

Ecosystem Recycling

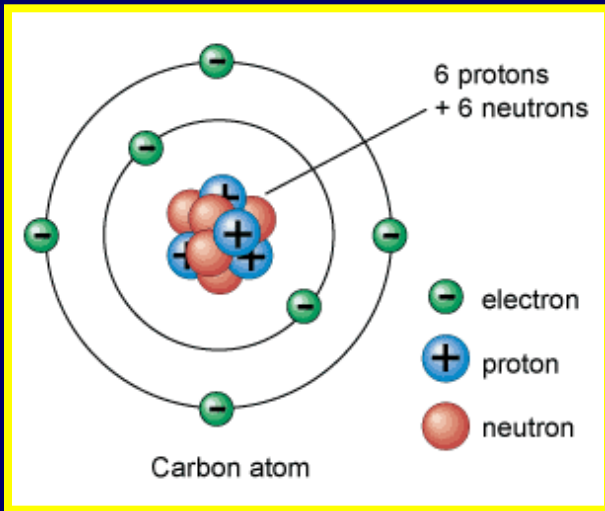


Clarifying Objective 2.1.1

Analyze the flow of energy and cycling of matter, such as water, carbon, nitrogen, and oxygen through the ecosystem.

Carbon Cycle

All living things are made up of organic molecules that contain carbon and carbon is an important component in energy rich food such as carbohydrates.



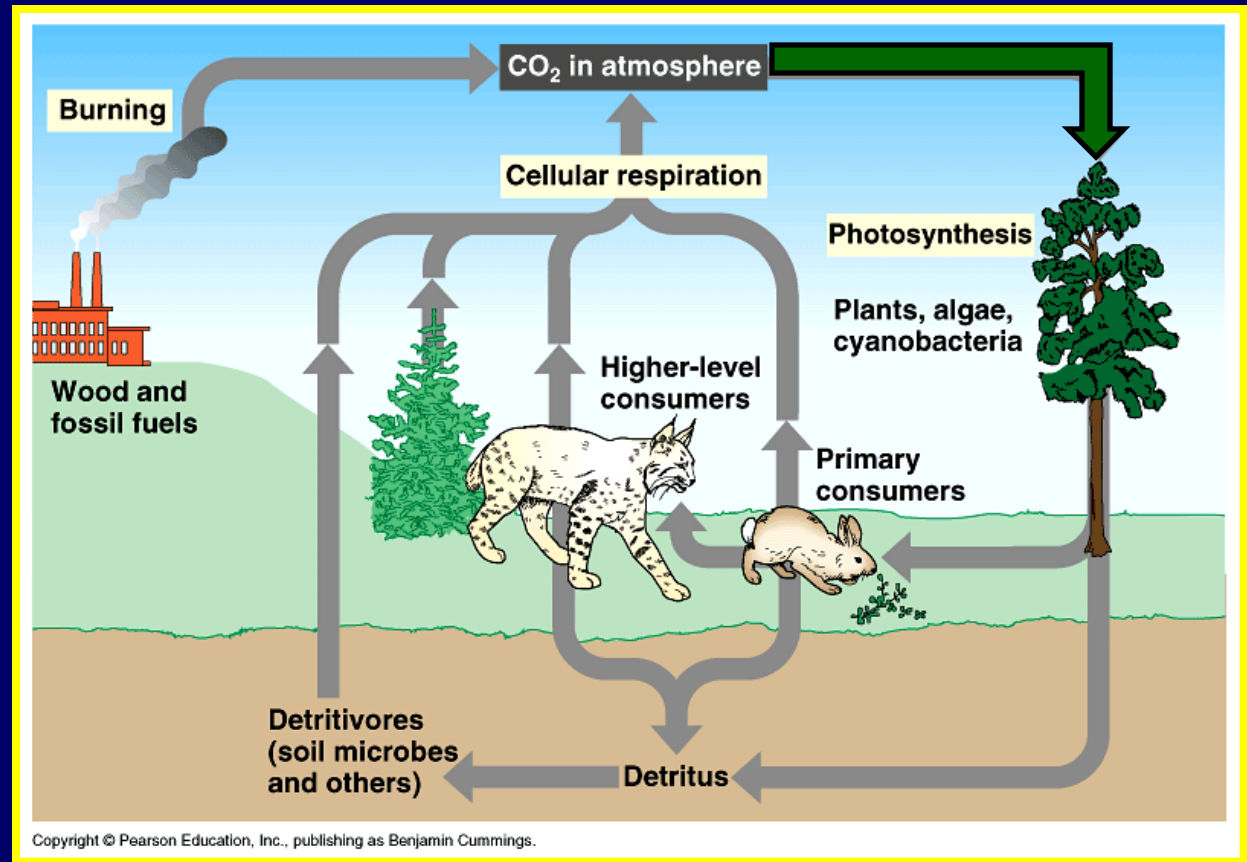
Periodic Table of the Elements

1 1A 1A H Hydrogen 1.008	2 2A 2A He Helium 4.003	3 3A 3A Li Lithium 6.941	4 4A 4A Be Beryllium 9.012	5 5A 5A B Boron 10.811	6 6A 6A C Carbon 12.011	7 7A 7A N Nitrogen 14.007	8 8A 8A O Oxygen 15.999	9 9A 9A F Fluorine 18.998	10 10A 10A Ne Neon 20.180	11 11A 11A Na Sodium 22.990	12 12A 12A Mg Magnesium 24.305	13 13A 13A Al Aluminum 26.982	14 14A 14A Si Silicon 28.086	15 15A 15A P Phosphorus 30.974	16 16A 16A S Sulfur 32.065	17 17A 17A Cl Chlorine 35.453	18 18A 18A Ar Argon 39.948	19 19A 19A K Potassium 39.098	20 20A 20A Ca Calcium 40.078	21 3B 3B Sc Scandium 44.956	22 4B 4B Ti Titanium 47.88	23 5B 5B V Vanadium 50.942	24 6B 6B Cr Chromium 51.996	25 7B 7B Mn Manganese 54.938	26 8B 8B Fe Iron 55.845	27 9B 9B Co Cobalt 58.933	28 10B 10B Ni Nickel 58.693	29 11B 11B Cu Copper 63.546	30 12B 12B Zn Zinc 65.38	31 13B 13B Ga Gallium 69.723	32 14B 14B Ge Germanium 72.64	33 15B 15B As Arsenic 74.922	34 16B 16B Se Selenium 78.972	35 17B 17B Br Bromine 79.904	36 18B 18B Kr Krypton 83.80	37 19B 19B Rb Rubidium 85.468	38 20B 20B Sr Strontium 87.62	39 3B 3B Y Yttrium 88.906	40 4B 4B Zr Zirconium 91.224	41 5B 5B Nb Niobium 92.906	42 6B 6B Mo Molybdenum 95.94	43 7B 7B Tc Technetium 98.906	44 8B 8B Ru Ruthenium 101.07	45 9B 9B Rh Rhodium 101.07	46 10B 10B Pd Palladium 106.42	47 11B 11B Ag Silver 107.868	48 12B 12B Cd Cadmium 112.411	49 13B 13B In Indium 114.818	50 14B 14B Sn Tin 118.710	51 15B 15B Sb Antimony 121.757	52 16B 16B Te Tellurium 127.6	53 17B 17B I Iodine 126.905	54 18B 18B Xe Xenon 131.29	55 19B 19B Cs Cesium 132.905	56 20B 20B Ba Barium 137.327	57-103 Lanthanide Series	72 3B 3B Hf Hafnium 178.49	73 4B 4B Ta Tantalum 180.948	74 5B 5B W Tungsten 183.85	75 6B 6B Re Rhenium 186.207	76 7B 7B Os Osmium 190.23	77 8B 8B Ir Iridium 192.222	78 9B 9B Pt Platinum 195.08	79 10B 10B Au Gold 196.967	80 11B 11B Hg Mercury 200.59	81 12B 12B Tl Thallium 204.384	82 13B 13B Pb Lead 207.2	83 14B 14B Bi Bismuth 208.980	84 15B 15B Po Polonium 209	85 16B 16B At Astatine 209	86 17B 17B Rn Radon 222	87 18B 18B Fr Francium 223	88-103 Actinide Series	104 104 Rf Rutherfordium 261	105 105 Db Dubnium 262	106 106 Sg Seaborgium 263	107 107 Bh Bohrium 264	108 108 Hs Hassium 265	109 109 Mt Meitnerium 266	110 110 Ds Darmstadtium 267	111 111 Rg Roentgenium 268	112 112 Cn Copernicium 269	113 113 Uut Ununtrium 270	114 114 Fl Flerovium 271	115 115 Uup Ununpentium 272	116 116 Lv Livermorium 273	117 117 Uus Ununseptium 274	118 118 Uuo Ununoctium 276	119 119 Lr Lawrencium 260	120 120 Lu Lutetium 174.967	121 121 Uu Ununennium 275	122 122 Uu Unbinilium 276	123 123 Uu Untrium 277	124 124 Uu Unquadrium 278	125 125 Uu Unpentium 279	126 126 Uu Unsexium 280	127 127 Uu Unseptium 281	128 128 Uu Unoctium 282	129 129 Uu Unennium 283	130 130 Uu Unbinilium 284	131 131 Uu Untrium 285	132 132 Uu Unquadrium 286	133 133 Uu Unpentium 287	134 134 Uu Unsexium 288	135 135 Uu Unseptium 289	136 136 Uu Unoctium 290	137 137 Uu Unennium 291	138 138 Uu Unbinilium 292	139 139 Uu Untrium 293	140 140 Uu Unquadrium 294	141 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Carbon Cycle

Carbon is drawn out of the atmosphere through photosynthesis when CO_2 is converted into $\text{C}_6\text{H}_{12}\text{O}_6$

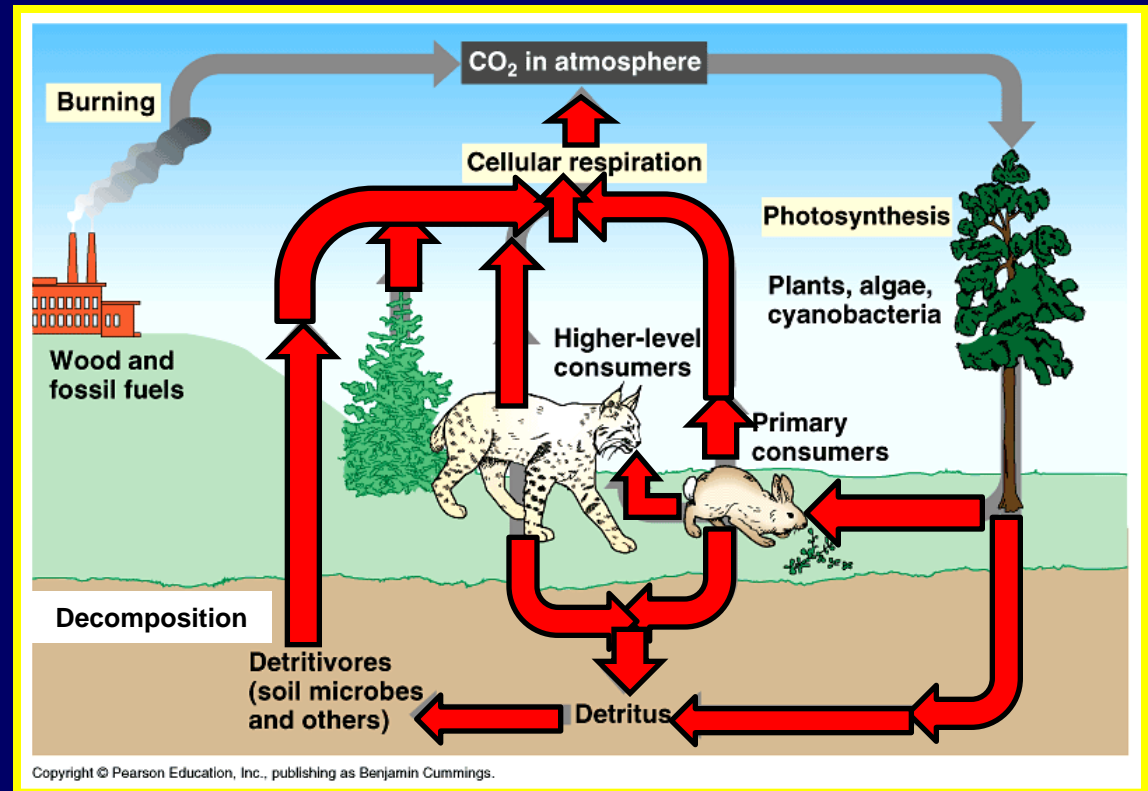
Only biological process that removes CO_2 from atmosphere



Carbon Cycle

Carbon is then passed on through the food chain and released back into the atmosphere through cellular respiration

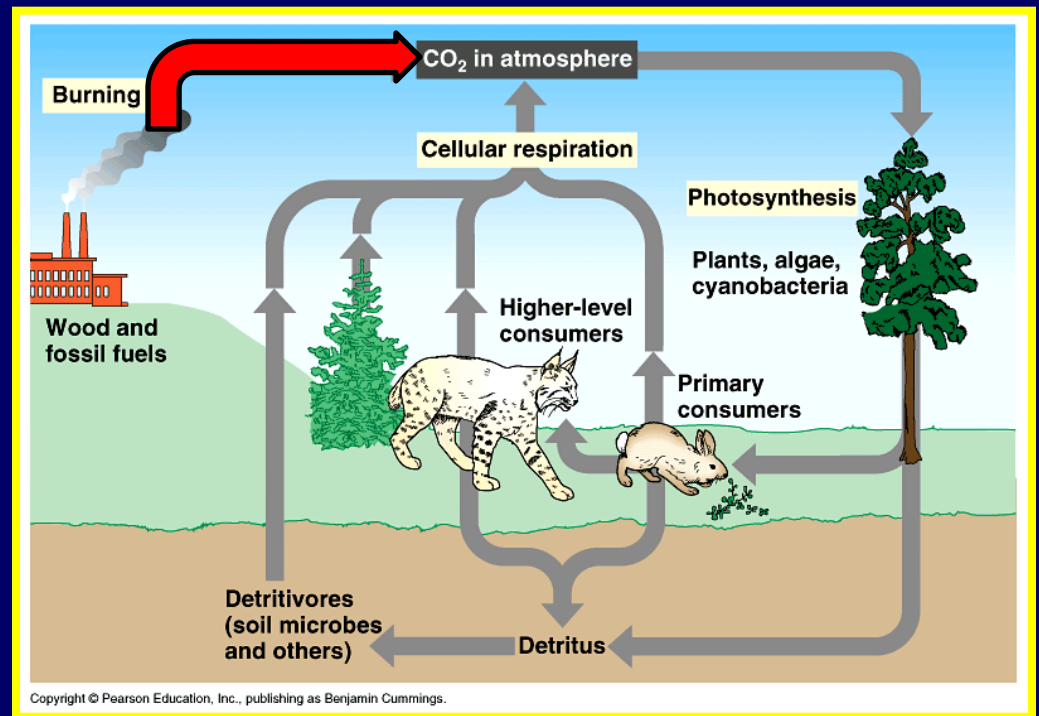
Decomposition is also part of cellular respiration



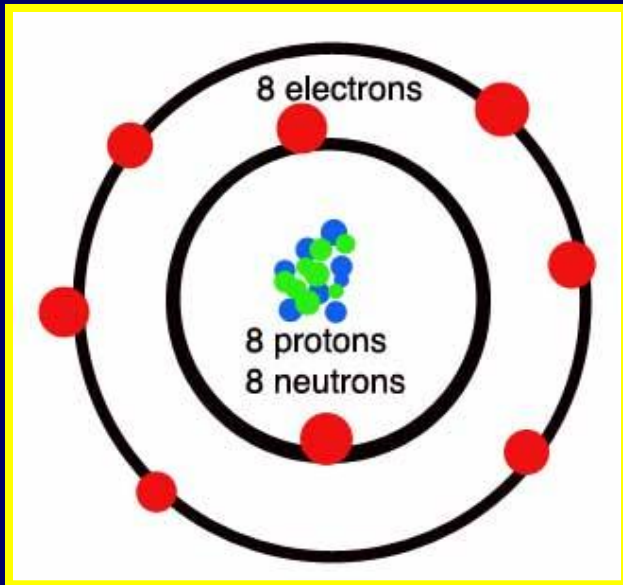
Carbon Cycle

Carbon that is not eaten or decomposed is turned into fossil fuel.

When wood and fossil fuels are burned, during combustion, carbon dioxide is released into the atmosphere.



Oxygen Cycle



Most organisms need oxygen to help them break down glucose into energy, during cellular respiration.

Oxygen makes up 21% of the atmosphere

Periodic Table of the Elements

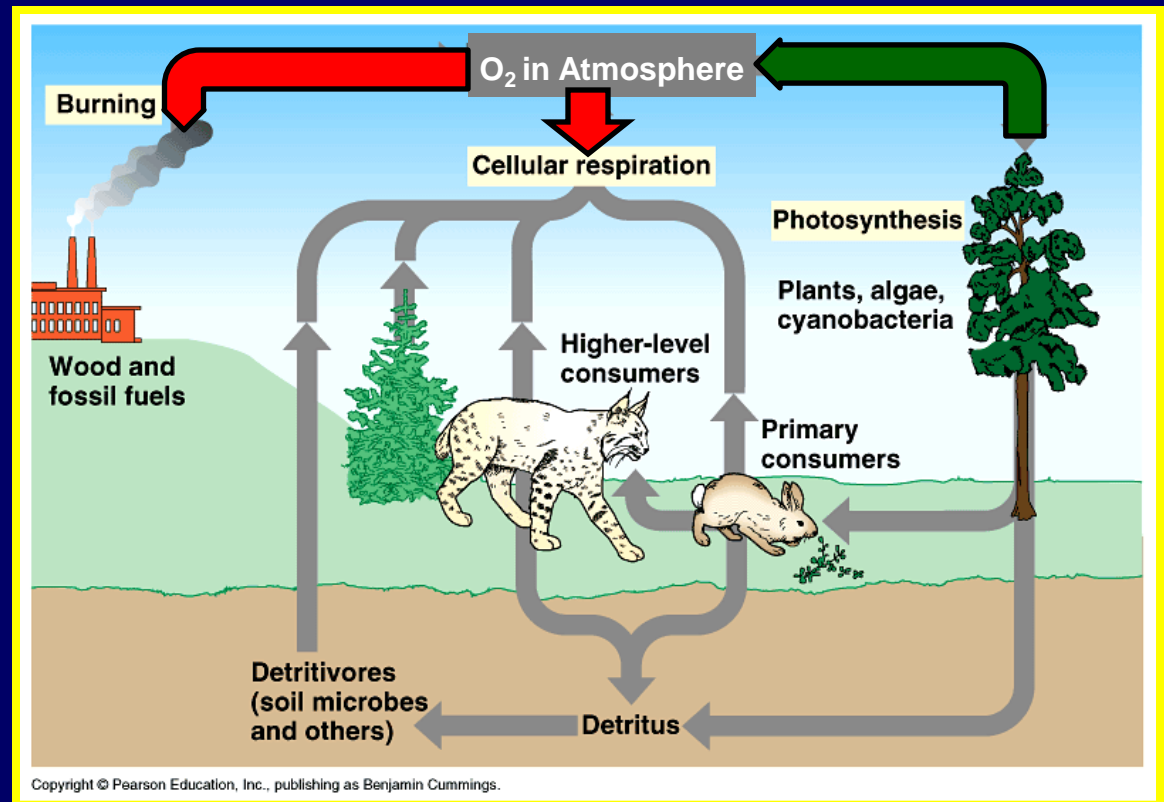
1 1A 1A	2 2A 2A	3 3B 3B	4 4B 4B	5 5B 5B	6 6B 6B	7 7B 7B	8 VIII 8	9 VIII 9	10 VIII 10	11 IB 1B	12 IIB 2B	13 3A 3A	14 4A 4A	15 5A 5A	16 6A 6A	17 7A 7A	18 VIIA 8A																																																																								
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Alkali Metal		Alkaline Earth		Transition Metal			Basic Metal		Semimetal		Nonmetal		Halogen		Noble Gas		Lanthanide		Actinide																																																																						

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Oxygen Cycle

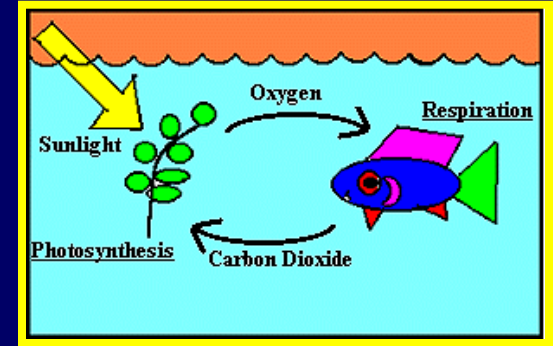
During the oxygen cycle, the exact same processes are involved as in the carbon cycle, but the direction of oxygen flow is opposite that of carbon flow.

Photosynthesis is the only biological process that returns O_2 to the atmosphere



Oxygen Cycle

The same processes happen underwater as well.



Oxygen gas becomes dissolved in water, just like carbon dioxide gas is dissolved in soft drinks.

Fish breathe in dissolved oxygen gas as water passes through the gills.

