4

Science 4

Microlearning Module

QUARTER 4 – Module 9

Importance of the Sun to Living Things

Microlearning Module

REGION XII - DIVISION OF SULTAN KUDARAT

Science 4
Microlearning Module (MLM)
Quarter 4 Module 9: Importance of the sun to Living Things
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MICROLEARNING MODULE

Name: _____Grade & Sec: _____ Score: _____
Subject: Science 4 Quarter: 4 MLM No. 9
Teacher: _____
Learning Competency: **The learners make suggestions about the importance of the Sun to living things for a group or class discussion and confirm and record ideas by referring to trustworthy secondary sources of information**

Importance of the Sun to Living Things

A. Look Back!

A.1 Background Check!

Directions: Go over the lists below and draw a star (☆) of what you recall and already know about the sun, and draw a heart shape(♡) before the statement that is new to you and you would like to learn. Do it on a separate sheet of paper.

_____ 1. It is the nearest star to Earth.
_____ 2. The sun as a star, located at the center of our solar system.
_____ 3. It is a massive ball of hot gases, primarily hydrogen and helium.
_____ 4. The sun emits light and heat energy, which reach Earth and other planets in the form of sunlight.
_____ 5. The sun is important for life on Earth, including providing light, heat, and energy for photosynthesis.

B. What's New?

In this module, you will discover the importance of the Sun to living things! You will also explore why the Sun is important for the survival of all living organisms on Earth. Through engaging discussions, activities, and reliable sources of information, you will deepen your understanding of how sunlight sustains life in various ways. Are you ready?

Is the sun important? In what ways do you think the sun becomes important? Recite the poem below and identify how the sun becomes important to humans, plants, and animals.

Oh, Sun my Sunshine
Anonymous

In the sky, a shining light,
The Sun brings warmth, oh so bright.
Through photosynthesis, life's begun,
Feeding ecosystems, energy from the Sun.

Oh, Sun, our source of light and heat,
You make life on Earth complete.
From the food chain to climate's sway,
Your importance shines every day.

Ecosystems thrive under your rays,
Guiding species through their unique ways.
From plants to animals, all depend,
On the Sun's energy, a vital blend.

Oh, the Sun, our source of light and heat,
You make life on Earth complete.
From the food chain to climate's sway,
Your importance shines every day.

Sunlight kisses our skin, vitamin D we gain,
But we must be mindful, not to cause harm or pain.
Balancing exposure, protecting our health,
Appreciating the Sun's blessings, in harmony we delve.

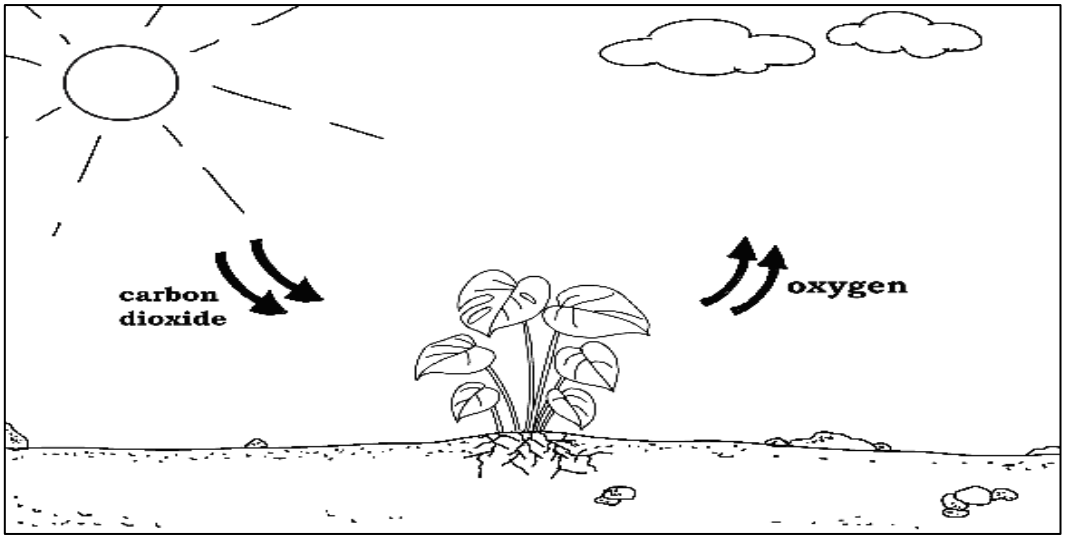
Oh, Sun, our source of light and heat,
You make life on Earth complete.
From the food chain to climate's sway,
Your importance shines every day

C. What Is It?

Have you identified the importance of the sun for humans, animals, and plants in the poem? Throughout this lesson, we will delve into the importance of the sun. In this part, you are tasked to read, learn, and enjoy!

The Sun plays a crucial role in sustaining life on Earth. Its energy is essential for various biological processes, from photosynthesis in plants to the different climate patterns. Understanding the Sun's significance helps us appreciate its impact on ecosystems, weather, and human health.

Understanding the Sun as the primary source of energy for life through photosynthesis.

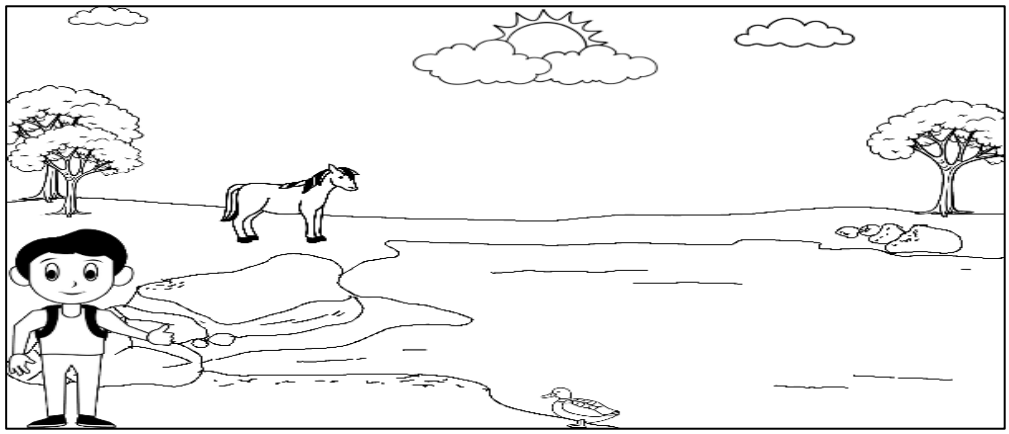


So, let's talk about **photosynthesis** which is like magic among plants with a little help from the Sun. Imagine plants as tiny chefs cooking their food!

Photosynthesis is a vital process that converts sunlight into chemical energy, allowing plants to produce glucose and oxygen. This process forms the basis of the food chain, as plants serve as primary producers, providing energy for other organisms. Without the Sun's energy, photosynthesis wouldn't occur, disrupting ecosystems and impacting life on Earth. The result? Plants make a yummy treat called glucose like their energy food. They also release oxygen, which is important for us and other living things.

So, there you have it! Thanks to photosynthesis and the Sun's energy, plants make their own food and keep our planet green and healthy. Isn't nature amazing?"

Exploring how sunlight influences the food chain and ecosystems.

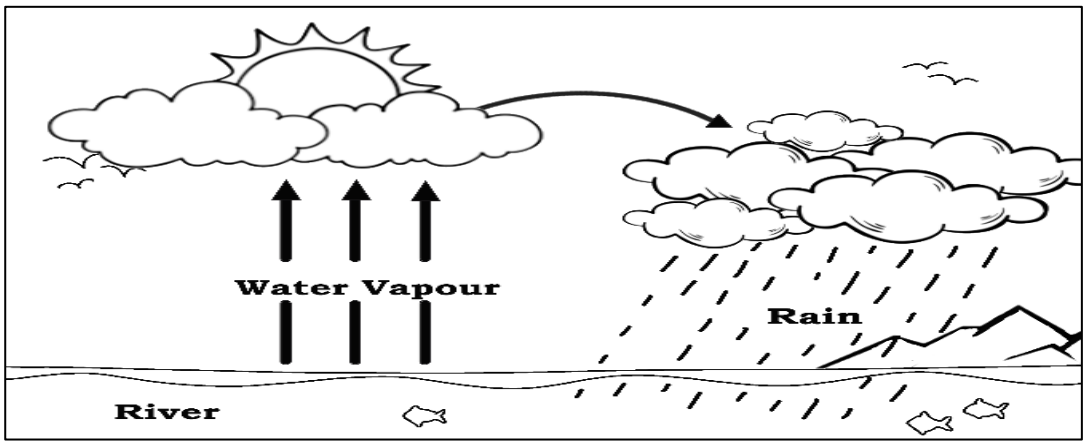


Hey there, nature explorers! You are about to dive into the amazing world of ecosystems and how sunlight makes everything tick. Imagine the Sun as a big boss, running the show from up above!

Sunlight plays a pivotal role in shaping ecosystems, particularly in the distribution and abundance of species. It provides energy for photosynthesis, which supports the growth of plants and algae, the foundation of food webs. Sunlight also affects animal behavior, reproduction, and migration patterns. Changes in sunlight availability can disrupt ecosystems, leading to cascading effects on biodiversity and ecosystem function.

Remember, every creature in the ecosystem plays a special role, and it's all thanks to the Sun's energy. Isn't nature incredible?"

Investigating the role of the Sun in providing warmth, light, and regulating climate patterns.



Hey there, little scientists! put on your explorer hats and take a journey into the amazing world of the Sun and its superpowers!

The Sun's warmth and light are essential for maintaining Earth's climate and weather systems. Solar radiation heats the atmosphere, oceans, and land, driving atmospheric circulation, ocean currents, and the water cycle. Sunlight regulates temperature, precipitation, and seasonal changes, shaping climate patterns worldwide. Understanding

solar radiation and its interactions with Earth's atmosphere is crucial for predicting climate change and mitigating its impacts.

So, there you have it, young explorers! The Sun is not just a ball of fire in the sky—it's our source of warmth, and light, and the ultimate weather controller. Give a big round of applause to our cosmic superhero, the Sun!"

Discussing the importance of sunlight for producing vitamin D in humans and animals.

Hey there, health detectives! Uncover the secret power of sunlight and how it helps us stay strong and healthy!

Sunlight exposure is necessary for the production of vitamin D in the skin. When UVB rays from the Sun interact with cholesterol in the skin, vitamin D synthesis occurs. Vitamin D helps maintain bone health, regulating calcium absorption, and supporting immune function.

Insufficient sunlight can lead to vitamin D deficiency, increasing the risk of bone diseases like rickets and osteoporosis. However, it's essential to balance sun exposure to prevent skin damage and reduce the risk of skin cancer.

So, there you have it, little sunshine seekers! Sunlight is like nature's vitamin D factory, helping us and our animal friends stay strong, healthy, and happy. So, don't forget to soak up some sun and keep those bones smiling!"

D. Let’s try!

Now it is time to put your knowledge into practice! Through activities, let us explore real-life scenarios where the importance of the Sun to living things is evident.

Activity D.1: Word hunt

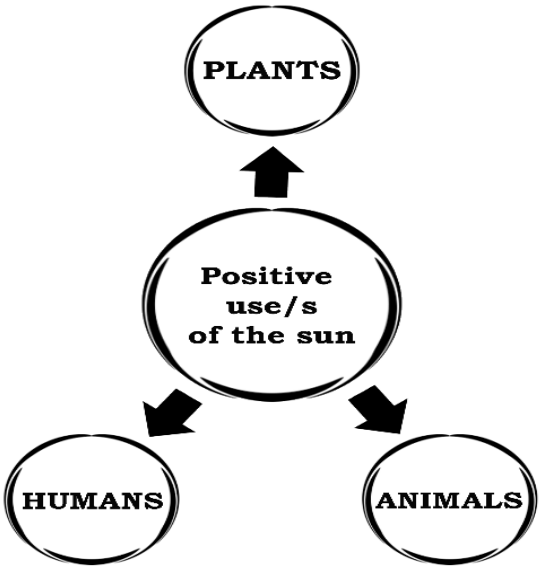
Directions: Go over the poem entitled **Oh Sun My Sunshine,** read it again, and fill up the box below with the importance or uses of the sun pointed out in the poem.

Importance/uses of the Sun:

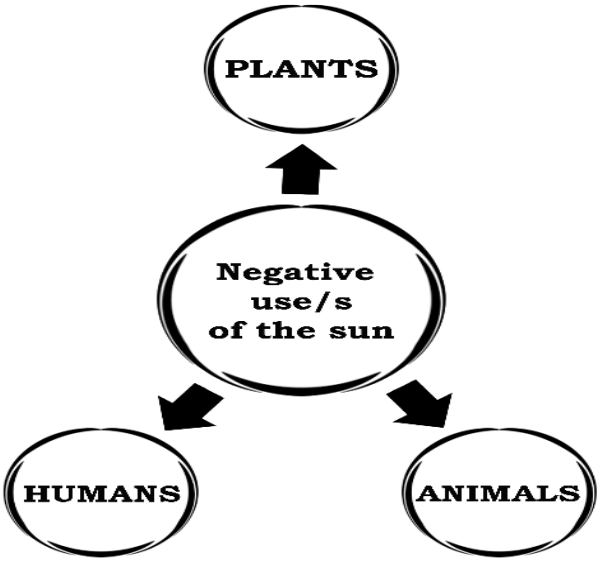
Activity D.2: The Positive and The Negative

Directions: Complete the web with the positive and negative use/s of the sun for plants, humans and animals.

Positive use of the sun



Negative use of the Sun



Activity D.3: What if?

Directions: Express your answer to this what-if question in both drawing/art and words. In a clean sheet of bond paper, divide it into one-half crosswise. The first half will be your answer in the form of drawing/art and the 2nd half will be your thoughts in words.

1. What if the Sun suddenly stopped shining?

Rubrics for What if?

Criteria	0	3	5
Creativity	The drawing lacks creativity and originality, with minimal effort or detail.	The drawing demonstrates some creativity and imagination, with moderate detail and effort.	The drawing shows high levels of creativity and imagination, with intricate details and thoughtful design choices.
Relevance to the Prompt	The drawing does not effectively address the prompt or fails to depict the scenario of the Sun stopping shining.	The drawing partially addresses the prompt but may lack clarity or focus on the scenario.	The drawing directly addresses the prompt, clearly depicting the scenario of the Sun suddenly stopping shining.
Artistic skills	The drawing lacks artistic skill and appears sloppy or poorly executed.	The drawing shows some level of artistic skill, with recognizable shapes and elements, but may lack polish or refinement.	The drawing demonstrates strong artistic skill, with attention to detail, perspective, and composition.
Clarity and Depth of Written Response	The written response is unclear, lacking detail or depth of thought.	The written response provides some insight into the scenario but may lack depth or elaboration.	The written response is clear, insightful, and demonstrates a deep understanding of the potential consequences of the Sun stopping shining.
Connection Between Drawing and Written Response	There is little to no connection between the drawing and the written response, with inconsistencies or disconnect between the two.	There is a partial connection between the drawing and the written response, but it may lack coherence or alignment in conveying the scenario.	There is a strong connection between the drawing and the written response, with clear alignment in conveying the scenario and its potential consequences.

E. Let's Evaluate

Directions: Read each question carefully. Choose the best answer for each question and write it on a separate sheet of paper.

1. What role does the sun play in sustaining life on Earth?
   A. Producing rainfall
   B. Generating wind energy
   C. Creating magnetic fields
   D. Providing warmth and light

2. Which process helps plants make their food with the help of sunlight?
   A. Evaporation B. Digestion C. Photosynthesis D. Respiration

3. How does sunlight influence ecosystems?
   A. By controlling volcanic activity.
   B. By causing earthquakes and tsunamis.
   C. By directly providing energy for animal movement.
   D. By supporting the growth of plants and algae, the foundation of food webs.

4. How does sunlight influence weather patterns?
   A. It creates clouds.
   B. It causes earthquakes.
   C. It controls the movement of ocean currents.
   D. It regulates the temperature of the atmosphere.

5. What is the importance of vitamin D for humans and animals?
   A. It aids in breathing.
   B. It helps in digestion.
   C. It strengthens bones.
   D. It regulates body temperature.

6. Which of the following is NOT a role of sunlight in ecosystems?
   A. Providing warmth
   B. Supporting plant growth.
   C. Controlling animal behavior.
   D. Regulating climate patterns.

7. What do plants release during photosynthesis?
   A. Carbon dioxide B. Glucose C. Oxygen D. Water

8. How does sunlight influence the behavior of animals in ecosystems?
   A. It makes them sleep.
   B. It makes them migrate.
   C. It makes them hibernate.
   D. It makes them grow taller.

9. What happens to the temperature of water when it is exposed to sunlight?
   A. It decreases.
   B. It increases.
   C. It evaporates.
   D. It remains the same.

10. Why is it important to stay safe in the sun?
   A. To avoid getting cold.
   B. To prevent getting wet.
   C. To prevent vitamin D deficiency.
   D. To prevent sunburns and skin damage.

F. References

National Aeronautics and Space Administration (NASA). "The Sun: Earth's Primary Energy Source." Accessed March 20, 2024. https://www.nasa.gov/audience/forstudents/k-4/stories/nasa-knows/what-is-the-sun-k4.html.

National Oceanic and Atmospheric Administration (NOAA). "How Does the Sun Affect Our Weather and Climate?" Accessed March 20, 2024. https://www.climate.gov/news-features/climate-qa/how-does-sun-affect-our-climate-and-weather.

Harvard T.H. Chan School of Public Health. "Vitamin D and Health." Accessed March 20, 2024. https://www.hsph.harvard.edu/nutritionsource/vitamin-d/.

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). "What is Vitamin D?" Accessed March 20, 2024. https://www.niams.nih.gov/health-topics/vitamin-d.

ANSWER KEY

Grade 4 Science
QUARTER 4 – Module 9

Let's Evaluate

1. A) Providing warmth and light
2. C) Photosynthesis
3. D) By supporting the growth of plants and algae, the foundation of food webs.
4. D) It regulates the temperature of the atmosphere.
5. C) It strengthens bones.
6. C) Controlling animal behavior
7. C) Oxygen
8. B) It makes them migrate.
9. B) It increases.
10. D) To prevent sunburns and skin damage

Lets Try

Activity D.1

Activity D.2

	Positive	Negative
Animals	Food source Warm and comfort Navigation and behavior	Heat stress , Dehydration Sunburn , Habitat loss Death
Plants	Photosynthesis Food production Habitat support	Sunburn , Heat stress Dehydration Death
Human	Vit. D Recreation and leisure Solar energy	Sunburn. Skin cancer Heat-related illness Eye damage

Activity D.3

If the Sun were to suddenly stop shining, it would have catastrophic consequences for life on Earth. The abrupt loss of sunlight would plunge the planet into darkness, causing temperatures to plummet rapidly. Without sunlight, plants would die off, disrupting the entire food chain and leading to mass extinction events for animals. Humans would face severe food shortages and global famine as a result. Additionally, the sudden disruption of sunlight would cause unpredictable weather patterns and climate chaos, further exacerbating the challenges of survival for all living organisms on Earth.

DISCLAIMER

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