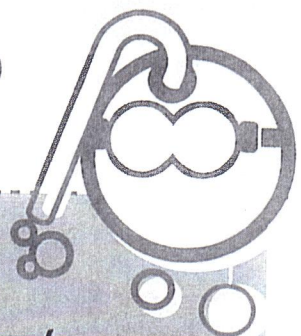


Water cycle in a bottle

Understand how the water cycle works?
Now it's time to make your own!

ACTIVITY 2.6



What you need:

- 3 one-litre plastic drink bottles with labels removed
- potting mix or light soil
- cup of water
- fast-growing seeds such as cress or radish
- marker
- empty film cartridge
- 2 pieces of string (not nylon) —40 cm and 20 cm
- ice cubes

1

Write on the bottles 'chamber 1' and 'chamber 2'. Cut the top off chamber 1 at the level shown and pour in a cup of water. Cut the bottoms off chambers 2 and 3.

2

Make a hole in the cap of chamber 2, just big enough for the string to fit through. Fold the 10 cm piece of string in half and loop it through the hole. Wet the string.

3

Place chamber 2 on top of chamber 1 to check that the water level is high enough for the string to dangle into it.

4

Put a cup of moist soil into chamber 2 and push the film cartridge in the middle of the soil (open end upwards). Plant 8–10 seeds in a circle around the cartridge.

5

Tie the 20 cm piece of string around the cap of chamber 2, making sure it is long enough to dangle into the film cartridge when placed on top of chamber 3. Do not assemble the chambers until you're ready to start the water cycle.

6

Wait until the seedlings are 4–5 cm tall. Wet the string thoroughly on chamber 3 and place it on top of chamber 2. Put ice cubes in chamber 3 and observe what happens.

What's going on here?

Water is drawn up from chamber 1 into the soil in chamber 2, where it is taken up by the plants through their roots. Water is released into the second chamber by evaporation from the soil and transpiration from the plants. When the water vapour hits the cold surface of chamber 3, it condenses and falls as precipitation (rain). The rainwater percolates back through the soil and into the water source below. This cycle will continue as long as chamber 3 is cold enough.

Tips and tricks:

- Don't use coloured string —the dye will run!
- If water leaks from the hole in the bottle cap, tie a knot in the string to cover it.
- Put your water cycle in a warm and sunny place.

1. In the middle of a sheet of paper, draw a water cycle in a bottle. Down one side, label where each stage of the water cycle occurs in the bottle. Down the other side, label the parts of the environment where this stage occurs. Use the terms: evaporation, transpiration, condensation, precipitation and percolation.
2. Create a PMI chart of what you have learnt about the water cycle from this activity.

