Where does our dam water come from?

Focus

Water activities with children are designed to engage them in discussion to challenge their ideas about water and the needs for a growing population to conserve water. Discussion about where our water comes from provides a basis to change their conceptions about water and its usage.

These activities are designed to allow for maximum discussion with children about the source, and usage of water. It involves the whole class in discussion around a teacher demonstration.

Materials

- Small funnel
- Small length of plastic tubing (10cm)
- Food dye (preferably brown)
- 2L soft drink bottle with lid
- 3L clear juice bottle with lid
- Small drink bottle with lid
- Silicone sealant
- Medium/ large Milo tin or similar
- Long length of plastic tubing (approximately 1m)
- A cardboard box such as the type that A3 paper comes in
- Black Line Master - Cloud template (diagram 5)
- Piece of A3 paper – 'mountain' outline

Tools

- Scissors
- Knife
- Drill bit to fit tubing
- Sealant gun

Teacher Preparation

- Drill two holes in the top of the 2L soft drink bottle's lid and one in the 3L juice bottle lid.
- Attach small tube to end of funnel.
- Push end of long piece of tubing into soft drink lid so that it will reach the bottom of the bottle. Push funnel in from the top of the bottle lid, next to the funnel.
- Draw an outline of a mountain to A3 size and glue onto front of cardboard box to model a mountain. Colour sky and mountain on box. (see Diag. 1)
- In the centre of the top side of the box (see Diag. 2 & 3), cut a circular hole suitable to take the soft drink bottle lid.
- Lay the 3L juice bottle on its flat side, and cut away the top side to make a dam (see Diag. 4).
- Put a generous amount of sealant inside the soft drink bottle lid around tubing and push through the top of box and then screw on bottle. Place Milo tin under bottle for support. Leave to dry.
- Similarly seal the other end of the long tube into the 3L juice bottle lid and attach to bottle ensuring the ends of the tubes are clear of sealant.
- Using the sealant as glue, attach the excess tubing from the top of the box in a snake like fashion down the mountain to represent a river. Place a weight on top of the tubing til the sealant dries.
- Drill some pin holes into the lid of the small bottle to act as a rain cloud. Cut out a cloud using template (see Diag. 5) and stick cloud on one side of the bottle.

Preparing to use

1. Set up model in front of class so that they cannot see behind the “mountain”.
2. Place some food colour dye into the funnel and then fill the 2L drink bottle. Brown food dye will give the effect of muddy water. Fill 2L drink bottle to the lid.
3. Fill the small bottle with tap water but no food dye. Place upside down ready for use next to mountain.

Illustrations to assist teacher to set up model

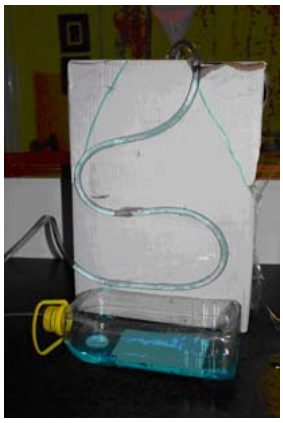


Diagram 1

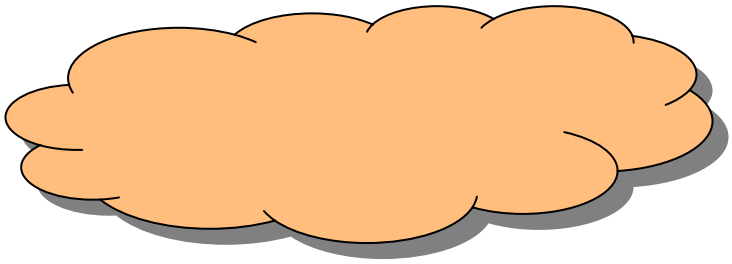
Diagram 2

Diagram 3

Diagram 4

Diagram 5

Rain Cloud cut out for bottle



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Suggested Classroom presentation

Aim
This initial discussion starter is designed to allow children to consider where the water in our dams comes from, and also the finite source of that water.

Discussion
- Ask children to identify where our water comes from and elicit the importance of clouds, rain, rivers and dams.

Show model and identify mountain, river, cloud and dam.
- Discuss why there is no water in 'dam' (bottle).

Q Is there any water in the 'river' (clear hose)?

Q How will the water get into the 'dam'?

- When ready turn 'cloud' over to rain a small amount of water into the funnel. *(You may need to squeeze the bottle.)*

Q What colour are the rain drops? (Ans: Clear or no colour)

- Squeeze some more rain into funnel until river starts to flow.

Q What is happening?

Q Which way does the river flow?

Q What colour is the water in the river? Why?

Q Where does the water in the river end up? How much water is going into the dam?

Q Could it have all come from the small cloud? Where else could it have come from?

(It is important to identify that the amount of water could not have just come from the one small cloud.)

- Discuss that there was a trick to the model
- Ask if the children can identify what it was before showing them the obverse side of the model.
- Show the children that the water for the dam did not come from the cloud but rather the bottle behind the mountain. Reinforce that the water could not come from nothing.
- Reinforce how precious the water from the rain is and why we need to conserve it.
- Discuss that rain only comes from the clouds initially and what the effects of no rain are for our community.

Resources
- Fact sheet –Groundwater as the water source p.10