



Curiosity Guide #203

Refraction of Light

Accompanies Curious Crew, Season 2, Episode 3 (#203)

Reappearing Penny

Investigation #5

Description

Make a penny magically reappear!

Materials

- Styrofoam or opaque plastic cup
- Penny
- Container of water

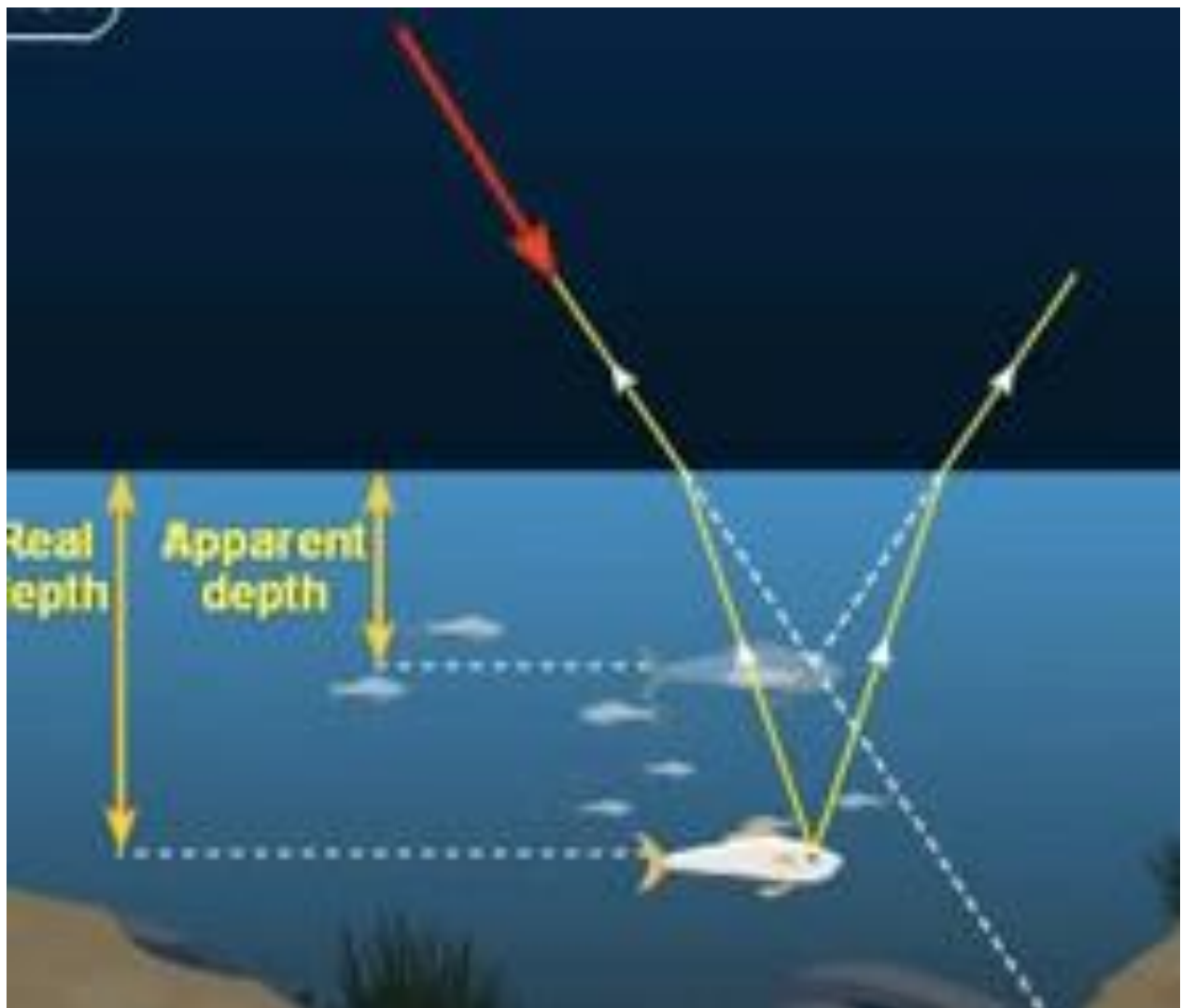
Procedure

- 1) Place the penny into the bottom center of the cup.
- 2) Have your friend move back just enough so that the rim of the cup blocks the view of the penny.
- 3) Slowly fill the cup with water.
- 4) Does the penny come into view again?

My Results

Explanation

When your friend first looked into the cup, he or she could not see the penny. Only the far inside of the cup was visible. Adding water made the light bend toward the center bottom of the cup, rather than at the far inside of the cup. The denser water caused the light to slow down and bend. The bending light made the coin visible once again. Deep water can appear shallower than it actually is for this same reason.



Here's another example: Spear fishing is much harder than it looks. Not because the fish is fast, but because of how light bends.

You see, if a fisherman were to aim at the head, his spear would actually go in front of the fish. This is because the light coming from the fish through the water bends at the point when it meets the air. The fisherman assumes that the light will be traveling in a straight line down to the fish, but to catch the fish, he must aim closer to its tail. Refraction fishing—pretty cool!

Parents and Educators: use #CuriousCrew
#CuriosityGuide to share what your Curious
Crew learned!



Curious Crew is a production of Michigan State University.

Learn more at WKAR.org.

© MSU Board of Trustees. All rights reserved.