

The Water Tower

Focus

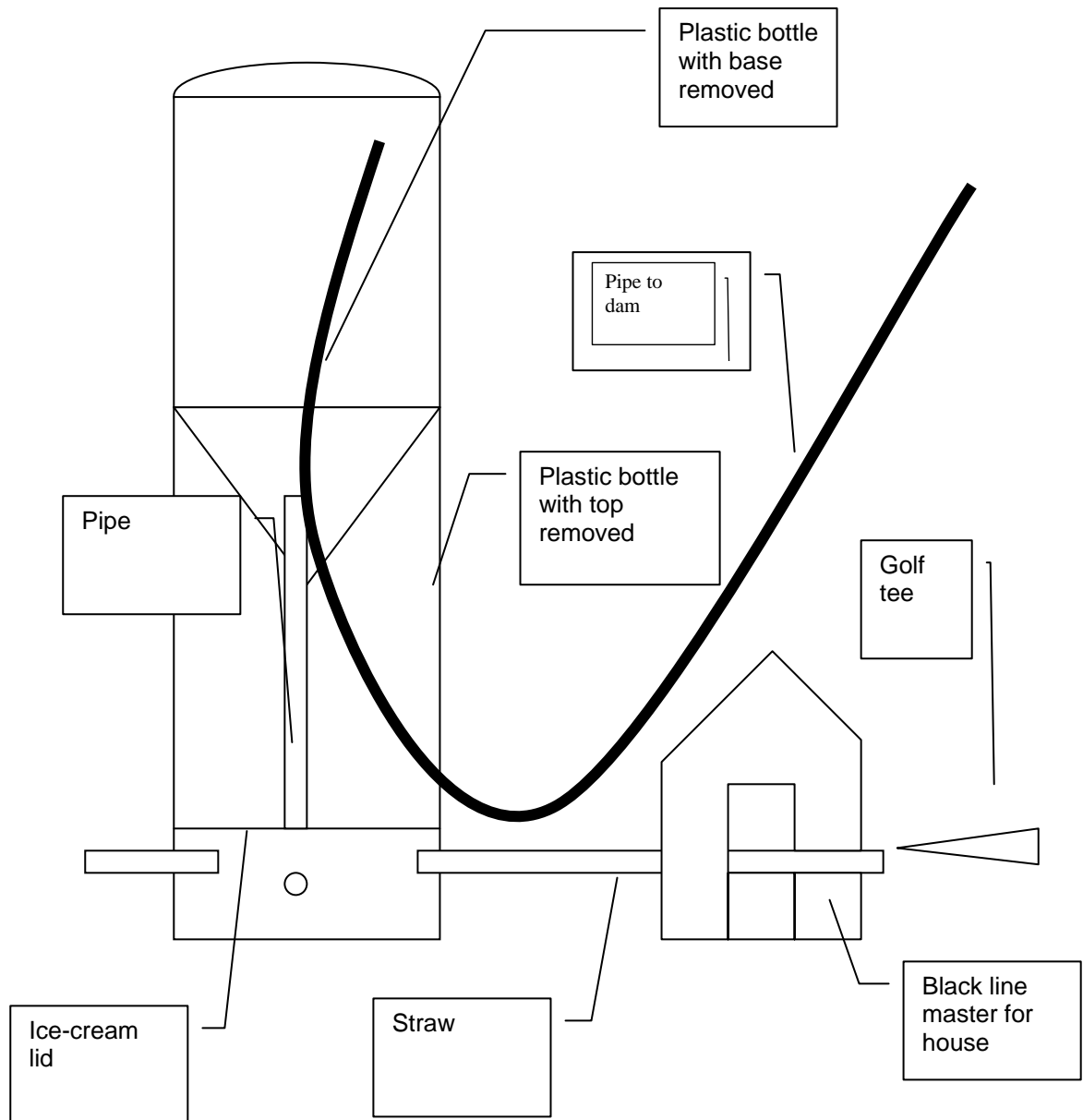
Following on the discoveries of gravity (TA1-11) and water pressure (TA1-12), This set of activities helps students to apply that knowledge to understanding the connection between water supply stored in a reservoir and the end user. It can be used to introduce a rationale for WaterWise behaviour (TA4-1 Water tickets).

Materials

- Wide tidy tray
- Plastic tubing
- 1.5L soft drink bottle
- 1.25L soft drink bottle
- Five straws
- Sealant
- Ice cream container lid
- Five plastic golf tees
- Marking pen
- Stop watch
- Large needle with end in cork
- Matches
- 2Litre soft drink bottle

Construction

- Cut off the top of the 1.5L soft drink bottle around the top line below the neck.
- Place the base upside down on the ice cream container lid.
- Draw around bottle making sure it stays circular.
- Cut out circle from ice cream lid.
- Cut off the base of the 1.25L bottle.
- Cut a large circular panel out of the side of the 1.5L bottle.
- Check the ice cream circle will fit snugly into base of bottle trim if need be. Cut hole in centre of circle to fit tube.
- Insert plastic tube into centre of lid and seal.
- Insert 1.25L bottle upside down into top of 1.5L base and seal into place.
- Carefully thread tube inside base of bottle through circular panel and then push ice cream lid circle into bottom of base and seal. Cut tube so that it fits just inside of neck of bottle. Place remainder of tube from the top down through the neck and out the side panel. This pie of tubing needs to stay near the inside top of the 1.25L bottle.
- Now apply sealant to the neck of 1.25L bottle so that the two tubes are sealed in place.
- Leave to dry.
- Drill five holes in dimples at side of the base of 1.5L bottle.
- Insert straws and seal into place.
- Place a golf tee into end of straws to act as taps.
- Fill top of 1.25L bottle to check for leaks and seal as necessary.
- Cut out a house template and make 'houses' to go over the end of the straws.
- Place inside a wide flat tidy tray.
- Mark the full level on the side of the water tower
- Note: A cork and string and weight could be used to make a simple inverse measuring device.



a) Pressure of water (revision of TA1-12)

Preparation

Using the needle, heat end with a match and place four holes equidistant up the remaining 2L bottle.

1. Place a strip of sticky tape over the holes firmly.
2. Place in tidy tray. Using food dye to make water clearer to see, fill with water.

Procedure

- Discuss with the children where the water will go when the tape is pulled off. Pull off the strip of tape with one movement, and have the children observe what is happening.
- Discuss with the children why the squirts of water go different lengths.
- Discuss where the pressure is greater.

b) Tapping into the water supply

Enquiry

- Discuss the model of the water tower; in particular the two pipes.
 1. The pipe that comes out of the side of the tower represents the pipe from the dam via the treatment works and pump station.
 2. The pipe into the base represents the supply line to town)
- Q Why is the water reservoir at the top of the water tower and not at the bottom?
- Q How could the water get to the top of the tower? (Gravity or pump from the dam.)

- Ask the children *to observe and record* what happens.
- Fill reservoir with water, making sure the golf tees are in tightly. Remove one golf tee gently and observe what happens. (Link to children's understanding of turning on a tap.)
- Refill with water to the full mark. Using the stop watch, time how long it takes to empty the tower.
- Q What is happening to the water in the tower?
- Q What would this mean for the town?
- Q Where can water be replaced from?

- Refit tee and refill.
- Q Q. What may happen when everyone has their taps on?

- Time how fast the water level drops.
- Ask the children to use their plastic cup to fill the water tower by bringing water from a distance and using a funnel to pour water into the tower.
- Q Can the children maintain the water in the tower?
- Q What could we do to 'slow the flow' from the tower?

- Discuss the implications of the wastage of water from taps.

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