

Questacon at HOME

Year 6 Activity Sheet

Chemistry

This is your chance to test your chemistry knowledge! Chemistry is a branch of science which is all about how different things are made and what they will look like. This is your chance to understand how and why things combine (reactions), if you can reverse it, and if it's an easy or hard process! All chemical reactions are either reversible, or irreversible changes.

Q1. Which one is a chemical reaction?

- Ice Melting
- Toasting marshmallows
- Slicing bread
- Breaking an egg

Q2. Which one is a reversible change?

- Baking a cake
- Making cordial
- Eating dinner
- Melting a chocolate bar

Q3. Which one is an irreversible change?

- Cooking an egg
- Melting ice-cream
- Crumpling up paper
- Boiling Water

Q4. What is the only metal in the world that is a liquid at room temperature (25°C)?

- Mercury
- Iron
- Copper Gold
- Gold

Q5. How do traditional thermometers work? We know that heating elements up causes them to become a gas, but why do they get bigger when it's hotter?

- They're becoming a gas in the thermometer but then cool and condense back to a liquid
- I only use digital thermometers
- Objects expand when heat is applied
- It gets pushed up from the bottom

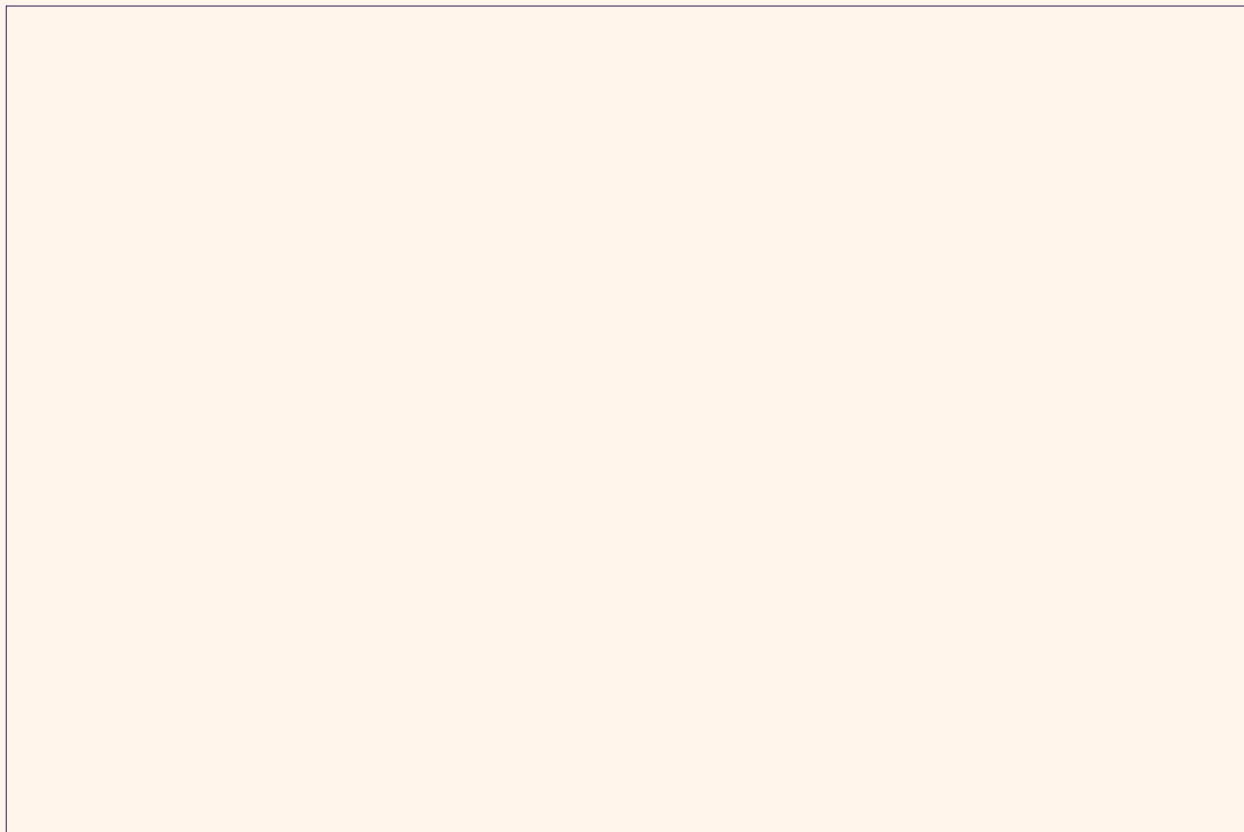


Year 6 Activity Sheet

ACTIVITY – Reactions

Do you think you can show off an irreversible and reversible change? Get an adult's help to bake some cookies and freeze some water.

Write down some observations of what you notice in these reactions. What happened to the cookies? What happened to the ice? What makes these reactions reversible or irreversible?



Perhaps you can think of more reversible and irreversible reactions that you can do in your home and test them out!



Chemistry – Answers

Q1. Which one is a chemical reaction?

Toasting Marshmallows!

Q2. Which one is a reversible change?

Melting a chocolate bar

Q3. Which one is an irreversible change?

Cooking an egg

Q4. What is the only metal in the world that is a liquid at room temperature (25°C)?

Mercury is liquid at room temperature! That's why it used to be used in thermometers, because if the right amount was added, it would read 25°C when it was 25°C.

Q5. How do traditional thermometers work? We know that heating elements up causes them to become a gas, but why do they get bigger when it's hotter?

When we add heat, molecules move about more and that causes things to expand! So what's happening in the traditional thermometer is as it heats up, the mercury expands - reading the temperature!

ACTIVITY – Reactions

Do you think you can show off an irreversible and reversible change? Get an adult's help to bake some cookies, and freeze some water. Once the cookies have been put into the oven you can't return them back to their original state of ingredients. So baking cookies are an irreversible change! Have a look in your freezer - what's happened to the water? That's right it's now ice! But if we left the ice out of the freezer, it would melt back to water: so freezing water is a reversible change!

When something moves from a solid, to a liquid, to a gas it can also be reversed! That's because passing through different states requires energy, so we just need to add energy back to reverse it! When something moves from a solid to a liquid, the atoms (very small particles that make up everything in the universe) start to move about and shake. Solids don't have a lot of energy so the atoms don't wiggle around very much. Because of this things can't pass through it. When we give the atoms move energy to move with (e.g. by heating it up) they start to move about more, and become looser - moving up energy states! To move them down energy states (e.g. gas → liquid) we just have to cool them down!

