

Kindergarten - Lesson K1.1

What Makes It Rain?

Teacher Background

Young children learn by investigating the world around them. Exploring leaves, sticks, stones, water, and other objects and materials helps young students learn about the properties of objects and substances and helps them begin to make sense of the world.

Investigating clouds and rain helps students begin to understand these weather-related phenomena and to realize that science is useful in explaining the experiences they have in their lives.

Using Models for Understanding

In this lesson, students make two different models of clouds and rain. Creating models to better understand a process or system is a skill that students can begin early and refine as they get older. The idea that tiny drops of water or little clay balls on a picture of a cloud *represent* the water in an *actual* cloud is good first step in making and interpreting a model.

The animation included in the lesson is another type of model. Water droplets are represented as little blue dots and water molecules are shown as three dots (representing atoms) connected together. Kindergarten students can be introduced to the word “molecule” and the idea that they are so small they are invisible. The scale in the animation is, by necessity, inaccurate in that the molecules are shown about the same size as the water droplets. In reality, the droplets are trillions of times larger than the molecules. Modeling phenomena at the molecular level requires some compromises to make a point and you can decide if you want to address these with students.

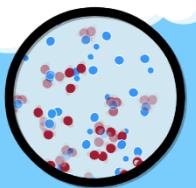
Only the Basics

Overall, the explanation of cloud formation and rain presented to and investigated by students is simplified for very young students. The different factors that form clouds and ultimately rain are complex, involving ranges of temperatures at different altitudes, changing concentrations of moisture in the air, condensation, and the interaction of air masses with different characteristics. These factors are simplified in the lesson to try to give Kindergarten students the basics about clouds and rain.

For a more thorough description of clouds and rain, take a look at the National Oceanic and Atmospheric Administration (NOAA) education site SciJinks at <https://scijinks.gov/rain/>. There is other useful information about weather, including additional links, on the site.



In the sky, where it's cold, the water molecules join together to make little droplets of water.



The droplets are so small and light that they float in the air and form a cloud.