How to Use a Magnifier

1. Make copies of Student Resource 1.1, Vocabulary, and cut it up to make flashcards. Use the cards to introduce vocabulary words as they come up throughout the section.

2. Gather students around you. Ask: **What is the biggest living thing you can think of?** (Accept all answers. The biggest animal is the blue whale, but the biggest living thing is a fungus 3.5 miles across.) **What is the smallest living thing you can think of?** (Accept all answers. Bacteria are the smallest living things.) Tell students that living things come in many sizes, from huge whales and elephants to tiny sea creatures that are so small you can’t even see them with your eyes.

3. Distribute the magnifiers. Explain that one way to study very small things is by using a magnifier. Show students how to hold the handle, and point out the two lenses. Explain the importance of not touching the lenses. Have students place the magnifier close to their shirts. Tell them to look though the big lens and pull it slowly away from their shirt until the image looks clear. Explain that they are focusing what they see. Ask: **What do you see?** (Answers may depend on the kind of fabric. Possible responses are squares, circles, little lines. Accept all responses.) Tell students to examine their shirts through the small lens. Ask: **What do you see?** Does the small lens make things look bigger or smaller? (bigger)

4. Have students look at their arm for hair, their fingers for fingerprints, their slacks, shoelaces, soles of shoes, and finally, for dirt on the floor. Observe them to make sure that each is able to use a magnifier correctly.

**Safety**

**Step 3:** Remind students not to touch objects with the magnifier lens as they could scratch it.
1. Distribute materials.

Make copies of Student Resource 1.2, *Observing Brine Shrimp*, and distribute to students. Give each pair a magnifier box with brine shrimp eggs. Point out to students that the lens is on the top of the box. Tell them to keep the box closed so the contents do not fall out.

2. Students observe eggs.

Ask: *How many objects are in your box? What do you think the objects are?* (Accept all answers. Do not tell students that the objects are eggs. They will discover that later when the eggs hatch.) Point out Box 1 at the top of the Resource page. Tell students to mark tiny dots in the box that are about the same size as the objects in the magnifier box.

3. Discuss eggs.

Ask: *If the objects are eggs, how could we find out?* (See if they hatch.) *If they are eggs from a water animal, how can we help them hatch?* (Put them in water.)

**Assessment**

Ask: *What are three words that describe the objects in the box?* (round, tiny, brown)
# What Do Eggs Need to Hatch?

## Objectives
- Students compare the hatching of brine shrimp eggs in salt water, plain water, and no water.
- Students infer the kind of habitat in which brine shrimp eggs hatch.

## Inquiry Focus
- Experiment

## Materials

<table>
<thead>
<tr>
<th>For the teacher</th>
<th>Inquiry Focus</th>
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<tbody>
<tr>
<td>2 cups, clear plastic</td>
<td>• Experiment</td>
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<tr>
<td>2 magnifier boxes with brine shrimp eggs, from Investigate 1</td>
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<tr>
<td>1 set measuring spoons</td>
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<tr>
<td>3 trays, plastic</td>
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<tr>
<td>*salt, non-iodized</td>
<td></td>
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<tr>
<td>*water</td>
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*Not provided in kit*

## In Advance
Put 2 teaspoons of non-iodized salt into a plastic cup of water and stir. Fill another plastic cup with plain tap water.

## 1. Explain the experiment.
Explain to students that you will do an experiment to see if the objects in their magnifier boxes are eggs and find out what the eggs need in order to hatch. Arrange the magnifier boxes with eggs into one group of eight and two groups of four. Tell students that you will do different things with each group, and they will observe over the next few days to see what happens in the boxes.

## 2. Set up the boxes with salt water.
Put one teaspoon of prepared salt water into each of eight magnifier boxes. Place the boxes into a plastic tray that is labeled *Salt Water*. Explain that you are using salt water, in case the objects are eggs from an animal that lives in salt water. Ask: **What bodies of water have salt water?** *(oceans and some lakes)*
3. **Set up the boxes with plain water.**
   Put one teaspoon of plain tap water into each of four magnifier boxes. Place them into a plastic tray labeled *Plain Water.* Explain that this group has plain water in case the objects are eggs from an animal that lives in plain water. Ask: **What bodies of water have plain water?** (*some lakes, streams, rivers*)

4. **Set up the boxes with no water.**
   Leave the last group of four boxes with no water and place them in another plastic tray labeled *No Water.* Explain that you are doing this in case the objects are eggs that do not need water to hatch.

5. **Students observe over two days.**
   Leave the trays out so that students can observe them often. After two days, you should see tiny specks moving in the salt water. There may be a few moving specks in the fresh water. Nothing will hatch in the boxes without water. Tell students that they have hatched brine shrimp. Ask: **What were the objects in the boxes?** (*brine shrimp eggs*) **Where do brine shrimp live—on land, in plain water, or in salt water?** (*salt water*) **How can you tell?** (*The eggs hatched best in the salt water.*)

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**Teaching Tip**
**Step 4:** Put the brine shrimp that hatched in salt water into the hatchery, and save for Investigate 3.

**Assessment**
Ask: **If you wanted to hatch brine shrimp eggs at home, would you put them in plain water, salt water, or in a bowl without water?** (*salt water*)