nanogirl's LAB

SUPER POWER: Measuring Time!
WATER CLOCK

LAB NOTES...

BUILD TIME
15 MINS

HOW DOES A WATER CLOCK MEASURE TIME?

Water clocks let water run through a hole at a constant rate. This means that the water runs at the same speed every time, so we can use the volume of water left in the water clock to make accurate measurements of small amounts of time.
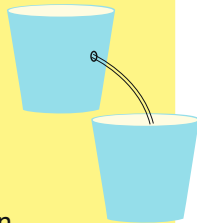
The technology of water clocks is even older than sundials - the oldest water clocks we know about were made over 4,000 years ago in ancient India, Persia and China!

TO MAKE YOUR WATER CLOCK...

1. Watch Nanogirl making her water clock.

2. Take your plastic bottle, and cut in half across the width.

3. Make a small hole in the lid using a pin.

4. Pour a little water into the half with the lid to check that the hole is large enough to let water drip or run through.

5. Use a small piece of blue tack to plug the hole for now.

6. Place the top half of your bottle upside down into the bottom half so the lid is facing down.

7. Pour water into the top of the bottle bottle, and mark the water level using the marker pen.

8. Removing the blu-tack and starting the timer at the same time make a line on your bottle at the water level every 10 or 30 seconds and continue until the water has run through.

9. Label the marks as time segments, you now have a water clock you can use as a timer.

What are the shortest and longest amounts of time that you can measure with your water clock?

How big would your water clock have to be to measure time for the whole day like your sundial?

Time yourself - what can you do in the time measured on your water clock?

Scientists try to be very accurate in their measurements. How could you make your water clock more accurate, for example by changing the flow rate of the water?

If you close your eyes and count down, can you accurately measure the same amount of time that your water clock is measuring? Which is the most accurate - the water clock or you counting?

Once the water is all out of the top of the clock, can you think of or design a way for it to get back up so that you can measure longer lengths of time?

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