

# Rock Cycle

## Picture Vocabulary

7.E 6.2 Rock Cycle

# Earth's Evolution



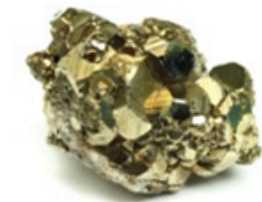
Originally, Earth was partly molten, allowing dense metals to sink to its core and less dense material to separate into layers around the core. Over time, many changes have built up and worn down features on Earth's surface.

# Mineral Composition

1	2											13	14	15	16	17	18													
1A	2A											3A	4A	5A	6A	7A	8A													
1 H 1.008 Hydrogen																	2 He 4.003 Helium													
3 Li 6.941 Lithium	4 Be 9.012 Beryllium											5 B 10.812 Boron	6 C 12.011 Carbon	7 N 14.007 Nitrogen	8 O 15.999 Oxygen	9 F 18.998 Fluorine	10 Ne 20.180 Neon													
11 Na 22.990 Sodium	12 Mg 24.305 Magnesium	3 B 10.812 Boron	4 C 12.011 Carbon	5 N 14.007 Nitrogen	6 O 15.999 Oxygen	7 F 18.998 Fluorine	8 Ne 20.180 Neon	9 Si 28.086 Silicon	10 P 30.974 Phosphorus	11 S 32.065 Sulfur	12 Cl 35.453 Chlorine	13 Ar 39.948 Argon	14 K 39.098 Potassium	15 Ca 40.078 Calcium	16 Sc 44.956 Scandium	17 Ti 47.867 Titanium	18 V 50.942 Vanadium	19 Cr 51.996 Chromium	20 Mn 54.938 Manganese	21 Fe 55.845 Iron	22 Co 58.933 Cobalt	23 Ni 58.693 Nickel	24 Cu 63.546 Copper	25 Zn 65.38 Zinc	26 Ga 69.723 Gallium	27 Ge 72.64 Germanium	28 As 74.922 Arsenic	29 Se 78.96 Selenium	30 Br 79.904 Bromine	31 Kr 83.798 Krypton
37 Rb 85.468 Rubidium	38 Sr 87.62 Strontium	39 Y 88.906 Yttrium	40 Zr 91.224 Zirconium	41 Nb 92.906 Niobium	42 Mo 95.94 Molybdenum	43 Tc 98 Technetium	44 Ru 101.07 Ruthenium	45 Rh 102.906 Rhodium	46 Pd 106.42 Palladium	47 Ag 107.868 Silver	48 Cd 112.412 Cadmium	49 In 114.818 Indium	50 Sn 118.710 Tin	51 Sb 121.760 Antimony	52 Te 127.60 Tellurium	53 I 126.904 Iodine	54 Xe 131.294 Xenon													
55 Cs 132.905 Cesium	56 Ba 137.328 Barium	71 Lu 174.967 Lutetium	72 Hf 178.49 Hafnium	73 Ta 180.948 Tantalum	74 W 183.84 Tungsten	75 Re 186.207 Rhenium	76 Os 190.23 Osmium	77 Ir 192.227 Iridium	78 Pt 195.085 Platinum	79 Au 196.967 Gold	80 Hg 200.59 Mercury	81 Tl 204.383 Thallium	82 Pb 207.2 Lead	83 Bi 208.980 Bismuth	84 Po (209) Polonium	85 At (210) Astatine	86 Rn (222) Radon													
87 Fr (223) Francium	88 Ra (226) Radium	89 Ac (227) Actinium	103 Lr (260) Lawrencium	104 Rf (261) Rutherfordium	105 Db (262) Dubnium	106 Sg (263) Seaborgium	107 Bh (264) Bohrium	108 Hs (265) Hassium	109 Mt (266) Meitnerium	110 Ds (271) Darmstadtium	111 Rg (272) Roentgenium	Mass numbers in parentheses are those of the most stable or most common isotope.																		
Lanthanide Series		57 La 138.905 Lanthanum	58 Ce 140.116 Cerium	59 Pr 140.908 Praseodymium	60 Nd 144.242 (144) Neodymium	61 Pm (145) Promethium	62 Sm 150.36 Samarium	63 Eu 151.964 Europium	64 Gd 157.25 Gadolinium	65 Tb 158.925 Terbium	66 Dy 162.500 Dysprosium	67 Ho 164.930 Holmium	68 Er 167.259 Erbium	69 Tm 168.934 Thulium	70 Yb 173.055 Ytterbium															
Actinide Series		89 Ac (227) Actinium	90 Th 232.038 Thorium	91 Pa 231.036 Protactinium	92 U 238.029 (238) Uranium	93 Np (237) Neptunium	94 Pu (244) Plutonium	95 Am (243) Americium	96 Cm (247) Curium	97 Bk (247) Berkelium	98 Cf (251) Californium	99 Es (252) Einsteinium	100 Fm (257) Fermium	101 Md (258) Mendelevium	102 No (259) Nobelium															



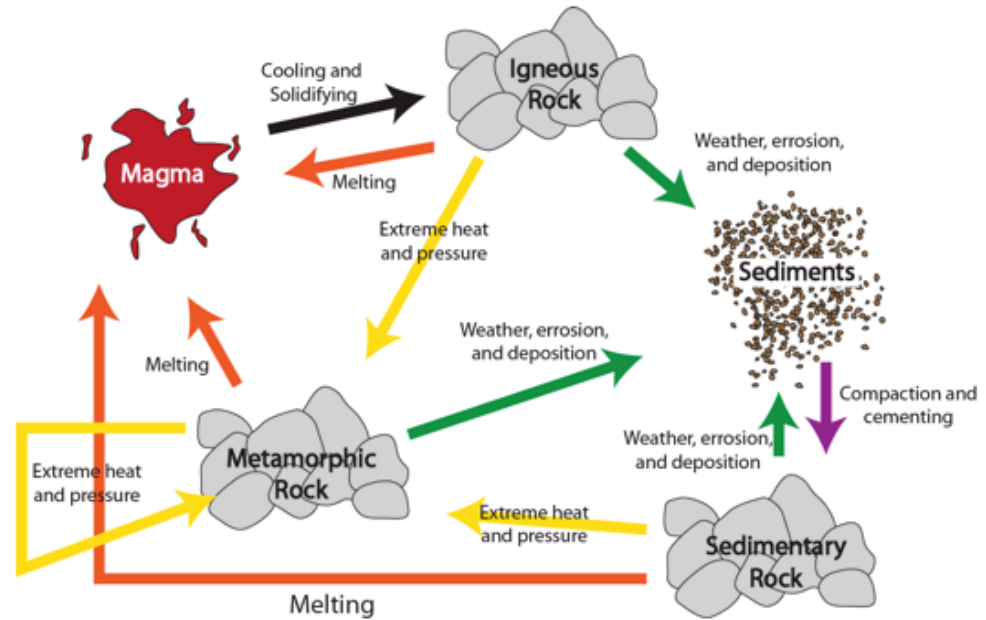
Mineral: **Halite**  
(Rock Salt)  
Sodium Chloride, **NaCl**



Mineral: **Pyrite**  
Iron Sulfide, **FeS<sub>2</sub>**

The unique combination of solid elements and compounds that make up a mineral

# Rock Cycle



Earth's rocks change from one type into another over time due to various Earth processes. Changes occur in mineral compositions and physical structures.

# Igneous Rock



Igneous rock is formed when lava or magma cools and solidifies. Lava cools quickly and forms rocks with small crystals, while magma cools more slowly and forms rocks with larger crystals.

# Lava



Molten rock or magma that has reached Earth's surface by volcanic action; characterized by small crystals due to rapid cooling on Earth's surface



# Magma



Melted or molten rock material beneath Earth's surface; cools slowly to form rocks with larger crystals

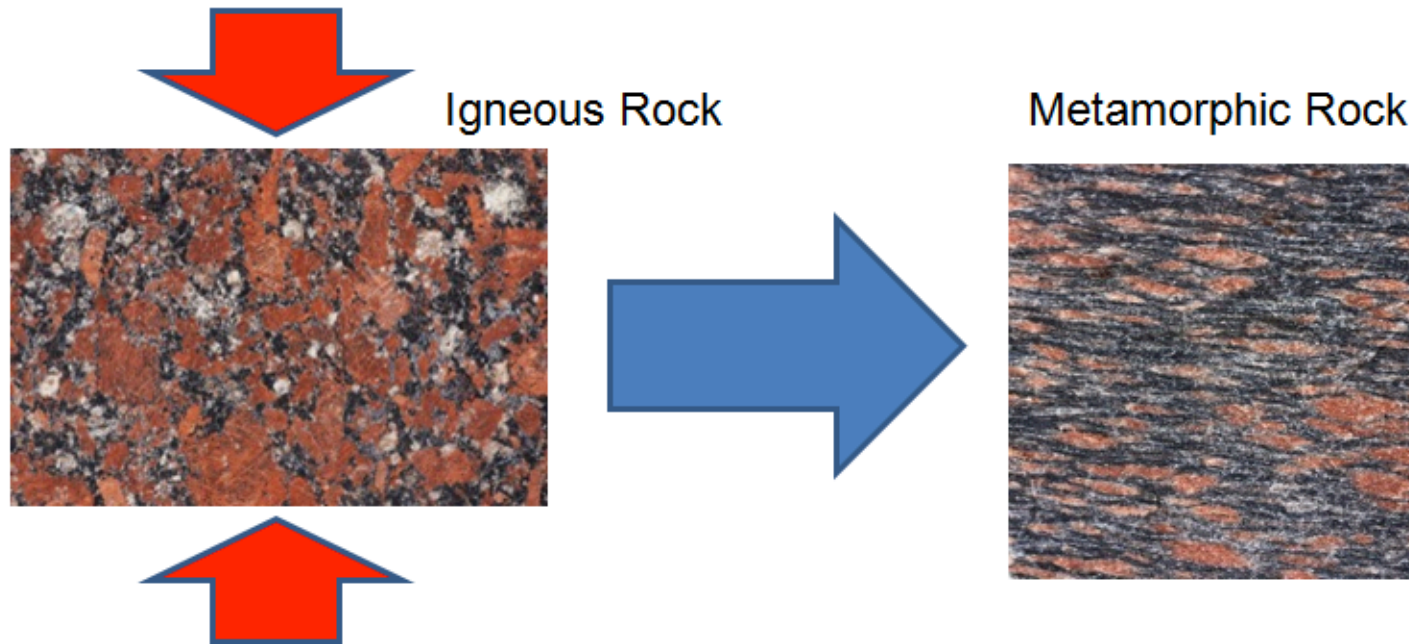
# Metamorphic Rock



Metamorphic rock is formed deep underground where heat and pressure cause existing rocks to be changed in both mineral composition and structural characteristics.



# Heat and Pressure



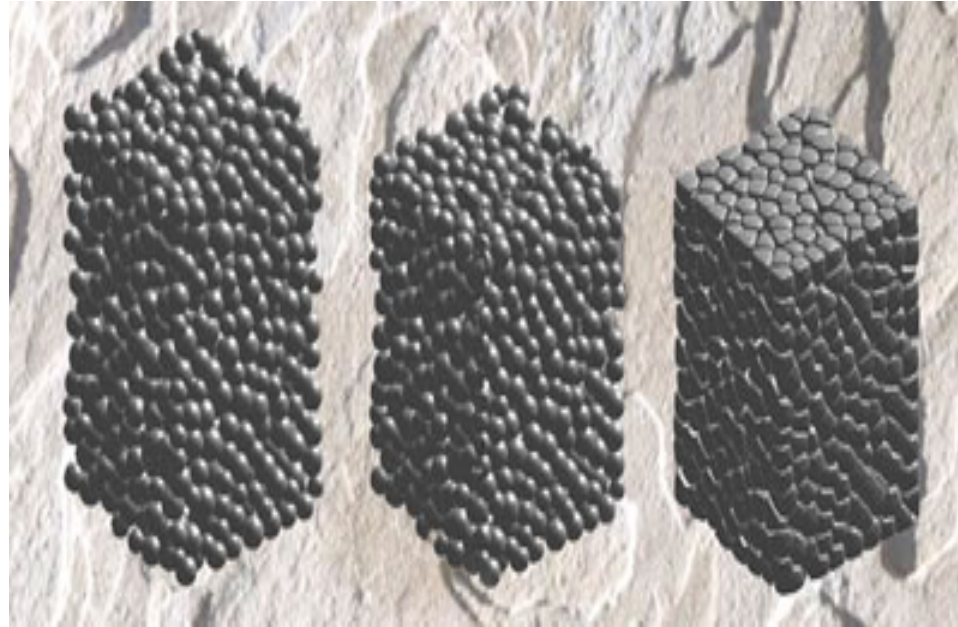
Changing variables due to the weight of overlying rocks, causing changes to rock characteristics and mineral composition, thus forming metamorphic rocks

# Sedimentary Rock



Sedimentary rock forms when particles of other rocks are deposited in layers and are compacted (crushed together) and cemented (binding of the sediments).

# Compaction



Occurs when rock particles or sediments are pressed together or packed down by gravity and the pressure of overlying rock layers

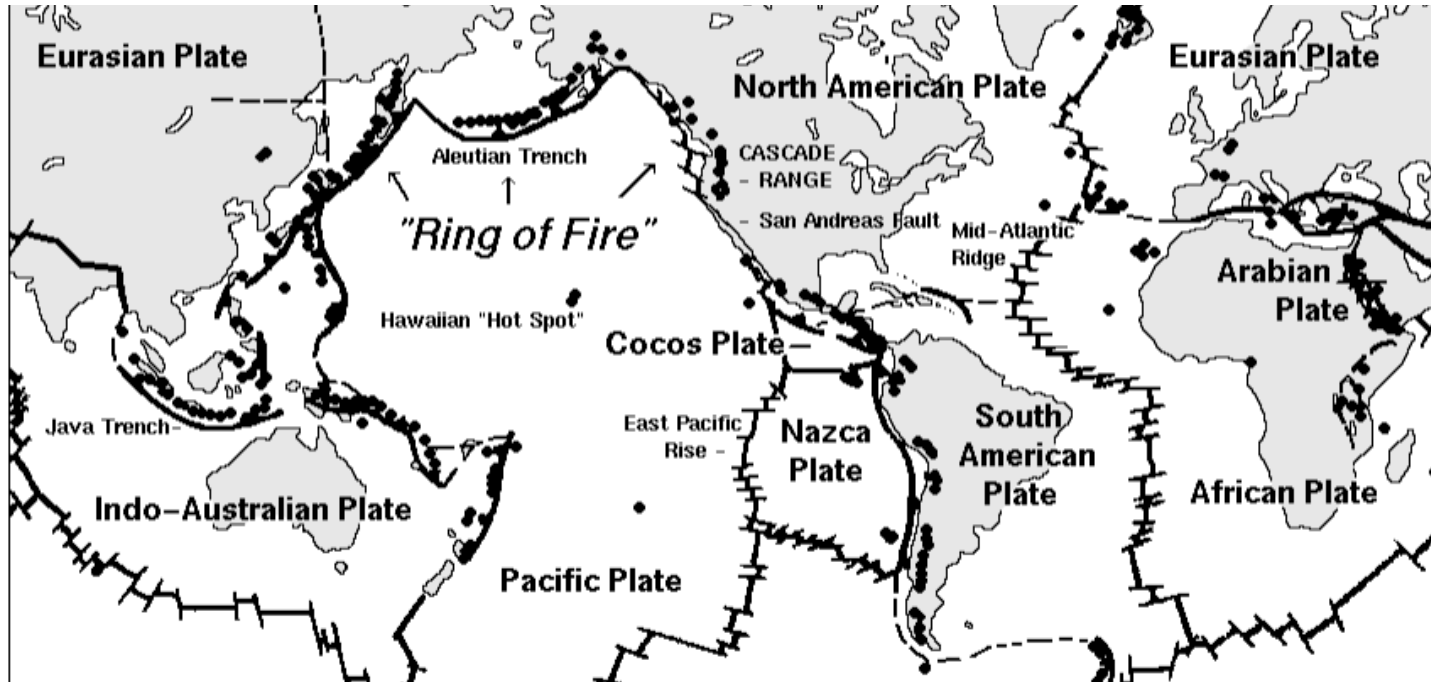


# Cementation



Occurs when compacted sediments stick together  
and turn into rock

# Plate Tectonic Theory



Theory that the lithosphere is divided into tectonic plates that slowly move on top of the asthenosphere



# Weathering



The mechanical or chemical processes that break rocks into smaller pieces and sometimes change the chemical composition

# Erosion



The process by which water, ice, wind, and gravity remove and transport sediment from one place to another

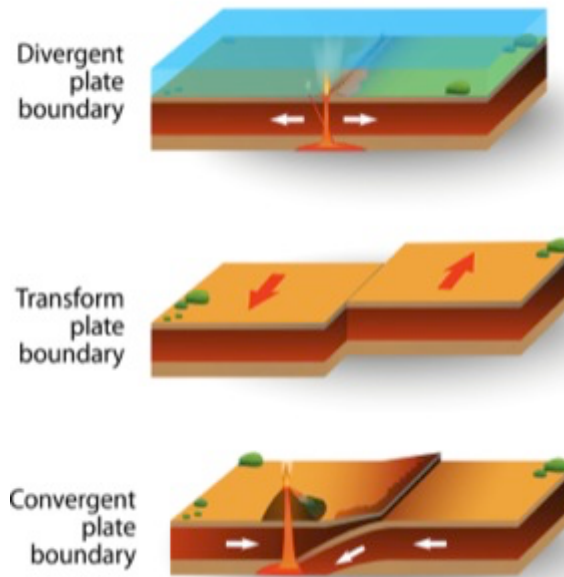
# Deposition



The process by which gravity, water, wind, and ice deposit weathered and relocated sediment

# Ocean Trench

THREE TYPES OF PLATE BOUNDARY



Deep and narrow depressions in the seafloor where the subducted plate moves into the asthenosphere

# Mountain



A large landform that is formed by volcanos or the movement of the tectonic plates



# Volcanic Eruption



Event in which molten rock spews out from the mantle to the surface of Earth as ash, lava, and gases; major geological event that occurs when a dense plate subducts below a less dense plate