Distillation

What You'll Need:

- 1 large glass bowl
- 1 smaller glass container that is shorter than the large glass bowl
- plastic wrap
- a stone
- water
- something to contaminate your water (dye, salt, glitter, etc.)

What You'll Do:

Note: *If it is not sunny enough outside to complete this experiment, you can put the large bowl of water in the microwave for 2-3 minutes, prior to adding the small bowl and dye, glitter, etc. This will create steam and will allow the clean water to separate from the dirty water.*

1. Before beginning this experiment, take a moment to answer question 1 on your "What You Discovered" worksheet. Be sure to get your parent's help and permission before gathering the supplies for this experiment.

2. To start, fill the large bowl about 1/3 of the way with water. Place the smaller glass in the middle of the bowl. **Note:** *Be sure the rim of the small glass is not higher than that of the large bowl.*

3. Contaminate your water! Add food dye, salt, glitter, or any substance you would like to make the water dirty. Once you are finished, place the plastic wrap tightly over the large bowl.

4. Next, place the stone on top of the plastic wrap directly above the small glass bowl. Make sure the plastic wrap is not touching the rim of the glass. **Note:** *Make sure the stone is heavy enough that it creates a slight downward slope in the seran wrap.*

5. Put the bowl in an area that gets a lot of sunlight. Let the bowl sit for at least an hour in sunlight before checking it. Then check every 30 minutes. As you watch what happens, answer questions 2 and 3 on your "What You Discovered" worksheet.

6. Take a moment to finish your "What You Discovered" worksheet. Don't forget to share your findings with family and friends!

What Does It Mean?

As the temperature inside the bowl gets warmer, the water evaporates and rises as a vapor until it hits the plastic wrap. Next, the water condenses and runs down into the glass. The water in the glass should be clear, pure water. This is because you simulated a steam distillation process. The high temperatures allowed the water to separate from the substance you used to contaminate your water and collect in the empty glass.

Distillation is a good way to clean dirty water, which is exactly what you did in this experiment! You were able to use heat to take the contaminants out of the water mixture and make it pure again. This is just one of the ways that science can be used as a cleansing process! Isn't it amazing to see distillation at work?

What to Do Next:

- Repeat this experiment with a different contaminant. For instance, if you used glitter the first time, try the experiment again with food dye. Do the results change?
- Revisit the dōTERRA® Science for Kids tab on the dōTERRA Science Blog for more fun science experiments and activities.
- With your parent's permission, post a picture of your experiment on Facebook or Instagram. Make sure to tag @**doterrascience** and to use the hashtags **#doterrascienceforkids** and **#featureme** for a chance to be featured on the dōTERRA Science Facebook page.

What You Discovered:

As part of your distillation activity, answer the questions below.

1. Before you begin the experiment, review the "Distillation" module. What can the distillation process be used for?

2. Temperature, pressure, and time can all affect the distillation process. Which factors are involved in this experiment?

3. After an hour or so, observe the bowl. What do you see happening to the water?

4. Identify which method of distillation this experiment used.

5. What other items do you use regularly that might have been distilled? You can look back at the distillation module if you need help coming up with ideas.