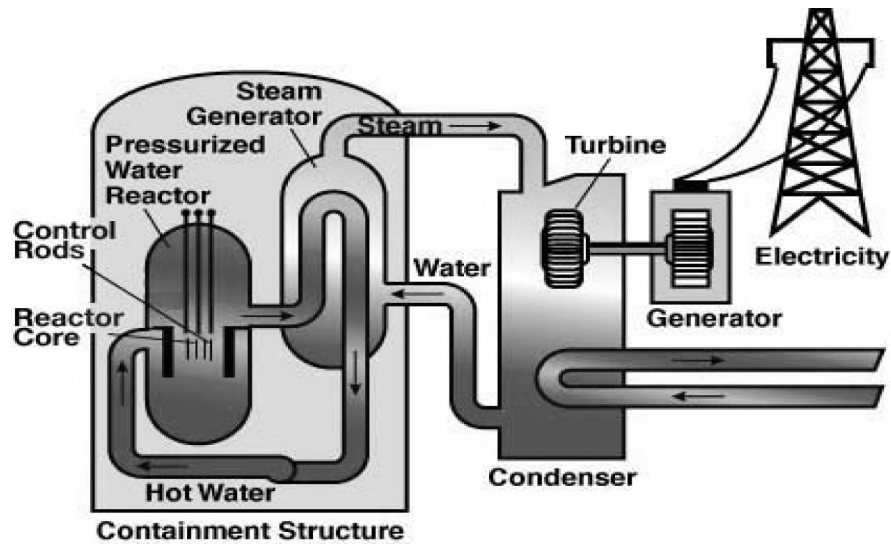
**13**



An ice cube is placed onto a hot pan that is sitting on the counter top. How will the heat energy move?

- A** The coldness will move from the pan to the ice cube.
- B** The coldness will move from the ice cube to the pan.
- C** The heat will travel from the pan to the ice cube.
- D** The heat will move from the ice cube to the pan.

- 14** Electrical energy is being produced by transformation from nuclear energy and added to our nation's power grid. Some of the electrical power you use may come from nuclear energy. Use the flow map to see how energy is transformed from nuclear to electrical.



Identify the energy transformations of each step.

1. Radioactive atoms are split in a nuclear reactor to heat water to steam.  
nuclear energy to thermal energy

2. The steam is blown across the blades of a turbine causing it to spin.  
\_\_\_\_\_ to \_\_\_\_\_

3. The spinning turbine turns an electrical generator.  
\_\_\_\_\_ to \_\_\_\_\_

4. Electrical energy from the generator is sent across power lines to do such things as turn on lights.  
\_\_\_\_\_ to \_\_\_\_\_