

14–16 years

# Key terms accessible glossary: crude oil

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For how to use, metacognitive prompts, ideas for support and challenge, and linked resources, visit: [rsc.li/3Ys0jYi](https://rsc.li/3Ys0jYi)

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# Addition polymerisation

## Example

Addition polymerisation joins many ethene molecules together to form the polymer poly(ethene)

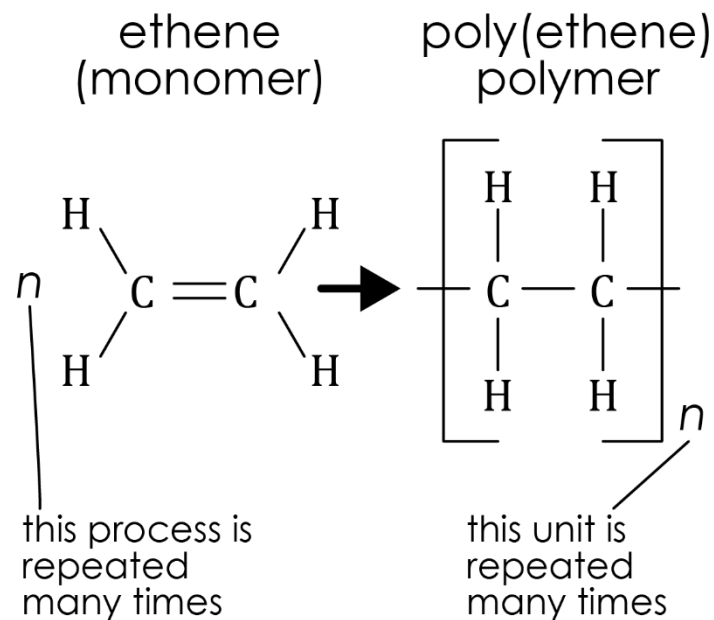
## In other words ...

a process where many small molecules (monomers) join together to form a large molecule, (polymer) without any by-products

when many monomers with a C=C double bond join together to form a polymer; no other substance is produced in the reaction

## Break it down

Addition (adding together),  
polymerisation (forming a polymer)



## Don't confuse with ...

condensation polymerisation. Where monomers join together and a small molecule is released

## Say it

A-di-shen pol-i-mar-eye-zay-shen

# Monomer

a small molecule that can react with many other small molecules to form a polymer

## In other words ...

a small molecule that can join together with other small molecules, forming new bonds and one large molecule (a polymer)

## Sign it

Watch a video:



[bit.ly/3Z5j18t](https://bit.ly/3Z5j18t)

## Say it

Mon-a-ma

## Break it down

Mono (one), mer (part of a unit)

## Example

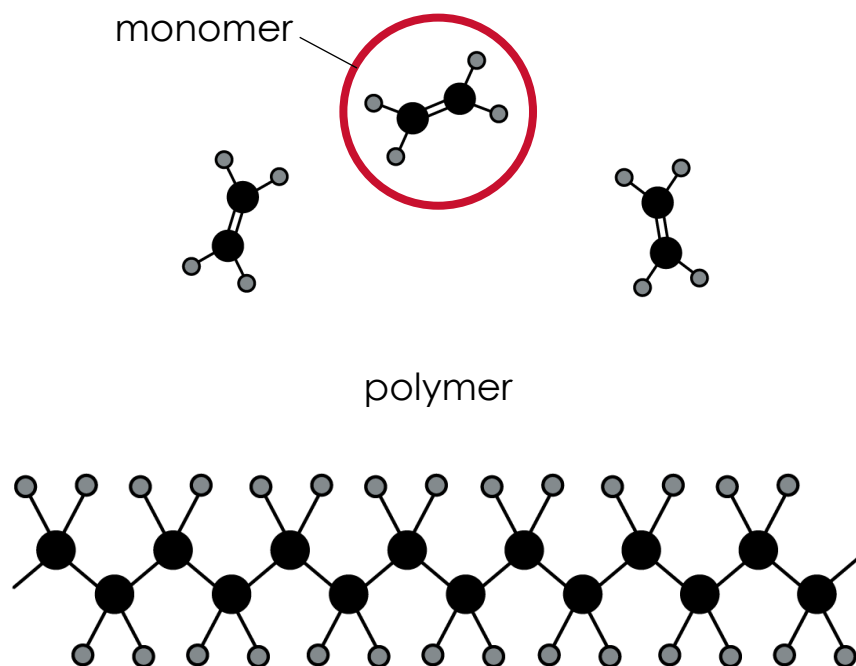
Ethene is the monomer which joins with other ethene molecules to form the polymer poly(ethene)

## Don't confuse with ...

polymer. A monomer is a single unit which forms the polymer

## Similar words

Building block



# Non-biodegradable

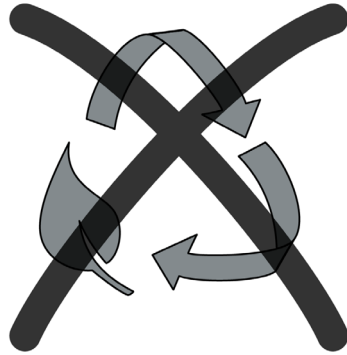
not able to be broken down by living organisms in the natural environment

## In other words ...

a substance that cannot be broken down naturally by living organisms

## Example

Many plastics are non-biodegradable



**Don't confuse with ...**  
non-renewable

## Say it

Non-b-eye-o-di-gray-da-ble

## Break it down

Non (not), bio (living organisms), degrade (to break down)

## Similar words

Non-decomposable

## Other contexts

Non-biodegradable is often used to describe materials like plastics which linger in the environment for a long time, while biodegradable materials like food waste break down naturally

# Polymer

a very large molecule made by joining together lots of small molecules

## In other words ...

a very large molecule which was made by joining many small molecules (monomers) together

## Sign it

Watch a video:

[bit.ly/4d5jRYQ](https://bit.ly/4d5jRYQ)



## Say it

Pol-i-ma

## Similar words

Chain

## Break it down

Poly (many), mer (part of a unit)

## Example

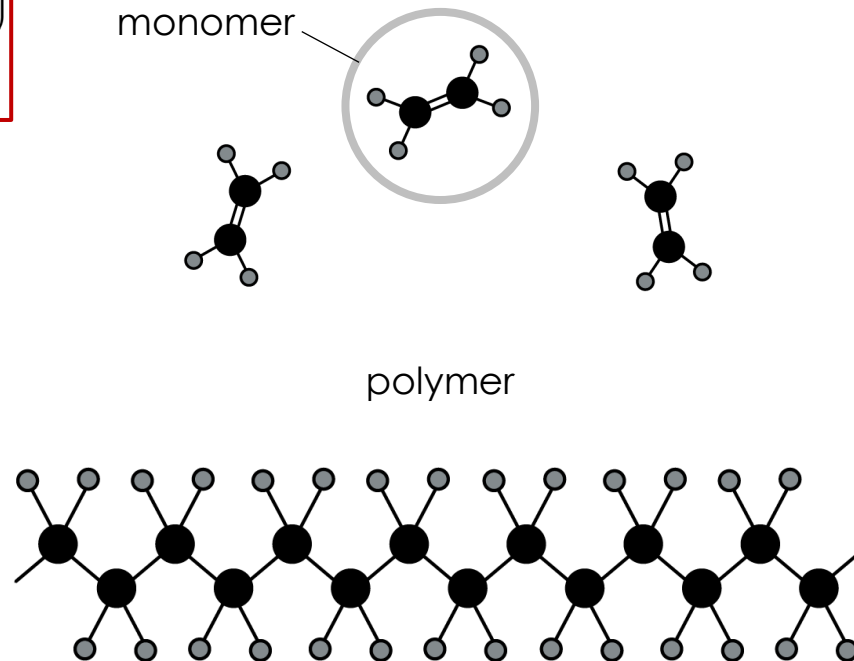
Poly(ethene) is a polymer made from repeating units of ethene molecules

## Don't confuse with ...

plastics. While many polymers are plastics, this is a type of material, rather than a type of molecule

## Other contexts

In everyday life, 'polymer' refers to many materials like plastic, rubber or synthetic fabrics



# Repeat unit

a small part of a polymer which repeats to produce the complete polymer chain

## In other words ...

the part of the polymer that repeats itself over and over many times to form the whole polymer chain

## Similar words

Repeating section

## Say it

Ri-pee-t y-ue-nit

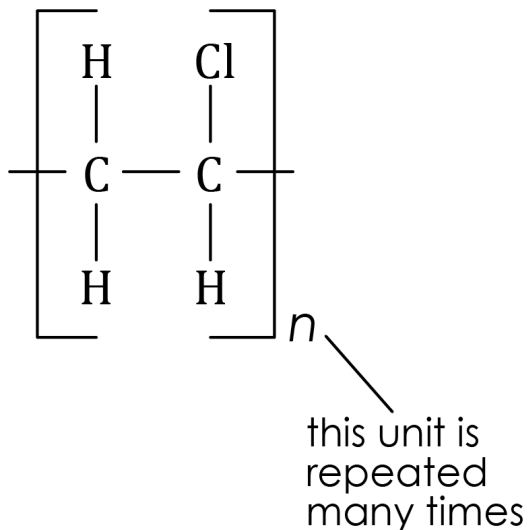
## Break it down

Repeat (multiply over and over) unit (single part)

## Example

The repeat unit of poly(chloroethene) is shown in the diagram. (Also known as polyvinyl chloride or PVC)

poly(chloroethene)  
polymer



## Don't confuse with ...

monomer. The repeat unit refers to the specific part of the polymer chain that repeats, but the monomer is the single molecule you started with



# Catalyst

a substance that can speed up a reaction without being used up; it does this by lowering the activation energy for the reaction

## In other words ...

a substance which speeds up a chemical reaction without being changed or used up in the reaction

## Sign it

Watch a video:   
[bit.ly/3EVtpsE](https://bit.ly/3EVtpsE)

## Say it

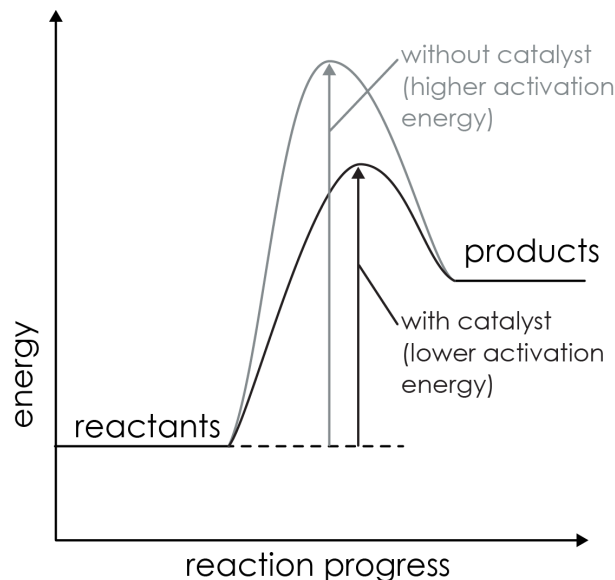
Cat-el-ist

## Break it down

Cata (down),  
lyst (lytic,  
breaking apart)

## Other contexts

Catalyst is used in everyday speech to describe something that causes a change or accelerates a process – like 'a catalyst for change'. Enzymes are biological catalysts.



## Example

A catalyst was used to speed up the chemical reaction

## Don't confuse with ...

reactant. A catalyst is not a reactant and does not get used up in the process. It doesn't appear in the chemical equation

# Catalytic cracking

when larger hydrocarbons are broken down into smaller, more useful, molecules by passing the vapours over a catalyst such as aluminium oxide

## In other words ...

a process where large hydrocarbons are broken down chemically into smaller ones using a catalyst

## Example

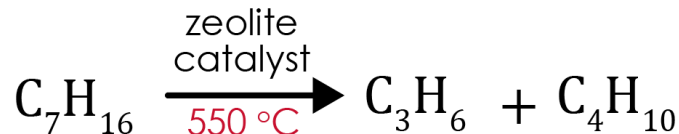
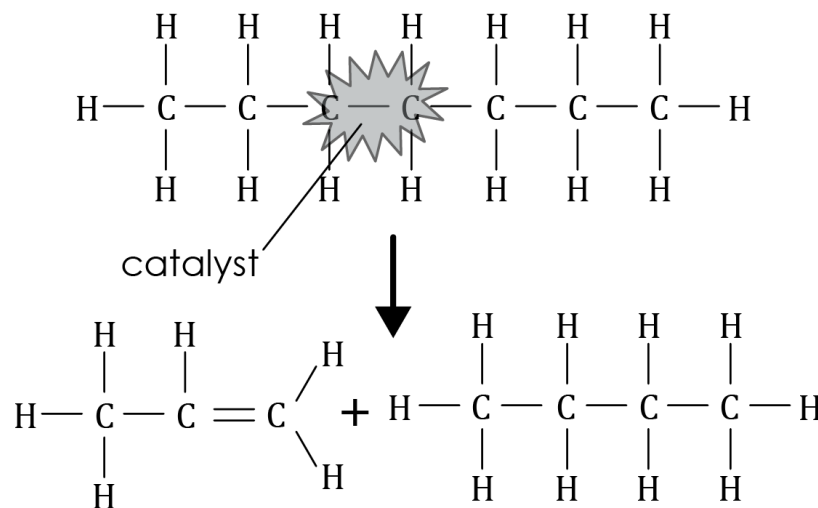
Larger molecules from crude oil can be cracked into smaller, more useful ones using a catalyst

## Say it

Cat-a-lit-ic crac-ing

## Break it down

Cata (use of a catalyst), lytic (breaking down), cracking (breaking down into smaller parts)



## Don't confuse with ...

steam cracking. A similar process, but using steam in place of a catalyst

## Other contexts

Cracking means to break something, like cracking an egg

# Steam cracking

## In other words ...

a process where large hydrocarbons are broken down chemically into smaller ones using steam

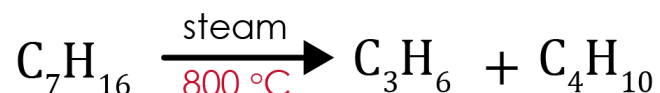
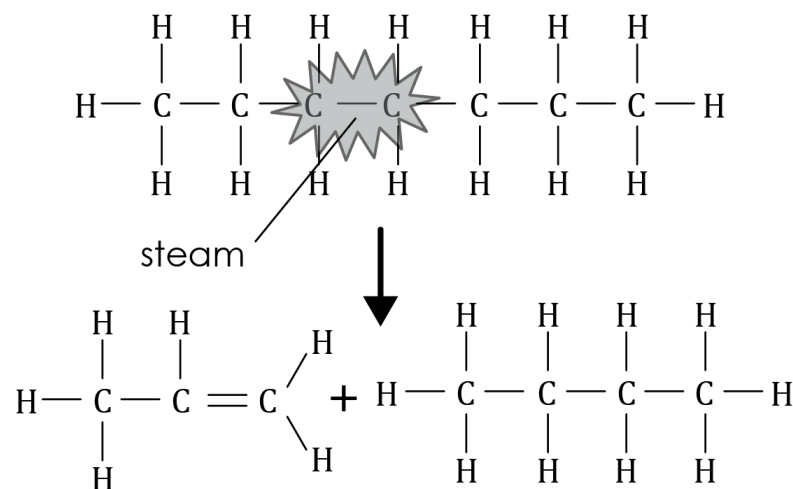
## Say it

Stee-m crac-ing

## Break it down

Steam (water vapour), cracking (breaking apart)

when larger hydrocarbons are broken down into smaller, more useful, molecules by mixing the vapours with steam and heating to very high temperatures



## Example

Steam cracking is used in the production of smaller hydrocarbons like ethene from larger molecules

## Similar words

Cracking (the umbrella term for all cracking processes)

## Don't confuse with ...

catalytic cracking. This uses a catalyst instead of steam

# Finite resource

a useful substance or energy store that is non-renewable

## In other words ...

a resource that will eventually run out because it cannot be replaced in a way which balances our usage

## Example

Coal is a finite resource because it cannot be replaced quickly enough to balance our use

## Say it

F-eye-n-eye-t ri-zors

## Break it down

Finite (limited),  
resource (something useful)



## Don't confuse with ...

renewable  
resources, such as  
wind or solar power

## Other contexts

Finite means  
something with limits,  
the opposite of  
infinite

## Similar words

Non-renewable energy source

# Fossil fuel

a fuel formed over millions of years from the remains of dead plants and/or animals, for example crude oil

## In other words ...

a fuel like coal, oil, or natural gas, that comes from the remains of dead plants and animals over millions of years

## Example

Coal and oil are fossil fuels which are burnt to generate electricity

## Sign it

Watch a video: 

[bit.ly/432i3Lz](https://bit.ly/432i3Lz)



## Say it

Fos-el fy-ue-al

## Break it down

Fossil (remains of ancient life),  
fuel (a substance which burns to release energy)

## Similar words

Non-renewable  
energy source

## Don't confuse with ...

fuels. Not all fuels are fossil fuels, for example bioethanol is produced from fermentation

## Other contexts

Fossil in everyday life refers to the preserved remains of ancient plants or animals, like a fossil found in rock

# Non-renewable

when something is being used up at a faster rate than it can be replaced

## In other words ...

something that can't be replaced naturally or quickly, so it will eventually run out if we keep using it

## Sign it

Watch a video:



[bit.ly/43j6xN6](https://bit.ly/43j6xN6)

## Say it

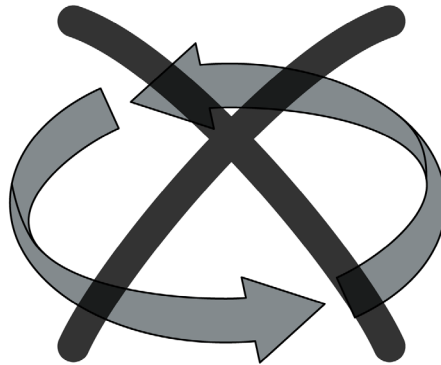
Non ri-ny-ue-ab-el

## Break it down

Non (not), renewable (able to be replaced or regenerated)

## Example

Fossil fuels are non-renewable because they take millions of years to form



## Don't confuse with ...

renewable resources like wood. Although trees can take years to form, this is a short timeframe compared to the millions of years needed to form coal, oil or natural gas!

## Similar words

Exhaustible

# Boiling point

the temperature at which a pure substance changes from a liquid to a gas or from a gas back to a liquid

## In other words ...

the temperature that a substance boils or condenses

## Sign it

Watch a video:   
[bit.ly/4444xcp](https://bit.ly/4444xcp)

## Break it down

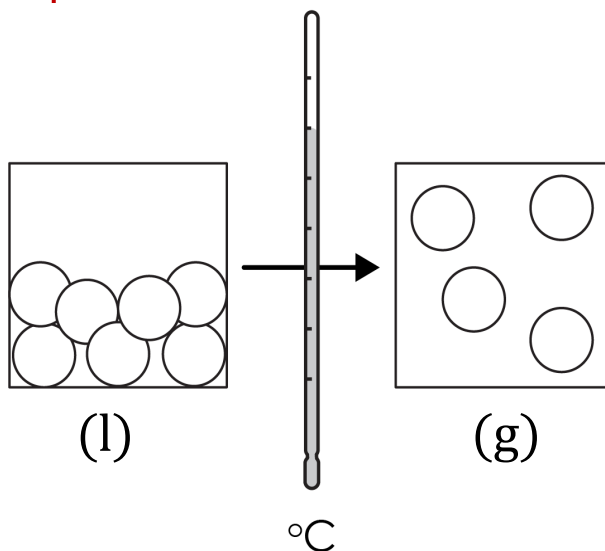
Boiling (process of turning liquid to gas), point (specific temperature)

## Example

The boiling point of water is  $100^{\circ}\text{C}$

## Say it

B-oy-li-ng p-oy-nt



## Don't confuse with ...

a high number - a boiling point is not always a high number. Oxygen has a boiling point of  $-183^{\circ}\text{C}$

## Other contexts

'Boiling point' is often used in everyday life, and can also refer to when someone gets very angry or upset: 'reaching their boiling point'



# Feedstock

a starting substance for an industrial process, such as making solvents or detergents

## In other words ...

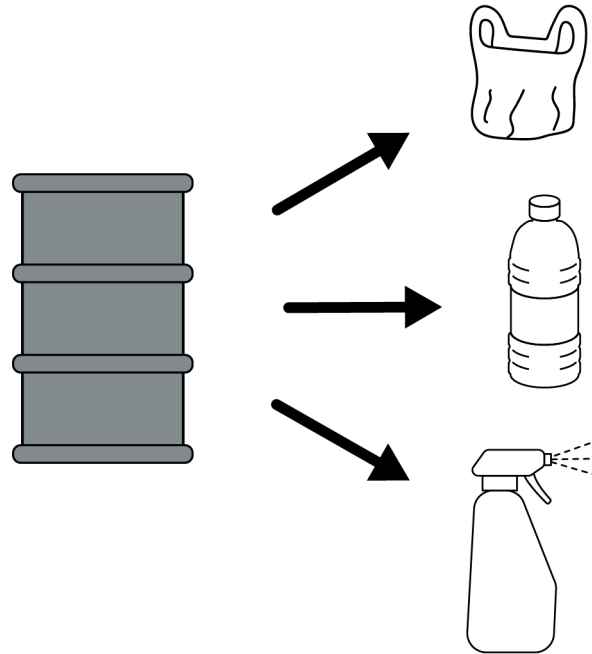
a raw material or starting substance used in an industrial process to make products

## Say it

Feed-st-oc

## Break it down

Feed (provide or supply),  
stock (material)



## Example

Crude oil is the feedstock for making many everyday products, like petrol or plastics

## Don't confuse with ...

reactant or product.  
Feedstock refers to the raw starting material

## Other contexts

'Stock' often refers to supplies

## Similar words

Raw material



# Fraction

a mixture of hydrocarbons with similar boiling points that condense together during fractional distillation of crude oil

## In other words ...

a part of a mixture that has similar properties, especially in fractional distillation

## Sign it

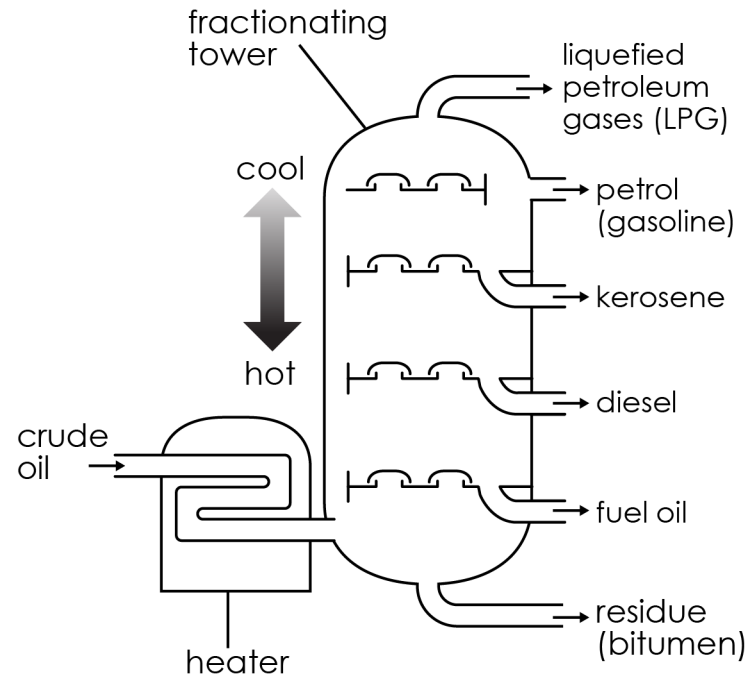
Watch a video:   
[bit.ly/42OF6e4](https://bit.ly/42OF6e4)

## Say it

Frac-shen

## Break it down

Fract (to break), ion (part or section)



## Similar words

Part, section

## Example

Crude oil can be separated into fractions with similar boiling points, like diesel used as fuel for cars, vans, lorries and trains

## Don't confuse with ...

fraction in mathematics. Here it refers to a portion or part of a mixture

## Other contexts

Fraction in everyday life refers to part of a whole, like a fraction of a pie

# Fractional distillation

a method of separation involving continuous evaporation and condensation used to separate a mixture of liquids with different boiling points

## In other words ...

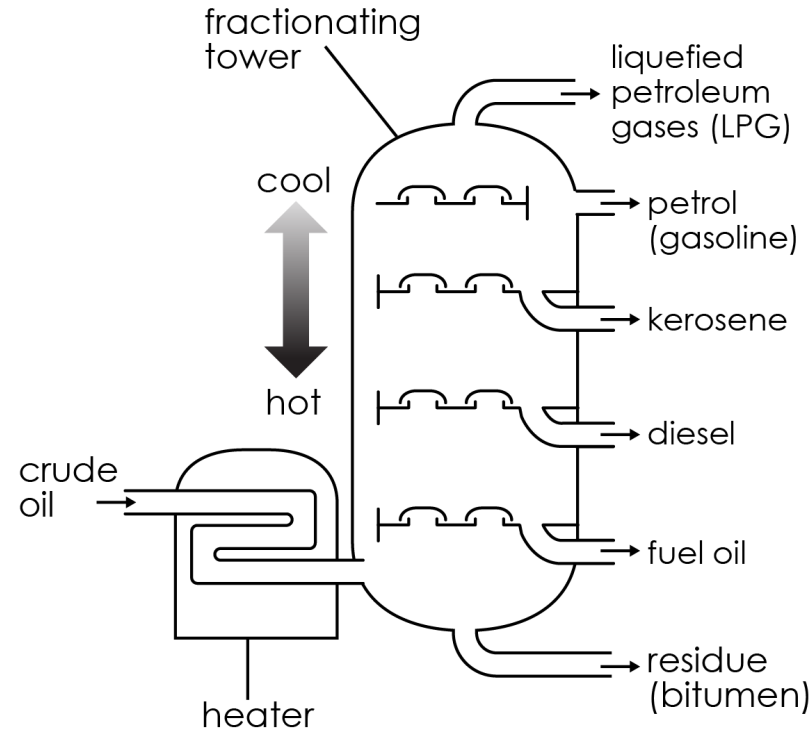
separating liquids with different boiling points by evaporating the mixture and collecting each part as it condenses

## Say it

Frac-shen-el dis-til-ay-shen

## Break it down

Fractional (part or section),  
distillation (process of separating liquids by evaporation and condensation)



## Example

Fractional distillation is used to separate different components of crude oil into products like gasoline, diesel, and kerosene

## Don't confuse with ...

simple distillation. Fractional distillation can separate multiple different components at the same time by their differences in boiling points

# Fractionating tower

used in an oil refinery to carry out fractional distillation of crude oil by condensing the vapours at different levels which are cooler as you go higher up

## In other words ...

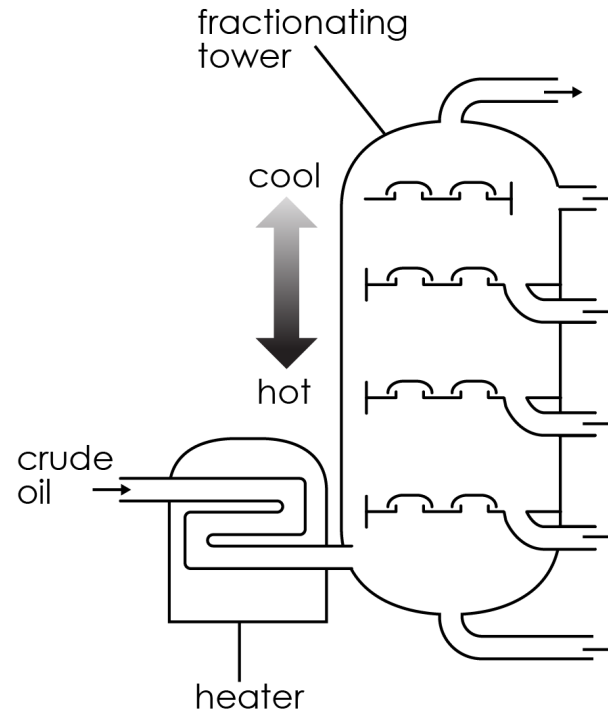
a tall structure in an oil refinery with a temperature gradient. It separates crude oil into its components by condensing at different levels

## Say it

Frac-shen-ay-t-ing t-our

## Break it down

fractionating (separating into parts), tower (tall building or structure)



## Similar words

Distillation column

## Example

The fractionating tower in an oil refinery separated the crude oil into the different fractions

## Don't confuse with ...

fractional distillation. This is the name of the process, not the tower itself

# Fuel

a substance that can transfer useful energy as heat when it is burned

## In other words ...

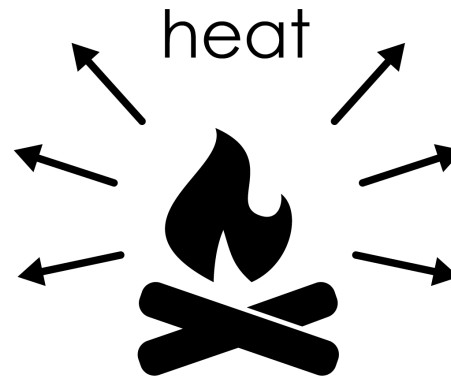
a substance which burns to release energy, like wood, coal or gas

## Sign it

Watch a video:   
[bit.ly/3GVOnlr](https://bit.ly/3GVOnlr)

## Say it

Fy-ue-al



## Similar words

Energy source/store

## Example

Petrol is a fuel used to power cars

## Don't confuse with ...

energy. Fuel is a substance which releases stored energy

## Other contexts

Fuel is often used in everyday life to refer to food or drink as energy for the body

# Vapour

another word for a gas or mixture of gases

## In other words ...

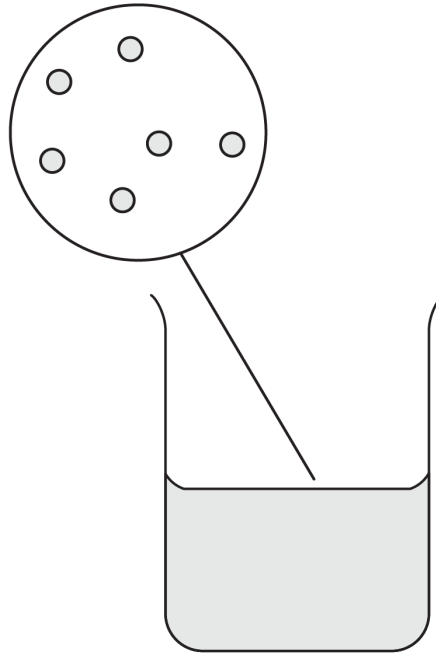
a gas or mixture of gases, often from a liquid that has been heated

## Say it

V-ay-pa

## Break it down

Vap (mist/steam)



## Example

When water boils, the steam can be referred to as vapour

## Don't confuse with ...

gas. Vapour refers specifically to a gas that comes from a liquid or a solid, like water vapour

## Other contexts

Vapour is commonly used in terms like 'steam' or 'mist', but not as a general term for gases

# Alkane

a hydrocarbon with the general formula  $C_nH_{2n+2}$ , such as methane, ethane, propane and butane

## In other words ...

a type of hydrocarbon where all the bonds between carbon atoms are single bonds

## Sign it

Watch a video:

[bit.ly/4mawMgj](https://bit.ly/4mawMgj)

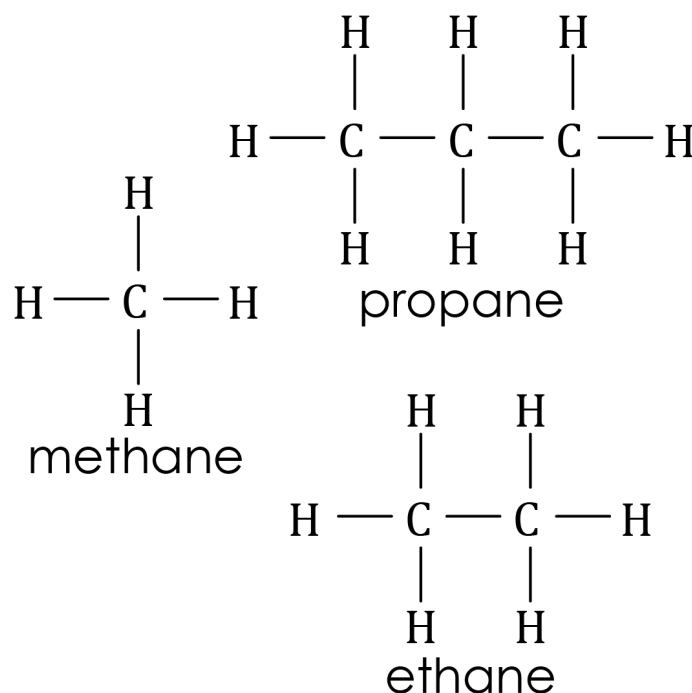


## Say it

Al-c-ay-n

## Break it down

Alk (hydrocarbon),  
ane (suffix for hydrocarbons with only a single bond)



## Similar words

Saturated hydrocarbon

## Example

Methane, ethane and propane are the first three alkanes

## Don't confuse with ...

hydrocarbon:  
compounds which contain hydrogen and carbon only but may have double (or triple) bonds between carbon atoms

# Flammability

how easy it is to ignite a substance

## In other words ...

how easily a substance catches fire and burns

## Say it

Flam-a-bil-at-y



## Break it down

Flamm (from flame, fire),  
ability (able to do something)

## Similar words

Combustibility

## Example

Gasoline has a high flammability and can catch fire easily

## Don't confuse with ...

oxidising. The hazard which refers to a substance's ability to combine chemically with oxygen

## Other contexts

A substance with high flammability is more commonly referred to as a 'fire hazard' when talking about safety

# Homologous series

a series of organic compounds with the same general formula, which react in a similar way, such as alkanes

## In other words ...

a group of compounds that have the same general formula and react in similar ways

## Say it

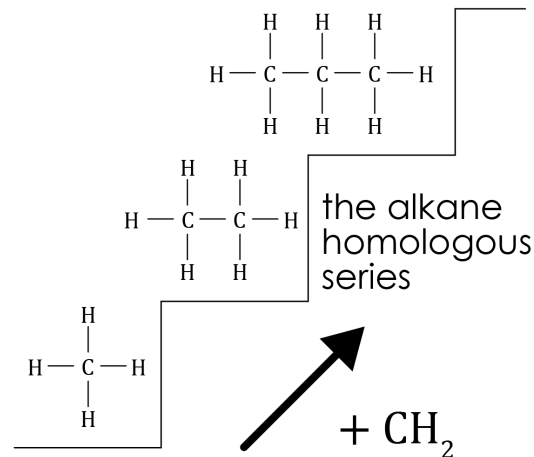
Ha-mol-ag-as s-ear-ee-z

## Break it down

Homologous (having the same structure), series (a group of related things)

## Example

Alkanes form a homologous series because they all have the same formula and similar chemical properties



## Don't confuse with ...

hydrocarbon. Compounds which contain hydrogen and carbon only, but refers to all the hydrocarbon homologous series

## Other contexts

'Series' is a term used in an everyday context, such as a TV series or book series

## Similar words

Family (as in the 'alkane family' or 'alkene family')



# Hydrocarbon

a compound that is made from the elements carbon and hydrogen only

## In other words ...

a compound made from carbon and hydrogen atoms only and no other element

## Sign it

Watch a video:



[bit.ly/42I9Jlc](https://bit.ly/42I9Jlc)

## Say it

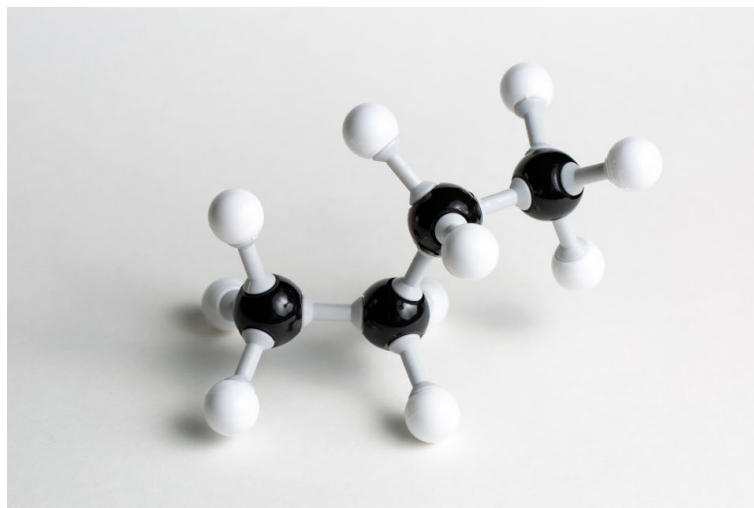
H-eye-dro-ca-ben

## Break it down

hydro (hydrogen),  
carbon

## Similar words

A type of organic compound



## Example

Methane is the simplest hydrocarbon

## Don't confuse with ...

organic compounds more generally. Not all organic compounds are hydrocarbons

## Other contexts

We often refer to hydrocarbons as fuels like gasoline or natural gas

# Saturated hydrocarbon

## In other words ...

a hydrocarbon with only single bonds between carbon atoms. It has the maximum amount of hydrogen atoms possible

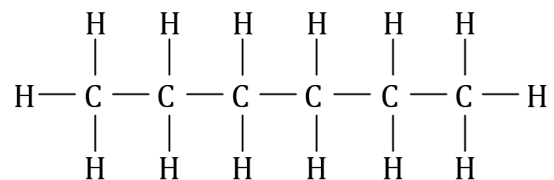
## Say it

Sach-ar-ay-tid h-eye-dro-ca-ben

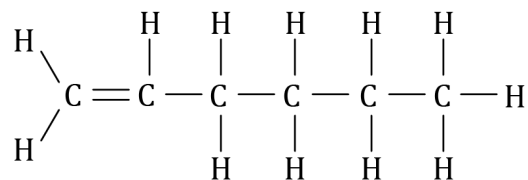
## Break it down

saturated (filled to capacity),  
hydrocarbon (a compound of hydrogen and carbon only)

a hydrocarbon with only a single bond between the carbon atoms, such as an alkane



hexane,  $\text{C}_6\text{H}_{14}$   
saturated



hexene,  $\text{C}_6\text{H}_{12}$   
unsaturated

## Example

Hexane is a saturated hydrocarbon, whereas hexene is unsaturated

## Don't confuse with ...

alkanes. Alkanes refers to the family of compounds, rather than its saturation

## Other contexts

Saturated in an everyday context means something is completely soaked or filled. For example, a saturated solution is one that cannot dissolve any more solid.

# Viscosity

how easily a liquid pours; more viscous liquids are thick and 'gooey', whereas runny liquids have a low viscosity

## In other words ...

the thickness or stickiness of a liquid – how treacle-like it is

## Sign it

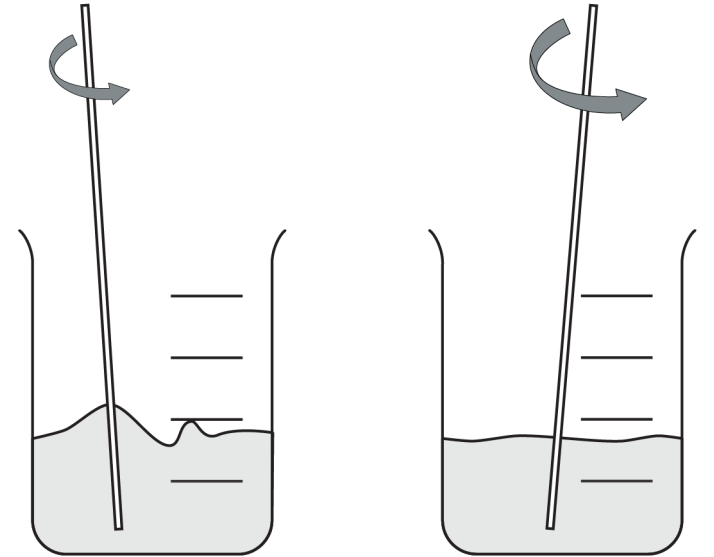
Watch a video:   
[bit.ly/3EHID4C](https://bit.ly/3EHID4C)

## Say it

Vis-cos-at-y

## Break it down

Visc (sticky or thick),  
osity (state or quality  
of something)



high viscosity liquid  
e.g. treacle

low viscosity liquid  
e.g. water

## Example

Honey has a high viscosity, while water has a low viscosity

## Don't confuse with ...

density. Viscosity is about how easily it flows, not how heavy it is for its volume

## Other contexts

Viscosity is used to describe things like syrup or motor oils

## Similar words

Thickness, gloopyness

# Acknowledgements

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SSC BSL Glossaries of Curriculum Terms

(<https://www.ssc.education.ed.ac.uk/BSL/>)