Pacific NW Rocks and Minerals
GEO143 Activity 3: ROCKS

Name: _____ Date: _____

(1 – 1 pt) The silicate minerals are the most common minerals in the earth's crust. What two chemical elements are the silicates made of? _____ _____

(2 – 1 pt) Name at least two silicate minerals. _____ _____

(3 – 1 pt) Complete the following statement: Minerals are _____ made of one or more chemical _____ bonded together.

(4 – 1 pt) Minerals can form rocks, which are a _____ of one or more minerals aggregated together.

(5 – 4 pts) Using the following chart, identify the igneous rock specimens:

Texture		Color (Mineral Composition)		
		Light	Medium	Dark
Intrusive	Coarse-grained	Granite	Diorite	Gabbro
Extrusive	Fine-grained	Rhyolite	Andesite	Basalt
	Vesicular	Pumice		Scoria
	Glassy	Obsidian		
	Fragmental	Tuff and Breccia		

Sample #	Name
B-2	
B-9	
B-13	
B-10	
B-3	

(6 – 1 pt) What processes are responsible for converting sediment into sedimentary rock?

(7 – 1 pt) What is the term that refers to the conversion of sediment into rock? (hint: in Latin it literally means to "make into stone") _____

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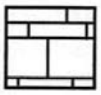
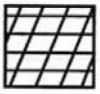
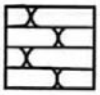
(8 – 4 pts) Use the following chart to identify the sedimentary rock specimens:

Origin	Sediment	Sedimentary Rock	Symbol	Characteristics
Terrigenous Clastics	Clay	Shale		Primarily clay and quartz grains of silt-size (<1/16 mm) or smaller having a thin platy structure.
	Sand	Sandstone		Sand-sized grains, (1/16 mm – 2 mm) composed of quartz, feldspar and rock fragments cemented by silica, calcite, or clay.
	Gravel	Conglomerate		Rounded coarse-grained (>2 mm) rock particles usually cemented by silica or calcite.
Carbonates	Calcite $CaCO_3$	Limestone		Calcareous grains and skeletal fragments cemented with calcite, often containing fossils. Effervesces in dilute HCl.
	Dolomite $CaMg(CO_3)_2$	Dolomite		Dolomite grains commonly resulting from alteration of limestone. Effervesces only in powdered form.
Other	Plant remains	Coal		Lignite, bituminous, or anthracite, formed by the alteration of plant debris.
	Gypsum $CaSO_4 \cdot 2H_2O$	Gypsum		Occurs normally in sedimentary rocks as thin interbedded layers, formed by the evaporation of mineral-rich waters.
	Halite NaCl	Rock Salt		Accumulated by the evaporation of sea water.
	Silica SiO_2	Chert		Dissolved from rocks by water, precipitated by both physical and biological means. Occurs in both fresh water and marine deposits.

Sample #	Name
C-15	
C-9	
C-10	
C-8	
C-2	

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(9 – 1 pt) When preexisting rocks are subjected to _____, _____, and chemically active fluids they can be converted into metamorphic rock.

(10 – 4 pts) Use the following chart to identify the metamorphic rocks.

Parent Rock	Metamorphic Rock	Characteristics
Limestone or Dolomite	Marble	Coarsely crystalline, commonly white, though variable in color, effervesces in dilute HCl.
Shale	Slate	Resembles shale, except much harder, cleavage plates form at angles to bedding of parent rock.
Quartzose Sandstone	Quartzite	Massive, hard, interlocking grains of quartz bound so tightly that fracturing will break through the individual grains of quartz.
Virtually Any Igneous and Sedimentary Rock	Schist	Mineral grains are elongated, producing a laminated appearance called foliation. Garnet and mica are common minerals.
Conglomerate	Metaconglomerate	Resembles conglomerate, except much harder, fractures break through the pebbles.
Impure Sedimentary Rocks and Granite	Gneiss	Mineral grains form sub-parallel light and dark bands.

Sample #	Name
D-3	
D-7	
D-2	
D-4	
D-5	