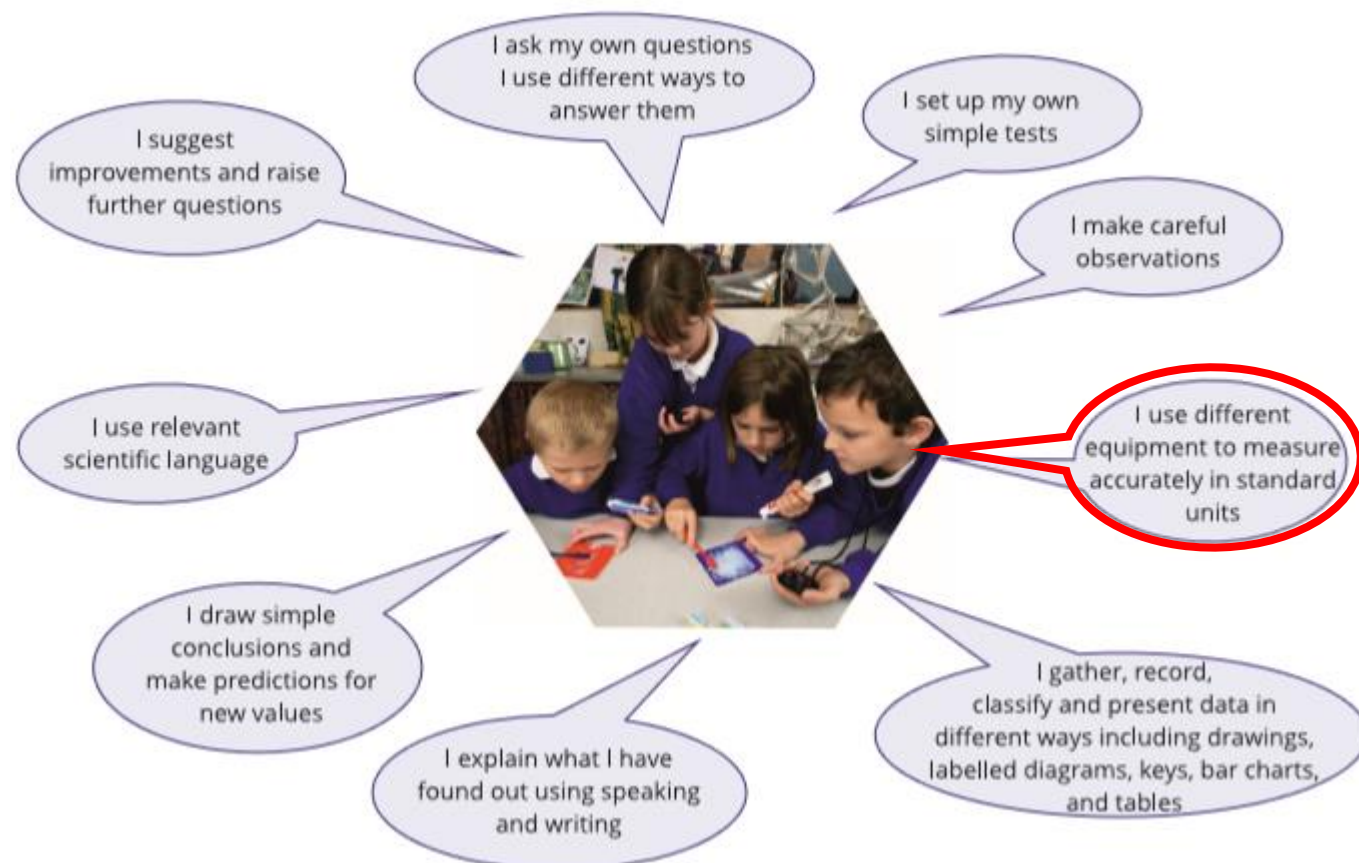


Canonbury Home Learning
Year 2/3 Science

Summer 2 Lesson 3

LO: To work scientifically – To use different equipment to measure accurately

This picture below shows some of the important things we need to do to be a scientist. This half term we are going to practise **working scientifically**. How many of these skills do you already use?



Measuring accurately means **taking care to measure without mistakes**. As scientists, it is important to take accurate measurements otherwise our results are not truthful (or helpful!) We have to choose the right measuring equipment for the job and read the scales carefully.

This lesson you are going to be making a water clock. Ancient people like the Egyptians, Greeks and Romans used these to help measure the passing of time.

The measuring equipment you need will be a timer/stopwatch. You will need to draw an accurate scale on the container so that it makes a useful clock – otherwise you will always be late or too early!

Task:

Follow the instructions below to make your own water clock. You will need to practice accurate measuring as you time the water and make the scale on the container.

Remember, for a further challenge, you can make the water clock using the instructions at the end!

Have fun! We look forward to seeing how you get on!

What you'll need...

Large, clear plastic bottle

Scissors

Drawing pin

Marker pen

Food colouring

Stopwatch



Don't worry if you don't have all the exact equipment, you can use two clear plastic cups/yoghurt pots instead of a bottle; you don't need food colouring (just look closely!) and use a phone or digital watch for a timer.

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Step 1



First, roughly measure halfway down the bottle, then carefully cut the bottle in two using the scissors. This can be tricky, so ask an adult to help.

Step 2



Now, unscrew the top of the bottle and make a small hole in it using the drawing pin - ask an adult to help. Then put the lid back on the bottle.

Step 3



Next, turn the top half of the bottle upside down and place it inside the bottom half, so that the bottle top is facing downwards.

Step 4



Now, mix a few drops of the food colouring into a pint of water, and then have your stopwatch at the ready!

Step 5



Pour the water into the top of the bottle and then start timing. Each time a minute passes, mark a line at the water level of the bottom bottle.

Step 6



Now, why not use your personal water clock for timing brushing your teeth or getting dressed in the morning!

Once all the water has passed into the bottom bottle, pour the water back into the top half and count off the minutes as the water pours down. Clever!

Further Challenge!

The brief

Create a water clock that times exactly one minute with 200ml of water.

The method

1. A simple water clock could consist of two plastic cups fixed one above the other with a hole in the top cup to allow water to pass from one to the other.
2. Additional cups, string, straws, plasticine, etc. can also be used to create more elaborate examples or to help slow the water if necessary.

Top tip

You will need to use a timer to observe and measure time accurately and make changes depending on your results. The size and position of the holes, the number of cups the water passes through, the angle of straws and flow rates will all affect your design.

Materials

Plastic cups
Straws
Plasticine
String
A timer
Wooden doweling or similar to act as a stand
Scissors (with adult supervision)
Tape
Drawing pins



Design icons

Water clocks are among the most ancient of time pieces, with known examples from Egypt dating to the 16th Century BC. Examples with gears and feedback systems were developed during the Greek and Roman periods.

