

## Lesson 2: Changes that Materials Undergo

### Third Week

#### Day 1

- I. Objective:
  1. Describe the changes that happen in materials inside our body under the condition of presence of oxygen
  2. Awareness of what oxygen can do.
  3. Investigate changes that happen in materials inside our body under the condition of presence of oxygen
- II.
  - A. Materials: jumbled letters ENGYOX  
cartolinas with questions  
soft music, Tagalog rhyme  
rubrics
  - B. References: Curriculum Guide for Grade 5, 2, 2.1 p. 30  
S5MT-Ic-d-2  
Science Spectrum 5 p.166
  - C. Process Skills: Observation, Inference
  - D. Values Integration: Awareness of what oxygen can do.
- III. Learning Tasks
  - A. Engagement
    - a. Review  
Carousel
      1. Post cartolinas with questions on the different sides of the room's wall.  
Cartolina 1 – How does your body feel when it's time to eat but there's no food yet?  
Cartolina 2 – Can we stop oxygen from entering our body for hours?  
Cartolina 3 – How does your body feel after eating your meal?  
Cartolina 4 – What do you think is happening to the food inside our body?  
Cartolina 5 – How does our body use oxygen we breathe in?
      2. Instruct the pupils on what they will do with the cartolinas posted on the wall. Tell them that each group should give only one-sentence answer.
      3. Play a soft music to set the mood.
      4. Data process their answer.
    - b. Motivation  
The teacher will lead the pupils to breathe in and out.  
Questions:

What gas do we need when breathing in?  
Why is it needed by our body?  
Do you have any idea about the changes it can do to materials?

c. Present the new lesson

“Today, we will do some investigation on the changes that happen in the materials inside our body in the presence of oxygen.”

B. Exploration

1. Ask the pupils to give standards in doing an activity.
2. Divide the class into small groups.
3. Instruct the pupils which group will do the Lesson 2 Activity 1 on the LM p. \_\_ and Activity 2 on the LM p. \_\_
4. Present the rubrics in grading their work.
5. Go around and observe the pupils as they perform the activity.
6. Remind them that they will present their output in class after all of the groups are done with their work.

C. Explanation

1. Each group will present their data and discuss about their interpretation.

Ask:

How did you feel after doing the activity?

What happens when food inside our body combines with oxygen?

What happens when materials inside our body combines with oxygen?

What kind of change is it?

D. Elaboration

Background Information

- ☐ Oxygen is a part of the air that surrounds us. It can cause changes on different materials and food inside our body.
- ☐ Digested food is metabolized or used up in the body by combining with oxygen. This process releases energy from the food so that the body can use it for biological processes or for work.
- ☐ People and animals use oxygen in respiration. As oxygen is inhaled, some materials inside the body combine with it and undergo a chemical reaction that gives off carbon dioxide, water and energy.
- ☐ This example given undergo the process of chemical change.

Ask:

1. What is oxygen?
2. What does it cause?
3. How does oxygen help in using up the food we eat?
4. What is produced when oxygen combine with the materials inside our body?
5. What kind of change happened in the example given?

E. Evaluation/Assessment:

What happens to the food and materials inside our body when oxygen is present?

IV. Assignment:

Answer this question by making a 4 – 5 sentenced paragraph on your notebook.

“Why is oxygen important in using up the nutrients of the food we eat?”

**Day 2**

I. Objective:

1. Describe the changes that happen in materials under the condition of presence of oxygen
2. Awareness of what oxygen can do.
3. Investigate changes that happen in materials under the condition of presence of oxygen

II.

A. Materials: question “onion”

one half of apple

knife (for teacher’s use only)

new and rusting chains (real object or picture)

rubrics

B. References: Curriculum Guide for Grade 5, 2, 2.1 p. 30

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Science Spectrum 5 p.166

C. Process Skills: Observation, Comparison, Inference

D. Values Integration: Awareness of what oxygen can do.

Preventing the change oxygen does to materials.

III. Learning Tasks

A. Engagement

a. Review

Pass-the-Onion

1. The pupils will sing the song “It is Science Time” while each one is passing the onion to their classmate.

2. When the teacher says “Stop,” the one who is holding or touch it last will get a layer and will answer the question about what happens when food and materials inside our body combined with oxygen.

b. Motivation

Show a real apple.

Ask:

What are the characteristics of an apple? (The teacher may cut the apple to help pupils recall the color of the freshly cut one.)

- d. Present the new lesson  
“Today, we will do some investigation on the changes that happen in materials in the presence of oxygen.”

B. Exploration

1. Ask the pupils to give standards in doing an activity.
2. Divide the class into small groups.
3. Instruct the pupils which group will do Lesson 2 Activity 3 on the LM p. \_\_ and Activity 4 on the LM p. \_\_.
4. Present the rubrics in grading their work.
5. Go around and observe the pupils as they perform the activity.
6. Remind them that they will present their output in class after all of the groups are done with their work.

C. Explanation

1. Each group will present their data and answer the guide questions.  
Ask:  
How did you feel after doing the activity?  
Why did the apple and the iron chain change in color?  
How can we stop them from discoloring?

D. Elaboration

Background Information

- ☐ Oxygen is a part of the air that surrounds us. It can cause changes on different materials.
- ☐ Some fruits like apple, turnips, mango, etc. and some root crops like sweet potato, eggplant, etc. have enzymes which when combined with water gives it brown color, a sign of food spoilage.
- ☐ Iron when combined with oxygen form rust. This is the start of the decay of a metal.
- ☐ This example given undergo the process of chemical change.

Ask:

1. What is oxygen?
2. What does it cause?
3. How does oxygen change some materials?
4. When this change occurs, what will happen to these materials?
5. What kind of change happened in the examples given?

E. Evaluation/Assessment:

What happens when oxygen is present in materials?

IV. Assignment:

Give at least three other examples of changes that materials undergo in the presence of oxygen.

### Day 3 - 4

- I. Objective:
  1. Describe the changes that happen in materials under the condition of lack of oxygen.
  2. Carefulness in doing things.
  3. Investigate changes that happen in materials under the condition of lack of oxygen.
- II.
  - A. Materials: metacards with questions  
jumbled letters SIYPHLAC  
piece of paper  
a rubber band  
a stick  
piece of chalk  
rubrics
  - B. References: Curriculum Guide for Grade 5, 2, 2.1 p. 30  
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Science and Health for the New Millennium 5 pp. 110-111
  - C. Process Skills: Manipulation, Observation
  - D. Values Integration: Carefulness in doing things.
- III. Learning Tasks
  - A. Engagement
    - a. Review  
Give each group a metacard that contains your question about the effect of oxygen on some fruits, root crops and metal. Paste on the manila paper.
    - b. Motivation  
Arrange the jumbled letters to give the word being described.  
“appearance, outer look...” SIYPHLAC
    - c. Present the new lesson  
“At the end of our lesson, each one of you should learn about physical change.”
  - B. Exploration

1. Ask the pupils to give standards in doing an activity.
2. Divide the class into small groups.
3. Instruct the pupils which group will do Lesson 2 Activity 5 on the LM p. \_\_, Activity 6 on the LM p. \_\_, Activity 7 on the LM p. \_\_, and Activity 8 on the LM p. \_\_.
4. Present the rubrics in grading their work.
5. Go around and observe the pupils as they perform the activity.
6. Remind them that they will present their output in class after all of the groups are done with their work.

#### C. Explanation

1. Each group will present their data and discuss about their work done.

Ask:

How did you feel after doing the activity?

Can change occur even the condition of lack of oxygen?

How can we know that the change which happened to a material is physical change?

#### F. Elaboration

##### Background Information

- When the paper is crumpled, folded or cut, it changes in size, shape, texture and appearance but it still remains the same material.
- When the rubber band is stretched or cut, it changes in size, shape, and number of pieces but it still remains the same material.
- When the stick is cut into pieces, it changes in size and number of pieces but it still remains the same material.
- When the piece of chalk is pound, it changes in size and number of pieces but it still remains the same material.
- Materials change even under the condition of lack of oxygen.
- Matter could be changed physically.
- In physical change, only the appearance of the matter changes and no new material is formed.

1. What properties of materials changed after exerting some force on them?
2. Do we always need oxygen for change in materials occur?
3. How can we say that the change of a material is only physical?

#### G. Evaluation/Assessment:

Each group must brainstorm to answer this question.

“What are the changes that happen in materials without the effect of oxygen?”

- IV. Assignment:  
Review on the lesson and be ready for the summative test tomorrow.

## Day 5

- I. Objectives:
1. Show understanding on the changes that happen in materials under the condition of presence and lack of oxygen by answering the questions correctly.
  2. Observe the value of being honest in answering the test.
  3. Follow the directions correctly.
- II. Evaluation/Summative Test
- III. A. Setting of standards  
B. Giving directions  
C. Administering the test  
D. Checking  
E. Recording of scores
- IV. Teacher – made Test

## Fourth Week

### Day 1 - 2

- I. Objectives:
1. Describe what happens to materials under the application of heat.
  2. Be cautious in using equipment that produce heat.
  3. Investigate changes that happen in materials under the following condition:
    - Application of Heat
- II.
- A. Materials:
- aluminum saucer
  - ice
  - beaker
  - Water
  - Alcohol lamp or improvised heater
  - Plastic sheet cover
  - Egg
  - Cooking oil
  - Small pan
  - Rubrics
- B. References: Curriculum Guide for Grade 5, 2, 2.1 p. 30  
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C. Process Skills: Observing, Experimentation

D. Values Integration: Be responsible enough in doing activities.

### III. Learning Tasks

#### A. Engagement

##### a. Review Bases

1. Prepare different bases with question about the previous week's lesson.
2. Data process after doing this activity.

##### b. Motivation Game

Four pics One word which will lead to the answer APPLICATION and HEAT.

##### c. Present the lesson

"We will investigate changes that happen in materials under the condition:  
- Application of Heat"

#### B. Exploration

1. Ask the pupils to give standards in doing an activity.
2. Divide the class into small groups.
3. Instruct the pupils which group will do Lesson 2 Activity 9 on the LM p. \_\_, Activity 10 on the LM p. \_\_, and Activity 11 on the LM p. \_\_.
4. Present the rubrics in grading their work.
5. Go around and observe the pupils as they perform the activity.
6. Remind them that they will present their output in class after all of the groups are done with their work.

#### C. Explanation

Each group will present their data and discuss about their work done.

Ask:

How did you feel after doing the activity?

Can application of heat change materials?

How do some materials change when heat is applied?

#### D. Elaboration

- ❖ Materials like water, egg and vegetables undergo physical change when heated.
- ❖ When ice is heated, it turns to water.



- ❖ When water boils and bubbles appear on the sides, steam or water vapor goes up.
- ❖ Water, when applied with heat, turns to water vapor.
- ❖ Egg, when applied with heat, becomes solid.
- ❖ Application of heat can cause physical change.

E. Evaluation

How can the application of heat change materials physically?

IV. Assignment

Give other materials which application of heat can change physically?

**Day 3 - 4**

I. Objectives:

1. Describe what happens to materials under the application of heat.
2. Be cautious in using equipment that produce heat.
3. Investigate changes that happen in materials under the following condition:
  - Application of Heat

II.

A. Materials:

Jumbled letters PILAPTACNIO FO THEA  
 Paper  
 Candles  
 Spoon  
 White sugar  
 Tin can  
 Matchstick  
 Saucer  
 Rubrics

- B. References: Curriculum Guide for Grade 5, 2, 2.1 p. 30  
 S5MT-Ic-d-2  
 Science for the New Millennium 5 pp.113-114

C. Process Skills: Observing, Experimentation

D. Values Integration: Be responsible enough in doing activities.

### III. Learning Tasks

#### A. Engagement

##### a. Review

###### Pass-the-Ball

1. The pupils will sing the song “It is Science Time” while each one is passing the ball to their classmate.
2. When the teacher says “Stop,” the one who is holding or touch it last will answer the question about physical change caused by application of heat.

##### b. Motivation

Arrange the jumbled letters PILAPTACNIO FO THEA

##### c. Present the lesson

“We will investigate other changes that happen in materials under the condition:

- Application of Heat”

#### B. Exploration

1. Ask the pupils to give standards in doing an activity.
2. Divide the class into small groups.
3. Instruct the pupils which group will do Lesson 2 Activity 12 on the LM p. \_\_, Activity 13 on the LM p. \_\_, and Activity 14 on the LM p. \_\_.
4. Present the rubrics in grading their work.
5. Go around and observe the pupils as they perform the activity.
6. Remind them that they will present their output in class after all of the groups are done with their work.

#### C. Explanation

Each group will present their data and discuss about their work done.

Ask:

How did you feel after doing the activity?

Can application of heat change materials?

How do some materials change when heat is applied?

#### D. Elaboration

- ❖ Materials like paper, sugar and matchstick undergo chemical change when heated.

- ❖ When paper is burned, it turns to ashes.
- ❖ When sugar is heated, it turns to syrup.
- ❖ When matchstick is burned, it turns to charcoal.
- ❖ Application of heat can cause chemical change.

#### E. Evaluation

How can the application of heat change materials chemically?

#### F. Assignment

Give other materials which application of heat can change chemically?

## Day 5

### I. Objectives:

1. Show understanding on the changes that happen in materials under the condition application of heat by answering the questions correctly.
2. Observe the value of being honest in answering the test.
3. Follow the directions correctly.

### II. Evaluation/Summative Test

#### III. A. Setting of standards

B. Giving directions

C. Administering the test

D. Checking

E. Recording of scores

### IV. Teacher – made Test