Earth Science Name:

Reading Notes: Minerals—Building Blocks of Rocks

1) List the five characteristics of all minerals:

2) Contrast “rocks” with “minerals” – give at least three differences.

3) Explain the meanings of the following mineral properties, and give one or two examples of each.

A) Crystal form (shape)

B) Luster

C) Color

D) Streak

E) Hardness

F) Cleavage

G) Fracture

H) Specific Gravity (Density)

I) Other special properties—name minerals that display these

a) salty taste –

b) magnetism –

c) double refraction—

d) reaction with dilute HCl—

e) fluorescence

Tell why this property is of special interest in NJ:

4a) What are the two most abundant elements in Earth's crust? (Use chemical symbols)

4b) Name six other elements that are relatively abundant in the crust.

5) Draw a picture of the silicon-oxygen tetrahedron in the space to the right.
Name 8 common silicate minerals:

6) Complete the table below to represent non-silicate mineral groups, characteristics, and two examples:

Mineral group	Key elements(s)/ion(s)	Examples
carbonates		
halides		
	O^{-2}	
		galena, pyrite
		gypsum
native elements		

7) What are key characteristics of "gemstones"?

8a) What is an "ore"?

8b) What factors make ores economically valuable enough to mine?

8c) What are "aggregates"? How are they used?

8d) Where in Englewood was crushed rock extracted? What was its use?

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Enrichment:

1) What are “isotopes”?

2) How do scientists use C^{12}:C^{14} ratios in minerals, rocks, and fossils?

3) How do scientists use O^{16}:O^{18} ratios in minerals, rocks, and fossils?

4) What are some radioactive isotopes used to find the age of ancient rocks (billions of year old)?

5) Iron and zinc mining were important industries in NJ from Colonial times into the 20^{th} Century.
   Where were some of the important locations where this occurred?
   What other mineral and rock resources were obtained in NJ?