Province of the EASTERN CAPE EDUCATION

TERM 2 EXEMPLAR PRACTICAL TASK

GRADE 8

SUBJECT: NATURAL SCIENCES

FORMAL ASSESSMENT TASK

2023

TOTAL MARKS: 40

DURATION: 1 hour :

Name: _____

Class: _____ Date: _____

School: _____ Teacher: _____

MARKS OBTAINED =

40

ACTIVITY 1 [5]

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

Apparatus: small glass beaker/ glass, water and oil.

Method

1. Pour a little oil in the beaker/ glass
2. Fill the beaker/ glass thereafter with water and record your observations
3. Stir the mixture and leave it to stand for a few minutes. Record your observations.

QUESTIONS

1. What do you observe after the oil is added to the water in the beaker? (1)

   _____

   _____

2. What do you observe after stirring the mixture of oil and water and left to stand for a while? (2)

   _____

   _____

3. Write down your conclusions for this investigation. (2)

   _____

   _____

ACTIVITY 2

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

Materials: 4 identical cups, sand, flour, tap water & triple beam balance or scale.

1. **Method:**

- Learners must design this investigation themselves in groups.
- **Since density is mass divided by volume**, learners could **measure the mass of identical cups filled with sand, water and air, and calculate the approximate densities of each material**.
- If you **do not have access to a scale**, then **learners can just compare the densities of each material by holding the cups in their hands.**
- After conducting the investigation, **write down your method on the lines provided here & summarise each step in sequence and number the steps**. (5)

  _____

  _____

  _____

  _____

  _____

QUESTIONS

2. Write down the investigative question. (2)

   _____

   _____

3. What do you predict: Which material has the highest density: sand, flour, water or air? (2)

_____

_____

IDENTIFY VARIABLES:

4. Which variables must be kept constant to make this a fair test? (2)

_____

5. What is the independent variable? (1)

_____

6. What are the dependent variables? (1)

_____

7. Write down the contents of the cups in order of increasing mass. (2)

_____

_____

8. What have you observed about the volume of the cups? (1)

_____

_____

9. List the contents of the cups in order of increasing density and write down your conclusions (3)

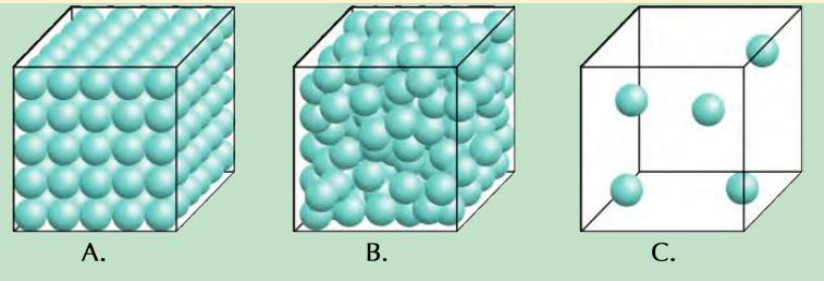
_____

_____

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

INSTRUCTIONS

1. Compare the **3 identical containers below**.
2. They all have the **same volume and contain the same material**
3. 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.



Answer the questions that follow.

QUESTIONS:

1. Which container (A, B or C) contains the greatest number of particles? Which container contains the smallest number of particles? (2)

_____

_____

2. Which container (A, B or C) contains the material with the greatest mass? Which container has the smallest mass? Why do you say so? (3)

_____

_____

3. Which state has the highest density: solid (in container A), liquid (in container B) or gas (in container C)? Which state has the lowest density? Why do you say so? (3)

_____

_____

[8]

ACTIVITY 4: DENSITY: WHICH MATERIAL IS DENSER?

- **Bring a brick and a loaf of bread to class so learners can test this out for themselves by handling the two objects.**

MATERIALS: sponge, polystyrene, wood, metal, brick or stone (objects with same size (volume) but different densities).

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INSTRUCTIONS: (groups)

a) Handle all the different materials and compare their masses.
b) If you have access to a triple beam balance, **measure the masses of each of the objects** & **notice similarities in the texture of substances of similar density.**
c) If you do not have scale or triple beam balance, **you can just feel how heavy they are in your hand.**

QUESTIONS

1. **Arrange them in order of increasing density** (discuss why some materials are denser than others). (3)

   _____
   _____
   _____

2. Imagine a brick and a loaf of bread that are the same size. Would the brick or the bread have a greater volume? (1)

   _____
   _____

3. Which one, the brick or the bread, has more mass? (1)

   _____
   _____

4. Which one, the brick or the bread, would have the greater density? Explain your answer. (2)

   _____
   _____