



## Fish - How do fish breathe underwater?

### Fact

- Fish breathe using their gills. They don't have lungs like us they have gills instead.
- Gases like oxygen and carbon dioxide can be dissolved in water. (Like the carbon dioxide bubbles in fizzy drink)
- A fish's gills are full of blood vessels that absorb the tiny particles of gas.
- The fish sucks the water in through its mouth and squirts it out through its gills and that's when the gills take the oxygen from the water into the blood vessels.
- A fish's gills aren't able to take oxygen from air like us so they can't breathe out of water.

### Do you know

- You don't have gills – you have lungs instead.
- Your lungs are full of lots of small blood vessels that small particles of gases to be exchanged in a gas mixture.
- Your lungs aren't able to collect oxygen from water so you can't breath underwater.
- Almost every living creature needs oxygen to survive (there are some bacteria that don't)

### Experiments you can do

Visit a pet shop or an aquarium and watch a goldfish breathing. The bigger the fish the bigger the gills and the easier it is to see. How often do they open their mouths to suck in water and then open their gills to let the water out? Time them by counting 1 million and 1... 1 million and 2...

Focus on your breathing – do you breathe faster or slower than the fish?

### Other Investigations

Whales have lungs like you (only they're much, much bigger!) When a whale comes up for air it looks like it spurts water. What it's really doing is breathing out and in that breath is a lot of water vapour. Next time you're in a swimming pool bob under the water and then jump up again.

Open your mouth just a wee bit and blow through your lips. All the water running down your face will be blown off your mouth as you blow out – just like a whale exhaling.