

## TEKS Cluster: Basic Needs of Plants and Animals

- 2.9 Organisms and environments.** The student knows that living organisms have basic needs that must be met for them to survive within their environment.

### **Interdependence**

#### ***Readiness Standards***

- 2.9(C) compare the ways living organisms depend on each other and on their environments such as through food chains

#### ***Supporting Standards***

- 2.9(B) identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things

### **Basic Needs of Plants and Animals**

#### ***Supporting Standards***

- 2.9(A) identify the basic needs of plants and animals

## TEKS Scaffold

TEKS	Student Expectation
4.9(B)	describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web (R)
3.9(B)	identify and describe the flow of energy in a food chain and predict how changes in a food chain affect the ecosystem such as removal of frogs from a pond or bees from a field (S)

**2.9 Organisms and environments.** The student knows that living organisms have basic needs that must be met for them to survive within their environment. The student is expected to:

**(C) compare the ways living organisms depend on each other and on their environments such as through food chains**

1.9(C)	gather evidence of interdependence among living organisms such as energy transfer through food chains or animals using plants for shelter (R)
K.9(B)	examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants (S)

## Stimulus

Investigation/ Demonstration	Graph/Chart/Table	Diagram
Visual/Image/ Illustration	Web/Cycle/Chain	Map

## Academic Vocabulary

consumer	food chain	organism
environment	interdependence	producer

## Content Builder

- Living organisms depend on each other and their environments
- Food chains are visuals that depict these relationships

Important concepts in this standard include:

- Learning about the relationship of living organisms and their environments through a variety of food chains

## Instructional Implications

In previous grades, students were introduced to the concept that living organisms depend on one another. With 2.9(C), students continue to see the relationship between living organisms and their environments through food chains. Students need to understand that the original source of energy always starts with the Sun.

Students need to know the difference between producers and consumers and how they interact with one another in a food chain. It is critical for students to have explicit instruction in why a producer is named such and how a consumer is named. Connect both terms to multiple examples in real life.

The basic food chain that students need to understand is: Sun → producer → consumer → consumer. Students may struggle with the arrows represented in a food chain. Emphasize that the arrows show the flow of energy from one living organism to another. In order for students to be successful with this concept, use a variety of food chains for students to learn from and compare.

When teaching this concept, remember to:

- Provide visuals, scenarios, and activities that introduce students to a variety of food chains.
- Have students draw/label food chains and communicate the flow of energy in the food chain.
- Provide the parts of a food chain and have students put them in order, justifying their thinking.
- Explore how the environment supplies basic needs for an organism.
- Investigate how changes to one part of the food chain will impact other organisms in the same chain.
- Model food chains with pictures or stuffed animals. Include the arrows in the model where students can create a food chain, each representing an organism.
- Emphasize the importance of the arrow position and direction. This is crucial at this stage so students can see where the food energy is moving.
- Include nonfiction books to help explain science concepts.
- Use sentence stems to assist students in verbalizing and communicating their conclusions.

## Learning from Mistakes

Students may make the following mistakes:

- Not understanding that food chains start with the original energy source, the Sun
- Not understanding that the arrows in a food chain depict the flow of energy from one living thing to another
- Not understanding that a producer must be in all food chains
- Thinking a food chain shows only the food an animal can eat

**2.9 Organisms and environments.** The student knows that living organisms have basic needs that must be met for them to survive within their environment. The student is expected to:

- 2.9(B) **(B) identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things**

## Role in Concept Development (continued)

Connection/ Relevance	With 2.9(B), students learn about the concept of environmental factors that affect the growth and behavior of living things.
When to Teach	With 2.9(C)
Instructional Implications	<p>Students build on their background of living things and learn how environmental factors can affect growth and behavior, specifically the important role that temperature and precipitation play. Behaviors such as migration, hibernation, and dormancy are explored. Provide students with opportunities to connect academic vocabulary with real-world visuals to make learning connections.</p> <p>When teaching this concept, remember to:</p> <ul style="list-style-type: none"> <li>• Provide real-world examples and activities that connect environmental factors to the growth and behavior of plants and animals.</li> <li>• Choose a variety of scenarios and activities where students can make observations about animals in their environments and justify their thinking.</li> <li>• Use a variety of visuals (e.g., photographs and illustrations) during instruction.</li> <li>• Investigate how behaviors help organisms meet their basic needs in order to survive.</li> <li>• Explore what effect temperature change has on plants and animals (e.g., hibernation, migration, and dormancy).</li> <li>• Explore what effect precipitation has on plants and animals (e.g., migration and dormancy).</li> <li>• Clarify for students with multiple examples the similarities and differences in hibernation and dormancy.</li> <li>• Explore trees and shrubs in the winter time that may be confused as dead (when there are just dormant).</li> <li>• Include nonfiction books to help explain science concepts.</li> <li>• Use sentence stems to assist students in verbalizing and communicating their conclusions.</li> </ul>

## Stimulus

Investigation/ Demonstration	Graph/Chart/Table	Diagram
Visual/Image/ Illustration	Web/Cycle/Chain	Map

## Academic Vocabulary

behavior	migration
dormancy	precipitation
environment	temperature
hibernation	

## Role in Concept Development

- Supports
- 3.9(A) observe and describe the physical characteristics of environments and how they support populations and communities of plants and animals within an ecosystem
  - 4.9(A) investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food
  - 5.9(A) observe the way organisms live and survive in their ecosystem by interacting with the living and nonliving components

### Learning from Mistakes

- Students may make the following mistakes:
- Confusing “hibernation” and “dormancy”
  - Not understanding that the amount of precipitation can affect living things
  - Not understanding the relationship between environmental factors and the migration of living things
  - Thinking winter coats of animals will predict the weather
  - Thinking only land animals migrate
  - Thinking dormancy only affects animals
  - Thinking nothing grows in the winter

- 2.9(A) **2.9 Organisms and environments.** The student knows that living organisms have basic needs that must be met for them to survive within their environment. The student is expected to:
- (A) identify the basic needs of plants and animals**

### Role in Concept Development

- Supports** 4.9(A) investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food
- Connection/Relevance** Once students understand the basic needs, they have a better understanding of the importance and relevance of food chains. Students can then create descriptive investigations that demonstrate the basic needs of both plants and animals.
- When to Teach** With 2.9(C)

**Instructional Implications** Students learn that plants and animals have specific needs for survival. Students explore how each of these needs helps plants and animals. It is important for students to understand that all needs must be met in order for survival. When teaching this standard, students need to experience activities with a variety of plants and animals within their environments for them to truly understand basic needs.

When teaching this concept, remember to:

- Connect specifically to 2.6(A) when discussing how a plant needs sunlight.
- Plan a variety of activities and scenarios that demonstrate the basic needs of plants and animals.
- Use a variety of visuals, videos, and examples for student understanding.
- If a school garden exists, challenge students to “prep” the soil prior to planting. What will they do to ensure a plant has nutrients and space when planting in the spring?
- After observing, ask students for evidence of health in examples of both plants and animals. If observing a sickly plant or animal, how can they help the organism meet its basic needs so it can become healthy?
- Investigate how physical characteristics of plants can help them meet their basic needs.
- Investigate how physical characteristics of animals can help them meet their basic needs.
- Include nonfiction books to help explain science concepts.
- Use sentence stems to assist students in verbalizing and communicating their conclusions.

**Learning from Mistakes**

- Students may make the following mistakes:
- Confusing the basic needs of plants and animals
  - Misunderstanding what nutrients are and how they benefit plants
  - Not understanding the importance of a plant’s need for space
  - Thinking plants get their energy from the soil
  - Thinking plants absorb water through the leaves when it rains
  - Thinking that all animals meet their needs in the same way

### Stimulus

Investigation/ Demonstration	Graph/Chart/Table	Diagram
Visual/Image/ Illustration	Web/Cycle/Chain	Map

### Academic Vocabulary

basic needs of animals (water, food, shelter, air)  
basic needs of plants (water, air, space, light, nutrients)