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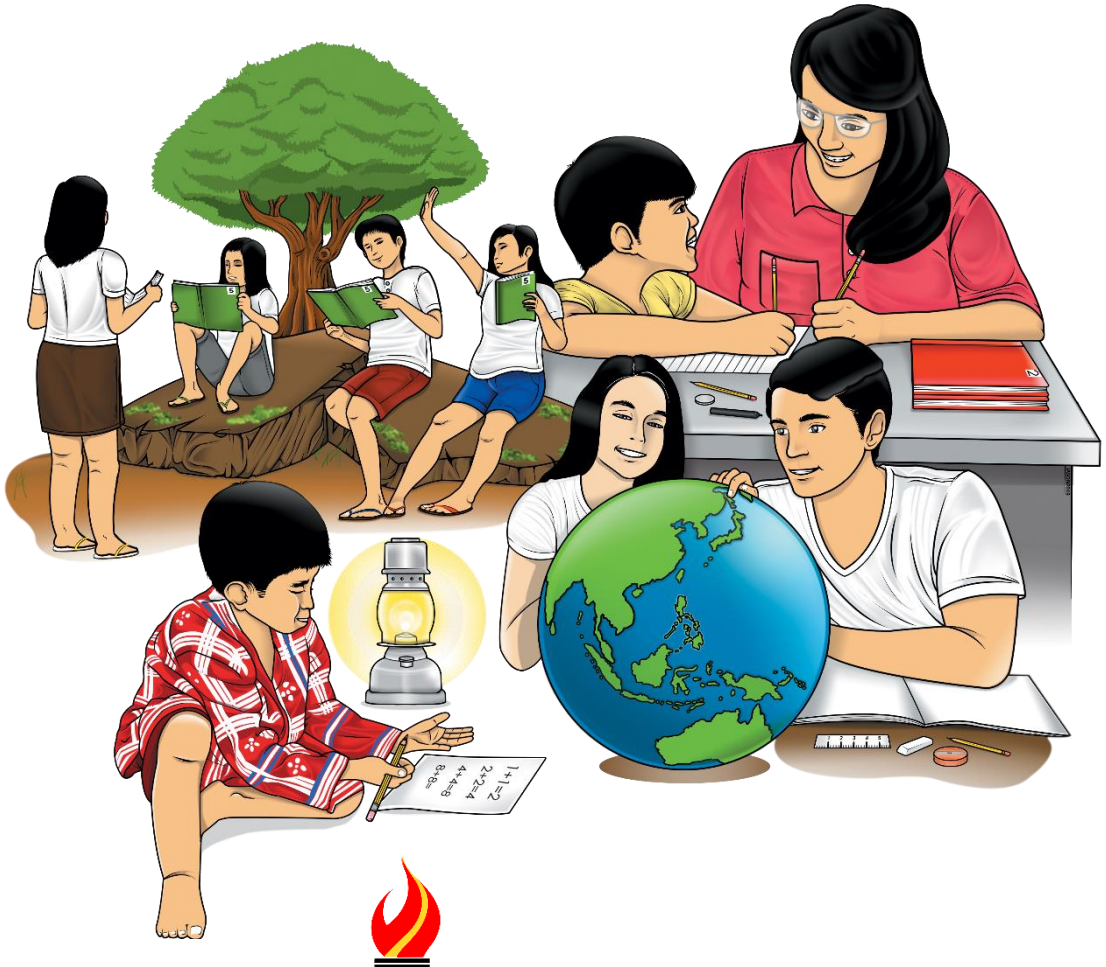
# Science
## Quarter 1 – Module 2: "Changes in Solid Materials"



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# Science
## Quarter 1 – Module 2:
## “Changes in Solid Materials”

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# Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

## *What I Need to Know*

This module was designed and written to help you understand that matter undergo different changes. Such changes are physical changes if the objects only change in size and shape and no new material was formed from the change. In this lesson you will be dealing with the physical changes that happens to solid materials in terms of their sizes and shapes.

The lesson focuses on:

- Lesson 1 – Changes in solid materials when bent;
- Lesson 2 – Describe changes in solid materials when they are pressed;
- Lesson 3 – Changes in solid materials when hammered; and
- Lesson 4 – Changes in solid materials when cut. (S4MT-Ie-f-5)

After going through this module, you are expected to:

- identify characteristics of solid materials in terms of size, shape,
  texture;
- describe what happens to the solid materials when they are bent;
- identify some changes happened to solid materials when pressed;
- describe the change/s that happen/s in solid materials when pressed;
- identify some ways of changing solid materials in terms of size,
  shape, texture by hammering;
- identify materials which can be cut;
- describe the change/s that happen/s in solid materials when hammered; and
- describe what happens to solids when cut.

## *What I Know*

**A. Directions**: Using the puzzle, find 5 objects written inside the box below that undergo changes in their original appearance. Words can be looped horizontally and vertically. Write your answers in your Science notebook.

| | | |
|---|---|---|
| paper | pillow<br>spoon | metal |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| M | E | T | A | L | S | P | O | O | N |
| E | D | E | F | G | H | A | J | K | B |
| P | I | L | L | O | W | P | K | R | R |
| A | Q | P | I | L | L | E | W | G | E |
| L | E | L | A | M | E | R | A | B | A |
| W | K | L | A | H | C | D | A | L | D |

**B. Directions**: Put a check mark (✓) on the space provided if the given materials can be bent, pressed, hammered, or cut and (X) mark if not. Do this in your notebook.

_____1. bread
_____2. spoon
_____3. candy wrapper
_____4. bottle cap
_____5. water

**C. Directions**: Form a word from the given jumbled letters. Write your answer/s in your notebook.

1. G D I B E N N - _____
2. P R S I S E G N - _____
3. G N I R E M M A H - _____
4. C T U T I G N - _____
5. S C A H E N G - _____

**What a good start! Keep on moving.**

# Lesson 1 "Changes in Solid Materials When Bent"

Hello! I am here again! Are you ready for another journey? Have you ever tried bending some of your school stuff and noticed some changes in them as you bent them? What do you think would happen if you accidentally pressed the metal spoon as you are using it?

This module will help you identify the different characteristics of solid materials and discover how they undergo such changes when you apply certain forces on them. Sit back and enjoy the fun of learning and discovering as you go through the different activities in this lesson.

## *What's In*

**Directions:** Put a smiley face ☺ on the solid material and a sad face ☹ if it is not. Do this in your notebook.

____1. juice
____2. cup
____3. flower vase
____4. soy sauce
____5. bottle
____ 6. paper
____ 7. vinegar
____ 8. notebook
____ 9. pencil
____10. table

**Good job! You got it right!**

## *What's New*

**Note to Parent/Guardian:** Guide your children while doing the various activities in this module. Remind them to observe precautionary measures and to be careful in handling the materials while performing the activity**.**

**To the Learner:**

**Directions:** Perform each activity and answer the questions that follow. Write your answers in your Science notebook.

**Activity 1: "What Happens to Solid Materials When Bent?"**

**What you need:**

| | | |
|---|---|---|
| plastic ruler | paper clip | 1 pc of rubber slippers |
| electric wire | metal spoon | tie wire |

**What to do:**

1. Bend each of the given materials. Observe and describe what happens to each material.
2. Copy and fill-out the table below in your notebook.

| **Materials** | **What happened to the material when bent?** |
|---|---|
| plastic ruler | |
| electric wire | |
| metal spoon | |
| paper clip | |
| rubber slippers | |
| tie wire | |

**Guide Questions:**

1. What did you do to change the different materials?
2. What are the changes that took place after doing such actions?

## Activity 2: "Identify My Characteristics"

**Directions:** Color the box **red** if there is a change in shape, **yellow** if there is a change in size, **blue** if there is no change and **black** if there is a change in both the size and shape.

| | |
|---|---|
| 1.  | |
| 2.  | |
| 3.  | |
| 4.  | |
| 5.  | |

Illustrated by: Kristal Grace C. Ilao

## *What is It*

**Points to Remember:**

- Solid materials can be bent. When bent, these materials may change their size and shape. No new material is formed. Only the physical appearance of the materials is changed.
- The changes that this materials underwent is called physical change.
- Bending a steel bar/iron in industry is an example of bending of solid materials.


## *What's More*

**Directions:** Draw the following shapes stated below to describe the changes that took place in each material.

**Activity 1: "What Changes Took Place, Anyway?"**

□ if there is a change in shape
◯ if there is a change in size
♡ if there is no change
☆ if there is a change in both the size and shape

1. bent rubber slippers - _____
2. bent tie wire - _____
3. bent metal spoon - _____
4. bent staple wire - _____
5. bent paper clip - _____

## *What I Have Learned*

**Directions:** Complete the statement. Write your answers in your Science notebook.

When materials are bent, there is a change in 1. _____, 2. _____, but 3. _____ new material is 4. _____. Only the 5. _____ _____ of the materials is changed.

## *What I Can Do*

**Directions:** Answer the questions briefly. Write your answers in your Science notebook.

a. Draw and identify situations at home where bending of solid material is applied.

*(Apply your knowledge about changes in matter to solve some of your problems in your daily life).*

b. You and your brother are playing *chase me*, and you accidentally (tear, cut, split) the front part of your rubber slipper. You saw a piece of safety pin on the sidewalk. What will you do to fix your slippers?

c. Mang Jose bought several pieces of tie wire from the hardware. On his way home, some pieces of the tie wire were accidentally bent. Describe what change/s happened to the property/ies of the tie wire when it was bent.

**Yes! What a remarkable effort.**

## *Assessment*

**A. Directions:** Describe and identify the changes that took place in each picture. Write your answers in your Science notebook.

1. 

2. 

3. 

4. 

5. 

Illustrated by: Kristal Grace C. Ilao

**B. Directions:** Put a check mark (√) on the proper column that best describes the characteristics of each material when bent. Write your answer in your Science notebook.

| **Materials** | **Change in** | | **Was new material formed?** | |
|---|---|---|---|---|
| | **Size** | **Shape** | **Yes** | **No** |
| 1. plastic ruler | | | | |
| 2. staple wire | | | | |
| 3. metal spoon | | | | |
| 4. rubber slippers | | | | |
| 5. paper clips | | | | |
| 6. steel | | | | |
| 7. pin | | | | |
| 8. rubber shoes | | | | |

| | | | | |
|---|---|---|---|---|
| 9. safety pin | | | | |
| 10.tie wire | | | | |

**That's incredible! You did well in this lesson.**

## *Additional Activities*

**Directions:** Make a creative artwork using the materials from the first activity given in the What's New part. When you're done, identify some changes that took place while making it. Do this in your Science notebook.

***Congratulations!*** *I am happy that you have accomplished the tasks given. This time we will explore what happens when materials are pressed. Are you ready?*

# Lesson 2 "Changes in Solid Materials when they are Pressed"

As you look around, you can see many solid materials. Even at home, solid materials can be found. An example of which is the modelling clay which is used for recreational activities and for developing fine motors of children. Have you experienced pressing a clay? What did you observe? What kind of change will it undergo? Does it change its shape or size?

In this lesson, you will discover how solid materials undergo such changes when they are pressed.

## *What's In*

**Directions**: Using the crossword puzzle, find 5 solid materials that can be pressed. Words can be looped horizontally and vertically. Write your answers in your Science notebook.

| | | |
|---|---|---|
| bread | dough | clay |
| potato | banana | |

| A | B | C | S | T | R | E | B | R | E | A | D | G | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | D | E | F | G | H | I | J | K | L | M | N | B | P |
| P | O | T | A | T | O | X | Y | Z | A | B | C | T | Q |
| N | Q | F | O | L | D | I | N | G | I | F | D | E | R |
| D | P | O | N | C | L | A | Y | J | H | G | E | A | G |
| C | R | S | T | B | A | N | A | N | A | N | G | R | N |
| L | W | V | U | H | G | H | R | T | U | I | O | I | I |
| O | X | Y | Z | A | A | B | C | D | E | F | G | N | T |
| T | L | M | X | D | O | U | G | H | L | I | N | G | L |
| H | U | T | T | I | N | G | J | I | H | E | D | A | E |
| G | N | I | R | E | C | D | E | F | G | F | C | B | M |

**Good job! You got it right!**

**Can you imagine how different solid materials change its physical properties? Can you describe the changes that would take place in solid materials when they are pressed?**

## *What's New*

**Directions:** Perform the different activities indicated in this lesson. Write your answers in your Science notebook.

**Note to Parent/Learning Facilitator:**

Always remind your child to observe the following precautionary measures in doing this activity: Be careful in handling empty bottles. Use gloves to protect your hands. Remember not to eat the leftover food items used in this activity.

Remind your child of the safety protocols especially washing their hands before and after handling the materials. Materials should be sanitized as well. Always guide and supervise your child at all times while doing this activity.

**Activity 1: "What Happens to Solid Materials when they are Pressed?"**

**What you need:**

ripe banana *pandesal* or any kind of bread
modeling clay paper cup
small wood/empty glass/bottle/large stone

**What to Do:**

1. Using a piece of wood or empty glass or bottle or large stone, press each of the given materials.
2. Observe and describe what happens to each material.
3. Copy the table below in your notebook and record your observations.

| **Materials** | **What happened to material when pressed?** |
|---|---|
| modeling clay | |
| ripe banana | |
| *pandesal* or any kind of bread | |
| paper cup | |

**Guide Questions:**

1. What happened to solid materials when pressed?
2. Was there a new material formed when the solid materials were pressed?
3. What characteristics of solid materials were evident in this activity?

**Great! You performed the activity well. For better understanding of the activities, read and understand the information below.**

## *What is It*

**Points to Remember:**

Illustrated by: Kristal Grace C. Ilao

Solid materials have definite shape and volume. They have different characteristics/properties such as: size, shape, color, texture, and weight.

Solid materials can be pressed. When pressed, these materials may change their size and shape. Other solid materials may also change their texture when pressed. However, no new material is formed because only the physical appearance of the material is changed.

## *What's More*

**Directions:** Using the letters of the alphabet, decode the numbers to get the hidden words which correspond to the materials that can be pressed. Write your answer in your Science notebook.

**Activity 1: "Materials Found Anywhere"**

| **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | **J** | **K** | **L** | **M** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |

| **N** | **O** | **P** | **Q** | **R** | **S** | **T** | **U** | **V** | **W** | **X** | **Y** | **Z** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

1.

| 13 | 15 | 4 | 5 | 12 | 12 | 9 | 14 | 7 | | 3 | 12 | 1 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | |

2.

| 18 | 9 | 16 | 5 | | 2 | 1 | 14 | 1 | 14 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |

3.

| 13 | 1 | 19 | 8 | 5 | 4 | | 16 | 15 | 20 | 1 | 20 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

4.

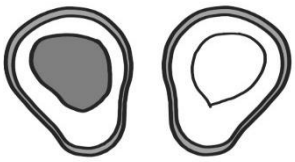
| 16 | 12 | 1 | 19 | 20 | 9 | 3 | | 2 | 15 | 20 | 20 | 12 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | |

5.

| 16 | 1 | 14 | 4 | 5 | 19 | 1 | 12 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

**Activity 2: "Materials that can be Pressed"**

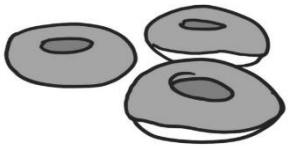
**Directions:** Study the pictures below. Draw a star ☆ before the number if the picture shows a material that can be pressed and a circle ◯ if not. Answer this in your Science notebook.

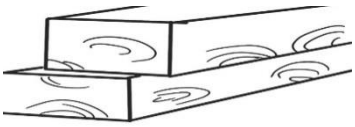
1. 

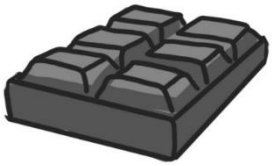
2. 

6. 

7. 

3. 

4. 

5. 

8. 

9 

10. 

Illustrated by: Kristal Grace C. Ilao

## *What I Have Learned*

**Directions:** Complete the statement. Write your answers in your Science notebook.

1. _____ materials can be pressed depending on the property of the material.
2. When solid materials are pressed, these may _____ their size and shape.
3. Other solid materials may also change their _____ when pressed.

4-5. No new material is _____ because only the _____ of the material is changed.

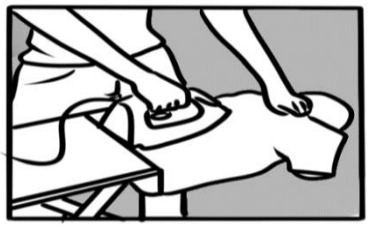
## *What I Can Do*

**Directions:** Draw and identify situations in your home where pressing of solid materials is applied. Write your answers in your Science notebook.

## *Assessment*

**A. Directions:** Read each question / statement then answer the following questions that follow.

For questions 1 – 3 describe and identify the changes that took place in each picture. Write your answers in your Science notebook.

1. 

2. 

3. 

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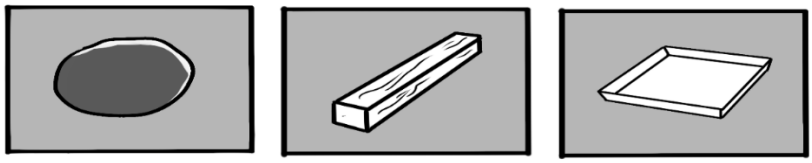
4. Angelo is playing with his modeling clay. As he pressed it, he was able to make different toys as shown in the pictures below.



Illustrated by: Kristal Grace C. Ilao

Which of the following describes the modelling clay when it was pressed by Angelo? The clay changed its_____.

a. size and color
b. size and shape
c. volume and odor
d. volume and color

5. Liza flattened a pizza dough using a rolling pin. Which of the following actions did she use to change the pizza dough's shape?

a. bending
b. hammering
c. pressing
d. stretching

**B. Directions:** Put a check mark (✓) on the space provided if the given materials can be pressed and (X) mark if not. Do this in your notebook.

___ 1. metal spoon
____2. ripe papaya
____3. pillow
____4. paper
____5. mat
____ 6. tiles
____ 7. sandwich
____ 8. stuffed toys
____ 9. wooden plate
____10. ceramic pots

**CONGRATULATIONS! You did well today!**

## *Additional Activities*

Have you ever seen a baker baking a piece of bread? What particular ingredients does he use? Identify some changes that took place while he is pressing the dough.

***Congratulations!*** *I am happy that you have accomplished the tasks given. This time we will explore on the changes in solid materials when hammered. Are you ready?*

# Lesson 3 "Changes in Solid Materials When Hammered"

Do you know that stone, wood, nail and tin cans are some examples of solid materials? These materials have definite shape and volume. They have different characteristics and properties such as: size, shape, color, texture, and weight. Can you imagine how these solid materials can change their characteristics or properties?

This module will help you discover how solid materials undergo such changes.

## *What's In*

**Directions:** Draw a ball (  ) if the object is a solid material and a glass of water (  ) if it is not. Do this in your notebook.

____1. water
____2. computer
____3. bed
____4. curtain
____5. bottle
____ 6. dipper
____ 7. soy sauce
____ 8. choco milk
____ 9. bag
____10. glass

**Good job! You got it right!**

## *What's New*

**Directions:** Perform the different activities indicated in this lesson. Write your answers in your Science notebook.

**Note to Parent/Learning Facilitator:**

Always remind your child to observe the following precautionary measures in doing this activity: Be careful in handling empty bottles. Use gloves to protect your hands. Remember not to eat the leftover food items used in this activity.

Remind your child of the safety protocols especially washing their hands before and after handling the materials. Materials should be sanitized as well. Always guide or supervise your child at all times while doing this activity.

### Activity 1: "How Can I Change Them?"

**What you Need:**

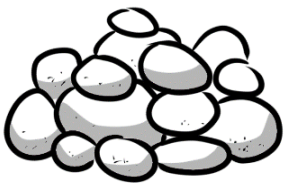
chalk
bottle cap
hammer
tin can
stone
nail
vase

chalks

tin can

nails

bottle cap



stones

vase

Illustrated by: Kristal Grace C. Ilao

**What to Do:**

1. Observe carefully the pictures above and analyze how the following materials can change their properties.
2. Copy and fill-out the table in your Science notebook.

| **Materials** | **When hammered (use hammer or big rocks)** |
|---|---|
| chalk | |
| tin can | |
| nails | |
| bottle cap | |
| stone | |
| vase | |

**Guide Questions:**

1. What did you do to change the different materials?
2. What changes took place after doing such actions?

## Activity 2: "What Happens to Solid Materials when Hammered?"

**What you Need:**

block of wood
broken plate
hammer
piece of hollow block
piece of galvanized iron

**What to do?**

1. Hammer each of the given materials. Observe what happens.
2. Record your observations in your notebook using the table below.
3. Answer the following questions that follow. Write your answers on your notebook.

| Materials | What happened to material when hammered? |
|---|---|
| block of wood | |
| broken plate | |
| piece of hollow block | |
| piece of galvanized iron | |

**Guide Questions:**

1. What happened to solid materials when they were hammered?
2. Was there a new material formed when solid materials were hammered?

**Great! You performed the activities well. For better understanding of the activities, read and understand the information below.**

## *What is It*

**Points to Remember:**

Solid materials have definite shape and volume. They have different characteristics/properties such as: size, shape, color, texture, and weight. They can be changed by **hammering.** This action may **change the size, shape, texture, and color** of the object. When solid materials are hammered, only the physical appearance is changed. **No new material is formed.**

## *What's More*

**Directions:** Draw the following shapes to describe the changes that took place in each material listed below. Do this in your Science notebook.

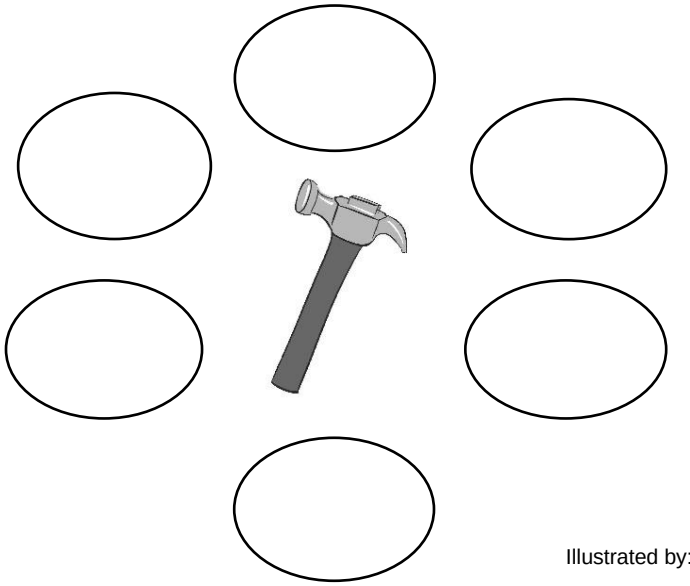
**Activity 1: "What Changes Took Place, Anyway?"**

▭ if there is a change in shape
◯ if there is a change in size
♡ if there is no change
☆ if there is a change in both the size and shape

1. hammering of hard wood - _____
2. hammering of steel - _____
3. hammering of rubber band - _____
4. hammered tin can - _____
5. hammered glass - _____

**Activity 2: "The Hammer Web"**

**Directions:** Draw and color the different solid materials found in your community that can be hammered inside the circles. Do this in your Science notebook.



Illustrated by: Kristal Grace C. Ilao

## *What I Have Learned*

**Directions:** Supply the missing words / phrases to complete the statement. Write your answers in your Science notebook.

***I learned that:***

When materials are hammered there is a change in 1. _____, 2. _____, 3._____ but 4. _____ new material is 5. _____.

## *What I Can Do*

**Directions:** Choose only one task to do and answer briefly the question. Write your answers in your Science notebook.

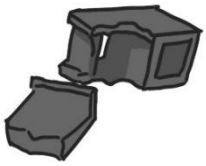
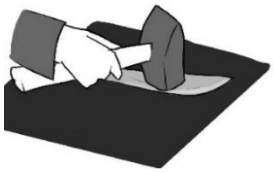
1. Draw and identify situations in your home where hammering of solid materials were applied.

*(Apply your knowledge about changes in matter to solve some of your problems in your daily life).*

2. You and your brother are playing inside your home, and you accidentally broke a chair made up of wood. What activities will you do to fix the chair?

## *Assessment*

**A. Directions:** Check the appropriate column for the pictures shown in the table.

| Materials | Changes in | | | | New materials formed | |
|---|---|---|---|---|---|---|
| | Size | shape | texture | color | Yes | No |
| 1.  hammered tin can | | | | | | |
|  2.hammered hollow blocks | | | | | | |
| 3.  hammered sword | | | | | | |
|  4.hammered bottle cap | | | | | | |
|  5. hammered stone | | | | | | |

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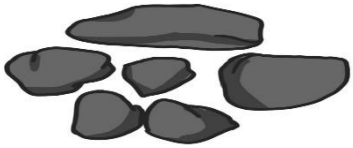
**B. Directions:** Choose the letter of the best answer. Write it in your Science notebook.

6. Which of the following changes described when the stones were hammered by Angelo? The stones changed their____.



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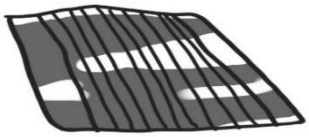
a. size and color
b. size and shape
c. volume and odor
d. volume and color

**C. Directions:** Describe the changes that took place in questions 7 and 8.

Mico hammered a tin can. What changes did the tin can undergo?



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Change in 7. _____ and 8. _____

**D. Directions**: Draw 2 solid materials that can be hammered and identify the changes that take place on it.

9. Changes in _____ 10. Changes in _____

**E. Directions. For numbers 11-15.** Choose the activities that shows hammering. Write the letter of the correct answer in your Science notebook.

a. 

b. 

c. 

d. 

e. 

f. 

g. 

h. 

i. 

j. 

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## *Additional Activities*

Have you seen a carpenter building a house? What happens to the pieces of wood and other construction materials when hammered? Can you identify some changes that took place while building a house?

**Congratulations!** I am happy that you have accomplished the tasks given. This time we will explore on the changes in solid materials when cut. Are you ready?

| Lesson 4 | “Changes in Solid Materials When Cut” |
|---|---|

In the past lessons you’ve learned that when materials were hammered, you can change the size and shape. You also found out that only the physical appearance of the material changes when hammered.

In this lesson you will be taught on how to identify and describe the physical changes in the properties of matter as you cut them.

## *What’s In*

**Directions:** Write **true** if the statement is correct and **false** if not. Do this in your notebook.

_____1. Solid materials can be hammered.

_____2. A new material is formed when you hammer an object.

_____3. A hammer can be used for beating/striking or pounding objects.

_____4. A piece of hollow block and tin cans are objects that can be hammered.

_____5. When solid materials are hammered, they don’t change its physical appearance.

**You are catching on!**

## *What's New*

**Directions:** Perform the different activities indicated in this module. Write your answers in your Science notebook.

**Note to Parent/Learning Facilitator:**

Remind your child to observe the following precautionary measures: Be careful in handling scissors. Use gloves to protect their hands. Always guide and supervise your child while doing this activity.

**Activity 1: "What Happens to Solid Materials When Cut?"**

**What you Need*:***

1 pc. of: used paper (any kind of paper) used cloth (any kind)
small cardboard (any karton) pair of scissors
used plastic cover (any kind)
2 pcs. of: candy wrapper, leaves

**What to Do:**

1. Using a pair of scissors, cut each of the given materials. Observe what happens to each material.
2. Record your observations in your science notebook using the table.

| Materials | What happened to the material when cut? |
|---|---|
| piece of paper | |
| piece of cardboard | |
| candy wrapper | |
| leaves | |
| plastic cover | |
| piece of cloth | |

**Guide Questions:**

1. What did you do to the different materials to change them?
2. What changes took place after doing such actions?
3. Was a new material formed when the solid material was cut?

**Activity 2: "What are the properties of materials that changed?"**

**Directions:** Choose the appropriate phrase in the box that best describes the properties of matter that you cut in the previous activity. Put them in the proper column.

| | |
|---|---|
| change in size | change in shape |
| change in both size and shape | |
| no changes at all | |

1. cut piece of paper –
2. cut plastic cover –
3. cut leaves –
4. cut plastic wrapper –
5. cut piece of cloth –

**Great discovery!**
**Keep moving you are improving.**

## *What is It*

**Points to Remember:**

- Solid materials can be cut. When cut, these materials may change their size and shape but no new material is formed. Hence, only the physical appearance of the solid material is changed when cut.

- Not all solid materials can be cut using simple scissors. Some solid materials, like iron, steel, etc., can be cut using sophisticated cutters (i.e. metal cutter/machine cutters).

**Spectacular! You have just mastered it.**


## *What's More*

**Directions:** Underline the changes that happen to the given objects when cut. Do it in your Science notebook.

**Activity 1: "What Changes in the Physical Properties Took Place?"**

1. piece of cardboard when cut change in (size, shape, no change)
2. piece of cloth when cut (size, shape, no change)
3. candy wrapper when cut (size, shape, no change)
4. leaves when cut (size, shape, no change)
5. piece of paper (size, shape, no change)

**Directions:** Give 5 examples of materials that change their physical appearance cut. Write it in your Science notebook.

**Activity 2: "Materials that change their Physical Appearance when Cut"**

1. _____
2. _____
3. _____
4. _____
5. _____

## *What I Have Learned*

**Directions:** Supply the missing words / phrases to complete the statement. Write your answers in your Science notebook.

***I learned that:***

Solid materials can be 1. _____. When cut, these materials may change their 2. _____, and 3. _____ but no 4. _____ material is 4. _____. Only the 5. _____ of the materials is changed.

## *What I Can Do*

**Directions:** Answer the questions briefly. Write your answers in your Science notebook.

Write situations in your **home**, **school**, and **community** where cutting of solids are applied and describe the changes that happened.

**SOLID MATERIALS**

- found at home
- found at school
- found in community

**Superb! No one can stop you from doing your best.**

## *Assessment*

**A. Directions:** Choose the materials from the box that can be cut. Write your answer in your notebook.

| | | | |
|---|---|---|---|
| stone | water | stainless steel cabinet | pail made of steel |
| juice | plastic cover | colored paper | disposable cup |
| leaves | newspaper | string beans | magazines |
| plastic bag | | shampoo sachet | cartolina |

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

**B. Directions:** Choose the correct letter and write it in your notebook.

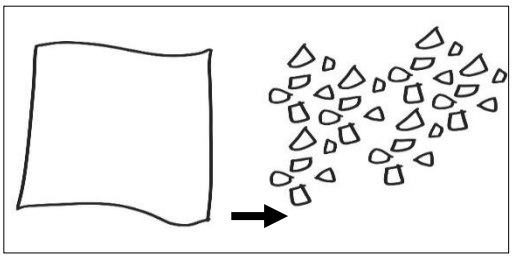
1. All of these are characteristics of solid, EXCEPT one. Which one is it?

a. Solids are hard.
b. Solids have compact particles.
c. Solids may change its physical appearance.
d. Solids do not change its shape when you cut them.

2. Which of the following materials can be cut by scissors?

a. soft drinks bottle
b. magazines
c. metal spoon
d. flower vase

3. Angela cuts a piece of bond paper. As shown in the picture below, what kind of change happened when the bond paper was cut?



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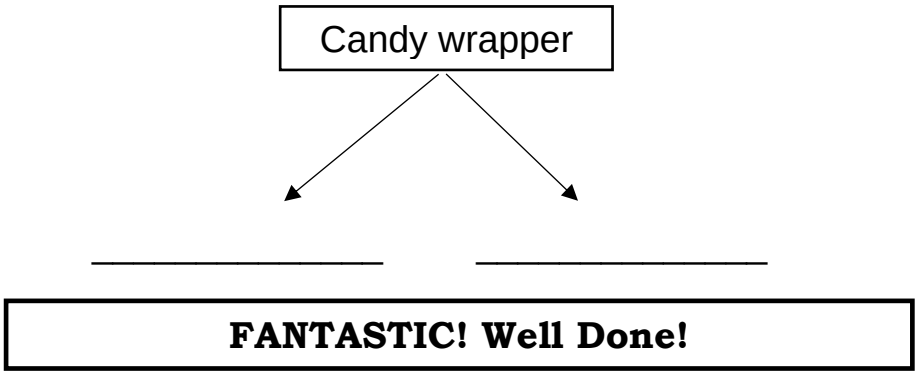
4-5. Complete the graphic organizer below to describe the changes that might happen to the property/ies of the candy wrapper when cut.




## *Additional Activities*

**Directions:** Cut at least 6 or 8 pictures of materials that change their properties when cut. Paste them in your Science notebook.

# Answer Key

## LESSON 1

### What I Know

A.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | E | T | A | L | S | P | O | O | N | | | | |
| E | D | E | F | G | H | A | J | K | B | | | | |
| P | I | L | L | O | W | P | K | R | R | | | | |
| A | Q | P | I | L | L | E | W | G | E | | | | |
| L | E | L | A | M | E | R | A | B | A | | | | |
| W | K | L | A | H | C | D | A | L | D | | | | |

B.
1. ✓
2. ✓
3. ✓
4. ✓
5. ✓

C.
1. bending
2. pressing
3. hammering
4. cutting
5. changes

### What's In

| | |
|---|---|
| 1. | 6. |
| 2. | 7. |
| 3. | 8. |
| 4. | 9. |
| 5. | 10. |

### What's New

**ACTIVITY 1: "What Happens to Solid Materials when Bent?"**

| Materials | What happened to the material when bent? |
|---|---|
| 1. plastic ruler | change in shape |
| 2. electric wire | change in size and shape |
| 3. metal spoon | change in shape |
| 4. paper clip | change in size and shape |
| 5. rubber slippers | change in shape |
| 6. tie wire | change in size and shape |

**Answers to Guide Questions:**

1. bent them
2. change in size and shape

**ACTIVITY 2: "Identify My Characteristics"**

3. red
2. red
3. black
4. red
5.black

.

### What's More

1. square
2. star
3. square
4. star
5. star

### What I Have Learned

1. size
2. shape
3. no
4. formed
5. physical appearance

### What I Can Do

Pupils' answer may vary.

### Assessment

A.
1. change in size
2. change in size and shape
3. change in shape
4. change in size and shape
5. change in shape

## LESSON 2

**Answers to Guide questions:**

1. They changed in size and shape.
2. No new material was formed.
3. Some solid materials change in size and shape but only the physical appearance of the material is changed.

### *What's More*

**ACTIVITY 1: "Materials Found Anywhere"**

1. modelling clay
2. ripe banana
3. mashed potato
4. plastic bottle
5. pandesal

**ACTIVITY 2: "Materials that can be Pressed"**

| | |
|---|---|
| 1. star | 6. circle |
| 2. circle | 7. star |
| 3. star | 8. circle |
| 4. circle | 9. star |
| 5. star | 10. Circle |

### *What I Have Learned*

1. solid
2. change
3. texture
4. formed
5. physical appearance

### *What I Can Do*

Pupils' answer may vary.

### *Assessment*

**A**

1. change in texture
2. change in size and shape
3. change in size and shape
4. b
5. c

**B**

| | |
|---|---|
| 1. X | 6. X |
| 2. ✓ | 7. ✓ |
| 3. ✓ | 8. ✓ |
| 4. ✓ | 9. X |
| 5. ✓ | 10. X |

### *Additional Activities*

Pupils' answer may vary.

## LESSON 2

### *What's In*

| A | B | C | S | T | R | E | B | R | E | A | D | G | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | D | E | F | G | H | I | J | K | L | M | N | B | P |
| P | O | T | A | T | O | X | Y | Z | A | B | C | T | Q |
| N | Q | F | O | L | D | I | N | G | I | F | D | E | R |
| D | P | O | N | C | Y | A | L | J | H | G | E | A | G |
| I | R | S | T | B | A | N | A | N | A | N | G | R | N |
| N | W | V | U | H | G | H | R | T | U | I | O | I | I |
| G | X | Y | Z | A | A | B | C | D | E | F | G | N | T |
| K | L | M | X | D | O | U | G | H | L | I | N | G | L |
| C | U | T | T | I | N | G | J | I | H | E | D | A | E |
| G | N | I | R | E | C | L | O | T | H | F | C | B | M |

### *What's New*

**ACTIVITY 1: "What Happens to Solid Materials when Pressed?"**

| Material | What happened to the material when pressed? |
|---|---|
| modeling clay | change in size and shape |
| ripe banana | change in size and shape |
| *pandesal* or any kind of bread | change in size and shape |
| paper cup | change in size and shape |

**B.**

| Material | Change in | | Was new material formed? | |
|---|---|---|---|---|
| | Size | Shape | Yes | No |
| 1. plastic ruler | | ✓ | | ✓ |
| 2. staple wire | ✓ | ✓ | | ✓ |
| 3. metal spoon | | ✓ | | ✓ |
| 4. rubber slippers | | ✓ | | ✓ |
| 5. paper clips | ✓ | ✓ | | ✓ |
| 6. steel | ✓ | ✓ | | ✓ |
| 7. pin | ✓ | ✓ | | ✓ |
| 8. rubber shoes | | ✓ | | ✓ |
| 9. safety pin | ✓ | ✓ | | ✓ |
| 10.tie wire | ✓ | ✓ | | ✓ |

### *Additional Activities*

Pupils' answer may vary.

# LESSON 3

**Activity 2: "The Hammer Web"**

Pupils' answers may vary.

***What I Have Learned***

1. size 2. shape 3. texture 4. no 5. Formed

***What I Can Do***

a. Pupils' answer may vary.

b. Pupils' answer may vary.

***Assessment***

| Materials | Changes in | | | | New Materials formed |
|---|---|---|---|---|---|
| | Size | Shape | Texture | Color | Yes | No |
| 1. Hammered tin can | ✓ | ✓ | | | | ✓ |
| 2. Hammered hollow blocks | ✓ | ✓ | | | | ✓ |
| 3. Hammered wood | ✓ | ✓ | ✓ | | | ✓ |
| 4. Hammered bottle cap | ✓ | ✓ | | | | ✓ |
| 5. hammered stone | ✓ | ✓ | | | | |

1. b. size and shape
2. size
3. shape
   Answer vary – 2 solid materials
4. Pupils' answer may vary.
5. Pupils' answer may vary.
6. a
7. c
8. d
9. e
10. i

***Additional Activities***

Pupils' answer may vary.

***What's In***



| | |
|---|---|
| 1. | 6. |
| 2. | 7. |
| 3. | 8. |
| 4. | 9. |
| 5. | 10. |

***What's New***

**ACTIVITY 1: "How Can I Change Them?"**

| Materials | When hammered |
|---|---|
| chalk | Change in size and shape |
| tin can | Change in size and shape |
| nails | Change in size and shape |
| bottle cap | Change in size and shape |
| stone | Change in size and shape |
| vase | Change in size and shape |

**Answers to Guide Questions:**

1. hammered,
2. changes in size, shape

**ACTIVITY 2: "What happens to Solid Materials when Hammered?"**

| Materials | When hammered |
|---|---|
| block of wood | No change in size, shape and texture |
| broken plate | Change in size and shape |
| piece of hollow block | Change in size and shape |
| piece of galvanized iron | Change in size and shape |

**Answer to Guide Questions:**

1. Changes in size and shape.
2. No new material is formed.

***What's More***

**Activity 1: "What changes Took Place, Anyway?"**

1. 2. 3. 4. 5.

# LESSON 4

## *What's In*

1. true
2. true
3. true
4. true
5. flase

## *What's New*

**ACTIVITY 1: "What Happens to Solid Materials when Cut?"**

| Material | What happened to the material when cut? |
|---|---|
| piece of paper | Change in size and shape |
| piece of cardboard | Change in size and shape |
| candy wrapper | Change in size and shape |
| leaves | Change in size and shape |
| plastic cover | Change in size and shape |
| piece of cloth | Change in size and shape |

**Answers to Guide Questions:**

1. cut them
2. change in size and shape
3. no

**ACTIVITY 2: "What are the Properties of Materials that Changed?"**

1. change in both size and shape
2. change in both size and shape
3. change in both size and shape
4. change in both size and shape
5. change in both size and shape

## *What's More*

**ACTIVITY 1: "What Changes in Properties that Took Place?"**

1. size, shape
2. size, shape
3. size , shape
4. size, shape
5. size, shape

**ACTIVITY 2: "Materials that change their Physical Properties"**

Pupils answer may vary.

## *What I Have Learned*

1. cut
2. size
3. shape
4. new
5. physical appearance

## *What I Can Do*

Pupils' answers may vary.

## *Assessment*

**A.**

| | |
|---|---|
| 1. leaves | 6. newspapers |
| 2. plastic cover | 7. magazines |
| 3. colored paper | 8. plastic bags |
| 4. string beans | 9. cartolina |
| 5. disposable cup | 10.shampoo sachet |

**B.**

1. d
2. b
3. change in size and shape
4-5 change in size and shape

## *Additional Actitvities*

Pupils' answers may vary.

## *References*

Abutay, Lelani R., et. al. *Science 4 Learner's Material*, 29-37. Pasig City: Department of Education, 2015.

Abutay, Lelani R., et. al., *Science 4 Teacher's Guide*, 36-48. Pasig City: Department of Education, 2015.

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