

Name: _____

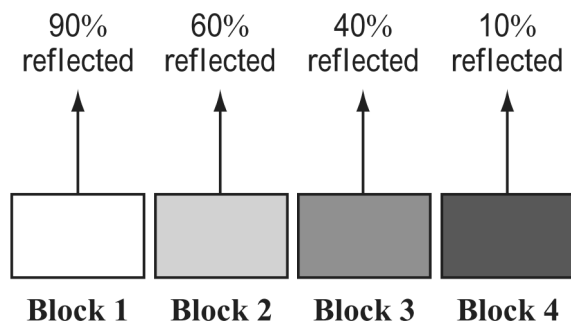
Date: _____

- Angie left her glass of water in the sunlight. When she came back, the water was warmer. Which of the following *best* describes why the water was warmer?
 - Energy from the Sun reflected off the water.
 - Energy from the Sun evaporated some of the water.
 - Energy from the Sun passed through the water.
 - Energy from the Sun was absorbed by the water.

- Which example describes the transfer of energy from one object to another without the presence of matter?
 - Lava heats the surface of Earth.
 - A hot cup of tea warms a person's hand.
 - The sun warms the atmosphere of Earth.
 - The burner of a stove heats a pan of water.

- A class conducts an experiment to determine the best color to paint a solar water heater that they plan to build. For their experimental test, the students have four identical cans. They paint one black, one green, one red, and one white. Each can is filled with 500 mL of 22°C water, and is allowed to sit in the sun for two hours. Which color can will have the *greatest* increase in water temperature?
 - black
 - green
 - red
 - white

- Four different-colored blocks are placed outside in bright sunlight. The blocks are identical except for color. The diagram below shows the amount of light reflected from each block.

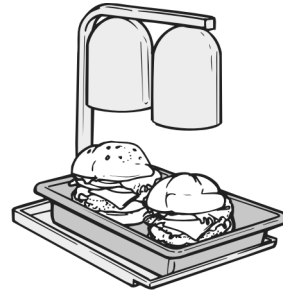


Which block will increase in temperature *most* rapidly?

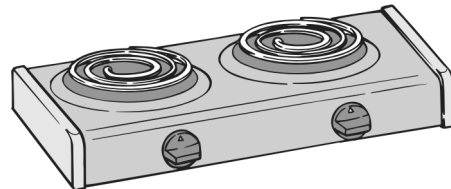
- block 1
- block 2
- block 3
- block 4

- Which of the following objects transfers its energy primarily by radiation?

- Heat lamp

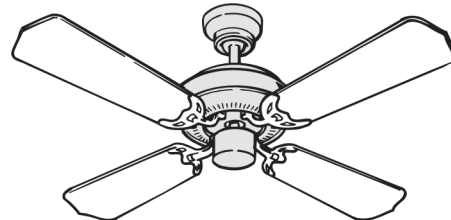


- Electric



stovetop

- Ceiling



fan

- Burning candle

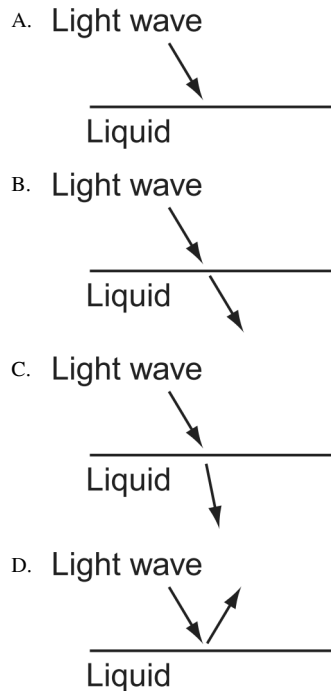


- Which of the following describes how a microwave oven heats food?

- The oven's interior reflects heat onto the food.
- The oven's interior, like a lens, focuses heat onto the food.
- Water molecules in the food reflect energy from microwave radiation.
- Water molecules in the food absorb the energy of microwave radiation.

7. Which of the following is the *main* reason water at the surface of the ocean is warmer than water at the bottom of the ocean?
- Water at the bottom of the ocean contains more dissolved solids.
 - Water at the surface of the ocean absorbs more energy from the Sun.
 - Friction is created by fast moving currents at the surface of the ocean.
 - Wave action transfers heat from the bottom of the ocean to the surface.
8. Where does visible light fall on the electromagnetic spectrum?
- between x-rays and gamma rays
 - between short-wave radio and television
 - between infrared and ultraviolet
 - between microwaves and infrared
9. Objects appear different in size and shape in a container of water due to
- refraction of the light waves.
 - interference of the water and light waves.
 - polarization of the light waves.
 - diffraction of the light waves.
10. The setting sun often appears red. What is the best explanation for this?
- The surface temperature of the sun is lower at sunset than at other times of the day.
 - The Earth's atmosphere scatters blue light, so that at the Earth's surface mostly red light is visible at sunset.
 - The path of light through the Earth's atmosphere is shorter at sunset than at noon.
 - The surface of the Earth changes infrared radiation into red light.
11. Denise was driving east over a hill in the afternoon, shortly after a rain shower. Suddenly the sun broke through the clouds, and she saw a rainbow ahead of her. Which of the following made the rainbow possible?
- Sunlight can be separated into all the colors of the rainbow.
 - Water reflects sunlight like a mirror to make it look colored.
 - Overhead black clouds reflect in puddles to cause a mirage.
 - Air pollution causes the sky to look colored under these conditions.

12. A beam of light is shining on the surface of a liquid. Which diagram shows what happens when the light is *reflected* by the liquid?



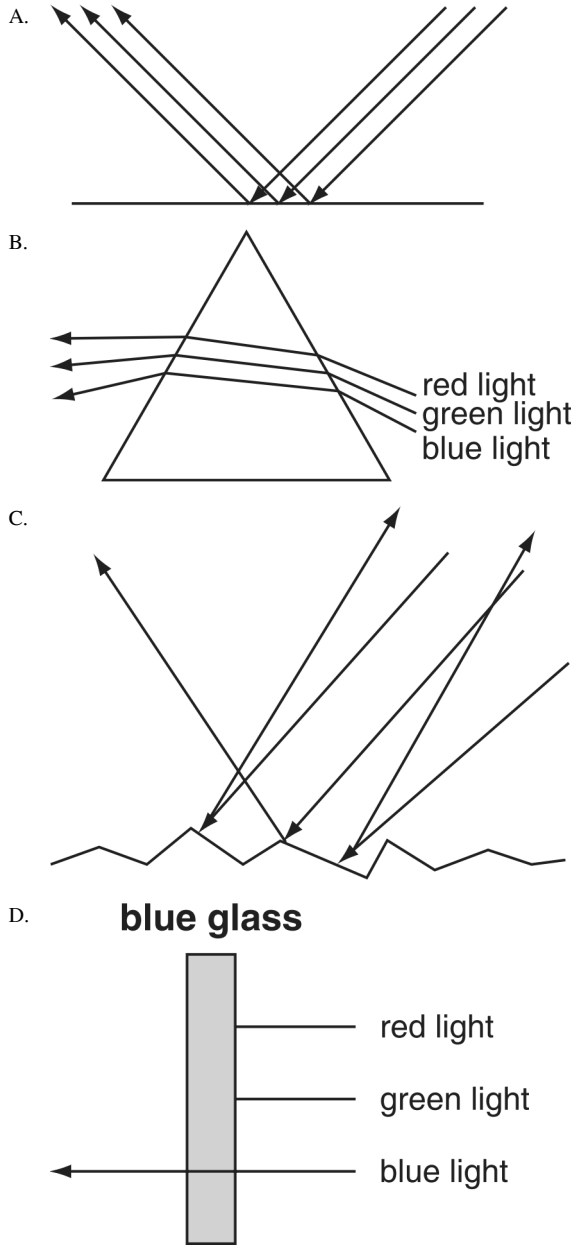
13. What causes a blue block to appear blue in the sunlight?
- The block absorbs all blue light.
 - The block bends (refracts) all blue light.
 - Only blue light is reflected by the block.
 - Only blue light passes through the block.
14. Angelina wakes up on a sunny but cool day and can choose to wear a T-shirt in one of the following four colors:
- Black
 - Pink
 - White
 - Yellow

She decides to wear the black T-shirt because it will take in more of the sun's light than the other T-shirts.

Which property of light is Angelina using to stay warm?

- Absorption
- Brightness
- Reflection
- Refraction

15. Which diagram below illustrates the absorption of light energy?



16. Infrared light is often used in reptile habitats.

Which of these explains how a reptile benefits from infrared light?

- A. Infrared light destroys bacteria and other microorganisms.
- B. Infrared light increases the body temperature of the animals.
- C. Infrared light makes it possible for reptiles to see their surroundings.
- D. Infrared light makes it possible for humans to see the animals in their natural habitat.