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DepED
DEPARTMENT OF EDUCATION

Science

Quarter 1 – Module 1:
Properties of Matter

What I Need to Know

This module was designed and written with you in mind. It is here to help you master Classifying materials based on the ability to absorb water, float, sink and undergo decay. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

This module will help you classify materials based on the ability to absorb water, float, sink, undergo decay.

The module is divided into three lessons, namely:

- Lesson 1 – Materials that Absorb Water
- Lesson 2 – Materials that Float and Sink
- Lesson 3- Materials that Undergo Decay

After going through this module, you are expected to:

1. classify materials based on the ability to absorb water;
2. classify materials based on the ability to float and sink; and
3. classify materials based on the ability to undergo decay.

What I Know

Direction: Read and understand the questions below. Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. Some things float then sink as they absorb water or take water in through holes. Which of the materials below is an example of this?

A. marble

B. pencil

C. rocks

D. metal spoon

2. Which of the materials sinks very fast?

A. pencil

B. five-peso coin

C. cotton

D. sponge

3. What will happen when a sand-filled plastic bottle is dropped in water? It will _____.

A. float

B. sink

C. submerge partway

D will not submerge

4. How are you going to dispose decaying materials commonly found at home?

A. throw them into the river

B. throw into the compost pit

C. mix with the non-decaying materials

D. throw them anywhere

5. What one should do with the decaying garbage in order to prevent him/her from getting sick?

A. dispose of decaying waste materials properly

B. throw the decaying waste materials into the river

C. dump decaying waste materials into the nearest dumping site

D. throw them anywhere

6. Which of the following materials easily absorbs water?

A. cotton

B. plastic bag

C. rubber band

d. Stone

7. Why do porous materials like tissue paper, sponge and cloth naturally absorb water? These materials _____.

A. have flat surface that allow air to move through

B. are non-porous that allow air and water to pass through

C. have small holes that allow liquid and air to pass through

D. have smooth surface

8. Julius placed rubber ball, plastic cup, piece of paper, metal spoon and cloth in a basin of water. Which of the listed materials will easily absorb water?

A. paper and cloth

B. rubber and paper

C. plastic cup and metal spoon

D. rubber and plastic cup

9. Ronel dropped pencil, plastic cup, sponge and metal spoon in a basin of water at the same time. Which material sank in the basin?

A. metal spoon

B. plastic cup

C. pencil

D. sponge

10. An object's shape can affect its ability to float, but some materials float no matter what their shape is. Which is an example of this?

A. one-peso coin

B. styrofoam

C. stone

D. metal spoon

Lesson 1

Materials That Absorb Water

The materials that we see around us exist in different forms: solids, liquids, or gases. Like other materials, solids have different characteristics/properties such as size, shape color, texture and others. The solid materials could also undergo changes when exposed to certain conditions such as temperature or when mixed with other materials.

What's In

Look at the pictures below.

https://www.google.com/url?sa=i&url=http%3A%2F%2Fwww.letstalkplastics.com%2Ffacts%2Fplastic-bags-versus-paper-bags&psig=AOvVaw1QeGI-xQqCA9lMd1-lTjhf&ust=1592556093372000&source=images&cd=vfe&ved=2ahUKEwj5uY7z-4rqAhUNvZQKHZRLCOAQr4kDegUIARC5AQ

Picture 1. Paper bag and plastic bags

https://www.loap.eu/xaxo-kids--raincoat-green/

Picture 2. a raincoat

Answer the questions:

1. Why would some people prefer to use plastic bag than a paper bag?
2. During rainy days, what kind of materials are you going to use to prevent you from getting wet? Explain why?

Notes to the Teacher

This contains helpful tips or strategies that will help you in guiding the learners.

What's New

Let's do this!

Questions:
1. When water spell on the table, what will you see to dry it at once? And why?

What is It

Absorb- to take in (something, such as a liquid) in a natural or gradual way

Porous- having small hole that allow air or liquid to pass through

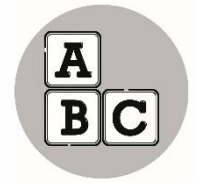
Non- porous- materials that do not allow air or liquid to pass through

There are different materials in our environment that can be classified according to their properties. They can be classified based on their ability to absorb water. Some materials can absorb water more than others.

Cotton is very porous, which makes it a natural absorber of water.

Plastic as a non-porous material, does not allow water to pass through.

Porous materials are materials having small holes that allow air or liquid to pass through.



What's More

Activity 1: What Materials Absorb Water and Which Do Not?"

What you need:

- Cotton
- sponge or foam
- face towel or cloth
- Tissue paper or paper
- tap water, tray, basin, dipper
- rubber ball, empty bottle, spoon, peso coin

What to do:

1. Prepare the materials to be used in the activity.
2. Put the materials one by one in a basin. Observe its characteristics and write them up on the chart below.
3. Lift up the materials and squeeze. Let the water drip down on the basin. Did the water come out? Did the material get wet? Is the material heavier when wet?
4. Record your observations in the chart.
5. Do the same for each material.

Name of Objects	***Characteristics of Materials***		***Put a (/) if material absorbs water or (x) if does not***
	BEFORE adding water	*AFTER adding water*	
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Table 2 Characteristics of materials before and after adding water

Assessment:

1. What characteristics did you observe from each of the materials before placing them in water? When you squeeze each of the materials. What comes out of them?
2. Did all the materials absorb water?
3. Which of the materials absorbed water? What are these materials made of?
4. Which of the materials did not absorb water? What these materials made of?

Activity 2 Porous and Non- porous Materials

1. Go around your home.

2. List down at least 5 porous and 5 non-porous materials you see in your home.

4. Fill up the chart below.

POROUS MATERIALS	NON- POROUS MATERIALS
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

Table 3. Porous and Non-porous Materials

Assessment:

1. What are the porous and non-porous materials that you have found at home?

2. What are porous materials?

3. What about non- porous?

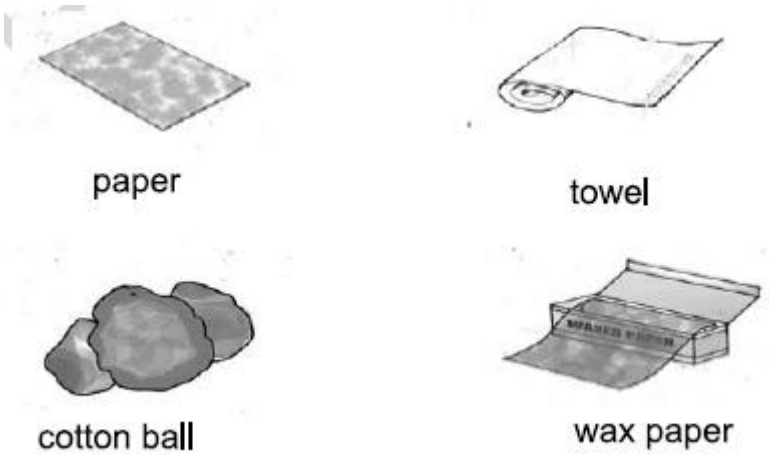
Lesson 2

Materials That Float and Sink

In the previous lesson, you have learned that different materials in our environment can be classified based on their ability to absorb water. In this lesson, you will learn how to classify materials that float and sink.

What's In

Direction: Classify the materials according to their ability to absorb water in an organizer.



Picture 3 Paper, towel, cotton ball, wax paper

What's New

Have you ever wondered why some object sinks on water, some objects floats? Try to read this poem and reflect. You will surely learn from this.

BUOYANCY

Rocks in a river.
Ice in a drink.
Some things float.
Some things sink.

Floating things
Have buoyancy
Test a little
Toy and see

Does it sink?
Does it float?
Could you use it
as a boat?

Try a pencil.
It pop up.
Try a hammer.
Try a cup.

Test some objects
In your bath.
Watch them.
Now you're
doing Math

If something
Is denser than water
it will sink
But if water's
denser, then…

Well,
What do you think?

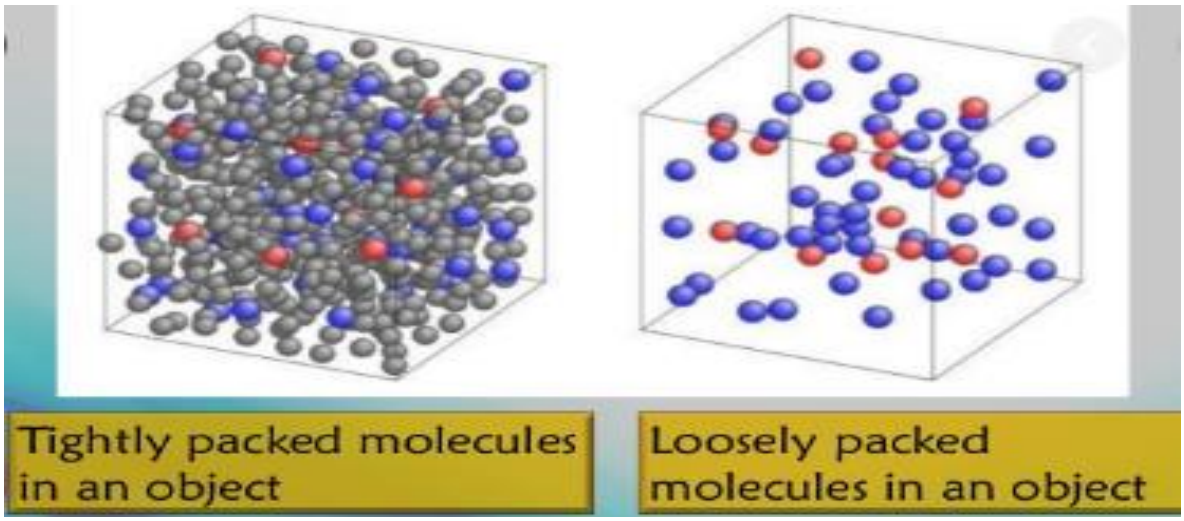
What causes the object to sink and float?

What is It

Sink means to fall to the bottom of water, float means to stay on top. **Buoyancy** is the tendency of an object to float in liquid. Some things float on top of water, some things stay submerged partway down, and some things sink. Some things sink very fast and some things sink very slowly. An object's shape can affect its ability to float, but some materials float no matter what their shape- such as styrofoam and balsa wood. Some things float at first, but then sink as they absorb water or take water on through holes.

What causes objects to sink and float?

Well, it's all about something called **density**. Density is the degree of compactness of an object. Everything is made up of **molecules.** Molecules are tiny particles that can be seen with a microscope.



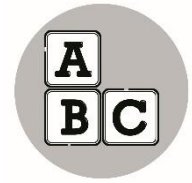
https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.slideshare.net%2Fmariejajaroa%2Fmaterials-that-float-and sink&psig=AOvVaw30ydWFS3ouydbRp4uHKNd- &ust=1592567748103000&source=images&cd=vfe&ved=2ahUKEwjY4MKop4vqAhXOA6YKHQLRBFMQr4kDegUIARCmAQ

Picture 4. Tightly & loosely packed molecules in an object

Objects with tightly packed molecules will sink if it denser than the liquid it is immersed in. Objects with loosely packed molecules will float it's less dense than the liquid it is placed in.

Does the shape of an object affect its ability to float?

Changing the objects shape will also make its ability to float because it holds air and upthrust has more space to push the object. Upthrust is the force that pushes an object up and makes it seem to lose weight in a liquid. It is the push that always goes straight UP, against the direction of gravity. It is the force which is responsible in making an object float or sink. Imagine trying to hold a beach ball and a tennis ball, under the water. Which would be easier to hold underwater? Why?



What's More

Activity 1: What Materials Float and What Materials Sink?

What you need:

Plastic bottle with cover, plastic saucers, pencils, eraser, metal spoon, large stones, plastic book cover, rubber balls, Styrofoam cups, toy boat made of wood, toy boat made of rubber, pail, toy doll made of plastic, water

What to do:

1. Get the plastic bottles with cover. Describe the characteristics of the plastic bottles with cover.
2. Record the description of the plastic bottles with cover. Place your description in the chart below.
3. Pour water into the pail or basin.
4. Observe the plastic bottle with cup while in water. Did it float or sink?
5. Lift the plastic bottle with cover from the pail. Did the plastic bottle absorb water?
6. Record your observation.
7. Do the same procedures in steps 1-6 for the rest of the materials left.

Name of Material	***Characteristics of the material BEFORE placing it in water***	***Observation as to whether the materials float or sink***
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Table 4 Observation as to whether the materials float or sink

Assessment:

1. What are the characteristics of the materials before they were placed in the water? Describe them.

2. What are those materials that sink?

3. What about those materials that float?

4. Why did some objects sank and others didn't?

Activity 2

Direction: Put a / mark before the number if the material floats in water and X mark if the material sinks in water.

____1. piece of nail

____2. balloon

____3. empty plastic bottle

____4. safety pin

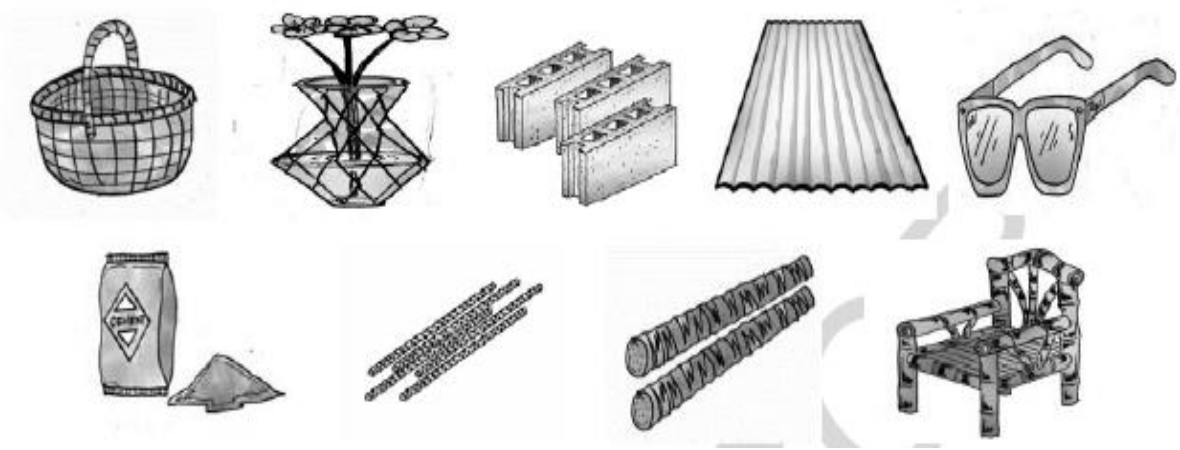
____5. coconut fruit

LESSON 3	Materials That Undergo Decay

In the previous lesson, you have learned how to tell if an object will sink or float. In this lesson, you will learn to identify the materials that undergo decay.

What's In

Direction: Classify the materials according to whether they float or sink in a body of water. On a separate sheet of paper, list down the name of objects that floats and sink.



Picture 5

What's New

Analyze the picture below. Answer the following questions on a separate sheet of paper.

https://www.google.com/url?sa=i&url=https%3A%2F%2Fbutterwithasideofbread.com%2Fhomemade-bread%2F&psig=AOvVaw0HshugLMo4nAo8kNDeTW13&ust=1592570791744000&source=images&cd=vfe&ved=2ahUKEwjC6-vTsovqAhXXw4sBHc4-AIwQr4kDegUIARDRAQ

Picture 6. Freshly baked loaf of bread

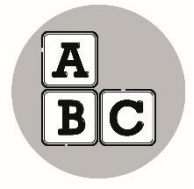
https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.shutterstock.com%2Fsearch%2Frotten%2Bbread&psig=AOvVaw2FZ2q_gbWLOidvN5YDyeRZ&ust=1592571200706000&source=images&cd=vfe&ved=2ahUKEwj08uyWtIvqAhV4xIsBHelzDz8Qr4kDegUIARCrAQ

Picture 7. Rotten loaf of bread

1. What can you say about the two pictures?
2. How do they differ?
3. What are the factors that contribute to the decaying process of the bread?

What is It

Not all plants and animals decay at the same time. Some were compressed underwater and thick layer of soil over millions of years. They were converted into fossil fuels such as coal, oil or natural gas. These fuels are used to power stations, factories, motor vehicles and others. The organic matter in soil is derived from plants and animals. It becomes organic fertilizer. Organic fertilizer from compost pit does not harm but enriches the soil. Some factors that contribute to the decaying process of the materials are sunlight, water, soil and action of microorganisms. Left over foods are kept in refrigerators to avoid or delay spoilage since microorganisms that break down food do not grow fast in cold temperature.



What's More

"What will I Turn Into?"

What you need:

- 3 pcs. Transparent plastic cups, slices of bread, aluminum foil, wax paper, plastic bottle caps (without a cork or carton), kangkong leaves, or camote leaves
- Water, 2 slices of banana, leftover food

What to do:

1. Prepare the materials for your activity today.
2. Place all the materials accordingly in one tray.
3. Add ½ cup of water in a tray.
4. Cover with small plastic sheet.
5. Observe the set up in 3 days (first day inside the house) and (second day in the sunlight) then (third day bring back the set up in the house). Describe the texture, odor, size, and color of the materials.
6. Record your observation in your science notebook.
7. Copy your observations in the data chart.

Name of the Materials	Characteristics of the Materials	
	Before placing them in the set-up	On the 3rd day
1.		
2.		
3.		
4.		
5.		
6.		
7.		

Table 5 Characteristics of the materials before and after 3 days.

Assessment:

1. What materials did you add to the set up before covering it with a plastic sheet?
2. Where did you place the set up after preparing it?
3. When visited and observed your set up after three days, what changes happened to the materials?
4. What are the materials that you still recognize/identify the original materials that you used?
5. List down the materials that undergo decay and not decay.
6. How do you dispose materials that decay?
7. What did you learn in this activity?

Activity 2

Directions: Classify the materials that undergo decay.

Plastic plate	glass	Leaves
	bread	
stone	Rubber band	pencil
meat	metal	handkership

Materials that undergo decay	Materials that do not undergo decay

What I Have Learned

A. Identification

Directions: Put a / mark before the number if the material floats in water and X mark if the material sinks in water.

____1. piece of nail
____2. balloon
____3. empty plastic bottle
____4. safety pin
____5. coconut fruit

B. True or False

Directions: Write TRUE if the statement is correct and FALSE if wrong.

1. All materials undergo decay.
2. Decaying materials can be made into compost.
3. Proper waste disposal can cause harm to human health.
4. Wastes should be segregated as decaying and non- decaying.
5. Fish bone, chicken feathers and fruit peelings are examples of materials that undergo decay.

What I Can Do

A. Give 5 examples of materials that absorb water aside from those already mentioned.

B. Give 5 examples of materials that float or sink in water aside from those already mentioned.

C. List down 5 examples of materials that undergo decay.

Assessment

Directions: Read each item carefully and encircle the letter which corresponds to the correct answer.

1. Which of the following materials easily absorbs water?
A. cotton
B. plastic bag
C. rubber band
d. Stone

2. Why do porous materials like tissue paper, sponge and cloth naturally absorb water? These materials _____.
A. have flat surface that allow air to move through
B. are non-porous that allow air and water to pass through
C. have small holes that allow liquid and air to pass through
D. have smooth surface

3. Julius placed rubber ball, plastic cup, piece of paper, metal spoon and cloth in a basin of water. Which of the listed materials will easily absorb water?
A. paper and cloth
B. rubber and paper
C. plastic cup and metal spoon
D. rubber and plastic cup

4. Ronel dropped pencil, plastic cup, sponge and metal spoon in a basin of water at the same time. Which material sank in the basin?
A. metal spoon
B. plastic cup
C. pencil
D. sponge

5. An object's shape can affect its ability to float, but some materials float no matter what their shape is. Which is an example of this?
A. one-peso coin
B. styrofoam
C. stone
D. metal spoon

6. Some things float then sink as they absorb water or take water in through holes. Which of the materials below is an example of this?

A. marble
B. pencil
C. rocks
D. metal spoon

7. Which of the materials sinks very fast?

A. pencil
B. five-peso coin
C. cotton
D. sponge

8. What will happen when a sand-filled plastic bottle is dropped in water? It will _____.

A. float
B. sink
C. submerge partway
D will not submerge

9. How are you going to dispose decaying materials commonly found at home?

A. throw them into the river
B. throw into the compost pit
C. mix with the non-decaying materials
D. throw them anywhere

10. What one should do with the decaying garbage in order to prevent him/her from getting sick?

A. dispose of decaying waste materials properly
B. throw the decaying waste materials into the river
C. dump decaying waste materials into the nearest dumping site
D. throw them anywhere

Additional Activities

Identification

Directions: Put a / mark before the number if the material undergoes decay and X mark if the material doesn't undergo decay.

_____1. plastic bottle

_____2. leaves

_____3. leftover food

_____4. tin cans

_____5. piece of cloth

Answer Key

What I Know

1.b 2.b 3.b 4.b 5.a 6.a 7.c 8.a 9. a 10.b

What's In

People prepares plastic bags because it will not easily damage when wet.

What's New

I will use cloth to wiped the spelled water on the table so that it will dry easily.

Assessment

1.a 2.c 3.a 4. a 5.b 6.b 7.b 8.b 9.b 10.a

What's More
Additional Activities

A. 1. X 2. / 3. / 4. / 5. X

What I Have Learned

A. 1. X 2. / 3. / 4. / 5. X

B. 1. False 2. True 3. False 4. True 5. True