

Class Fixer-Upper

Teacher's Guide

The Initial View (Introducing the Activity)

This activity is actually written as a teacher demonstration, since there is broken glass involved! It would take a lot of material for students to do this anyway!!! Have fun with your class with this activity! Don't let the students use their books or see the illustrations and notes until you're finished! This activity works well with *Heavy* mineral oil. You can get it from your local pharmacy. You can substitute some varieties of vegetable oil, but TRY them first! The container you use needs to be wide enough to hold an unbroken test tube on its side; it's harder to spot this way. Remember not to let the students see their books, notes, or illustrations until your demonstration is finished!

BEFORE CLASS! Completely submerge an unbroken test tube in the oil. Be sure there's no air bubbles in it or the tube can be seen! Hide a second test tube in the oil, just in case they ask to "do it again"! Here are some more helpful ideas!

1. To *SAFELY* break a test tube, wrap one in several layers of paper towel and *gently* whack it with a book. Now you can "pour" the broken glass into the heavy mineral oil.
2. The test tube in the heavy mineral oil must be identical to the one you broke.
3. Wait awhile to let the kids think the test tube "dissolved". Stir it for drama! Wait an appropriate length of time and use your test tube holder or tongs to "feel" around. Suddenly your tongs or holder will surprisingly emerge with the unbroken test tube! Use some drama when you bring the "fixed" test tube up! Don't use your fingers unless the loss of blood doesn't bother you!
4. You can use a fine strainer after class to recover and dispose of the broken glass and so you can safely reuse the oil again! Kids don't get to help strain the oil!

Take a Deeper View! (More Science)

Refraction or bending of **Light** is important to those of us with contacts and glasses, isn't it? For any number of reason peoples' eyes are not perfect. This means they need some type of help in getting the light sent to where you can see the best. The **Lens** in the eye normally bends the light enough for vision. If for some reason your eye isn't right, another lens is used to help your original lens. That's what your contacts or glasses do for you!

More and Bigger Views! (Additional Classroom Ideas)

1. Visit an optometrist to find out how lenses can be used to help vision.
2. New **Laser** and surgical methods are changing the eye's surface so people can do without glasses and contacts. Find out more about radial keratotomy and other surgeries being used.
3. Research books or the Internet to find out about **Cataract** surgery. Cataracts happen when the eye's lens has become too cloudy to let light in properly. The lens is broken, removed, and replaced with an artificial lens. Have someone who has had the surgery tell about the process.
4. Write a story about how it might feel to lose your sight and how to protect it.
5. Have someone who knows Braille come to class to learn more about this form of printing.
6. What are some eye diseases or conditions your optometrist checks for when you get an examination? What kinds of tests are performed to test your vision?
7. Field trip to a photographer to learn more about how they use lenses to bend light. Have them explain more about how lenses bend and change light to make beautiful pictures. What kind of lighting backgrounds, special effects or other "tricks" do they use to take pictures?
8. What are the most common causes for blindness? How do people adapt to their loss?

Answers

1. (the light bending ability of the oil and glass are the same)