

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Period: \_\_\_\_\_

# Minerals and Rocks

The Physical Setting: Earth Science

---

## Worksheet: Minerals & Density

---

1. What is the density of a mineral which has a mass of 35 grams and a volume of 7 cm<sup>3</sup>?
  - a. 42.0 g/cm<sup>3</sup>
  - b. 0.2 g/cm<sup>3</sup>
  - c. 28.0 g/cm<sup>3</sup>
  - d. 5.0 g/cm<sup>3</sup>
2. An empty 250-milliliter beaker has a mass of 60 grams. When 100 milliliters of oil is added to the beaker, the total mass is 140 grams. The density of the oil is approximately
  - a. 1.7 g/mL
  - b. 1.4 g/mL
  - c. 0.8 g/mL
  - d. 0.6 g/mL
3. If you were to cut a piece of graphite in half the density of each half would be
  - a. less than the original sample
  - b. the same as the original sample
  - c. greater than the original sample
4. The volume of an irregular object, such as a piece of sulfur, could best be determined by
  - a. placing it in a beaker of water
  - b. calculating the circumference
  - c. comparing it to a known standard for mass
  - d. counting the number of flat surfaces
5. In which phase (state) do most Earth materials have their greatest density?
  - a. gaseous
  - b. liquid
  - c. solid
6. What is the approximate volume of a cube where all sides are equal to 2.5 cm?
  - a. 2.5 cm<sup>3</sup>
  - b. 6.3 cm<sup>3</sup>
  - c. 15.6 cm<sup>3</sup>
  - d. 39.1 cm<sup>3</sup>
7. If a material is heated and expands, the density of the material will
  - a. decrease
  - b. increase
  - c. remain the same
8. What is the density of a mineral which has a mass of 100 grams and a volume of 25 cm<sup>3</sup>?
  - a. 0.25 g/cm<sup>3</sup>
  - b. 2.5 g/cm<sup>3</sup>
  - c. 4.0 g/cm<sup>3</sup>
  - d. 2,500 g/cm<sup>3</sup>

# Worksheet: Minerals & Density

For questions 9 through 10, use the table below that shows data for a student's collection of rock samples A through I, which are classified into groups X, Y, and Z. For each rock sample, the student recorded mass, volume, density, and a brief description. The density for rock D has been left blank.

Group	Rock	Mass (g)	Volume (cm <sup>3</sup> )	Density (g/cm <sup>3</sup> )	Description
X	A	82.9	34.4	2.41	Grey, smooth, rounded
	B	114.2	42.6	2.68	Brown, smooth, rounded
	C	144.7	63.2	2.29	Black, smooth rounded
Y	D	159.4	59.7		Black and grey crystals, angular
	E	87.7	33.1	2.65	Clear and pink crystals, angular
	F	59.6	21.0	2.84	White, grey, and black crystals, angular
Z	G	201.1	68.4	2.94	Grey, shiny, flat
	H	85.1	39.8	2.14	Brown, sandy feel, flat
	I	110.2	47.3	2.33	Dark grey, flaky, flat

9. The approximate density of rock sample D is
- 2.75 g/cm<sup>3</sup>
  - 3.75 g/cm<sup>3</sup>
  - 3.32 g/cm<sup>3</sup>
  - 2.67g/cm<sup>3</sup>
10. The student broke rock G into two pieces. Compared to the density of the original rock, the density of one piece would most likely be?
- the same
  - greater
  - less
11. Water has its greatest density at a temperature of
- 4°C in the solid phase
  - 4°C in the liquid phase
  - 0°C in the solid phase
  - 100°C in the gaseous phase
12. The diagrams below show physical changes in four materials after a period of time. Chemical composition of each material remained the same. Which material most likely changed in density?

