## Lesson 4: Material World

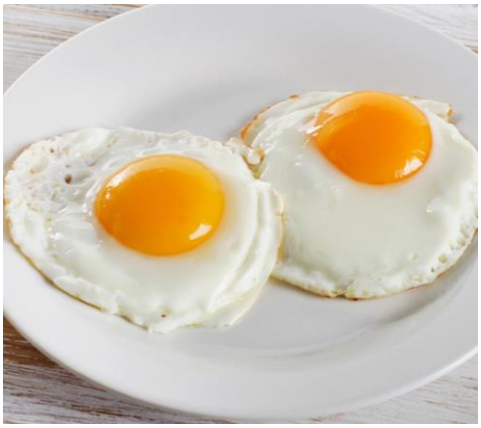
- I can classify changes as reversible or irreversible.

**Let's share our results from last week's egg-speriment!**

**Reversible or irreversible changes?**

Materials **change** and are sometimes valued according to how they change or how they resist change. When materials come into contact they can, mix, dissolve or make something new. When materials are **heated** they can change from liquid to gas, change from solid to liquid, go hard or soft, change colour or size, burn or burst into flames.

**Reversible** (**physical**) **changes** do not produce a new substance or change the amount of substance. For instance, solid butter may look different from melted butter, but it is still the same chemically. If you freeze 100 cm3 of water and then thaw it, you'll still have 100 cm3 of water. These changes are usually changes of state (solid to liquid or gas to liquid). They are mainly caused by particles changing their spacing.



**Irreversible** (**chemical**) **changes** do produce new substances. Although no matter is lost or destroyed, some may become gas and float away. This sort of change is usually permanent and very difficult to reverse. Burning, rusting and chemical reactions are all examples of this. Here, the particles are recombined into different substances. Clues that a chemical reaction has taken place might be a colour change (this can happen with physical changes too), the production of gas, the production of light or heat, or a change of temperature.

## Physical or chemical changes?

https://developingexperts.com/s/missions/230

Watch the video and tick the correct answer for each change.

Use the glossary to help you.

| | Physical Change | Chemical Change |
|---|---|---|
| Magnesium and hydrochloric acid | | |
| Burning ethanol | | |
| Soap bubble freezing | | |
| Salt and water | | |
| Melting candle wax | | |
| Lighting a match | | |

**Glossary**

**Reversible/physical change** – one that can be undone.
**Irreversible/chemical change** – one that cannot be undone.
**Burning** – a special type of chemical change, particularly in fuels.

## Chemical Changes in Action

Try some experiments at home – preferably outside and with an adult's permission!

Blowing a balloon with vinegar and baking soda


Mentos and Coke volcano

Jelly Foam