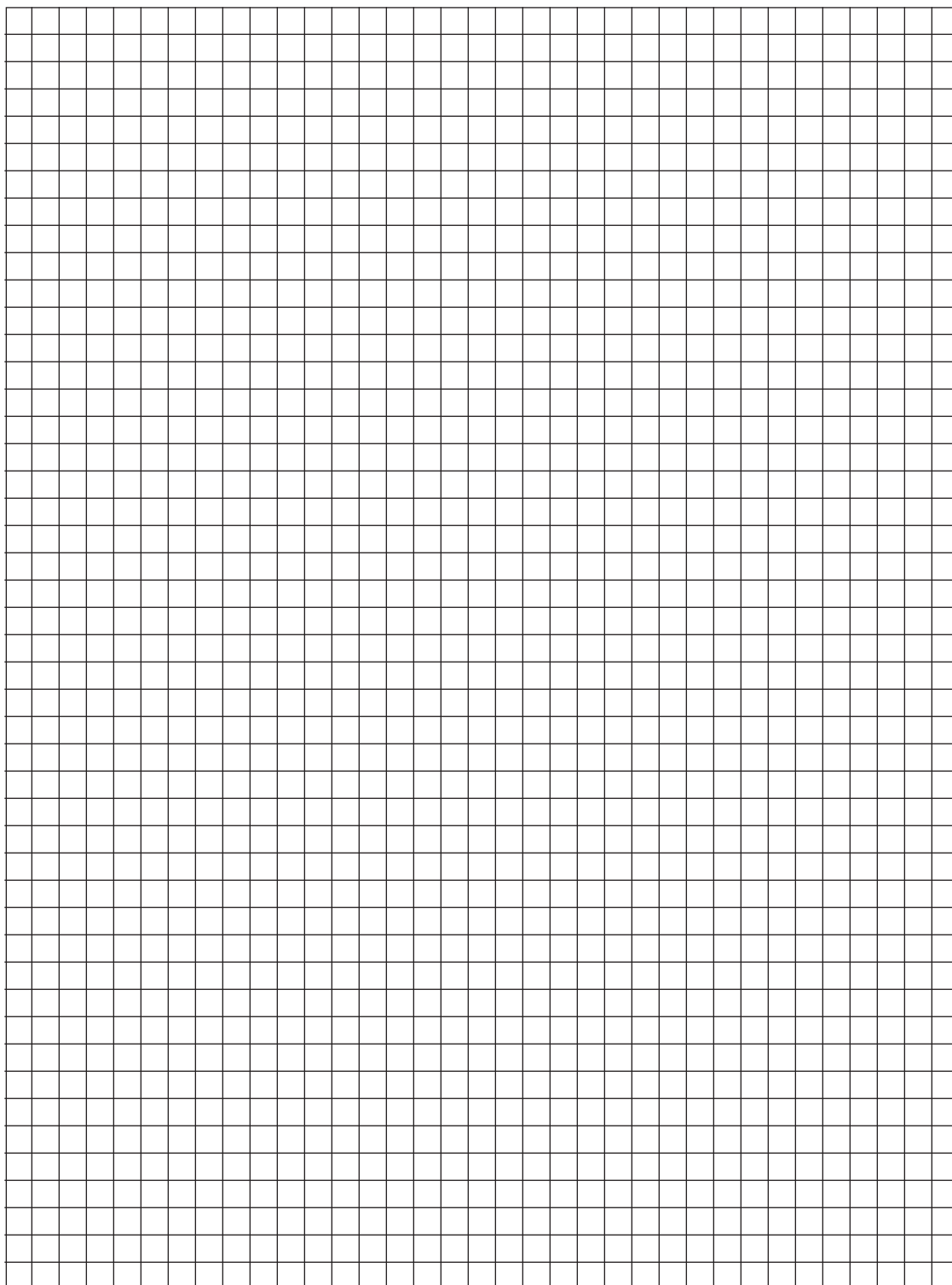


Density of the Earth



Density of the Earth

Data Table

Sample Type	Mass (g)	Volume	Density	Average Density
Granite (Igneous)				
Basalt (Igneous)				
Limestone (Sedimentary)				
Sandstone (Sedimentary)				
Slate (Metamorphic)				
Gneiss (Metamorphic)				
Spheres				
Styrofoam®				

Density of the Earth

Questions

1. Use the data and briefly describe 3–4 appropriate observations or trends in the properties and density of each sample type.
2. A sample of aluminum is collected. The mass of the aluminum sample is 2.4 g, given the density of aluminum is 2.70-g/cm³, calculate the sample's *volume*. Show *all* work below.
3. What are the three rock types?
4. Compare the average densities of the metamorphic rocks and the other two rock types. Which type of rock is most dense? Least dense? Explain.
5. Compare the densities of granite and basalt. Which of the two rocks would make up most of the continental crust, and which would make up most of the oceanic crust? Write the answers below.

The less dense portions of the Earth's crust rise higher on the asthenosphere. These portions are called *continental crust*. These portions of Earth's crust are thick, and composed mostly of larger crystal grains.

Rock most commonly found: _____ Rock type: _____

The more dense portions of the Earth's crust rest lower on the asthenosphere. These portions are called *oceanic crust*. These more dense portions of Earth's crust sit lower in elevation.

Rock most commonly found: _____ Rock type: _____

6. Calculate the average density of the sedimentary, igneous, and metamorphic rocks using the data obtained for all the sample types in the data table. Show all work below. This density measurement represents the average density of Earth's lithosphere.
7. The average density of the Earth is 5.5 g/cm^3 . The average density of the Earth's lithosphere is much lower than the average density of the Earth overall. What does this tell us about the density of the *internal structures* of the Earth? They should be (much higher/a little bit higher/a little bit lower/much lower) than that of the lithosphere.
8. Compare the average densities of each sample type from the Density of the Earth Data Table to the density of water (use the graph). How can the graph be used to determine which materials would float on water and which would sink?