

Warm-Up:
How is Earth's atmosphere
like a blanket?



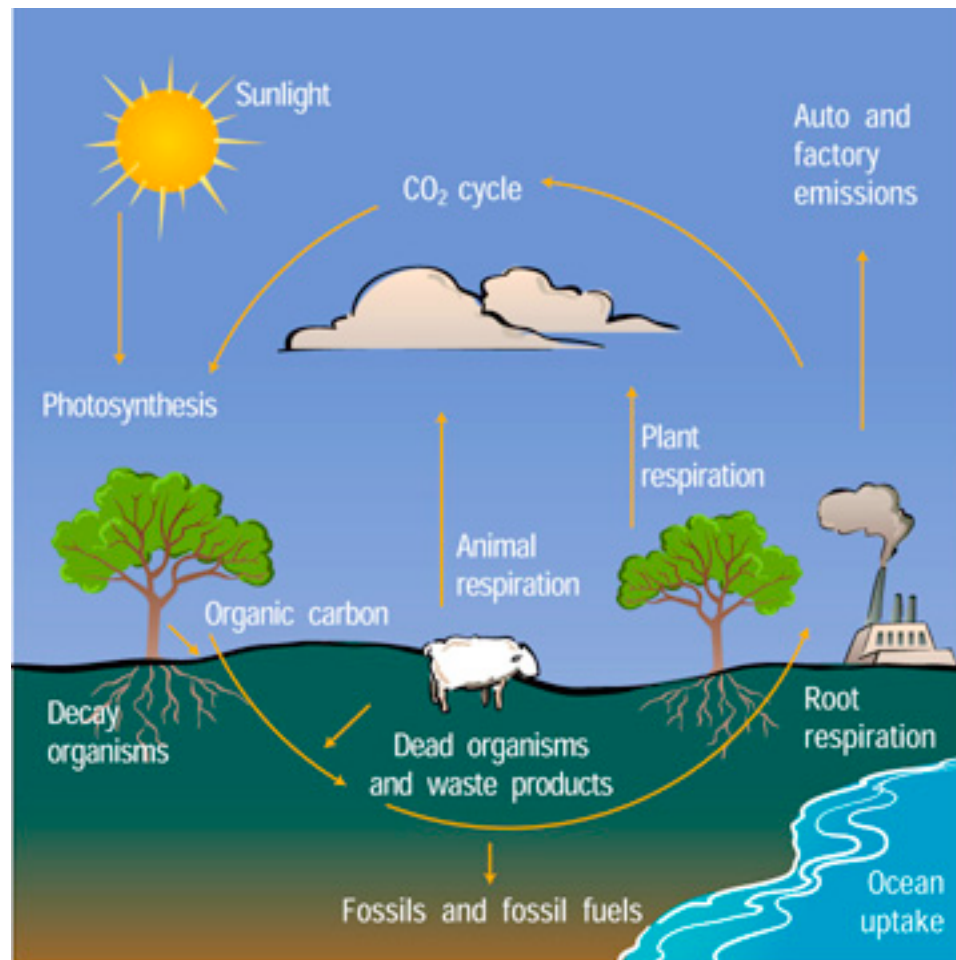
Partner A: Earth's atmosphere is like a blanket because _____

Partner B: You said Earth's atmosphere is like a blanket because _____
_____, is that correct?

Partner A: (responds)

Partner B: I *agree/disagree* with you because _____

Introduction to the Carbon Cycle



What is Carbon?

Carbon is an **element** on the periodic table. It can exist as a solid, liquid or gas. Many people are familiar with the gas form of carbon known as **Carbon Dioxide (CO₂)**

Periodic Table of Elements

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18															
1 1 H Hydrogen 1.00794	Atomic # Name Symbol Atomic Mass																2 2 He Helium 4.002602															
3 3 Li Lithium 6.941	4 4 Be Beryllium 9.012182	C Solid Hg Liquid H Gas Rf Unknown										Metals Alkali metals Alkaline earth metals Lanthanoids Actinoids		Transition metals		Nonmetals Other nonmetals Noble gases		5 5 B Boron 10.811	6 6 C Carbon 12.0107	7 7 N Nitrogen 14.0067	8 8 O Oxygen 15.9994	9 9 F Fluorine 18.9984032	10 10 Ne Neon 20.1797									
11 11 Na Sodium 22.98976928	12 12 Mg Magnesium 24.3050																	13 13 Al Aluminum 26.9815386	14 14 Si Silicon 28.0855	15 15 P Phosphorus 30.973762	16 16 S Sulfur 32.065	17 17 Cl Chlorine 35.453	18 18 Ar Argon 39.948									
19 19 K Potassium 39.0983	20 20 Ca Calcium 40.078	21 21 Sc Scandium 44.955912	22 22 Ti Titanium 47.887	23 23 V Vanadium 50.9415	24 24 Cr Chromium 51.9961	25 25 Mn Manganese 54.938045	26 26 Fe Iron 55.845	27 27 Co Cobalt 58.933195	28 28 Ni Nickel 58.6934	29 29 Cu Copper 63.546	30 30 Zn Zinc 65.38	31 31 Ga Gallium 69.723	32 32 Ge Germanium 72.64	33 33 As Arsenic 74.92160	34 34 Se Selenium 78.96	35 35 Br Bromine 79.904	36 36 Kr Krypton 83.798															
37 37 Rb Rubidium 85.4678	38 38 Sr Strontium 87.62	39 39 Y Yttrium 88.90585	40 40 Zr Zirconium 91.224	41 41 Nb Niobium 92.90638	42 42 Mo Molybdenum 95.96	43 43 Tc Technetium (97.9072)	44 44 Ru Ruthenium 101.07	45 45 Rh Rhodium 102.90550	46 46 Pd Palladium 106.42	47 47 Ag Silver 107.8682	48 48 Cd Cadmium 112.411	49 49 In Indium 114.818	50 50 Sn Tin 118.710	51 51 Sb Antimony 121.750	52 52 Te Tellurium 127.60	53 53 I Iodine 126.90447	54 54 Xe Xenon 131.293															
55 55 Cs Caesium 132.9054519	56 56 Ba Barium 137.327	57-71																72 72 Hf Hafnium 178.49	73 73 Ta Tantalum 180.94788	74 74 W Tungsten 183.84	75 75 Re Rhenium 186.207	76 76 Os Osmium 190.23	77 77 Ir Iridium 192.217	78 78 Pt Platinum 195.084	79 79 Au Gold 196.966569	80 80 Hg Mercury 200.59	81 81 Tl Thallium 204.3833	82 82 Pb Lead 207.2	83 83 Bi Bismuth 208.98040	84 84 Po Polonium (209.9824)	85 85 At Astatine (209.9871)	86 86 Rn Radon (222.0178)
87 87 Fr Francium (223)	88 88 Ra Radium (226)	89-103																104 104 Rf Rutherfordium (261)	105 105 Db Dubnium (262)	106 106 Sg Seaborgium (266)	107 107 Bh Bohrium (264)	108 108 Hs Hassium (277)	109 109 Mt Meitnerium (268)	110 110 Ds Darmstadtium (271)	111 111 Rg Roentgenium (272)	112 112 Uub Ununbium (285)	113 113 Uut Ununtrium (284)	114 114 Uuq Ununquadium (289)	115 115 Uup Ununpentium (288)	116 116 Uuh Ununhexium (282)	117 117 Uus Ununseptium	118 118 Uuo Ununoctium (284)

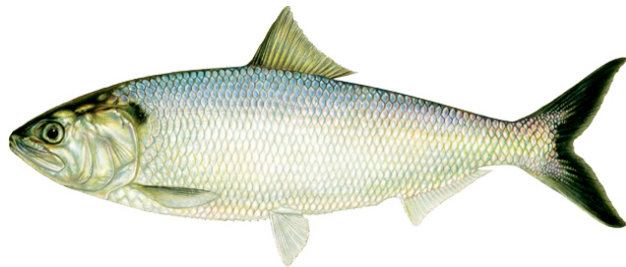
For elements with no stable isotopes, the mass number of the isotope with the longest half-life is in parentheses.

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57 La Lanthanum	58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium
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What sorts of things are made of carbon?

All living things are made of carbon!



What sorts of things are made of carbon?

made of carbon?

All things that are made from living things are made of carbon:



What sorts of things are made of carbon?



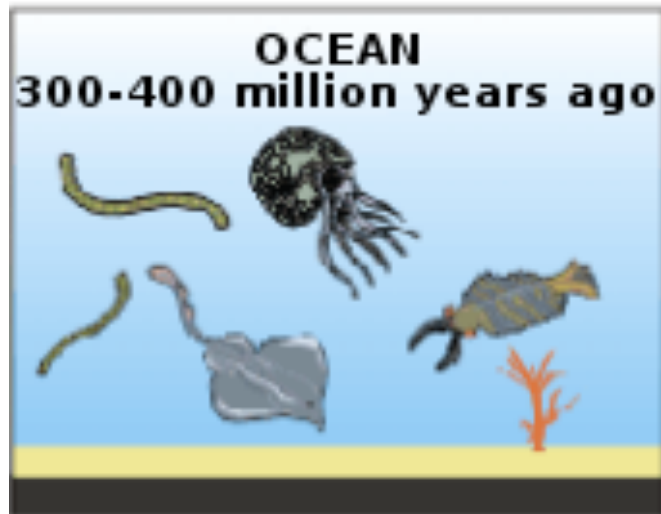
What is a fossil fuel?

A fuel (such as oil, gas and coal) made over millions of years from the bodies of dead plants and animals.

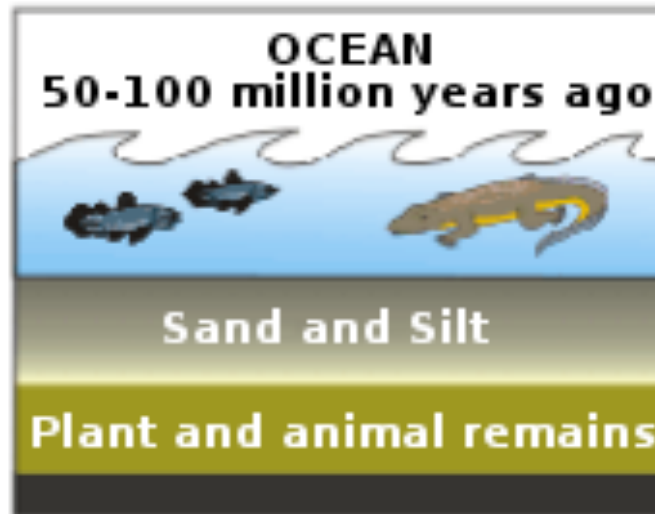


They are **fuels**
made from
fossils

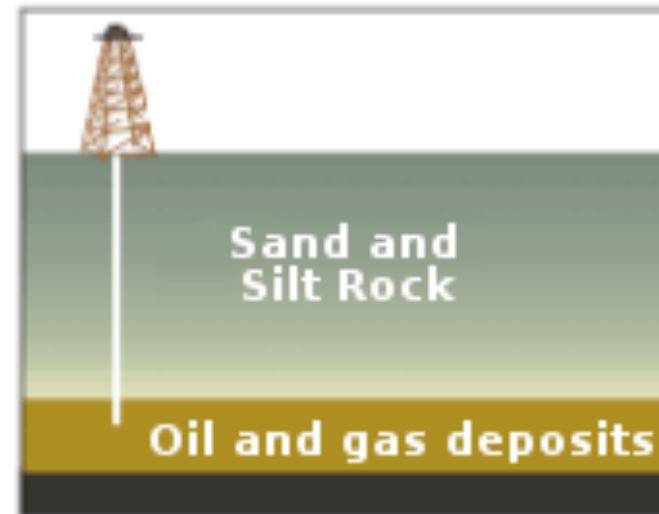
Petroleum and natural gas formation



Tiny sea plants and animals died and were buried on the ocean floor. Over time they were covered by layers of silt and sand.



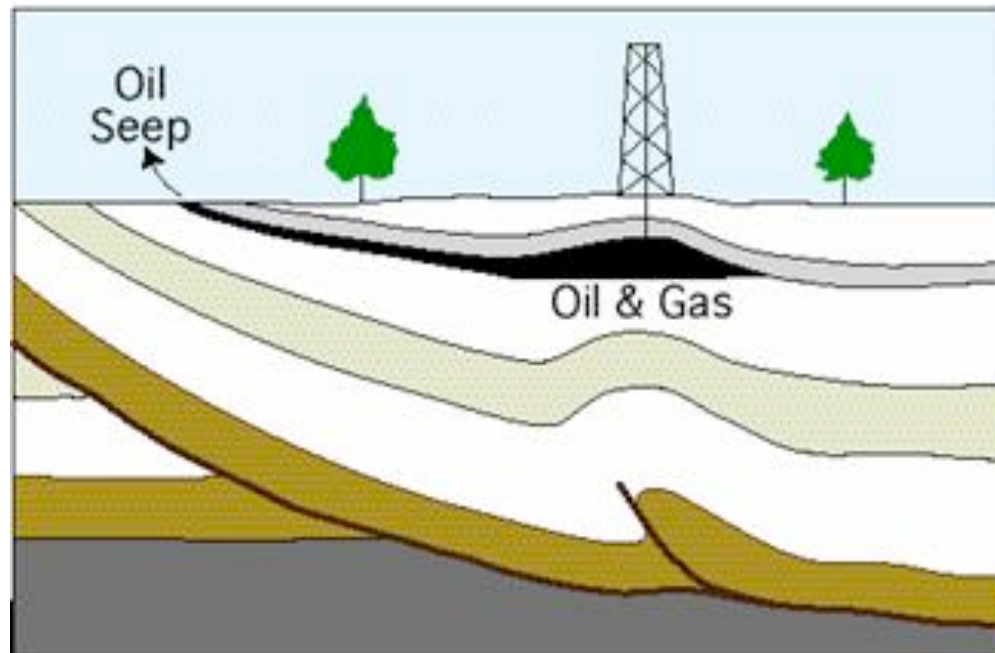
Over millions of years, the remains were buried deeper and deeper. The enormous heat and pressure turned them into oil and gas.



Today we drill down through layers of sand, silt and rock to reach the rock formations that contain oil and gas deposits.

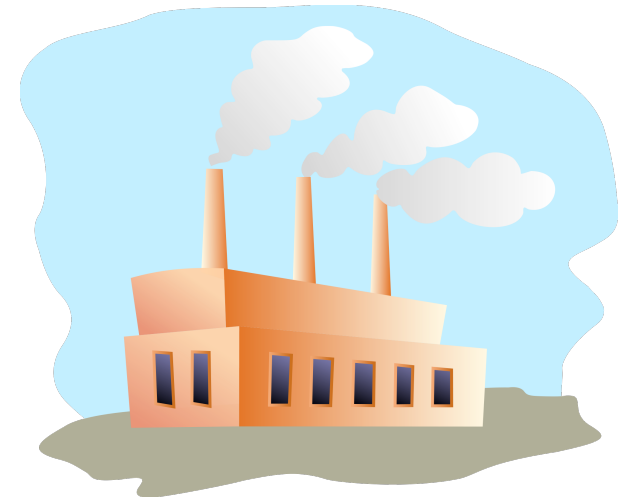
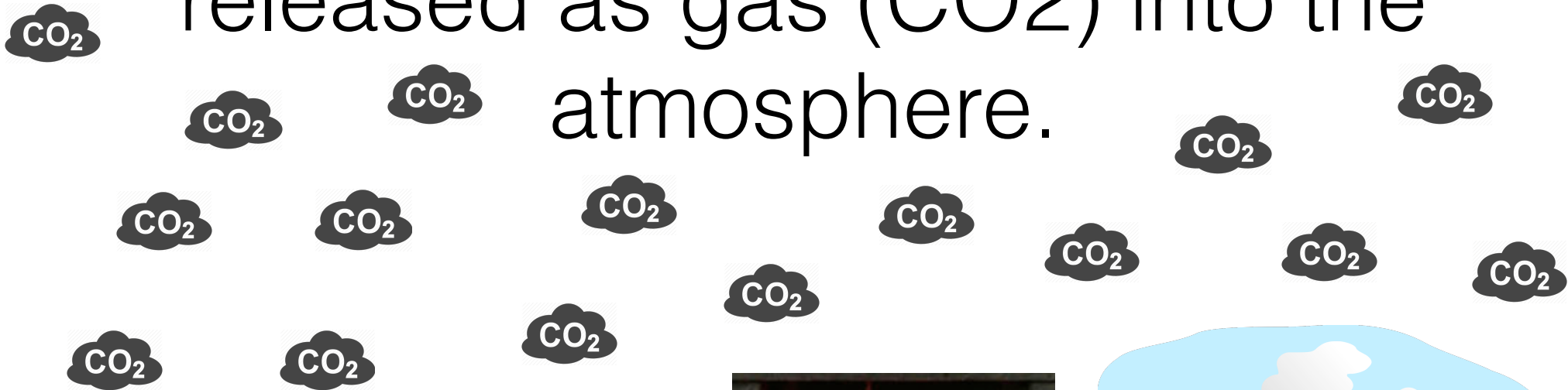
What do fossil fuels have to do with carbon?

Fossil fuels are made of carbon which is stored as a liquid or solid below Earth's surface.



What do fossil fuels have to do with carbon?

When we burn these fuels they are released as gas (CO_2) into the atmosphere.



Increased amounts of CO₂ in the atmosphere trap in more heat from the sun, making it work like a thicker blanket and increasing temperatures on Earth.



Burning fossil fuels doesn't change the amount of carbon on Earth. It only changes where it is stored - carbon that was below Earth's surface is now above in the atmosphere.



Brainpop: Carbon Cycle

