

# Keeping the water in the bucket

## Brief summary:

Students experiment with gravity and water.

WARNING: this activity is definitely best done outside.

## You will need:

- Water
- Bucket with a handle

## What to do:

**Step 1.** Fill the bucket halfway or two-thirds full with water.

**Step 2.** Hold the bucket's handle and start swinging the bucket in a vertical circle from the ground up to the sky. Keep rotating your arm as the bucket swings down and keep the speed and motion consistent. As long as you keep swinging the bucket the water will stay where it is and not spill out and drench you.

**Step 3.** To stop, simply halt the bucket when it swings down.

## Take it further:

Repeat the experiment with other things in the bucket instead of water. You can use balls, marbles, sand or leaves.

The same thing happens to the item in the bucket as would happen to passengers on a roller coaster loop. Can you design and make a roller coaster loop that uses the principle of 'centrifugal force' to keep its passengers in their carriages?

## Big questions:

- What is the difference between 'centrifugal force' and 'centripetal force'?
- What are some other examples of centrifugal force?

