# Day I Experiment Ocean in a Bottle

#### Materials

- □ 12 or 16 oz. empty clear water bottles with lids, 1 per child
- □ Water
- Clear vegetable oil or baby oil
- □ Blue food coloring, 4–5 drops per child
- □ Colored electrical tape, one 6-in. piece per child
- □ 1 Flood Legend card per child (11-4-079)—China

#### **Tools and Basic Supplies**

- □ Water pitchers
- □ Funnels
- □ Tacky glue
- □ Scissors

#### **Pre-Prep**

- 1. Remove labels and clean bottles thoroughly, if necessary.
- 2. Fill bottles ½ full of oil, wipe away any spillage, and put lids back on.

#### **Class Time Directions**

How many of you have been to the ocean? Isn't it so cool? Did you know almost all the water on Earth is found in the oceans? And if you were looking at Earth from space, it would look like a blue ball because most of the earth is water rather than land? In fact, there's so much water on the planet that we've only explored a tiny bit of it! That's why treasure hunters go out looking for sunken treasures at the bottom of the sea. They're hard to find because of how huge and deep and big the ocean is!

But did you ever think about how the oceans got there? I mean, how did they get to be like they are now? We know from the Bible that God created the heavens and the earth, including the water on the earth. But at first, the earth wouldn't have looked like it does now. That's because there was a point in time when a huge, worldwide catastrophe happened, and that changed the whole planet. Do you know what that catastrophe was? Yes,



the Flood of Noah's day that happened about 4,300 years ago. When the Flood occurred, the Bible tells us the fountains of the deep broke open. That's the ocean floor! It broke open, and out came hot volcanic rock and gushing water with magnificent force. Earthquakes happened, and everything was so chaotic that the floor of the earth actually split up. It eventually settled into what it now looks like, with the land split into different continents, with ocean basins in between. So, where did all the water come from that fills up all the oceans? From the Flood! It's pretty amazing to think that the next time you go to the beach and look at God's powerful ocean, you're looking at the waters that once covered the entire earth during the time of the Flood!

Let's make our own Ocean in a Bottle to remember that time when the earth was in great commotion!

We're going to be using two main supplies—two supplies that don't mix well—kind of like how sin and righteousness don't mix. In fact, the whole reason we had the Flood of Noah's day was because the earth was full of sin, and that was not okay with a perfect, righteous God.

We've got the oil in the bottle but in a minute, we'll add the water, and I think you'll notice that they don't mix. Here's why:

1. The first reason has to do with something called density. Density is a big word! To understand density, you need to know that everything is made up of these little, teeny things called molecules. You know how you use Legos to build houses? Well, everything in the world is made of tiny little building blocks. They don't look like Legos and they are too small to see with our eyes, but they are called molecules and they hold everything together, kind of like how Legos hold together. Density measures the size of the molecules and how tight they are together. Water can hold a lot of molecules in a small space! So that makes water denser (heavier) than oil. Since it is heavier, it sinks to the bottom and the oil stays on top. If you've ever seen an oil spill in the ocean, you'll see that the oil floats on top of the water.

2. The second reason oil and water won't mix is another big word—polarity. Molecules that have electrical charges are called polar. Some molecules don't have these charges, and they are called non-polar. Just like best friends that like to be together, polar molecules like to be with polar molecules and non-polar molecules like to be with nonpolar ones. Water is polar so it likes to be with water. Oil is non-polar so it likes to be with oil. And they don't want to mix with each other! Oil and water molecules are like sin and righteousness! They don't mix!

## Let's pass out our supplies and see for ourselves if the water and oil will mix in our Ocean in a Bottle!

Give children the Ocean in a Bottle supplies and talk them through the following directions. Test to see if the oil and water mix or don't mix.

- 1. Remove lid from bottle, then add 4 or 5 drops of blue food coloring.
- 2. Using a funnel, carefully pour water into the bottle to fill it to the top.
- 3. Add tacky glue to the inside of the lid, then screw the lid on tightly.
- 4. Tightly wrap a piece of electrical tape around the lid to seal the bottle closed.
- 5. Now rock the bottle back and forth to watch the ocean commotion! What is happening with the oil and water?

Pass out the Flood Legend card for today and remind children that the flood legends found around the world are remnants of the true account given in the Bible.

### **Tip Corner**

- The 12 oz. water bottle is a nice size, but whatever size works.
- Pour craft/tacky glue into soufflé cups, for every 2 children, and use craft sticks cut in half to spread it.
- If there's a spill, baby oil cleans up well with a little dish soap.