

## Experiment 2: How quickly can hydrogels absorb water? Does this ever change?



### Student worksheet

#### Method\*

1. Place one level capful of your hydrogel into the bottle (using a paper funnel, if necessary).
2. Add water (100ml) to the bottle and screw the cap on.
3. Shake the contents five times.
4. Measure the time from the end of shaking to the point where you see no excess water on or around the hydrogel. Record the time taken on your results table.
5. Add another 100ml of water into the bottle; shake the contents and measure how long it takes for the hydrogel to absorb the water. Note this on your results table.
6. Repeat until it takes no less than 20 minutes to absorb 100ml of water and record the time on your results table. You can also plot your 'rate of absorption' on the graph paper provided.

\* Make sure your teacher has already set up the teacher sample

#### Results

Once your findings are posted to our website, you can compare your data to schools from other countries.

**Don't forget** to stop once you reach 20 minutes to absorb 100ml.

Amount of water added (ml)	Total amount of water in the bottle (ml)	Time taken for water to be absorbed, in minutes and seconds (00:00)
100	100	
100	200	
100	300	
100	400	
100	500	
100	600	
100	700	

**Teacher sample** Total amount absorbed after 50 minutes (ml) \_\_\_\_\_

#### Conclusions

Can you think of how to improve this experiment and/or the recording of the results?

Did you find that the hydrogel absorbed the water at the same rate throughout the experiment?

Why shake the bottle? If you don't shake the bottle, could it make a difference to the results?

What happened to the rate of absorption? Why?

If you have any questions you can't answer, feel free to email them to us at [learn-chemistry@rsc.org](mailto:learn-chemistry@rsc.org)

# WATER: a global experiment with hydrogels



A graph for the rate of absorption

