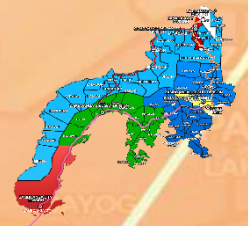


JANUARY	<i>Makugihon</i>
FEBRUARY	<i>Mahigugmaon</i>
MARCH	<i>Matinabungan</i>
APRIL	<i>Matinahuron</i>
MAY	<i>Mahapsay og Malimpyo</i>
JUNE	<i>Maabtik og Musunod sa Ihsaklong Oras</i>
JULY	<i>Maantigo og Maabilidad</i>
AUGUST	<i>Maginhunahunon para sa Uban</i>
SEPTEMBER	<i>Madaginoton</i>
OCTOBER	<i>Matinud-anon</i>
NOVEMBER	<i>Masaligan</i>
DECEMBER	<i>Maalampon</i>



Republic of the Philippines  
**Department of Education**  
 Regional Office IX, Zamboanga Peninsula



**Z**est for **P**rogress  
**Z**eal of **P**artnership

**5**

# Science

## Quarter 4 - Module 1

### Weathering



Name of Learner: \_\_\_\_\_

Grade & Section: \_\_\_\_\_

Name of School: \_\_\_\_\_



## What I Need to Know

Earth is mainly composed of rocks that differ in terms of sizes, shapes, and colors. Though rocks seem to be very hard, dense and indestructible, they still break. The breaking of rocks into fragments is known as ***weathering***.

This module focuses on how weathering takes place. This also answers why we have amazing rock formation.

After studying this module, you will be able to describe how rocks turn into soil (S5FE-IVa-1).

You will also define what is weathering and the two types of weathering; identify the agents of weathering; and explain how weathering works.



## What's In

Have you seen a marble floor? A stone carving? Or simply a rugged stone? Can you describe them?

How about a construction on the roadside?

What happens to rock when construction workers operate his jackhammer? Can you describe it?



# What's New

Score:

4

## ACTIVITY 1

### MECHANICAL OR CHEMICAL

**Science skills:** Observing, Comparing, Inferring, Communicating

#### You will need:

- 2 pieces of chalk
- hammer
- 1 tablespoon of vinegar
- piece of fine cloth

#### What to Do:

- A.** 1. For setup A get a piece of chalk and wrap it in a piece of cloth. Pound it using a hammer. Be extra careful in using the hammer.
2. For setup B, get another piece of chalk and pour the vinegar on it. Observe what will happen.
3. Compare the changes that happen to the two pieces of chalk.
4. Answer the questions below.
- a. What kind of change or transformation happened to the first piece of chalk? The second one?

Answer:

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- b. Based on the activity, how will you compare the two types of weathering?

Answer:

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Score:

6

## ACTIVITY 2

Chose the correct agent of weathering inside the box that is responsible for breaking the rocks into pieces to complete the statement.

water

temperature

wind

plants

human

animals

1. The \_\_\_\_\_ causes the particles of sand and dirt to be blown away. When these particles hit the surface of the rock, this causes scratches which will then damage the rock to crack further.
2. The waves of the sea crashing on rocks causes the rocks to break. The \_\_\_\_\_ can also seep into the cracks of the rocks. When it gets colder, the water inside will expand and cause the rock to crack further.
3. If the \_\_\_\_\_ is too high, the rocks expand and if it is too low, the rocks contract. This repeated contraction and expansion of rocks will cause the rocks to break after some time.
4. The roots of the \_\_\_\_\_ growing on rocks can break the rocks eventually.
5. The repeated scratching and kicking of \_\_\_\_\_ on rocks can cause it to wear and break into smaller pieces.
6. \_\_\_\_\_ activities like quarrying breaks down large rocks easily.





## What is It

What is weathering?

Weathering is the breaking of rocks into fragments. It is an important process that helps shape the Earth's surface. The breaking of rocks result in the formation of soil and different landforms.

Weathering can either be chemical or mechanical. Mechanical weathering is the physical wearing away of rocks, while chemical weathering involves a change in the composition of rocks that allows them to break.

### Agents of Weathering

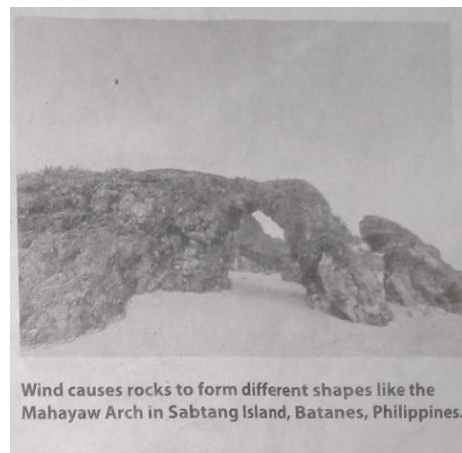
#### Water

Water can break rocks in different ways. The strong waves hitting the rock can make it break.



#### Wind

The wind causes the particles of sand and dirt to be blown away. When these particles hit the surface of a rock, this causes scratches which will then damage the rock over time.



Wind causes rocks to form different shapes like the Mahayaw Arch in Sabtang Island, Batanes, Philippines.

### Temperature

When rocks are exposed to varying temperature, it expands. If rocks are exposed to a low temperature, it contracts. The expansion and contraction of rocks due to change in temperature results in weathering.



### Plants

Some plants, like lichens, ferns, and mosses, can also trigger weathering. It can grow on rocks and causes it to break into pieces. Eventually, metabolic or life process of these plants will cause the gradual breakage of rocks into smaller pieces.

Trees can also trigger weathering. Its growing roots can break the cemented ground in search for more minerals in the soil.



### Animals

Animals that live in underground also contribute to weathering. As burrowing dig deeper, they cause rocks to break into pieces.



Burrowing animals such as the rabbit contribute to weathering by digging deeper that cause rocks to break into pieces.

### Human

Humans also contribute to the weathering of rocks. Subdivision developers use a bulldozer to flatten mountains or hills to build houses. Some construction workers use jackhammer to break boulders of rock as they repair roads.





## What's More

Score:

6

Define and explain how the following contribute to weathering.

1. Wind

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2. Water

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3. Temperature

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4. Plants

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5. Animals

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6. Human

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## What I Have Learned

Score:

\_\_\_\_\_  
10

Identify the following statement if it is True or False. Write your answer before the number.

- \_\_\_\_\_ 1. Earth is composed of rocks that differ in terms of sizes, shapes and colors.
- \_\_\_\_\_ 2. Erosion is the process of breaking rocks into fragments.
- \_\_\_\_\_ 3. Plants like fern and mosses that grow in rocks can trigger weathering.
- \_\_\_\_\_ 4. Weathering helps shape the Earth's surface.
- \_\_\_\_\_ 5. The breaking of rocks does not result in the formation of soil.
- \_\_\_\_\_ 6. Weathering can either be chemical or mechanical.
- \_\_\_\_\_ 7. Chemical weathering is the physical wearing of rocks.
- \_\_\_\_\_ 8. When rocks are exposed to varying temperature, it expands.
- \_\_\_\_\_ 9. Humans do not contribute weathering.
- \_\_\_\_\_ 10. Wind is another agent of weathering that causes many beautiful formations.



## What I can Do

Score:

\_\_\_\_\_  
8

Answers the following questions briefly.

1. Quarrying operation being carried out in certain province has been stopped by the Department of Environment and Natural Resources or DENR. Why do you think so?



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2. How can waves contribute to the weathering of rocks?

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3. Why is weathering an important process of environment?

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4. In what ways can weathering affect us?

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## Assessment

Score:

10

**Circle the letter of the best answer.**

- It is the breaking down of rocks into fragments.  
A. erosion  
B. flooding  
C. runoff  
D. weathering
- A type of weathering that involves changes in the composition of the rocks.  
A. chemical  
B. mechanical  
C. both chemical and mechanical  
D. none of the above
- What do you call the process by which human extract stone from the mountains for construction purposes?

- A. digging  
B. flatterring
- C. weathering  
D. quarrying
4. What will happen to rock when it is exposed to higher temperature?  
A. contracts  
B. evaporates
- C. expands  
D. sinks
5. An open pit mine where rocks can be extracted.  
A. landfill  
B. open-field
- C. reservoir  
D. quarry
6. What is mechanical weathering?  
A. Mechanical weathering is the physical wearing away of rocks.  
B. Mechanical weathering involves a change in the composition of rocks that allow them break into pieces.  
C. Mechanical weathering is the movement of rock fragments from one place to another.  
D. Mechanical weathering does not break rocks into pieces.
7. Weathering causes the formation of \_\_\_\_\_.  
A. Clouds  
B. Minerals
- C. soil  
D. weather
8. It is an agent of weathering that grows in rocks that can trigger weathering.  
A. water  
B. wind
- C. plant  
D. temperature
9. Which of the following cannot trigger breaking of rocks into smaller pieces.  
A. strong waves hitting the rocks  
B. repeated expansion and contraction of rocks due to changes of temperature  
C. falling of leaves  
D. construction workers use jackhammer to break boulders of rocks
10. What would be the possible scenario if humans continue quarrying operation?  
A. increase the risk of landslide occurring during rainy seasons  
B. natural habitat of some animals in the mountain will be destroy  
C. destruction of our natural resources.  
D. All of the above.

# Answer Key

## Science 5 Quarter 4 - Week 1

**What's In**

1. Yes. A marble floor is smooth and has many patterns. Stone carvings are usually smooth but some are rough. A rough stone on the other hand has many sharp, rough edges.
2. Roadside construction tend to be rough.
3. The rocks break when a construction worker operates his jackhammer. The pounding of jackhammer on the rocks cause the rocks to have cracks and eventually break

**What's New**

**Activity 1**

- A. The first chalk was broken down physically by means of hammering. On the other hand the second piece of chalk was damage chemically because of vinegar.
- B. Mechanical weathering happens when a rock is broken down by physical means, just like how the chalk was hammered on the first set up. On the other hand, chemical weathering occurs when a rock is damaged or broken down when it is subjected to a chemical reaction, like what happen on the chalk when it reacted with vinegar.

**Activity 2**

1. wind
2. water
3. temperature
4. plants
5. Animals
6. human

**What's More**

1. The wind causes the particles of sand and dirt to be blown away. When this particles hit the surface of a rock, this causes scratches which will then damage the rock over time.
2. Water can break rocks in different ways. The strong waves hitting the rock can make it break.
3. When rocks are exposed to varying temperature, it expands. If rocks are exposed to a low temperature, it contracts. The expansion and contraction of rocks due to change in temperature results in weathering.
4. It can grow on rocks and causes it to break into pieces.
5. Animals that live in underground also contribute to weathering. As burrowing dig deeper, they cause rocks to break into pieces.
6. Humans also contribute to the weathering of rocks. Subdivision developers use a bulldozer to flatten mountains or hills to build houses. Some construction workers use jackhammer to break boulders of rock as they repair roads.

**What I Have Learned**

1. True
2. False
3. True
4. True
5. False
6. True
7. False
8. True
9. False
10. True

**What I Can Do**  
(Answers may vary)

**Assessment**

1. D
2. A
3. D
4. C
5. D
6. A
7. C
8. B
9. C
10. D

## References

**Books:**

Sarte, E. T., Garcia, E. R., Lopez, E. A., Dela Cruz, M. G., Arradaza, H. A., (Copyright 2016) Science Beyond Borders Grade – 5 Textbook, Vibal Group, Inc., ISBN 978-971-07-3878-6

Sarte, E. T., Garcia, E. R., Lopez, E. A., Dela Cruz, M. G., Arradaza, H. A., (Copyright 2016) Science Beyond Borders Grade – 5 Teacher’s Manual, Vibal Group, Inc., ISBN 978-971-07-3879-3

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