

Make a water cycle model

Try this experiment to make a simple, miniature model of the natural water cycle.

The natural water cycle

The natural water cycle is the continuous movement of water around the world through the processes of evaporation, transpiration, condensation, precipitation, run-off, infiltration and percolation.

You can learn more about the natural water cycle at sydneywater.com.au/watercycle.

Try one of these models to see if you can replicate what happens in nature.

Model 1 – a water cycle terrarium

What you'll need:

- Large soft drink bottle
- Seeds or small plant
- Potting mix
- Water.

Activity

1. Cut a two-litre soft drink bottle in half about eight centimetres from the base.
2. Plant seeds or a small plant in potting mix in the bottom half of the bottle.
3. Water the plant (or seeds) and squeeze the top half of the bottle inside the bottom to make a dome. You can also just tape the two pieces back together with clear packaging tape.
4. Put the terrarium beside a window - not too sunny or you'll bake the plants.
5. Estimate how much you will have to water the plants, how tall the plants will grow and what will happen in the container.

You should notice, as time goes by, that the inside of the dome gets misty and the plants will continue to grow without additional water.

6. As a control, you could create two terrariums and leave the lid off one. Think about what the difference will be. Make a prediction about what will happen.
7. Observe the results and discuss what is happening to the water in the terrarium.

Model 2- Water cycle in a bag

What you'll need:

- Clear plastic bag - a zipper (sandwich size) style works best
- Tablespoon
- Rubber band or twist-tie
- Food dye (optional)
- Masking tape.



Activity

1. Pour two tablespoons of water into a clear plastic bag. Add a few drops of food dye.
2. Blow air inside the bag with your mouth and quickly seal the bag closed with a rubber band twist-tie or zipper-closure.
3. Place the bag on a sunny window ledge or tape directly to the window pane. Observe the bag throughout the day and record the changes.

Variation

For instant results, make two bags. Put cold water in the first bag and warm water in the second bag. Compare the two bags.

You could try drawing the water cycle on your bag and labelling the processes.

What's happening?

You should be able to watch water change state as it heats up in your model.

When the sun shines on the water and heats it, it will turn into a gas called water vapor which rises. This is called **evaporation**.

When the sun stops shining on the water and it cools, the water vapor turns back into tiny liquid water droplets. This is called **condensation**.

When the water droplets are heavy enough they will run down your bottle or bag, like rain. This is called **precipitation**.

In your terrarium, the water will soak down into the soil. This is called **infiltration**.

When the sun comes up the next day, the whole cycle starts all over again!