

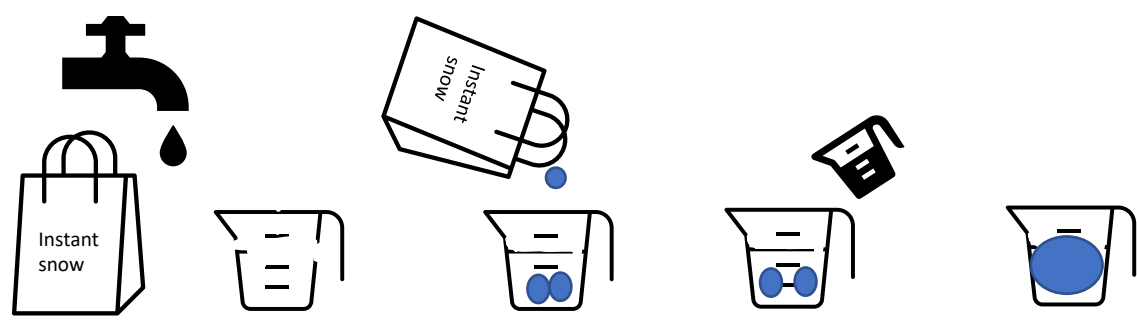
# Physical Reaction

## What you need:

- Jam jar or jug
- Instant snow or gel from inside a new disposable nappy
- Water

## What you do:

- Clean and dry the jam jar or jug.
- Place a small sample of instant snow or 'nappy gel' on the bottom of the jar.
- Does it take up much space?
- Take some water, about  $\frac{1}{4}$  volume of jar, and carefully add it in small amounts to the jar.
- Stop when you see something happening.
- Has the powder / gel expanded?
- Try adding more water slowly and get the substance to overflow the jar.



## The Science

**The polymer absorbs water, and its long chains of molecules swell to an enormous size just like a sponge. Water moves from outside the polymer to the inside (osmosis) and causes it to swell. The polymer chains have an elastic quality, so they can stretch but only so far and hold just so much water. This is an example of a physical reaction where the substance itself does not change. For example, when an ice cube melts, a physical reaction takes place when the solid ice turns into a liquid, but the substance never changes – it is still water!**

