

11–14 years

Key terms accessible glossary: introducing chemical change



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Chemical reaction/ change

when one or more new substances are made from other substances

In other words ...

when something new is made from another chemical

Sign it

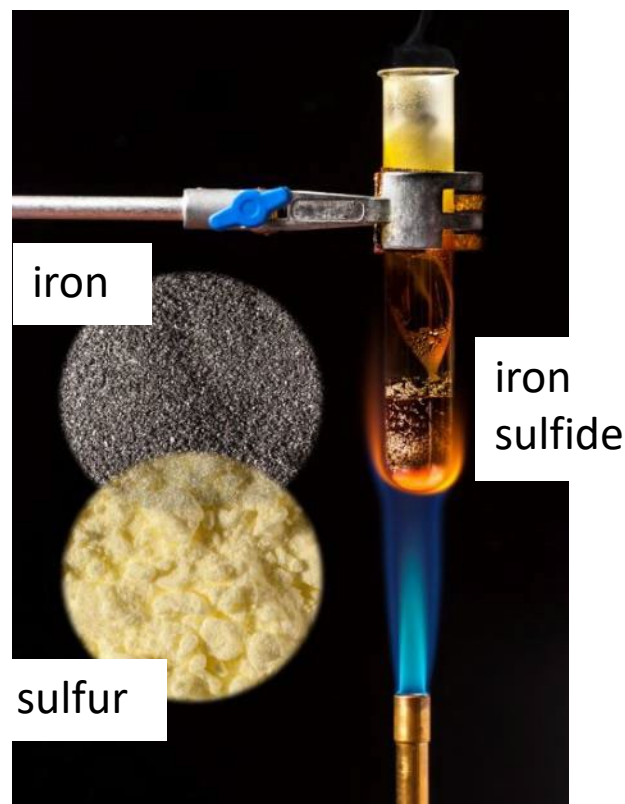
Watch a video:



bit.ly/3ZERN28

Say it

Cem-i-cel ry-ac-shen



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Example

When iron and sulfur are heated together a chemical reaction occurs and iron sulfide is made

Don't confuse with ...

A chemical reaction isn't always chemicals combining to form one, it can also be larger compounds being broken down

Conservation of mass

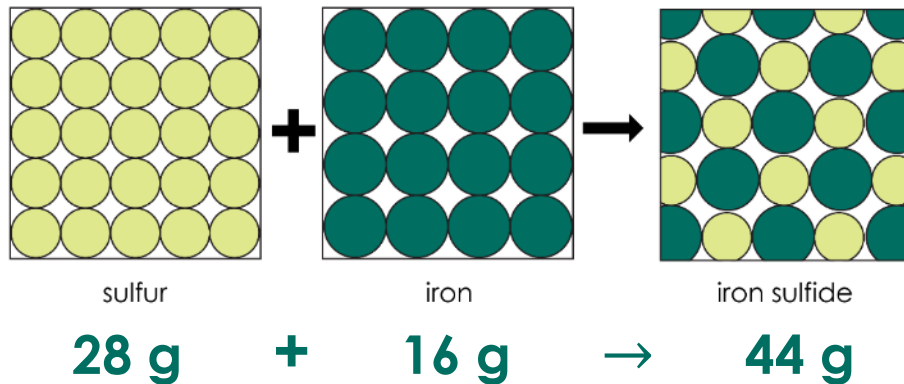
no atoms are lost or made during a chemical reaction, so the total mass of products equals the total mass of reactants

In other words ...

the total mass of all of the substances before and after a reaction is always the same

Say it

Con-sa-vay-shen
ov mas



In other words ...

Conservation means keeping something the same

Example

Conservation of mass means that if I react 28 g of iron with 16 g of sulfur I will make 44 g of iron sulfide

Don't confuse with ...

If a gas is involved in the reaction mass can appear to change but this is only because it is difficult to accurately measure the mass of a gas

Product

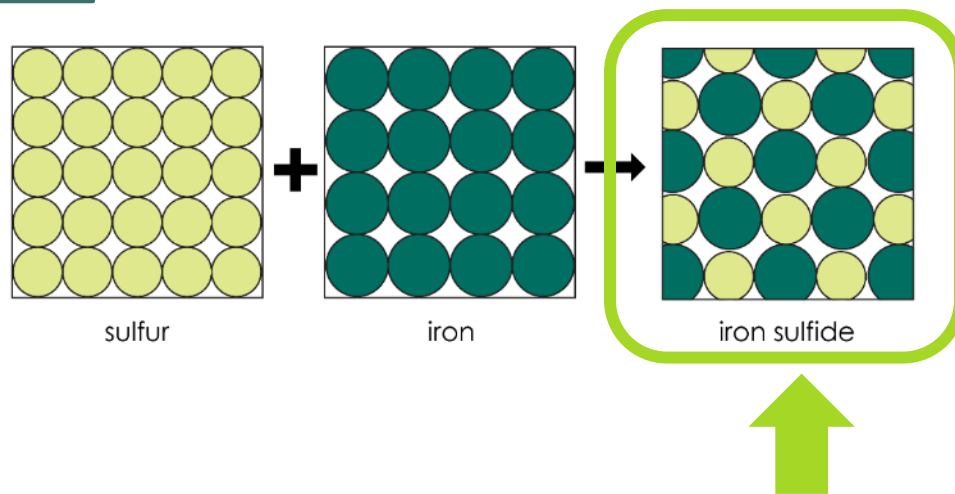
a new substance that is made in a chemical reaction

In other words ...

anything that is made in a reaction, or anything after the reaction arrow

Example

When iron reacts with sulfur the product is iron sulfide



Sign it

Watch a video:

bit.ly/3MNIJg1



Don't confuse with ...

reactants, these are the chemicals that react together

Say it

Prod-uct

Other meanings

In maths you may have used the word product to mean the result of multiplying two numbers together

Reactant

a substance that you start with in a chemical reaction

In other words ...

any of the chemicals that react together, or anything before the reaction arrow

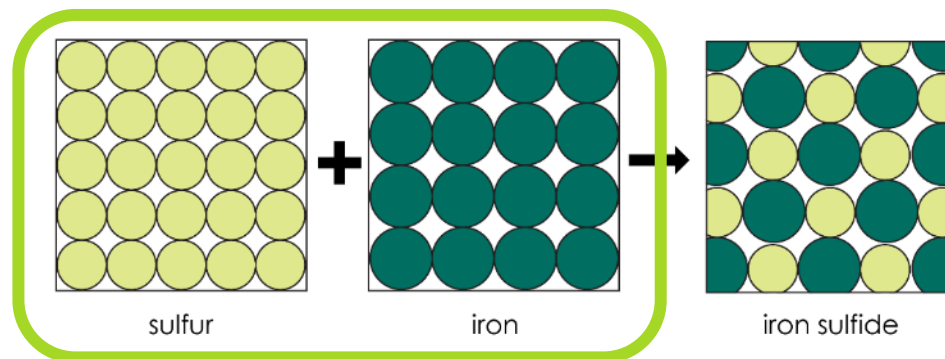
Example

When iron and sulfur react to make iron sulfide the reactants are the iron and the sulfur

Sign it

Watch a video:

bit.ly/46biGor



Don't confuse with ...

products, which are what is made in the reaction

Say it

Ry-act-tent

Similar words

Reaction is what happens when reactants react

Balanced symbol equation

In other words ...

when the number of atoms for each element is the same on both the left and right sides of an equation

Sign it

Watch a video:

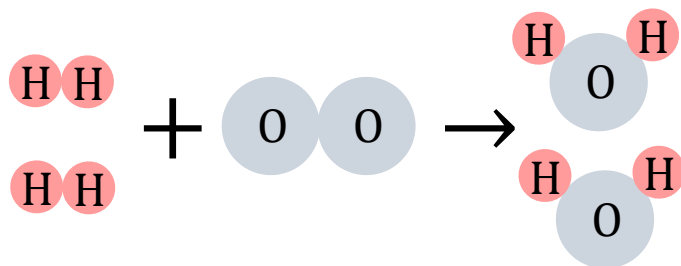
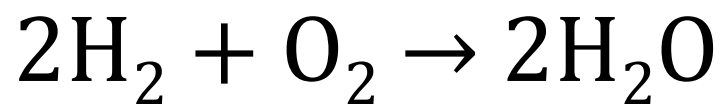
bit.ly/4tuQ8Ae



Say it

Bal-en-st sim-bel
i-cway-si-en

for a chemical reaction this shows the chemical formulas of the reactants and products separated by an arrow. Whole numbers may be written before the formulas to balance the equation



Example

This is a balanced symbol equation because there are four hydrogen atoms and two oxygen atoms in the reactants and the products

Similar words

Word equation, this is when we write the names of the chemicals and don't use the symbols

Chemical symbol

a single letter or two letters that is used to represent an element, such as C for carbon, Na for sodium

In other words ...

a chemical symbol is a short way of writing the name of an element using one or two letters

Sign it

Watch a video:  bit.ly/3Z25eQ6

Say it

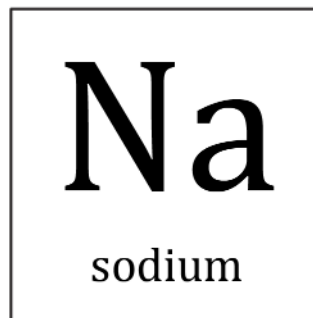
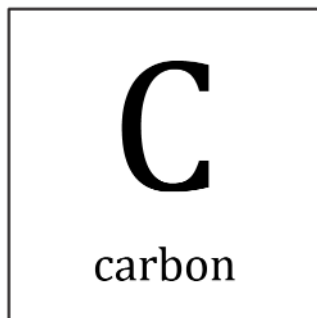
Cem-i-cel sim-bel

Break it down

Chemical (relating to substances), symbol (a sign or a letter to represent something)

Similar words

Element symbol



Example

The chemical symbol for carbon is C

Don't confuse with ...

initials. Some elements have chemical symbols which match their name in English, e.g. O is for oxygen. Other elements, such as gold, Au, have unexpected chemical symbols, as their names come from other languages

Chemical formula

uses chemical symbols to show the relative number of the atoms of each element in a substance, such as H_2O for water or CO_2 for carbon dioxide

In other words ...

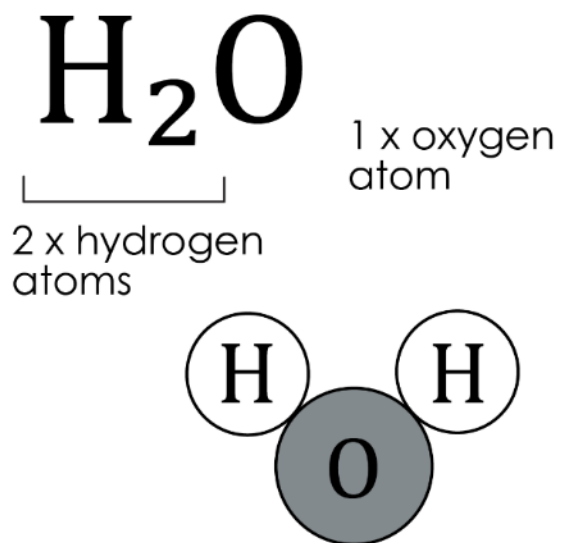
this type of formula gives the chemical symbols of the elements whose atoms make up the substance. The formula also shows the relative numbers of these atoms

Say it

Cem-i-cel form-ya-la

Break it down

Chemical (relating to substances), formula (a set way of writing things)



Example

The chemical formula for water is H_2O . Each water molecule has two hydrogen atoms bonded to one oxygen atom

Don't confuse with...

Whole numbers used to balance a chemical equation

Other meanings

A formula can also mean a set of instructions, like a maths formula, or a recipe

State symbol

used sometimes with the chemical formula to show the states of substances, where (s) is solid, (l) is liquid, (g) is gas and (aq) is aqueous

In other words ...

a state symbol is a small letter in brackets that tells us whether a substance is in the solid, liquid or gas state or dissolved in water (aqueous)

Example

In the reaction: $\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{H}_2\text{O}(\text{l})$, the state symbols show that hydrogen gas and oxygen gas react together to form liquid droplets of water

Sign it

Watch a video:

bit.ly/4iMfO4Q

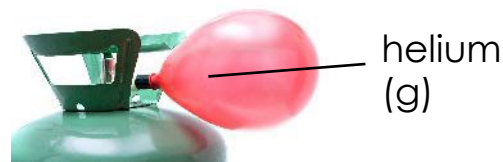


Say it

St-ay-t sim-bel

Break it down

State (the form something is in), symbol (a sign or letter to represent something)



Don't confuse with...

physical appearance. (aq) and (l) are not the same – aqueous means the substance has dissolved into water to form a solution, while (l) shows that the substance is melted

Word equation

for a chemical reaction, this shows the names of the reactants and products separated by an arrow

In other words ...

a way to show a reaction using the names of chemicals and not their symbols

Sign it

Watch a video:

bit.ly/4ak5u31



Say it

Wir-d i-cway-si-en

Example

The word equation for our reaction was
iron + sulfur \rightarrow iron sulfide



Don't confuse with ...

symbol equation which just uses the chemical symbols and not their names

Acknowledgements

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British sign language dictionary

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