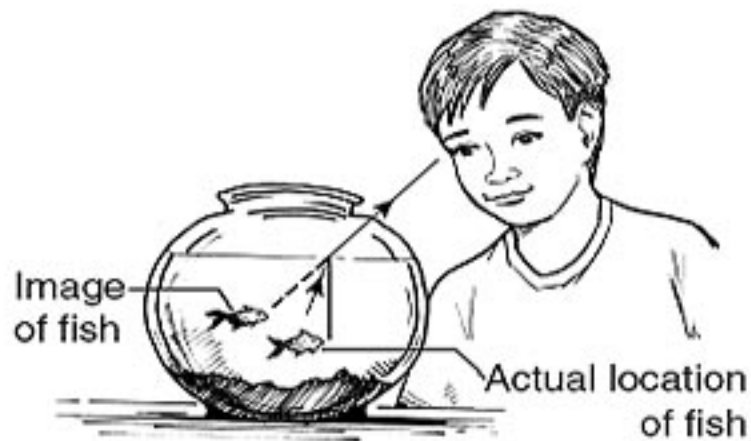


3

There is only one fish in the fishbowl below. When Joseph looks down at the fish, the image he observes is closer to the surface than the actual location of the fish.



Which wave characteristic does Joseph's observation demonstrate?

- A. amplitude
- B. diffraction
- C. reflection
- D. refraction

3 The correct answer is D (refraction).

Strand: B—Energy

Benchmark: SC.B.1.3.6 The student knows the properties of waves (e.g., frequency, wavelength, and amplitude); that each wave consists of a number of crests and troughs; and the effects of different media on waves. (Also assesses SC.C.1.3.2 knows that vibrations in materials set up wave disturbances that spread away from the source [e.g., sound and earthquake waves].)

An understanding of how light waves are affected when they pass through different media is needed to answer this question. Refraction is the change in direction of light waves as they pass from one medium to another. Refraction occurs because of a change in the speed of light. In the picture, the actual location of the fish is different from the image of the fish because of the change in the speed of light as it passes from the air to the water.

Distractor Rationale

- A. Amplitude is the measure of the height or energy of the wave, not the change in speed of light.
- B. Diffraction is a property of light that refers to the bending of light around an object.
- C. Reflection is also a property of light. It occurs when the light bounces back from a reflective surface.