

## SC20 Fuels

## SC20a Hydrocarbons in crude oil and natural gas

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 4 <sup>th</sup>	Recall the meaning of the term hydrocarbon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 <sup>th</sup>	Describe the compounds found in crude oil.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 <sup>th</sup>	Describe the importance of crude oil for the petrochemical industry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 <sup>th</sup>	Explain why crude oil is a finite resource.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 4 <sup>th</sup>	Recall the names of some common fossil fuels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SC20b Fractional distillation of crude oil

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 7 <sup>th</sup>	Describe how crude oil is separated by fractional distillation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 <sup>th</sup>	Explain how fractional distillation of crude oil works.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 <sup>th</sup>	Recall the names and uses of fractions from crude oil.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 <sup>th</sup>	Describe how fractions differ from each other.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 <sup>th</sup>	Explain why the properties of different fractions differ.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SC20c The alkane homologous series

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 6 <sup>th</sup>	Describe that oil fractions mostly contain alkanes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 <sup>th</sup>	Describe the main features of an homologous series.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 <sup>th</sup>	Explain why alkanes form an homologous series.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SC20d Complete and incomplete combustion

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 6 <sup>th</sup>	Describe the complete combustion of hydrocarbon fuels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 <sup>th</sup>	Explain the production of harmful products during the incomplete combustion of hydrocarbon fuels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 <sup>th</sup>	Explain why carbon monoxide is toxic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 <sup>th</sup>	Describe the problems caused by incomplete combustion.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SC20e Combustible fuels and pollution

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 6 <sup>th</sup>	Explain how some hydrocarbon fuels produce sulfur dioxide in use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 <sup>th</sup>	Recall the names of the pollutants responsible for acid rain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 <sup>th</sup>	Describe some effects of acid rain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 <sup>th</sup>	Explain why oxides of nitrogen are produced when fuels are burned in engines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SC20f Breaking down hydrocarbons

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 9 <sup>th</sup>	Evaluate hydrogen as an alternative fuel to petrol for cars.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 <sup>th</sup>	Describe what happens during cracking.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 <sup>th</sup>	Explain why alkanes are saturated and alkenes are unsaturated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 <sup>th</sup>	Explain why cracking is necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SC21 Earth and Atmospheric Science

### SC21a The early atmosphere

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 5 <sup>th</sup>	Describe how the Earth's early atmosphere was formed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 <sup>th</sup>	State the names and relative amounts of the gases found in the Earth's early atmosphere.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 <sup>th</sup>	Draw conclusions from evidence about the Earth's early atmosphere.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 <sup>th</sup>	Explain how the oceans are thought to have formed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### SC21b The changing atmosphere

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 7 <sup>th</sup>	Describe how the formation of the oceans influenced the composition of the atmosphere.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 <sup>th</sup>	Explain how photosynthetic organisms (including plants) changed the composition of the atmosphere.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 <sup>th</sup>	State the chemical test for oxygen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### SC21c The atmosphere today

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 5 <sup>th</sup>	Recall the names of significant greenhouse gases.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 <sup>th</sup>	Describe the processes involved in the greenhouse effect.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 <sup>th</sup>	Describe how human activity increases the concentration of greenhouse gases.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 10 <sup>th</sup>	Evaluate the correlation between atmospheric carbon dioxide concentrations and fossil fuel use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 10 <sup>th</sup>	Evaluate the evidence for increased atmospheric greenhouse gas concentrations being part of the cause of global warming and climate change.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SC21d Climate change

Step	Learning outcome	Had a look	Nearly there	Nailed it!
	Suggest possible effects on the climate of increased levels of carbon dioxide and methane.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Describe how human activity leads to increased carbon dioxide levels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Describe how human activity leads to increased methane levels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Describe the projected effects of climate change.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Describe how the potential harmful effects of climate change can be addressed and limited.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>