JANUARY
Makugihon
FEBRUARY
Mahigugmaon
MARCH
Matinabangon
APRIL
Matinahuron
MAY
Mahapsay og Malimpyo
JUNE
Maabtik og Musunod sa Oksaltong Orus
JULY
Maantigo og Maabilidad
AUGUST
Maginhunahunaon para sa Uban
SEPTEMBER
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OCTOBER
Matinud-anon
NOVEMBER
Masaligan
DECEMBER
Maalampuon

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

Zest for Progress
Zeal of Partnership

5

Science

Quarter 4 - Module 2
Extent of Soil Erosion in the Community

Name of Learner: _____

Grade & Section: _____

Name of School: _____

What I Need to Know

Investigate extent of soil erosion in the community and its effects on living things and the environment(S5FE-IVb-2).

After going through this module, you are expected to:

1. Identify the agents and causes of soil erosion.
2. Investigate extent of soil erosion in the community.

When rocks are broken down into pieces, it does not stay in one place. Some rock fragments become part of the soil. Others are transferred from one place to another. The movement of rock fragments and soil from one place to another is called **erosion**. Materials that are transported due erosion are called **sediments**.

Erosion of rock fragments greatly contributes to the soil formation as well as formation of landforms.

Just like weathering, there are different agents of soil erosion. It includes water, wind, animals, and humans.

ACTIVITY 1: "PRETEST"

Score:
_____
10

Instructions: Encircle the letter of the correct answer.

1. The movement of rock fragments and soil from one place to another.
   a. weathering c. fragmentation
   b. erosion d. disturbance
2. Agent of soil erosion where it flows and transports rock and soil particles from one place to another.
   a. animals c. water
   b. wind d. humans
3. When it blows, it carries light particles of rocks and soil, transporting and depositing them in another place.
   a. animals c. water
   b. wind d. humans
4. It occurs when plants are exposed to intensive grazing for extended period of time.
   a. overgrazing c. burrowing
   b. quarrying d. digging
5. They dig the ground, some rock and soil particles stick to their bodies and as they move from one place to place, they carry such particles, too.
   a. burrowing animals c. grazing animals
   b. crawling animals d. hopping animals
6. The impact created by blasting rocks and particles triggers soil erosion
   a. hopping c. planting
   b. quarrying d. pulling
7. Materials that are transported due to erosion.
   a. mine c. fragments
   b. waves d. sediments

8. These are formed when the wind blows sand into a secluded area.
    a. sunburn
    b. wind vane
    c. sand dunes
    d. sand stone
9. Agent of soil erosion that have a major contribution to the rate of soil erosion in the environment.
    a. humans
    b. wind
    c. plants
    d. water
10. It is an inclined surface of a land that affects the rate of soil erosion.
    a. slope
    b. plateau
    c. valley
    d. shoreline

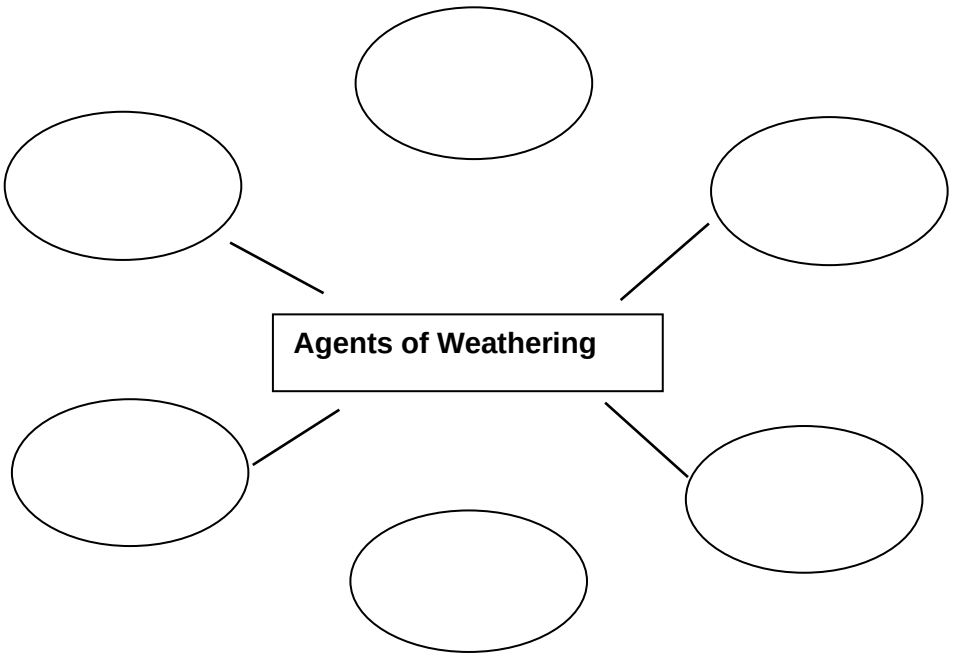
What's In

ACTIVITY 1: "COMPLETE THEM ALL"

Score: _____ 6

Complete the diagram by filling out the missing information in the circle. Choose the word/s in the box.

plants	animals	humans	gravity
wind	water	clouds	temperature



Hey kid! Are you excited to learn new lesson? Come on, perform the activity and answer the questions that follow.

What's New

ACTIVITY 2: "SHOWER THEM ALL"

Score: _____ 5

In this activity, you will be investigating the extent of soil erosion and how the speed of flowing water affects the rate of erosion.

Erosion by Water

Science Skills: Observing, Communicating

You will need:

- 2 shallow pans
- 6 cups of garden soil
- 2 bottles of 500 mL water

What to do:

1. Get two shallow pans and fill them with garden soil. Label one pan as A and the other as B
2. Pour water gradually into the soil on the first pan.
3. Repeat procedure #2 on the second pan. This time, pour the water rapidly into the soil.

Encircle the letter of the correct answer.

1. In which setup did the soil move faster? Why?
   a. Setup A, The water flows slowly that made the soil moved faster.
   b. Setup B, The water flows faster which cause the soil moved faster.
2. In which setup did the soil move farther?
   a. Setup A, The water slowly that made the movement of the soil farther
   b. Setup B, The force of the rapid moving water caused the soil to move farther from the pan.
3. Which setup moved more soil? Why?
   a. Setup A. The water flows slowly which caused more soil to move.
   b. Setup B. The rapid movement of water caused more soil to be moved away from the pan.
4. What happened to the color of the water?
   a. The color of the water changed into brown because of the soil particles that are carried with it.
   b. The color of the water remained the same even if it carried the soil particles away.
5. What can you conclude about erosion in the experiment?
   a. The speed of flowing water affects the rate of erosion. The faster the water flows, the faster and farther the erosion would be.
   b. The speed of flowing water has nothing to do with erosion. It does not affect the movement of the soil.

ACTIVITY 3: "BLOW THEM ALL"

In this activity, you will be observing how the wind cause soil erosion and how it contributes to the shaping of the Earth's surface.

Score: _____ 5

Showing Wind Erosion

You will need:

- 1 cup of fine sand
- hard cardboard
- paper plate

What to do:

1. Pour one cup of fine sand on a paper plate.
2. Slowly fan the sand on the paper plate using the cardboard. Observe what happen.
3. Next, fan the sand a bit faster. What happen? _____
4. Try different speeds of fanning.

Put a check (/) if the statement is being observed during the activity and X if not.

___ 1. As the wind blows, it carries particles of sand to move away from the paper plate.

___ 2. When the wind blows faster, it carries away tiny particles of sand farther away from the paper plate.

___ 3. The sand did not move and remained in its place after fanning at different and faster speed.

___ 4. The sand in the paper plate change and form different shapes after fanning at different speed.

___ 5. The speed of the wind affects the movement of the sand to form shapes.

What Is It

Here is the explanation about soil erosion and the agents of soil erosion. Read and understand it!

What is soil erosion?

Soil erosion refers to the wearing away of a field's top soil brought about by the moving water and wind. People and animals also contribute to soil erosion through their activities.

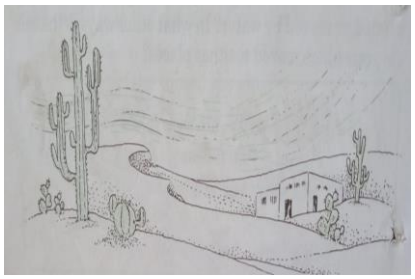
Agents of Soil Erosion

Water

As water flows, it transports rock and soil particles from one place to another. The speed of flowing water affects the rate of erosion. The faster the water flows, the farther the erosion would be. Faster movement of water can cause many sediments to be carried away by the water.

As water aids erosion, its color changes depending on the color of the rock and the soil particles that it carries. Water that flows from the mountain can be brown because of the soil particles from the mountain that it carries.

Wind



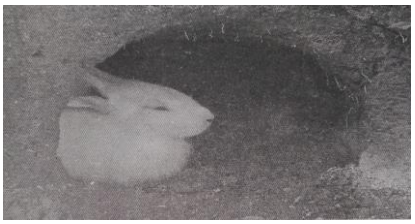
As the wind blows, it carries light particles of rocks and soil, transporting and depositing them to another place. Strong winds carry the particles of soil in a distant place.

Wind erosion can take place in any area where the soil is not compacted. When the wind blows, the particles of sand moves along with it. Light particles of soil can be easily blown away by the wind.

Erosion by wind contributes a lot in shaping the Earth's surface. An example of this is the formation of sand dunes. These are ridges of sand formed by the wind and are usually found to deserts or shorelines. Dunes are formed when the wind blows sand into a secluded area. As sand accumulates, the dunes grow and vary in shape. An example of sand dunes can be found in Ilocos Norte.

Sand dunes are caused by wind erosion

Animals

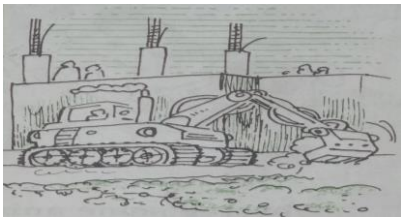


Animals also contribute to the transportation of sediments. When burrowing animals dig the ground, some rock and soil particles stick to their bodies. As they move from place to place, they carry such particles, too.

Humans

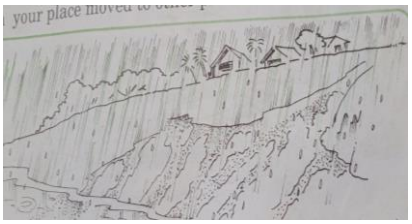
Humans have a major contribution to the rate of soil erosion in the environment. Just like animals, whenever we walk, the soil clings to our shoes, so the soil gets transported from place to place.

Other human activities like gardening can also cause erosion since soil moves as we dig the ground. When quarrying, the impact created by blasting rocks and soil particles triggers the soil. Huge volumes of soil and sand



also get transported when they use in the construction of houses and other infrastructure.

How Land Slope Affects Erosion



A **slope** is an inclined surface of a land. The slope of a land affects the rate of soil erosion. Roots of trees and other plants absorb water as it rains, but some unabsorbed water still flows downward, washing away soil. If the surface is greatly slanted, the water that flows has greater force and thus carries more soil. This results to greater and faster erosion.

Since the rate of erosion is faster on lands with steeper slopes, there is also a great possibility for a landslide to occur. This is why it is not advisable to build houses on mountainsides or hillsides.

What's More

ACTIVITY 4: "FILL THEM ALL"

Score:
10

You have come a long way in your module! Now answer the following activities. Good luck!

The following are the activities that cause soil erosion. Write them in the correct agent of soil erosion.

*Burrowing of rabbits
*Landslide in a hillside
*Formation of sand dunes
*Sandstorms in the desert
*Blasting the mountainside
*Quarrying of sand and gravel
* Shaping of the Earth's surface
* Overgrazing of horses and cows
*Constructing buildings and houses
*Heavy rain that flows in a mountain

Agents of Soil Erosion			
Water	**Wind**	**Humans**	**Animals**

What I Have Learned

Amazing! You reach in this page. Now complete the activity. Come on!

Score: _____ 10

ACTIVITY 5: "CORRECT ME"

A. Write True if the statement is correct. If False, change the underlined word/s to make the statement correct.

_____1. The movement of rocks from one place to another is called <u>weathering.</u>
_____ 2. <u>Sediments</u> are materials transported due to erosion.
_____ 3. The faster the running water is, the <u>slower</u> the soil erosion would be.
_____ 4. Sand dunes are ridges of sand formed by <u>waves.</u>
_____ 5. Erosion is faster and greater on land surfaces with <u>gradual</u> slopes.
_____ 6. Gardening can also cause erosion because soil moves as we <u>mine</u> the ground.
_____ 7. A slope is <u>a flat</u> surface of land.
_____ 8. <u>Small volumes</u> of soil and sand are transported when they are used in the construction of houses.
_____ 9. When <u>burrowing</u> animals dig the ground, some rocks and soil particles stick to their bodies.
_____10. <u>Erosion</u> can be caused by water, wind, animals and humans.

What I Can Do

You've reached in this page. It means you really understand your lesson. Keep it up! Here is another activity for you to answer. Good luck!

ACTIVITY 6: "DRAW ME"

Score: _____ 15

Draw or cut some pictures showing different agents of soil erosion.

Erosion by Water

Erosion by Animals

Erosion by Wind

Erosion by Humans

Rubrics				
	5	**4**	**3**	**2**
Content	Drew/pasted pictures completely	Drew or pasted only three pictures.	Drew or pasted only two pictures	Drew only one or pasted only one picture
Originality/ Creativity	Drew/pasted pictures with his/her own.	Drew with patters/pasted pictures with the help of others	Drew/pasted pictures but not appropriate.	Let others drew/ pasted pictures for you
Neatness	The illustration is exceptionally neat.	The illustration is neat.	The illustration is neat but some parts are not.	The illustration is messy.

Assessment

Hey kid! You are about to end this module Take this assessment to find out if you understand your lesson. Good luck!

Multiple Choice: Encircle the letter of the correct answer.

1. Materials that are transported due to erosion.
   a. sediments b. waves c. fragments d. mine
2. It is an inclined surface of a land that affects the rate of soil erosion.
   a. slope b. plateau c. plain d. valley
3. The movement of rock fragments and soil from one place to another.
   a. weathering c. fragmentation
   b. erosion d. disturbance
4. It occurs when plants are exposed to intensive grazing for extended period of time.
   a. overgrazing b. quarrying c. burrowing d. digging
5. Agent of soil erosion where it flows and transports rock and soil particles from one place to another.
   a. animals b. wind c. water d. humans
6. When it blows, it carries light particles of rocks and soil, transporting and depositing them in another place.
   a. animals b. wind c. water d. humans
7. They dig the ground, some rock and soil particles stick to their bodies and as they move from one place to place, they carry such particles, too.
   a. burrowing animals c. grazing animals
   b. crawling animals d. hopping animals
8. The impact created by blasting rocks and particles triggers soil erosion
   a. hopping b. quarrying c. planting d. pulling
9. These are formed when the wind blows sand into a secluded area.
   a. sunburn b. wind vane c. sand dunes d. sand
10. 10. Agent of soil erosion that have a major contribution to the rate of soil erosion in the environment.
    a. wind b. water c. plants d. humans

I Am a Filipino
by Carlos P. Romulo

I am a Filipino–inheritor of a glorious past, hostage to the uncertain future. As such I must prove equal to a two-fold task–the task of meeting my responsibility to the past, and the task of performing my obligation to the future.

I sprung from a hardy race, child many generations removed of ancient Malayan pioneers. Across the centuries the memory comes rushing back to me: of brown-skinned men putting out to sea in ships that were as frail as their hearts were stout. Over the sea I see them come, borne upon the billowing wave and the whistling wind, carried upon the mighty swell of hope– hope in the free abundance of new land that was to be their home and their children's forever.

I am a Filipino. In my blood runs the immortal seed of heroes–seed that flowered down the centuries in deeds of courage and defiance. In my veins yet pulses the same hot blood that sent Lapulapu to battle against the first invader of this land, that nerved Lakandula in the combat against the alien foe, that drove Diego Silang and Dagohoy into rebellion against the foreign oppressor.

The seed I bear within me is an immortal seed. It is the mark of my manhood, the symbol of dignity as a human being. Like the seeds that were once buried in the tomb of Tutankhamen many thousand years ago, it shall grow and flower and bear fruit again. It is the insignia of my race, and my generation is but a stage in the unending search of my people for freedom and happiness.

I am a Filipino, child of the marriage of the East and the West. The East, with its languor and mysticism, its passivity and endurance, was my mother, and my sire was the West that came thundering across the seas with the Cross and Sword and the Machine. I am of the East, an eager participant in its spirit, and in its struggles for liberation from the imperialist yoke. But I also know that the East must awake from its centuried sleep, shake off the lethargy that has bound his limbs, and start moving where destiny awaits.

I am a Filipino, and this is my inheritance. What pledge shall I give that I may prove worthy of my inheritance? I shall give the pledge that has come ringing down the corridors of the centuries, and it shall be compounded of the joyous cries of my Malayan forebears when first they saw the contours of this land loom before their eyes, of the battle cries that have resounded in every field of combat from Mactan to Tirad Pass, of the voices of my people when they sing:

"I am a Filipino born to freedom, and I shall not rest until freedom shall have been added unto my inheritance—for myself and my children and my children's children—forever."

(Reprinted from The Philippines Herald, August 16, 1941)

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Answer Key

Science 5 Quarter 4 – Week 2

Activity 1:
Pretest

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

What's In
Activity 2:
Complete Them All
In any order
water
wind
plants
humans
animals
temperature

What's New
Activity 3:
Shower Them All

1. b
2. b
3. b
4. a
5. a

Activity 4:
Blow Them All

1. ✓
2. ✓
3. X
4. ✓
5. ✓

What's In
Activity 5: Fill Them All

Water	Wind	Humans	Animals
*Heavy rain that flows in a mountain *Landslide in a hillside	*Formation of sand dunes *Sandstorms in the desert *Shaping of the Earth's surface	*Blasting the mountains *Quarrying of sand and gravel *Construction of buildings and houses	*Burrowing of rabbits *Overgrazing of horses and cows

What I Have Learned
Activity 6: Correct Me

1. False/ erosion
2. True
3. False/farther
4. false/ wind
5. false/steeper
6. False/ dig
7. False/ an inclined
8. False/ huge
9. True
10. True

What I Can Do
Activity 7: Draw Me

It depends on the pupil's output

Assessment:
Multiple Choice

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