6 Gas bubbles

Bubbles are gas trapped inside liquid skins.

Most of the gases around us are free to move about. But sometimes the gases become trapped, and this is when they form bubbles.

Remember that in a liquid all of the particles are touching. It is as though they were all chained together. This is why, when you put a drop of water on a surface, it doesn't spread out, but stays together as a droplet (Picture 1).

Now imagine what happens when air gets inside water. The water still tries to stay together, and so it traps the gas in a ball – this is what we call a bubble (Picture 2).

Bubbles in water

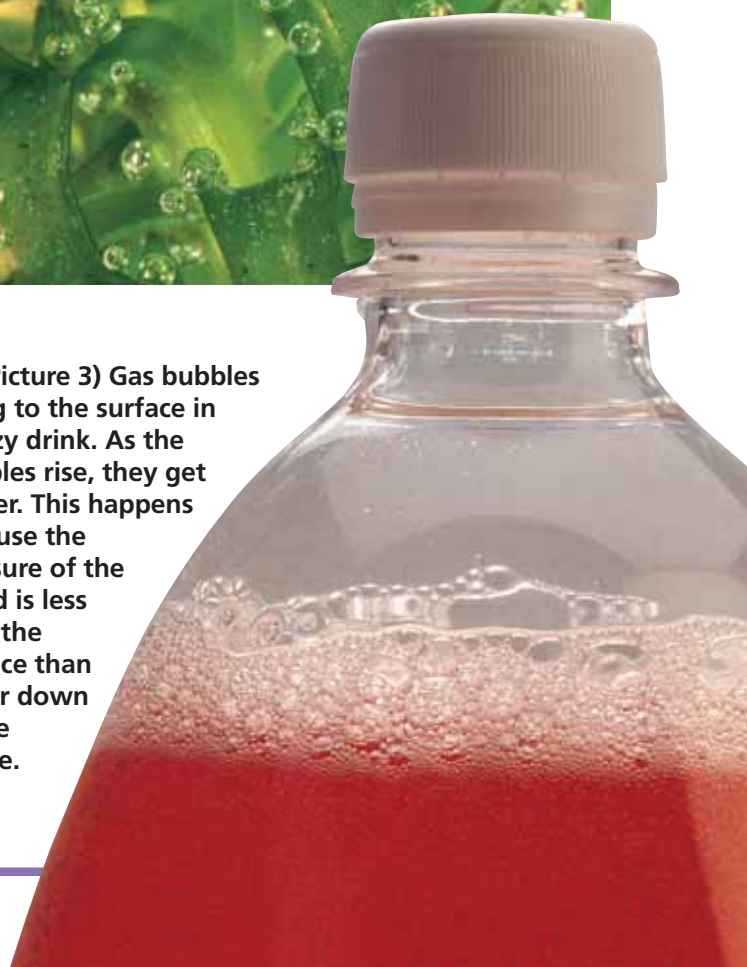
A gas is much lighter than a liquid. Any gas trapped in a liquid will therefore rise to the surface. For example, when you squeeze a sponge under water and force out any trapped air, the air rises as bubbles.

Fizzy drink bubbles

Another place you will see bubbles is when you open a bottle of fizzy drink. Streams of bubbles rise up through the drink and burst on the surface (Picture 3). In this case the gas is not air, but carbon dioxide that was forced into the liquid during manufacture.

▶ **(Picture 1) A water droplet in air forms a small ball.**

◀▼ **(Picture 2) Gas trapped inside water also forms as balls – called bubbles.**



▶ **(Picture 3) Gas bubbles rising to the surface in a fizzy drink. As the bubbles rise, they get bigger. This happens because the pressure of the liquid is less near the surface than lower down in the bottle.**

Soap bubbles

Soap bubbles are remarkable because they do not burst on the surface like bubbles in water. The soap film is strong enough to prevent the air from getting out.

Small soap bubbles will last for a long time – we call this lather. But if you blow bubbles, you make the bubble much more fragile. As the bubble gets bigger, the soap film gets thinner and thinner until finally there is not enough soap to go around and the bubble bursts (Picture 4).

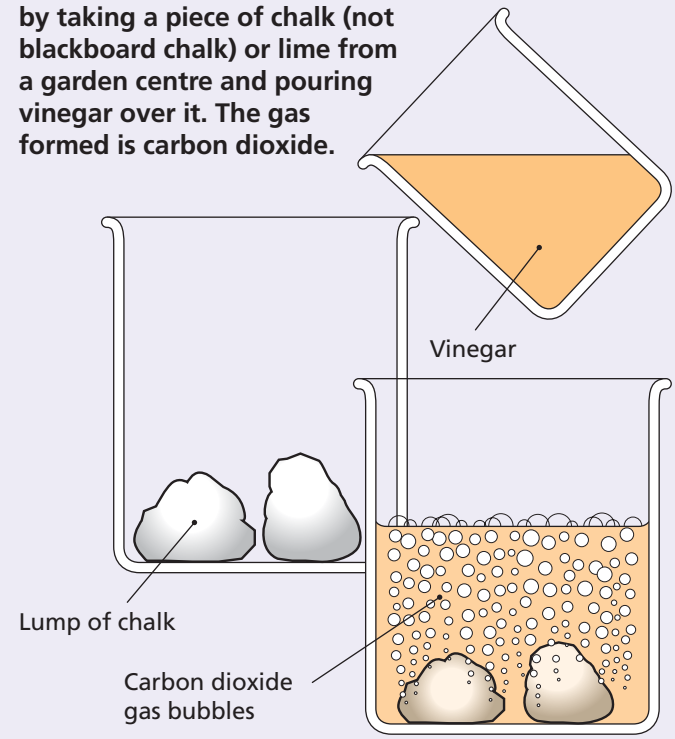
Soap bubbles gently fall through the air because the soap film makes the bubble heavier than air.

Summary

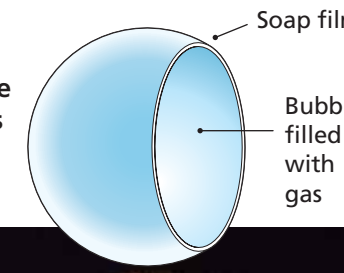
- **Gases form bubbles when trapped inside liquids.**
- **Bubbles grow as they rise through a liquid.**
- **Soap bubbles are gases surrounded by a soap film.**

Make your own bubbles

You can easily make your own bubbles by taking a piece of chalk (not blackboard chalk) or lime from a garden centre and pouring vinegar over it. The gas formed is carbon dioxide.



▼▶ (Picture 4) Blowing soap bubbles stretches the soap film because the gas (air) inside the film is compressed and tries to expand.



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