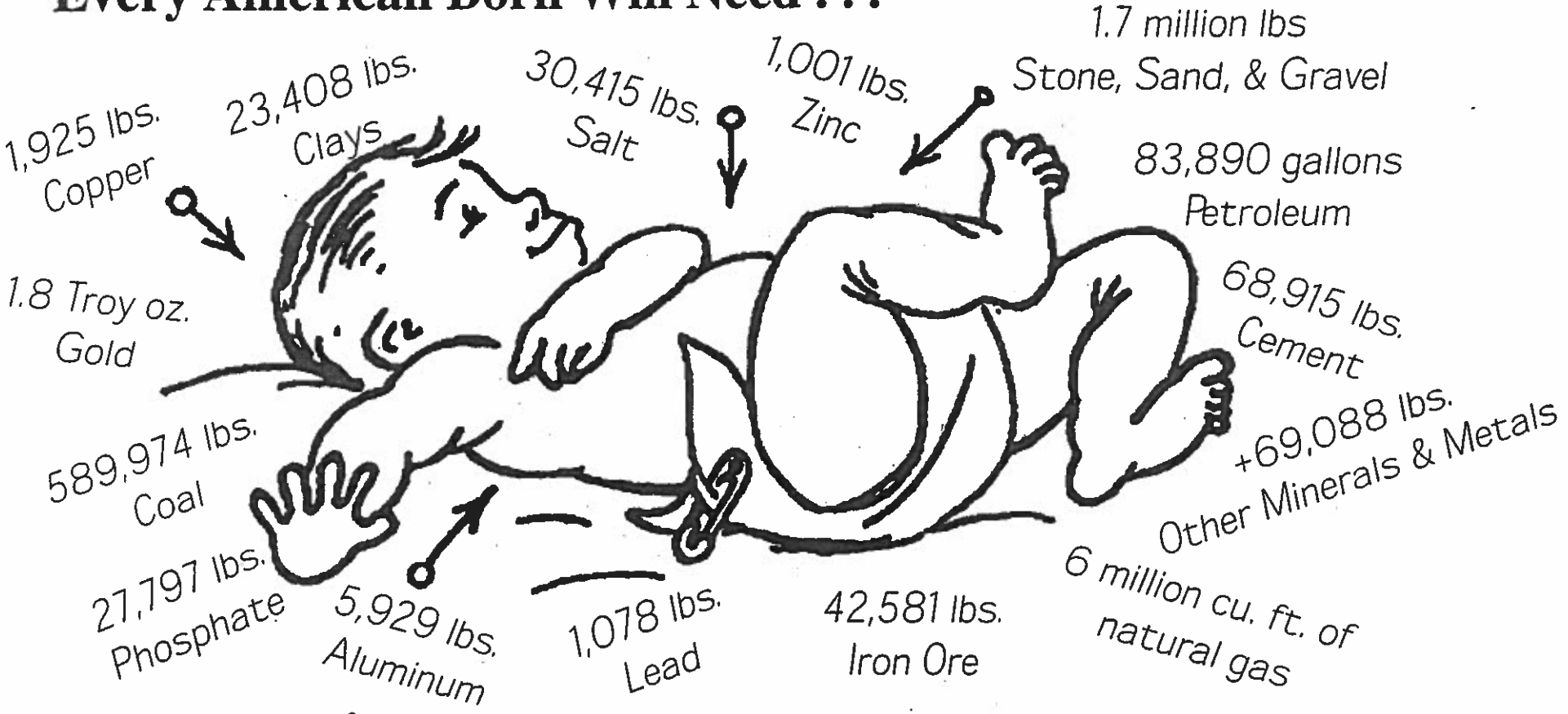
Every American Born Will Need . . .



3¾ million pounds of minerals, metals, and fuels in a lifetime

Rocks and Minerals

I. Minerals

A. **A mineral is** _____

_____

_____

1. naturally occurring:
   a. minerals - _____
   b. not minerals - _____
2. inorganic: _____

   _____
   a. _____ is NOT a mineral because it comes from _____
   b. _____ is NOT a mineral because it comes from _____
   c. _____ is NOT a mineral because it comes from _____
3. Definite chemical composition:

Name of Mineral	Chemical Formula	Chemical Name	Elements and No.atoms/Molecule

II. **Identifying Minerals** – minerals can be identified by their _____ and/or _____ properties.

A. Physical Properties

1. Color-

a. Some minerals have only one color:

(1) malachite - _____

(2) sulfur - _____

b. Other minerals have many colors:

(1) quartz - _____

_____

(2) hematite - _____

c. Color can vary as the result of:

(1) _____

_____

(2) _____

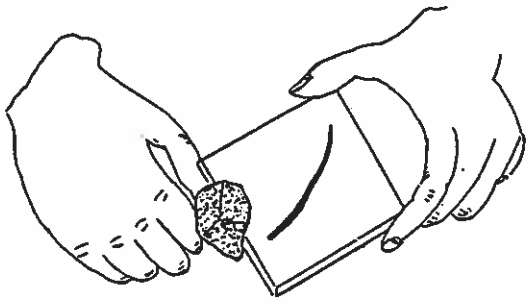
_____

2. Streak- _____

_____

_____

_____



a. Hematite – Colors: dark red
reddish brown
gray
black

Streak: _____

b. Quartz - Colors: colorless
variety of colors

Streak: _____

3. Luster- _____

_____

a. _____ - _____

_____

examples: _____

b. _____ - _____

(1) _____ - _____

(2) _____ - _____

(3) _____ - _____

(4) _____ - _____

(5) _____ - _____

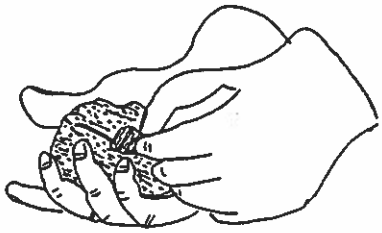
4. Hardness - _____

a. Softest mineral - _____

b. Hardest mineral - _____

c. Moh's Hardness Scale

NUMBER	NAME OF MINERAL
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	



HARDNESS OF COMMON OBJECTS

2.5 _____

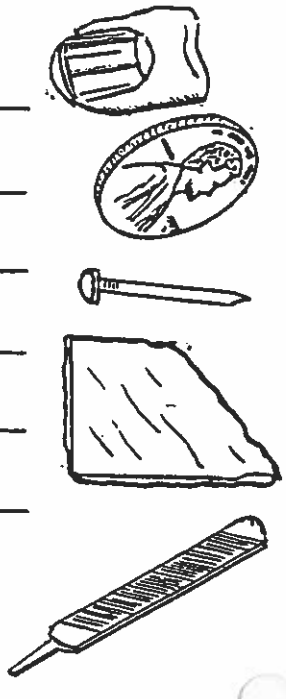
3.5 _____

4.5 _____

5.5 _____

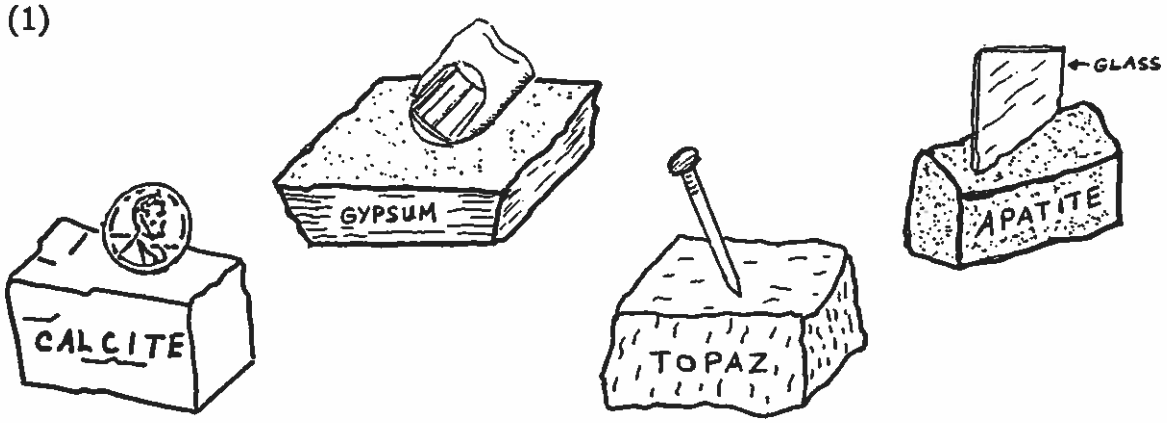
6.5 _____

7 _____



d. Testing Hardness

(1)



_____ _____ _____ _____

(2) (a) Will the mineral fluorite, hardness _____, be scratched by:

a piece of glass? _____

your fingernail? _____

an iron nail? _____

(b) Will the mineral quartz, hardness _____, be scratched by:

a piece of glass? _____

a copper penny? _____

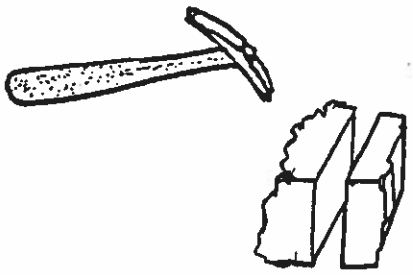
a steel file? _____

e. What determines Hardness? - _____

_____

_____

5. Cleavage and Fracture –



a. Cleavage - _____

_____

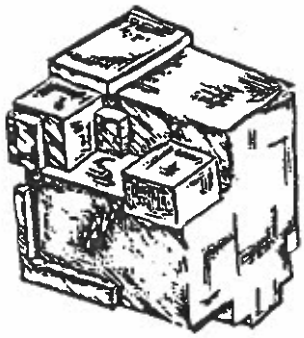
_____

_____

(1) examples of cleavage:

(a)The mineral mica cleaves in _____ direction(s).

(b)The mineral galena cleaves in _____ direction(s).



(2) What determines cleavage?

_____

_____

_____

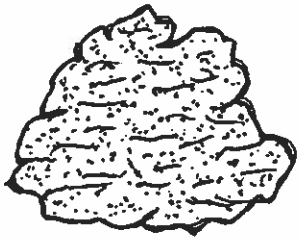
(3) Cleavage should NOT be confused with crystal shape. Cleavage is a property of the way a mineral _____, while crystal shape is a property of the way a mineral _____. When minerals have plenty of space to grow, they form _____.

b. Fracture - _____

_____

_____

_____



(1) examples of minerals that show fracture:

_____

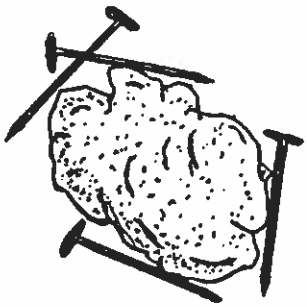
6. **Density or Heft –** due to the kinds of atoms a mineral contains, and how closely packed the atoms are, different mineral samples of the same size have different densities and feel heavier or lighter when lifted (or measured). A piece of gold has _____times as much mass as a piece of halite that is the same size.

B. Chemical Properties

_____reacts with hydrochloric acid. It forms bubbles of carbon dioxide gas.

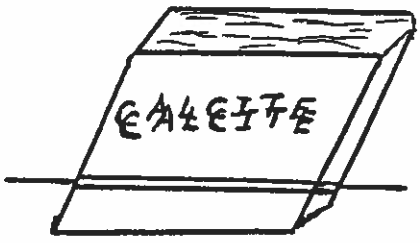
$CaCO_3 + 2HI \quad CaCl_2 + H_2O + CO_2$

C. Special Properties –



Lodestone, a form of the mineral _____, is naturally _____

Iceland spar, a form of the mineral _____, produces _____.



_____ is an example of a mineral that is _____.