**Can’t Hold a Good Ping Pong Ball Down Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Testable question: How will two objects of the same volume, but different densities, act when placed in a container of beans, which has a density between the objects.

Variables: Identify the following types of variables. Circle the correct answer(s) for each.

Independent Variable: What is the one part of the experiment that is being changed by the experimenter?

1. balls with the same volume B. balls with different densities

C. reactions of the balls D. same electronic scale

Dependent Variable: What is the experimenter measuring or collecting data on?

1. balls with the same volume B. balls with different densities

C. reactions of the balls D. same electronic scale

Controlled Variable (identify two): What parts of the experiment stay the same?

1. balls with the same volume B. balls with different densities

C. reactions of the balls D. same electronic scale

Hypothesis: If I place two balls with different densities in a container with pinto beans and gently shake it, then\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Materials: beaker, dried pinto beans, Ping-Pong ball, metal ball (same-size as Ping-Pong ball), scale

Procedures:
1. Find the mass of the ping pong ball and the metal ball. Record the masses in the data table.

2. Find the density of the Ping-Pong ball and metal ball. Record the densities in the data table.

3. Place the Pin-Pong ball in the bottom of the beaker or glass jar.
4. Pour the pinto bean into the beaker with the Ping-Pong ball so the ball is completely covered.
5. Place the metal ball on the top of the pinto beans.

6. Draw a picture of what the set up looks like.
7. Gently shake the beaker from side to side until the ball has finished reacting.

8. Try again place the balls in different locations and shaking to see if the position changes.
9. Draw a picture of what the items look like at the end.

Data Table:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Mass (g) | Volume (cm3) | Density (g/cm3) |
| Metal Ball |  | 4 cm3 |  |
| Ping-Pong Ball |  | 4 cm3 |  |

Start:

Drawings

Finish:

Analysis: Answer the following questions using appropriate vocabulary

1. Which ball had the lowest density?
2. Where did the ball with the lowest density end up at the end of the experiment?
3. Which ball had the most density?
4. Where did the ball with the most density end up at the end of the experiment?
5. How is this experiment like the layers of the Earth?
6. Why are Earth’s layers in the order that they are?
7. List the layers of Earth in order of most dense to least dense.