



TERM 2 EXEMPLAR PRACTICAL TASK

GRADE 8

SUBJECT: NATURAL SCIENCES

FORMAL ASSESSMENT TASK

2023

MARKING GUIDELINES

MARKS OBTAINED =

40

ACTIVITY_1

[5]

AIM: To compare the densities of oil and water to each other by testing whether the oil will float on the water.

QUESTIONS

1. The oil floats in water/ the oil slowly rises to the top of the water ✓.
2. Oil and water will **not stay mixed together** ✓, no matter how hard they shake the beaker. Instead, the oil slowly rises to the top of the water ✓. This is because of the density of the two liquids.
3. When pouring oil into water, the heavier liquid (one with the more density) will settle down ✓ and the lighter liquid (the one with less density) will rise up/ float ✓.

ACTIVITY 2

[20]

INVESTIGATION: COMPARING THE DENSITIES OF SAND, FLOUR, WATER AND AIR

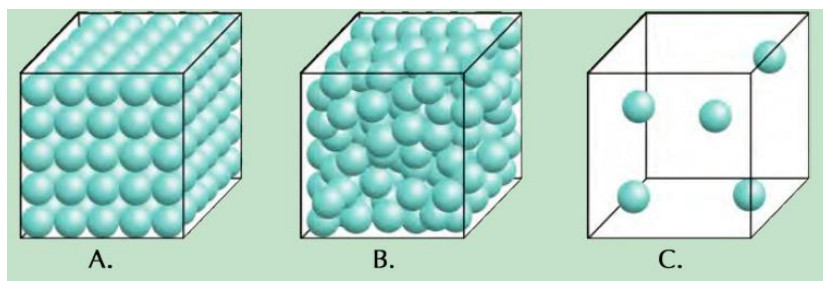
QUESTIONS

1. **Method: Design their own investigation:** Learner dependant answers
 - a) Take 4 cups or beakers of the same volume ✓
 - b) Use a scale to measure 3 different cups to ensure that they are of the same mass. ✓
 - c) Pour 4 tablespoons of sand, flour and tap water in each cup. ✓
 - d) Learners must not pour anything on the 4th cup, since it will be filled with air. ✓
 - e) Measure the mass of each cup and calculate density ✓
2. **Investigative question:** which material has the highest density: sand, flour, water or air?
3. Prediction: learner dependent answer. ✓✓
IDENTIFY VARIABLES:
4. If a **fixed volume** (same size cup ✓) of each material is used, then volume is the constant or fixed variable. The cups must all be made of the **same material** ✓ so that they have the **same masses**.
5. The independent variable is the type of material. ✓
6. Mass is measured and used to calculate density. ✓
7. Cup with sand, cup with flour, cup with tap water, cup with air) ✓✓
8. The volume of cups was equal ✓
9. Cup with sand, Cup with flour, Cup with tap water ✓✓), The cup with the substance that has the greater mass has greater density ✓.

ACTIVITY 3: WHICH HAS THE HIGHEST DENSITY: A SOLID, A LIQUID OR A GAS? [8]

TEACHER'S NOTE

- This activity explains the general property that **solids are more-dense than liquids** which are **more dense than gases**. The boxes contain the 'same material'
- **Container A contains a solid material, container B contains the liquid state of that material and container C the gaseous state of the same material.**



QUESTIONS:

1. Container A contains the most particles ✓ and C the least. ✓
2. The container with the most particles would contain the greatest mass ✓; therefore A contains the greatest mass ✓ and C the smallest ✓.
3. The solid has the highest density because it has the greatest mass ✓. The gas has the lowest density ✓ because it has the smallest mass in the same volume ✓.

ACTIVITY 4: DENSITY: WHICH MATERIAL IS DENSER?

[7]

QUESTIONS

1. **Learner dependent answer** (The size, mass, and arrangement of atoms affect the density of a substance ✓. Materials with more matter, or stuff packed into a given space, has a higher density ✓ than materials with less matter packed into the same space. ✓)
2. If they are the same size, it means they have the same volume. ✓
3. The brick has more mass ✓.
4. The brick would have the greater density ✓. If we compare two objects of the same size, the one that is heavier (has more mass) has the greater density ✓.

[TOTAL: 40]