EXAMPLE 18

Theme:	Matter In Nature
Learning Area:	1. Matter
Learning Objective:	1.1 Understanding that matter has mass and occupies space.
Learning Outcome:	A student is able to • state that things have mass and occupy space. • explain what matter is, and to relate things and matter. • carry out activities to show that air, water, soil and living things have mass and occupy space.
Material:	One set for each group: balloons (round - 4), balloons (cylindrical / sausage balloons - 4), small jam jar (1), large transparent container (1), large plastic filter funnel (1), towel (1), metal can (1), marbles (30), lever balance (1) and 500 ml beaker (1)
Teacher:	**Good morning boys and girls. How are you today?** Teacher waits and listens to students' responses.
Teacher:	**Today I am going to teach you something interesting.** Look around you and name 5 things that you can see. You are given 2 minutes to do so. Teacher waits for students to look around.
Teacher:	**Now tell me what you have seen.** Teacher lists down the things mentioned on the board e.g. books, chairs, water, air, etc.
Teacher:	**All the things listed here are called MATTER .** Teacher writes the word "MATTER" on the board.

Teacher: **Do you know why these things are called "MATTER"?**

Teacher waits and listens to responses from students

Teacher: **Now, you are going to carry out a few activities to find out what "MATTER" is.**

Teacher distributes balloons to each group leader. Each student is given one round balloon.

Teacher: **Does everyone of you have a balloon ?**

Teacher makes sure everyone has a balloon.

Teacher: **Take your balloon and blow it up. What is in the balloon?**

Student: Air.

Teacher: **How do you know that?**

Student: I blew air into it.

Teacher: **Blow some more air into the balloon. What happens now?**

Student: The balloon gets bigger.

Teacher: **Yes, the balloon gets bigger and we say the balloon is inflated. What is taking up the space inside the balloon?**

Student: Air.

Teacher: **Yes, very good. The air is taking up the 'SPACE' inside the balloon.**

Teacher writes the word 'AIR TAKES UP SPACE' or 'AIR OCCUPIES SPACE' on the board.

Teacher: **Release the opening of the balloon near your neck. What do you feel?**

Student: **The air coming out of the balloon.**

Teacher: **We know that air is important for life. Therefore, we should not dirty the air. Dirty air affects our health.**

Put your balloons aside. Now, we will do to another activity.

Teacher distributes an empty jam jar and a transparent container to each group.

Teacher displays a diagram on the screen.

Teacher: **Set up the apparatus according to Diagram 1 on the screen.**

Teacher checks on each group to make sure that the task has been done correctly.
Teacher distributes Activity Sheet 1 to each group.

Teacher: **Hold the jam jar upside down in the container of water. See what will happen.**
Write your observations in the Activity Sheet provided.

Teacher waits for students to complete the Activity Sheet (10 minutes is allocated).

Teacher: **Have you answered all the questions in your Activity Sheet 1?**

Students: Yes.

Teacher: **Now we will discuss the answers to Activity Sheet 1 together.**

Teacher refers to the question in Activity Sheet and explains the required answers.

Teacher: **When you hold the empty jam jar upside down in the water, what do you see?**

Student : A little bit of water goes into the jam jar.

Teacher: **Right, very little water entered the jam jar.**
Why doesn't more water enter the jam jar?

Student: There is air in the jam jar.

Teacher: **What is taking up the space in the jam jar?**

Student: Air.

Teacher: **That's correct. Air occupies part of the space in the**

jam jar.

Teacher clarifies that air occupies space.

Teacher: **Now, I have another activity for you.**

Teacher distributes a balloon, a funnel and a beaker to each group.

Teacher: **Fill up your balloon with water.**

Teacher checks on how the students carry out the activity.
Students are given 5 minutes to fill up the balloon with water.

Teacher: **Class, have you filled your balloon with water?**
Look at the balloon.
Tell me what has happened.

Teacher waits for responses from students.

Student: The balloon is bigger.
The balloon is filled with water.

That's right.
Teacher: **There is water in the balloon. So, what is occupying the "SPACE" in the balloon?**

Student: Water.

Good! The water has taken the "SPACE" in the
Teacher: **balloon.**

Teacher writes "WATER OCCUPIES SPACE" on the board.

Now, pour the water from the balloon into the plastic
Teacher: **container on your table and put it aside.**

Please remember that we should not waste water.
Please conserve water because water is important for life.

Teacher waits for the students to get ready for the next activity.

Class, I have another interesting activity for you to

Teacher: **carry out.**

Teacher distributes a sausage balloon, a metal can and 30 marbles to each group.

Teacher: **Fill up your balloon with marbles.**

Teacher checks on how the students carry out the activity.
Students are given 5 minutes to fill up the balloon.

Teacher: **Look at the balloon. Tell me what has happened.**

Teacher waits for responses from students.

Student: The balloon is bigger, the balloon is filled with marbles.

Teacher: **That's right. There are marbles in the balloons. So, what has occupied the "SPACE" in the balloon?**

Student: Marbles.

Teacher: **Correct! The marbles has occupied the "SPACE" in the balloon.**

Teacher writes "MARBLES OCCUPY SPACE" on the board.

Teacher: **Boys and girls, take out all the marbles from the balloon. Keep aside your marbles and the balloons.**

Please get ready for the next activity.

Now, fill up the metal can with marbles.

Teacher waits for the students to fill up their can.

Teacher: **Is your can full?**

Student: Yes.

Teacher: **Can you put in any more marbles into your can?**

Student: No.

Teacher: **Why?**

Student: The can is full. There is no more space in the can.

Good! The can is full.

Teacher: **The marbles occupy the "SPACE" in the can.**

What can you conclude from the activities you have done?

Students respond.

Teacher asks students to recall what was discussed. Students arrive at the correct conclusion.

"Air, water and marbles occupy SPACE"

Teacher:

Good answer! Boys and girls, get ready for more activities on MATTER...

Teacher gives out Activity Sheet 2.

Teacher: **Using the apparatus you have, carry out the activities in Activity Sheet 2. Please record your measurements. Complete the Activity Sheet.**

Teacher waits for students to complete Activity Sheet 2.

Teacher distributes Activity Sheet 3 .
Teacher tells the students to complete it within 5 minutes.

Teacher: **O.K.! Boys and girls, put all your completed Activity Sheets into the box on my table.**

The group leaders collect and drop the Activity Sheets into the box.
Teacher picks up some Activity Sheets at random to discuss the answers and findings.

Teacher: **What have you learnt from all the activities you have carried out today?**

Teacher waits and listens to students ' responses.

Students: Matter occupies space and has mass.

Teacher: **Very good. Clean your table and return your apparatus.**

Teacher waits for students to clear their tables and return

the apparatus.

Teacher shows the set-up of the apparatus as shown in Diagram 2.

Teacher: **Look at the picture carefully. What will happen if the tap is turned on? Why?**

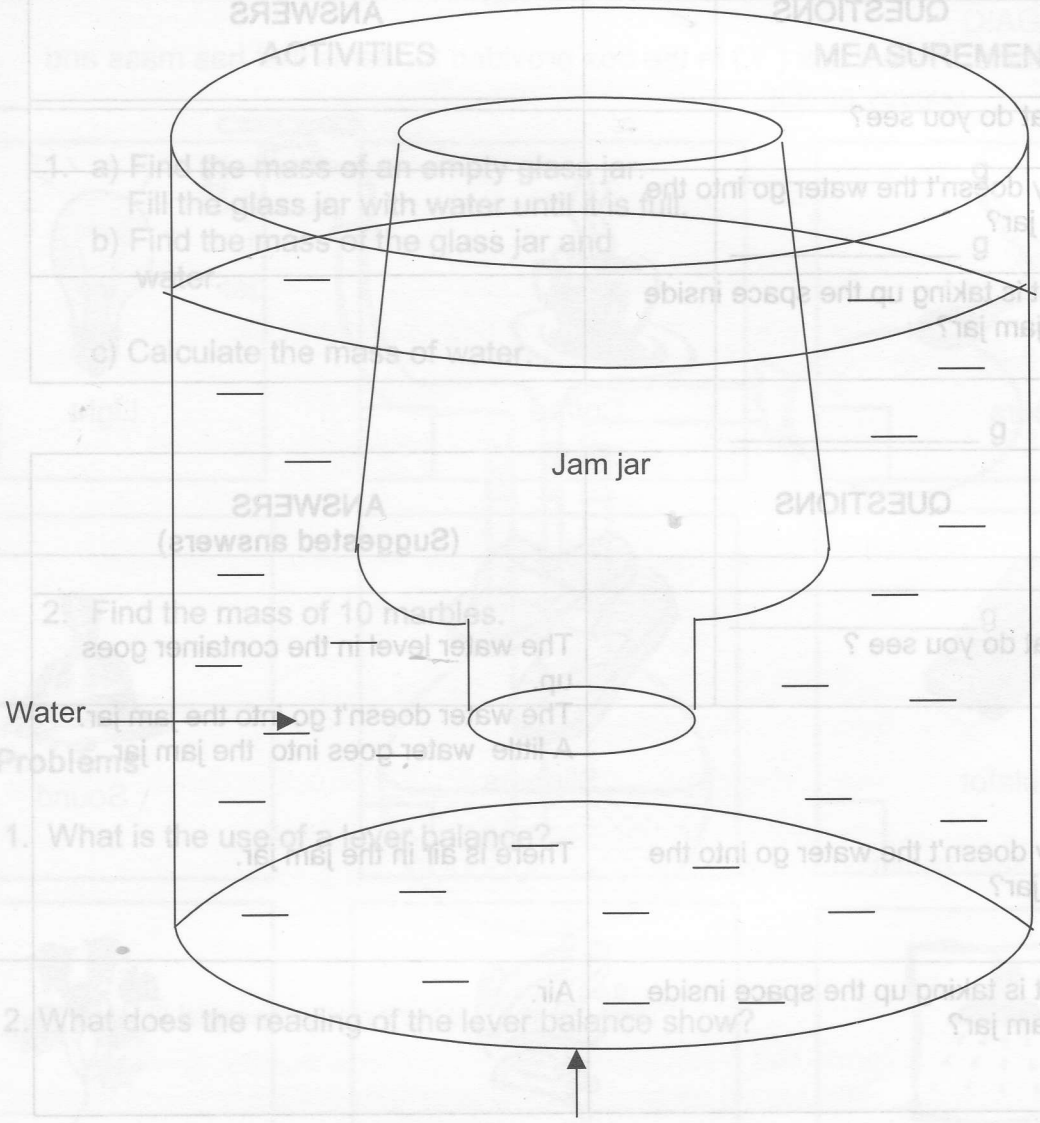
Teacher asks students to describe what happens.

With the guidance of the teacher, students are expected to conclude and able to say that:

1. Water occupies space in the flask.
2. Air from the flask is pushed out to occupy the space in the balloon.

Teacher ends the discussion by saying that air and water occupy space and they are important for living things and therefore we should not pollute them. (noble value)

DIAGRAM 1



Activity Sheet 1

QUESTIONS	ANSWERS
1. What do you see?	
2. Why doesn't the water go into the jam jar?	
3.What is taking up the space inside the jam jar?	

QUESTIONS	ANSWERS (Suggested answers)
1. What do you see ?	The water level in the container goes up. The water doesn't go into the jam jar. A little water goes into the jam jar.
2. Why doesn't the water go into the jam jar?	There is air in the jam jar.
3.What is taking up the space inside the jam jar?	Air.

Activity Sheet 2

Instruction: Use a lever balance to find the mass of the following items.

ACTIVITIES	MEASUREMENT
1. a) Find the mass of an empty glass jar. Fill the glass jar with water until it is full. b) Find the mass of the glass jar and water. c) Calculate the mass of water.	_____ g _____ g _____ g
2. Find the mass of 10 marbles.	_____g

Problems

1. What is the use of a lever balance?

_____

2. What does the reading of the lever balance show?

_____

3. What can you conclude about matter?

_____

Suggested answers:

To measure mass.
Water and marbles have mass.
Matter has mass.

Activity Sheet 3

Name :_____

Form :_____

Instructions: Write a tick (√) in the box provided for items that has mass and occupy space .

Scissors

Coffee

Light

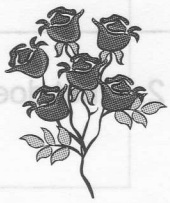
Calculator

Slippers

Sound

Water

Frog

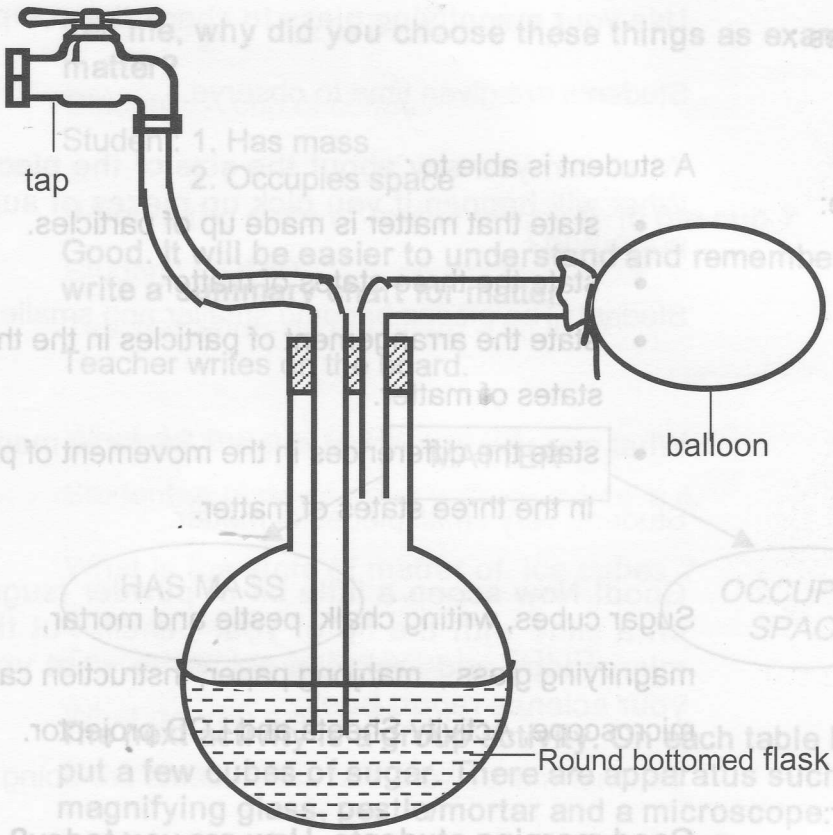


Flower

Complete the following sentence.
Items that have mass and occupy space are called_____

10

DIAGRAM 2



1. What will happen when the tap is turned on?

2. Give a reason for your answer?

Suggested answers: 1. Water level in the flask increases. The balloon expands.
2. Water from the tap pushes air out from the flask into the balloon.