

Kindergarten - Lesson K1.2

Why Do Puddles Dry Up?

Teacher Background

In Lesson 1.2, students think about why a puddle dries up and where the water goes that was there before.

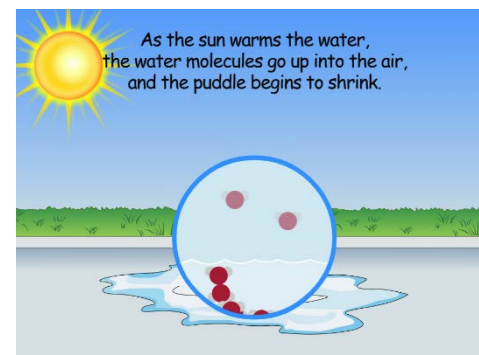
Using Models for Understanding

As in Lesson 1.1, students model the process they are investigating. Students use 1 drop of water to make a model of a tiny “puddle” in the palm of their hand. After spreading out the water and watching it dry, students think about how this happened and where the water went.



The idea that the drop *represents* a puddle and that the heat from their hand *represents* the heat from the sun can help students see how a model can help explain a process. Creating models to better understand a system or phenomenon is a skill that students can begin early and refine as they get older.

The animation is another type of model. In the animation, water molecules are shown leaving the puddle in the process of evaporation. Kindergarten students can be introduced to the words “molecule” and “evaporation.” For molecule, you could explain that they are the tiniest parts that make up water and that they are so small they are invisible. For evaporation, you could explain that the water molecules break away from other water molecules and go up into the air. You could tell students that the air itself is made up of molecules that we can’t see.



The animation shows the water molecules rising through the air and coming together to form the tiny droplets that make up a cloud. You can explain to students that the water from the puddle becomes part of a cloud and that rain can eventually fall from the cloud and make another puddle. This is the basic idea of the water cycle, which students will learn about in more detail in later grades.

Heat Increases the Rate of Evaporation

In the EXTEND part of the lesson, students put a drop of water on their hand and a drop on a desk to compare how fast each dries up. The expected result is that the drop on their hand will dry more quickly because of the heat from their body.

This is not a perfectly fair test for determining whether heat affects the rate of evaporation because the hand and the desk are surfaces made of different substances. To be a fair test, everything about the two samples, including the surface material they are on, should be the same, and only their temperatures should vary. But for very young students, this test can be used to suggest that the heat from their hand makes the water evaporate faster.



This next point is more for you than for your students: Water evaporates over a range of temperatures. Water evaporates at room temperature and even at temperatures below freezing. The difference is the *rate* of evaporation. The rate of evaporation increases as the temperature of the water increases. The rate of evaporation decreases as the temperature of the water decreases.