Purpose:

In this activity, you will explore the property of refraction by attempting to spear a penny “fish” with a straw and skewer in a large container of water.

Materials:

* Container of water (best with transparent sides)
* Penny
* Straw
* Shish kabob Skewers or pencil

Procedure:

1. Set up the equipment with the penny in the container of water.
2. Break up students into groups of 3 or 4.
3. Give each team a chance to try the following spear fishing challenge:
4. Stand beside the container and look at an angle through the water to the penny. Hold the straw to your eye like a telescope so that you can just see the penny.
5. Without moving the straw, insert the skewer and release.

Conclusion:

* What happens when you release the pencil? Did you spear the penny fish?

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* How should you reposition your straw to be able to hit the penny with the pencil?

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* As a group, construct a diagram on the back of this page, of what you think is happening with light that makes it difficult to spear the penny.