

RQ Density

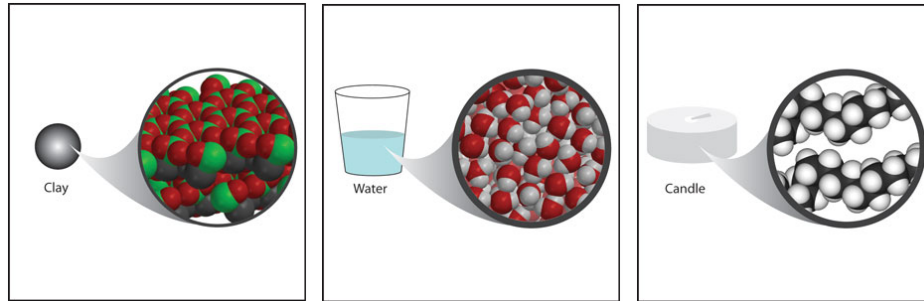
Name: _____

Date: _____

1. A 2 g object has a volume of 50 cm³. What is its density?

- A. 0.04 g/cm³ B. 25 g/cm³ C. 40 g/cm³ D. 100 g/cm³

2. Below are images showing the arrangement of atoms in clay, water, and candle wax, at the molecular level.



- Clay has a density of 1.6 g/cm³
- Freshwater has a density of 1.0 g/cm³
- Candle wax has a density of 0.0 g/cm³

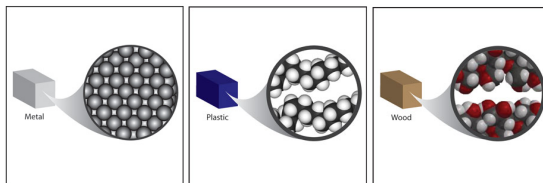
Based on the images and the densities of each material, which of the following do you think would be a true statement?

- A. Both clay and candle wax would float on water. B. Both clay and candle wax would sink in water.
C. Clay would float but the candle wax would sink. D. Clay would sink but the candle wax would float.

3. Which of the following would float on water?

- A. An object with a density greater than 1.0 g/mL
B. An object with a density of 1.0 g/mL
C. An object with a density smaller than 1.0 g/mL
D. An object with a density between 0.5 kg/mL and 9 kg/mL

4. The diagrams below show metal, plastic, and wood at the molecular level.



Based on the diagrams, which substance do you think would have the highest density?

- A. Metal
- B. Plastic
- C. Wood

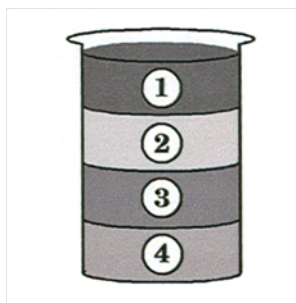
5.

| Metal | Density (g/cm³) |
|--------------|-----------------------------------|
| aluminum | 2.7 |
| iron | 7.9 |
| lead | 11.4 |
| silver | 10.5 |

Based on the above table, if you were to pick up and hold an equal sized piece of each metal, which one would be the lightest to hold or have lowest mass?

- A. aluminum
- B. iron
- C. lead
- D. silver

6. The diagram below represents 4 different liquids that have been poured into a container and separated.



Which liquid has the **greatest** density?

- A. Liquid 1
- B. Liquid 2
- C. Liquid 3
- D. Liquid 4

7.

| Metal | Density (g/cm ³) |
|----------|------------------------------|
| aluminum | 2.7 |
| iron | 7.9 |
| lead | 11.4 |
| silver | 10.5 |

Based on the above table, if you were to pick up and hold an equal sized piece of each metal, which one would be the heaviest to hold or have the largest mass?

- A. aluminum B. iron C. lead D. silver

8. Below is a diagram of a block copper and a block of aluminum, shown at the molecular level.

The diagram shows two blocks of metal at the molecular level. The top block is copper, represented by a brown cube and a circular arrangement of grey spheres. The bottom block is aluminum, represented by a grey cube and a circular arrangement of grey spheres. To the right is a portion of the periodic table with atomic masses:

| | | | |
|---------------------------------|-----------------------------|----------------------------|-------------------------------|
| | | | 13 III A Boron 10.81 |
| | | | 13 Al Aluminum 26.98 |
| 10 VIII B Nickel 58.69 | 11 IB Copper 63.55 | 12 IIB Zinc 65.39 | |

Based on the atomic arrangement, the type of atoms, and the masses of the atoms based on their position on the Periodic Table, which of the following do you think is a true statement?

- A. A block of aluminum is less dense than a block of copper.
 B. A block of aluminum is more dense than a block of copper.
 C. A block of aluminum and a block of copper would have the same densities.
 D. None of the above statements is true.

9. Elaine wants to measure the mass of a large marble. Which units should Elaine use?

- A. liters B. grams C. meters D. degrees

10. Which of these is a form of matter?

A. air

B. heat

C. light

D. magnetism