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# BASIC 8

## WEEKLY LESSON PLAN – WEEK 3

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| **Strand:** | Systems | **Sub-Strand:** | Ecosystem | | |
| **Content Standard:** | B8.3.3.1 Demonstrate understanding of the interdependence of organisms in an ecosystem and their interaction | | | | |
| **Indicator (s)** | B8.3.3.1.1 Explore the feeding relationships within an ecosystem | **Performance Indicator:** Learners can differentiate between food web and Food Chain. | | | |
| **Week Ending** | 14-07-2023 | | | | |
| **Class** | B.S.8 | **Class Size:** | | **Duration:** | |
| **Subject** | Science | | | | |
| **Reference** | Science Curriculum, Teachers Resource Pack, Learners Resource Pack. | | | | |
| **Teaching / Learning Resources** | Power Point Presentation, Poster, Pictures, Video | **Core Competencies:** | • Digital Literacy<br>• Critical Thinking and Problem Solving<br>• Communication and Collaboration. | | |

| **DAY/DATE** | **PHASE 1 : STARTER** | **PHASE 2: MAIN** | **PHASE 3: REFLECTION** |
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| **MONDAY** | Assist Learners to explain how life on earth will be like without the sun. | 1. Using a Presentation, explain the meanings of Food Chain and Food Web.<br>2. Discuss the feeding relationship among animals with the Learners.<br>3. Using a Chart, explain energy transfer in an ecosystem.<br>4. Assist Learners to explain the terms producer, primary consumer and secondary consumer.<br><br>**Difference between Food Chain and Food Web;**<br>  <br> | Through questions and answers, conclude the lesson.<br><br>**Exercise;**<br>1. Explain the following;<br>i. Food Chain<br>ii. Food Web<br>iii. Producer<br>iv. Primary consumer<br>v. Secondary consumer |

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| | | A food chain outlines who eats whom. A food web is all of the food chains in an ecosystem. Each organism in an ecosystem occupies a specific trophic level or position in the food chain or web. Producers, who make their own food using photosynthesis or chemosynthesis, make up the bottom of the trophic pyramid.<br><br>A food web links several food chains together to describe all feeding relationships within an ecosystem<br><br>**Plants as producers**<br><br>All food chains start with an autotroph (producer). These are species that can make their own food, such as plants, algae and many bacteria. Plants produce their own food using light energy from the sun, in a process called photosynthesis. This chemical process is carried out in organelles, by chloroplasts inside plant cells. Chlorophyll, found in chloroplasts, absorbs light energy from the Sun. This energy powers a reaction: carbon dioxide and water combine to produce oxygen and sugars, a process vital for life on Earth..<br><br>**Animals as energy consumers**<br><br>Animals require energy for maintenance, growth, development and reproduction and, unable to produce energy, must eat plants or other animals for their energy requirements. Hence their name (in this context): consumers. Food chains and food webs are useful for showing what species an animal eats. Arrows in food chains and webs indicate the direction of energy flow: from an organism being consumed to the organism consuming it. Consumers may be identified by their position in a chain: first order (primary) consumers eat producers; second order<br><br>(secondary) consumers eat primary consumers; third order (tertiary) consumers eat secondary, and so on along a chain. Consumers high in a food chain do not necessarily eat all species lower down. For example, crocodiles might eat grasshoppers, and grasshoppers eat grass, but crocodiles don't eat grass. High order consumers aren't always the largest or most powerful animals in a chain. For example, meat ants can eat live cane toads even though they're smaller than toads. A food chain simply shows feeding relationships | |
| **THURSDAY** | Show pictures and poster displaying food web to the Learners. | 1. Assist Learners to identify the components of food web.<br>2. Using a chart explain the components of food web.<br>3. Discuss with Learners on the types of food web.<br>4. Learners brainstorm to identify examples each of the types of food web.<br><br>**Types of Food Webs**<br><br>• **Connectance Food Webs** | Learners in small groups to explain 5 importance of the study of food web.<br><br>**Exercise;**<br><br>1. State 3 components of food web |

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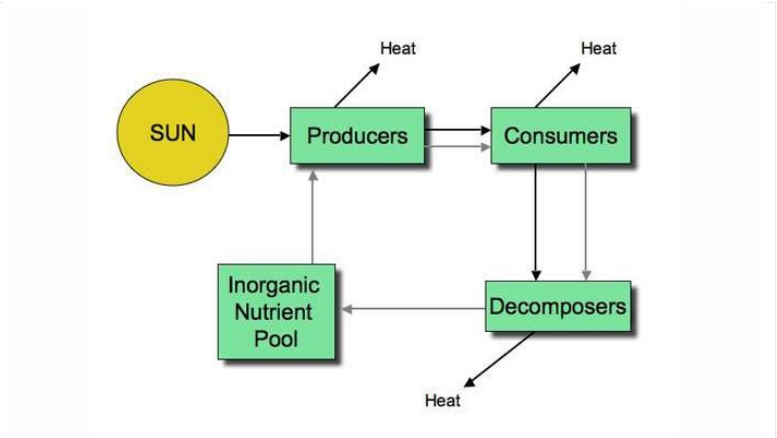
| | | In a connectance food web, scientists use arrows to show one species being consumed by another species. All of the arrows are equally weighted. The degree of strength of the consumption of one species by another is not depicted.<br><br>• **Interaction Food Webs**<br><br>Similar to connectance food webs, scientists also use arrows in interaction food webs to show one species being consumed by another species. However, the arrows used are weighted to show the degree or strength of consumption of one species by another.<br><br>The arrows depicted in such arrangements can be wider, bolder, or darker to denote the strength of consumption if one species typically consumes another. If the interaction between species is very weak, the arrow can be very narrow or not present.<br><br>• **Energy Flow Food Webs**<br><br>Energy flow food webs depict the relationships between organisms in an ecosystem by quantifying and showing the energy flux between organisms.<br><br>• **Fossil Food Webs**<br><br>Food webs can be dynamic and the food relationships within an ecosystem change over time. In a fossil food web, scientists attempt to reconstruct the relationships between species based on available evidence from the fossil record.<br><br>• **Functional Food Webs**<br><br>Functional food webs depict the relationships between organisms in an ecosystem by depicting how different populations influence the growth rate of other populations within the environment. | 2. Write 3 types of food web and 2 examples each. |
| **FRIDAY** | Review Learners knowledge on the previous lesson. | 1. Learners brainstorm to explain "Energy Flow" in ecosystem.<br>2. Draw a diagram to explain how energy from the sun flows through a food chain and food web in an ecosystem.<br>3. Discuss the types of energy flow in ecosystem.<br><br>**Energy flow** is the flow of energy through living things within an ecosystem. All living organisms can be organized into producers and consumers, and those producers and consumers can further be organized into a food chain | Through questions and answers, conclude the lesson. |




**Types of Energy Flow**

- Converting the radiant energy in the form of electromagnetic waves like sunlight into fixed potential energy is done by the plants.
- Fixed potential energy, bound in many organic materials, is broken down to release the stored energy.
- This occurs within the concept of the first law of thermodynamics, which states that energy can neither be created nor destroyed but only transformed from one form to another.
- Organisms that fix radiant energy to produce organic matter are "autotrophs."
- Organisms that depend on energy-rich organic matter synthesized by the autographs are called "heterotrophs" or consumers since they obtain energy from other living organisms.
- Decomposers are bacteria or fungi that obtain their energy from dead and decaying organisms.

- The second law of thermodynamics explains the dissipation of heat energy into its surroundings during energy flow.

- When it is emitted, sunlight or solar energy enters the earth's atmosphere, is transformed into chemical energy, and stored in organic matter in plants.

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| | | • When the herbivores feed on plants, they convert this chemical energy into kinetic energy.<br>• Some energy is degraded during this process into heat energy and released.<br>• Similarly, when carnivores feed on the herbivores and secondary carnivores feed on the primary carnivores, more energy will be degraded. | |

***Name of Teacher:*** ***School:*** ***District:***