

## Triple Science - Chemistry

SC20-21 Knowledge organiser

SC20-21:	Fuels and the atmosphere	2. Frac	tional distillation of crude oil		3. The alkanes	4. Comp	lete and incomplete combustion
	•	Fractional	A type of distillation used to	Homologous	A family of closely related	Combustion	When a compound reacts with
L	esson sequence	distillation	separate mixtures of two or more	series	compounds with molecular		oxygen producing a flame.
1. Hydroca	-		liquids.		formulae that differ only in the	Complete	Combustion that produces only
	nal distillation of crude oil		Fractional distillation separate		number of 'CH <sub>2</sub> 's.	combustion	water and carbon dioxide and
			compounds according to their	Physical	Vary gradually, for example the		releases the most possible energy.
3. The alka			boiling point.		boiling point gradually increases.	Complete	Fuel + oxygen →
4. Comple	ete and incomplete	Heating	Crude oil is passed through a heater	a homologous		combustion	carbon dioxide + water
combus	stion	crude oil	to heat it to about 400°C so that	series		equation	E.g: Ethane + oxygen →
5. Fuels ar	nd pollution	-	nearly everything is a gas.				carbon dioxide + water
6. Crackin	•	Separating	The hot gases rise up the	Chemical	Very similar with a gradual		$2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$
	b Iy atmosphere		fractionating column until cool	properties in	variation.		Combustion that produces a mixture
		-	enough to condense.	a homologous series		combustion	of carbon dioxide, carbon monoxide,
	anging atmosphere	column			Describes the number of each		carbon and water and produces less
	nosphere today	Fractions of crude oil	The separated liquids and gases collected at different temperatures.	General			energy.
10. Climate	e change	crude on	The main ones are gases, petrol,	formula	atom in any member of a homologous series.	Why	When there is not enough oxygen
			kerosene, diesel oil, fuel oil, and	Alkanes	Hydrocarbons containing only		for all of the reactants to be fully
	1. Hydrocarbons		bitumen.	Aikanes	single bonds. The names end with	combustion	oxidised.
Hydrocarbon	A compound containing only	Fractions in	Gases, petrol, kerosene, diesel, fuel		'-ane'.	happens	
Country of t	hydrogen and carbon.	order	oil, bitumen:	First three	Methane – CH <sub>4</sub>	Carbon monoxide	CO. A colourless odourless a highly
Crude oil	A thick brown liquid made of a		- Smallest to biggest molecules	alkanes	Ethane – $C_2H_6$		toxic gas. It sticks to haemoglobin in the blood
	mixture of many different		- Lowest to highest boiling point	untaries	Propane – $C_3H_8$	monoxide	-
	hydrocarbons found in deposits underground.		- Lowest to highest viscosity	General	C <sub>n</sub> H <sub>2n+2</sub>	kills	which prevents it from carrying
			- Easiest to hardest ignition	formula of		Soot	oxygen. The small particles of carbon
	Hydrocarbons in many different	Viscosity	How easily a fluid flows – higher	alkanes		5001	produced by incomplete
	forms with carbons joined		viscosity = runnier.		gases		combustion.
	together into both chain- and ring- shaped molecules.	Ease of	How easily a substance catches fire.		domestic heating and cooking	Problems	- Causes lung problems when
		ignition		P		with soot	breathed in.
	Most of the hydrocarbons in crude oil are liquids, but each of them	Gases	Used for domestic heating and			with soot	- Blackens and dirties buildings
	has a different boiling point.		cooking.			Preventing	It is important that boilers at home
in crude on	has a different boining point.	Petrol	Used as a fuel for cars.		petrol	•	have a good air supply to prevent
	Masthyalkanas	Kerosene	Fuel for aircraft	vapours rise	fuel for cars	-	incomplete combustion. For this
in crude oil	Mostly alkanes.	Diesel oil	Fuel for larger vehicles such as	and cool in	1991 - 1992 - 19		reason, a boiler's flue pipe should be
	Fuel, feedstock (supply of basic		lorries and trains	the tower	📻 . kernsene		checked for blockages every year.
	chemicals) for the chemical	Fuel oil	Fuel for ships and power stations		fuel for aircraft	350	
	industry.	Bitumen	Surfacing roads and roofs	anula		300	
Crude oil as a	There is a limited amount: at some	$\bigcirc$		crude		250-	
	point it will run out.			oil in 🦳 📮	diesel oil	2 150	
inite resource					fuel for some cars and trains	100	
Non-	A resource that will eventually run	 methane, CH₄	ethane, C <sub>2</sub> H <sub>6</sub> propane, C <sub>3</sub> H <sub>8</sub>	2	1.10	100 50 0 -50	
	out.	methane, or 4			π, fuel oil		
i elle wable	041.				fuel for large ships and power stations		
						-100 -150 x	
				crude oil	bitumen	-200	
		butane	Callan	is heated	surfacing roads and roofs	0 2	4 6 8 10 12 14 16 18 20 lumber of carbon atoms in each molecule
			7 -4. 10	is licaleu		IN	



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ulfur       An imparity that is naturally present       Gracking       Breaking down longer less useful       File early       3.3 billion years ago the Earth       Greenhouse       Greenhouse       Intract radiation (heat) from         ulfur       SO, A gas formed from the sulfurin.       Interact radiation (heat) from       Interact radiation (heat) from <t< th=""><th>5. (</th><th>Combustible fuels and pollution</th><th></th><th>6. Cracking</th><th>7</th><th>'. The early atmosphere</th><th></th><th>9. Global warming</th></t<>	5. (	Combustible fuels and pollution		6. Cracking	7	'. The early atmosphere		9. Global warming
<ul> <li>ultiru So, Agas formed from the suffur in estifu in the suffur in more suffur in the yaca of the behydrocarbons and pass in the yaca of the behydrocarbons and pass in the yaca of the behydrocarbons and pass in the yaca of the yaca of the behydrocarbons and pass in the yaca of the</li></ul>	Sulfur	An impurity that is naturally present in	Cracking	Breaking down longer less useful			Greenhouse	Infrared radiation (heat) from the sur
<ul> <li>loade oil and cata when it is burnt.</li> <li>loade oil and cata when it is bur</li></ul>		small amounts in oil and coal.	-	hydrocarbons into shorter more	Earth	was extremely hot and there were	effect	travels through the atmosphere and
dd rain lain with <u>pH</u> lower <u>than 5.2</u> more than <u>with pH</u> lower <u>than 5.2</u> more than <u>with pH</u> lower <u>than 5.2</u> more than <u>than and an alkane</u> the <u>than than and an alkane</u> the <u>than than and an alkane</u> the <u>than <u>than and an alkane</u> the <u>than than and alkane</u> the <u>than <u>than and alkane</u> the <u>than than than <u>than and an alkane</u> the <u>than than and alkane</u> the <u>than than and alkane</u> the <u>than than than <u>than and an alkane</u> the <u>than than than <u>than and alkane</u> the <u>than than than <u>than and an alkane</u> the <u>than than than <u>than and alkane</u> the <u>than and than angen such as <u>than and than angen such as <u>than and than angen such as than than than than than than than than</u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u>	Sulfur	SO <sub>2</sub> . A gas formed from the sulfur in		useful ones.		many volcanoes.		warms the ground. The ground re-
<ul> <li>adia raim a phi lower than 5.2</li> <li>armosphere a divide (subsect) and an alkene.</li> <li>adiana and analkene.</li> <li>adiana and analkene.</li> <li>basi box provents fish agas forments of adia for mires and lakes provents fish agas form haching and kills some and has provents fish agas form haching and kills some and has prevents fish agas form haching and kills some and has a lue be than longer ones such as bit ment. Cracking and kills some and has a lue be than longer ones such as bit ment. The direct one formed at direct and the analysis have direct and the area formed at a lue be than longer ones such as bit ment. Cracking and kills some and that uses in a due be as a fuel box some direct or cards.</li> <li>brows not bit do analysis have forming and fain - NO, causes ling domagers.</li> <li>brows not bit of forming and fain - NO, causes ling domagers.</li> <li>brows not bit of forming and fain - NO, causes ling domagers.</li> <li>brows not bit of forming and fain - NO, causes ling domagers.</li> <li>brows not bit of the cortribute to global warming - not corts.</li> <li>brows of the cortributes to global warming - not of the corts is a fuel a source of corts.</li> <li>brows of the cortributes to global warming - not forming the corts.</li> <li>brows of the cortributes to global warming - not forming to the cort of the corts.</li> <li>brows of the cortributes to global warming - not forming the cort of the corts.</li> <li>brows of the cortributes to global warming - not forming the cortributes to global warming - not forming the cortrast.</li> <li>brows of the cortrast in the not the not order or direct or some demand to such by see more CO, to dissolve.</li> <li>brows of the cortrast in the cor</li></ul>	dioxide	oil and coal when it is burnt.	How to crack	Heat the hydrocarbons and pass	The early	Little or no oxygen, a lot of carbon		emits slightly different infrared
<ul> <li>ormation Sulfur dioxide disolves in water in fraction of the frac</li></ul>	Acid rain	Rain with a pH lower than 5.2	hydrocarbons	the vapours over an aluminium				radiation that is not able to pass bac
<ul> <li>facid clouds to form sulfurous acd (HysOa) (HysOa</li></ul>	Formation	Sulfur dioxide dissolves in water in		oxide catalyst heated to 650°C.	-	• •		through the atmosphere and is
<ul> <li>ain which oxidies to become sufficient of discover to be come sufficient of discover the term of discover to be come sufficient of discover the term of discover to be come sufficient to discover to be come sufficient to discover to disco</li></ul>	of acid		Products of	An alkane and an alkene.		-		trapped by gases called greenhouse
<ul> <li>(th:SO, 1 contents to acide for crops and plants to grow well hants to grow hant to grow hants the grow hants to grow hants the grow hants to grow hants the g</li></ul>	rain		cracking an	F.g.				gases.
<ul> <li>Soli becomes too addic for crops and lakes prevents fish addice be used as a fuel for cars. Increases corrosion of linescto.</li> <li>Add rain increases corrosion of linesctone which damages buildings and statues</li> <li>Verfulness of invertises corrosion of linesctone which damages buildings and statues</li> <li>Verfulness of invertises corrosion of linesctone which damages buildings and statues</li> <li>Verfulness of invertises corrosion of linesctone which damages buildings and statues</li> <li>Verfulness of invertises corrosion of linesctone which damages buildings and statues</li> <li>Verfulness of invertises into correct useful ones, into more useful ones, into more useful ones, is obook on directly contribute to global warming.</li> <li>Nox, can cause sing to form</li> <li>Nox, can cause sing to form</li> <li>Supply and demand for il fraction</li> <li>Supply and demand for il fraction</li></ul>		(H <sub>2</sub> SO <sub>4</sub> )	alkane		-		Greenhouse	Gases that trap re-emitted infrared
<ul> <li>Altere A hydrocarbon containing a C-C doubte bond.</li> <li>Altere A hydrocarbon containing a C-C doubte bond</li></ul>	Effects of						gases	radiation – including carbon dioxide,
<ul> <li>Acid in rivers and lakes prevents fish game kills some insects.</li> <li>Acid rain increases corrosion of limestone which damages buildings than longer ones such as gate longs that ware racking and statues.</li> <li>Itrogen NO., various gases formed at high temperatures inside internal combustion engines.</li> <li>Dissolves in clouds forming acid rain hydrogen and as a fuel for cars.</li> <li>Addition of the distances of rom statues are increased.</li> <li>Phores and as a fuel of the distances of the air condensel to liquid water, forming the oceans.</li> <li>S. The changing atmosphere distances of the air condensel to liquid water, forming the oceans.</li> <li>S. The changing atmosphere distances of the air condensel to liquid water, forming the oceans.</li> <li>S. The changing atmosphere distances of the air condensel to liquid water, forming the oceans.</li> <li>S. The changing atmosphere distances of the air condensel to liquid water, forming the oceans.</li> <li>S. The changing atmosphere distances of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water, forming the greenhouse of the air condensel to liquid water rate of the air conden</li></ul>	acid rain				-	The eldest veels as Fauth contain		methane and water vapour.
<ul> <li>degs from hatching and kills some insects.</li> <li>A dd rain increases corrosion of limestone which damages buildings and statues</li> <li>No. Various gases formed at high compatities inside internal combustion engines.</li> <li>Disolves in clouds forming activities are increasing that the precentouse shows as a fall of carson. Consumes carbon dioxide tamosphere in ways that also produce Cog to gases a fall for gase.</li> <li>No. can cause smog to form</li> <li>No. can cause smog to form</li> <li>Supply and denad for di factions as a fall of denad for di factions as a fall of denad for di factions as a fall of denad for di factions.</li> <li>Supply and denad for di factions</li> <li>Supply and denad for di faction</li> <li>Supply and denad for di faction</li> <li>Supply and denad for d</li></ul>			Aikene					The greenhouse effect is extremely
<ul> <li>insects.</li> <li></li></ul>			Lissfulness of				of the	important; without it the average
<ul> <li>Acid rain increases corrosion of limesca exists and statues</li> <li>Introgen NO., Various gases formed at high tigs increases in consume such as a fuel for cars.</li> <li>Hydrogen gas Ha, Hydrogen has the potential to as a fuel for cars.</li> <li>Hydrogen as a fuel for cars.</li> <li>No, Can cause smog to form ing add rain - No; causes lung damage - NO, can cause smog to form ing add rain - NO; causes using to amage - NO, can cause smog to form ing add rain - NO; causes using damage - NO, can cause smog to form ing add rain - NO; causes using damage - NO, can cause smog to form ing add rain - NO; causes using to admost the increase ing lobal warming - It can be produced using renewouse goal of hydrogen as a fuel for cars.</li> <li>Not of it is currently produce in ways that also produce CO which contributes to global warming - It can be produced using renewouse goal of hydrogen as a fuel for cars.</li> <li>Supply and demand for oil factions - gas a fuel for cars.</li> <li>Supply and demand for oil factions - gas a fuel for cars.</li> <li>Supply and demand for oil factions - gas a fuel for cars.</li> <li>Supply and demand for oil factions - gas a fuel for cars.</li> <li>Supply and demand for oil factions - gas a fuel of cars.</li> <li>Supply and demand for oil factions - gas a fuel of cars.</li> <li>Supply and demand for oil factions - gas a fuel of cars.</li> <li>Supply and demand for oil factions - gas a fuel of cars.</li> <li>Supply and demand for oil factions - gas a fuel of cars.</li> <li>Supply and demand for oil factions - gas a fuel of cars.</li> <li>Supply and demand for oil factions - gas a petrol kenosene diesel oil fuel oil blume - Crude oil faction.</li> <li>Supply and demand for all faction.</li> <li>Supply and demand for oil</li></ul>						•	0	global temperature would be 32 <sup>o</sup> C
<ul> <li>limestone which damages buildings and statues</li> <li>intreased i datues</li> <li>intreased i datues</li> <li>various gases formed at high temperatures inside internal combustion engines.</li> <li>roblems:</li> <li>roblems:</li></ul>			сгаскіпд				effect	lower and most life could not exist.
<ul> <li>and statues</li> <li>and stat</li></ul>		limestone which damages buildings					Increased	Human activities are increasing the
<ul> <li>NO. Various gases formed at high temperatures inside internal combustion engines.</li> <li>Oblisolves in clouds forming acid rain riverse in global warming is trade for cars.</li> <li>Oblisolves in clouds forming acid rain riverse in global warming is trade for cars.</li> <li>NO. can cause smog to form</li> <li>NO. can cause smog to form</li> <li>Disdvantages - filt is currently produces Hog which contributes to global warming is a fuel</li> <li>Disdvantages - filt is currently produces Hog which contributes to global warming is a fuel</li> <li>Disdvantages - filt is currently produces Hog which contributes to global warming is a fuel</li> <li>Disdvantages - filt is currently produces Hog which contributes to global warming is a fuel</li> <li>Disdvantages - filt is currently produced on the warming is a fuel</li> <li>Disdvantages - filt is difficult to store</li> <li>Supply and demand for oil fractions</li> <li>Crude oil faction</li> <li>Crude oil faction</li> <li>Crude oil faction</li> </ul>							greenhouse	concentration of greenhouse gases
<ul> <li>is a fuel</li> <li>be used as a fuel for cars. Advantages of 1: 0 nly produces H<sub>2</sub>O when burnt hor causes lung damage NO, can cause smog to form</li> <li>NO, causes lung damage NO, can cause smog to form</li> <li>is a fuel</li> <li>be used as a fuel for cars. Advantages of 1: 0 nly produces H<sub>2</sub>O when burnt blobal warming 1: t can be produced using 1: t can be produced to store</li> <li>Disadvantages of hydrogen as fuel</li> <li>Subject and frage more heat.</li> <li>Changes to the drosophere</li> <li>Changes to the drosophere</li> <li>Photosynthesis - by consumes carbon dioxide (dccreasing it) and produces oxygen (increasing it).</li> <li>Correlation In factions</li> <li>Subject and frage more heat.</li> <li>Changes to the atmosphere</li> <li>Consumes carbon dioxide (dccreasing it) and produces oxygen (increasing it).</li> <li>Correlation in factions</li> <li>Subject and frage more heat.</li> <li>Subject and frage more heat.</li> <li>Correlation in factions</li> <li>Subject and frage more heat.</li> <li>Correlation in factions</li> <li>Subject and frage more heat.</li> <li>Correlation in factions</li> <li>Subject and frage more heat.</li> <li>Subject and frage more heat.</li> <li>Correlation in factions</li> <li>Subject and frage more heat.</li> <li>Correlation in factions</li> <li>Subject and frage more heat.</li> <li>Correlation in factions</li> <li>Subject and frage more heat.</li> <li>Correlation in faction</li> <li>Subject and frage more heat.</li> <li>Correlation in faction</li> <li>Subject and frage more heat.<td>Nitrogen</td><td>NOv. Various gases formed at high</td><td>Hydrogon goc</td><td></td><td>oceans</td><td>forming the oceans.</td><td>effect</td><td>such as carbon dioxide and methane</td></li></ul>	Nitrogen	NOv. Various gases formed at high	Hydrogon goc		oceans	forming the oceans.	effect	such as carbon dioxide and methane
combustion engines.         roblems         - Dissolves in clouds forming acid rain (NO; causes lung damage - NO; cause sung to form         - NO; cause sung to form         - Dissolves in clouds forming acid rain (side damage - NO; cause sung to form         - Dissolves in clouds forming acid rain (side damage - NO; cause sung to form         - Dissolves in clouds forming acid rain (side damage - NO; cause sung to form         - Dissolves in clouds forming acid rain (side damage - NO; cause sung to form         - Dissolves in clouds forming acid rain (side damage - NO; cause sung to form         - Dissolves in clouds forming acid rain (side dissolves in the left)         - Dissolves in clouds forming acid rain (side dissolves in the contributes to global warming - it is difficult to store         - Dissolves in clouds forming acid rain (side dissolves)         - Dissolves in clouds forming acid rain (side dissolves)         - Dissolves in clouds forming acid rain (side dissolves)         - Dissolves in clouds forming acid rain (side dissolves)         - Dissolves in clouds forming acid rain (side dissolves)         - Dissolves in clouds forming acid rain (side dissolves)         - Dissolves in clouds forming acid rain (side dissolves)         - Dissolves in clouds forming acid rain (side dissolves)         - Dissolves in clouds forming acid rain (side dissolves)         - Dissolves in clouds forming acid rain (side dissolves)         - Dissolve	-				8	The changing atmosphere		meaning the greenhouse effect is
<ul> <li>Toblems frogen xides</li> <li>Dissolves in clouds forming acid rain frogen xides</li> <li>No, can cause smog to form</li> <li>hydrogen as a fuel</li> <li>hydrogen as a so does not directly contribute to global warming enewable energy</li> <li>Disadvantages</li> <li>Most of it is currently produced on hydrogen as a fuel</li> <li>mwys that also produce CO<sub>2</sub> which contributes to global warming . It is difficult to store</li> <li>Supply and demand for oil fractions</li> <li>Supply and demand for oil fraction</li> <li>Supply a</li></ul>	endes							
<ul> <li><sup>1</sup> NO<sub>2</sub> causes lung damage</li> <li><sup>1</sup> NO<sub>2</sub> causes song to form</li> <li><sup>1</sup> trade produced using remewable energy</li> <li><sup>1</sup> t can be produced using remewable energy</li> <li><sup>1</sup> t t can be produced using remewable energy</li> <li><sup>1</sup> t t can be produced using remew</li></ul>	Problems	-	-		-		Global	An increase in global temperatures
<ul> <li>NO<sub>x</sub> can cause smog to form xides</li> <li>NO<sub>x</sub> can cause smog to form xides</li> <li>NO<sub>x</sub> can cause smog to form xides</li> <li>It can be produced using renewable energy</li> <li>It is difficult to store</li> <li>Supply and demand for oil fractions</li> <li>It can be produced using renewable energy</li> <li>It is difficult to store</li> <li>It is difficult to store</li></ul>	of	-			atmosphere		warming	caused by the increased greenhouse
xides xides			luei		Photosynthes			
<ul> <li>Disadvantages - Most of it is currently produced of hydrogen as a fuel</li> <li>in ways that also produce CO<sub>2</sub> which contributes to global warming it. as a fuel</li> <li>in sarth also produce CO<sub>2</sub> which contributes to global warming it. as a fuel</li> <li>it is difficult to store</li> <li>Supply and demand for oil fractions</li> <li>for our ges perior kerosene diesel oil fuel oil bitumen Crude oil fraction</li> </ul>	-			•	-		Climate	Change in global weather patterns
of hydrogen as a fuel       in ways that also produce CO2 which contributes to global warming -1t is difficult to store       in ways that also produce CO2 which contributes to global warming -1t is difficult to store       in ways that also produce CO2 which contributes to global warming -1t is difficult to store       in ways that also produce CO2 which contributes to global warming -1t is difficult to store       in ways that also produce CO2 which contributes to global warming -1t is difficult to store       in ways that also produce CO2 which contributes to global warming -1t is difficult to store       in ways that also produce CO2 which contributes to global warming -1t is difficult to store       in ways that also produce CO2 which contributes to global warming -1t is difficult to store       in ways that also produce CO2 which contributes to global warming -1t is difficult to store       in ways that also produce CO2 which contributes to global warming -1t is difficult to store       in ways that also produce CO2 which contributes to global warming -1t is difficult to store       in ways that also produce CO2 which contributes to global warming -1t is difficult to store       in wars that also produce CO2 which contributes to global warming -1t is difficult to store       in wars that also produce CO2 which contributes to global warming -1t is difficult to store         Use water       Supply and demand for oil fractions       Supply and demand for oil fractions       in the data       in the data       in the data       Which contributes to global warming -1t is supply -1t is difficult to store         Use water       Image warming and produces       Supply and demand for oil fractions       Image warming -1t is warm		1	Disadvantages	÷,			change	
<ul> <li>as a fuel which contributes to global warming -it is difficult to store</li> <li>Supply and demand for oil fractions</li> <li>Supply and demand for oil fraction</li> <li>Su</li></ul>					atmosphere		Correlation	In Earth's history, every time CO <sub>2</sub>
warming - t is difficult to store Ustaped tube bed water ustaped tube gases petrol kerosene diesel oil fuel oil Crude oil fraction Crude oil fraction the temperature has also been hig creatures to make their shells, enabling even more CO <sub>2</sub> to dissolve. Test for oxygen Vyr								concentrations have been high, the
<ul> <li>It is difficult to store</li> <li>Supply and demand for oil fractions</li> <li>Test for oxygen A glowing splint (stick) placed in oxygen will relight.</li> <li>Test for oxygen A glowing splint (stick) placed in oxygen will relight.</li> <li>Supply and demand for oil fraction</li> <li>Test for oxygen A glowing splint (stick) placed in oxygen will relight.</li> <li>Supply and demand for oil fraction</li> <li>Supply and demand for oil fraction<!--</td--><td></td><td></td><td>us a ruer</td><td>-</td><td>Oceans and</td><td></td><td></td><td>temperature has also been high. Thi</td></li></ul>			us a ruer	-	Oceans and			temperature has also been high. Thi
Ushaped tube       Supply and demand for oil fractions         Ushaped tube       Supply and demand for oil fractions         iced water       Supply and demand for oil fractions         ushaped tube       Test for oxygen         association       Aglowing splint (stick) placed in oxygen will relight.         ushaped tube       Supply and demand for oil fraction				5				makes scientists think that the curre
Ushaped tube iced water iced water imewater imewater interview imewater imewate		to pump					temperature	_
Ushaped tube iced water iced water imewater imewater imewater imewater imewater imewater imewater intervent and examples of the second of the			ર્શ Si	upply and demand for oil fractions				
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iced water interv		LI-shaned tube			Test for oxyge		in the data	
iced water interv					10			
the atmosphere land the at		All Andrews						
the atmosphere land the at		iced water	<u> </u>			Ser -		
the atmosphere land the at			D.				40	scientists believe them.
V For the atmosphere land organisms start to affect the atmosphere l	L		° 20					
Crude oil fraction	1		÷ ÷				be 30-	
Crude oil fraction			5 10				here	
Crude oil fraction	4	limewater —	e l'				jo ds 20-	
Crude oil fraction		-	te de la companya de				atmo	$\downarrow$
Crude oil fraction		(		petrol kerosene diesel oil fuel oil bitumen				
	Carlo and	the second se	2 90000 1		OXYGEN	OXYGEN	ā	+
Billions of years ago			ш				3.8	3 2 1
							Ť	Billions of years ago

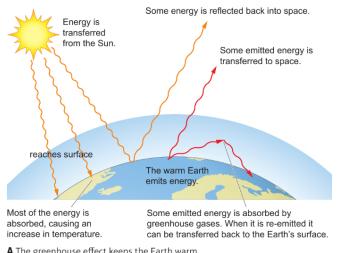
3.8 billion years ago

now



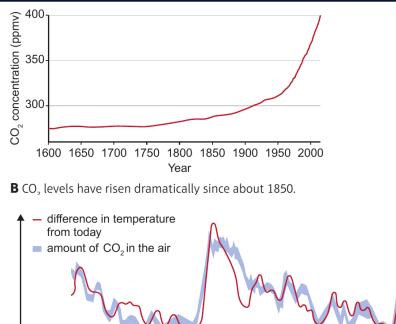
## **Triple Science - Chemistry**

SC20-21 Knowledge organiser



A The greenhouse effect keeps the Earth warm.

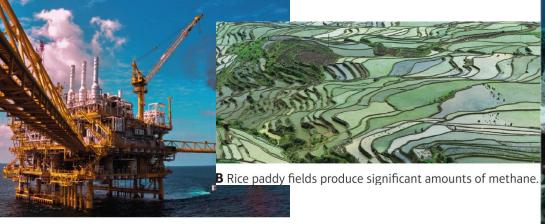
10	. Impact of climate change
Two main	- Carbon dioxide produced by
causes of	burning fossil fuels
climate	- Methane produced by farming
change	(especially cows)
Effects of	- Rising average global temperature
climate	<ul> <li>Increased sea level from melting</li> </ul>
change	ice
	<ul> <li>Increased drought in some areas</li> </ul>
	and flooding in others
	<ul> <li>Increase in dangerous weather</li> </ul>
Effect of	Living organisms are adapted to the
climate	conditions where they live. If these
change on	conditions change they may struggle
life	to survive. Climate change is causing
	many species to struggle and some
	to go extinct.
Ocean	The carbon dioxide we produce
acidification	dissolves in the oceans, lowering the
	pH making it harder for many sea-
	creatures to build their shells.
Limiting	- Reduce emissions of greenhouse
climate	gases by using renewable energy
change	and eating less meat.
	<ul> <li>Geoengineering – perhaps placing</li> </ul>
	giant mirrors in space to reflect
	some of the sun's heat.







C Average global temperatures and atmospheric carbon dioxide levels are correlated. D Gases are trapped in ice cores.



A Methane being released and burnt off on an oil rig.



C If coral remain 'bleached' for too long they can die.