

Drip, drip, drip!

Stage 1 Practical investigation

Exploring how much water is wasted when a tap is left dripping

Purpose

Students investigate how much water is wasted when a tap is left dripping for set time periods and the impact that can have on their environment.

Students will learn how to:

- investigate scientifically - observe, question, explore and report
- conduct a fair test
- use water wisely and check that taps are turned off after use.

Equipment

- bucket for collecting water
- smaller buckets/containers for measuring amount of water
- stopwatch or phone
- worksheet: Investigation report or Plan an investigation worksheet

Preparation

- Observe a tap dripping. Explain that students will measure (using the containers) how much water is wasted after one minute, ten minutes and one hour.
- Introduce ideas of fair testing. With each test, the students are going to change **(C)** one variable, measure **(M)** something and keep everything else the same **(S)**. Students learn mnemonic to remember **CMS** – Cows Moo Softly.
- Confirm their understanding: What are we going to change each time we conduct the test? (time period) What are we going to measure (water) each time we conduct the test? What are we going to keep the same (flow rate)?
- Ask students what they think will happen (forming a hypothesis). Question them on how much water will be wasted after one minute. For example:
 - How much water will be in the bucket after one minute?
 - Which container could be filled after one minute?
 - Which container will be half-filled after one minute?

Task

- Students form a hypothesis. For example, I think that one jar will be nearly filled if the tap was left dripping for one minute.
- Students draw/write their answer on the Investigation Report under *What I think will happen....*
- Conduct the first test – one minute. Set the tap to drip and collect the water for one minute. Measure the water collected.
- Students check to see if their hypothesis was correct. Complete the recording sheet showing what actually happened. Discuss.
- Now using these observations students predict what will happen if the tap is left dripping for ten minutes.

- Discuss if it would be fair to change the way the tap dripped when we test how much water is wasted in ten minutes or one hour.
- Confirm their understanding: What are we going to change each time we conduct the test? (time period) What are we going to measure (water) each time we conduct the test? What are we going to keep the same (flow rate)?
- Repeat the sequence for ten minutes.

Follow-up/reflection

- Conclude the ten-minute test with discussion about their hypothesis and use this information to draw conclusions about leaving the tap on for one hour.
- Students report their findings to a partner, a group, and/or the whole class by referring to their Investigation report.
- Conclude with a final discussion about what these investigations demonstrate and how students can care for their environment not only at school but at home.
- After each test students dispose of water thoughtfully, for example, on a garden bed.

Extension activities

- Stage 2 or Stage 3 students could guide Early Stage 1 students through this investigation. Alternately, they could conduct this as an independent group investigation. Stage 2 and 3 students could use stopwatches and measuring containers.
- The older students could calculate how much water would be lost if the tap was left dripping for a day, week, month or year.



Investigation report

How much water is wasted if we leave a tap dripping?

After one minute

What I think will happen:	What happened?
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After ten minutes

What I think will happen:	What happened?
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After one hour

What I think will happen:	What happened?
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