

SSWIMS IMPLEMENTATION PLAN

The following Implementation plan is for use with Fourth Grade Science Class.

Calendar

Week 1	What are Ecosystems?
Week 2	How Does Energy Flow Through an Ecosystem?
Week 3	How Do Organisms Compete and Survive in an Ecosystem?
Week 4	What is Extinction and What Are Its Causes?

1) WHAT ARE ECOSYSTEMS?

a) Teaching Objectives:

- i) Describe interactions that occur within an ecosystem.
- ii) Analyze adaptive characteristics that result in an organism's unique niche in an ecosystem.
- iii) Identify factors that limit the number and type of organisms in an ecosystem.

b) California Standards:

- i) 2.a. *Students know* plants are the primary source of matter and energy entering most food chains.
- ii) 3.a. *Students know* ecosystems can be characterized by their living and nonliving components.

c) Learning Activities:

- i) *For Sea Grade 4: The Long Wet Journey, p. 103*
- ii) *For Sea Grade 4: Hooks and Ladders, p. 163*

2) HOW DOES ENERGY FLOW THROUGH AN ECOSYSTEM?

a) Teaching Objectives:

- i) Identify the roles of producers, consumers, and decomposers in an ecosystem.
- ii) Describe how energy flows from one organism to another in food chains and in food webs.
- iii) Recognize that because energy is lost as heat at each level of consumption, ecosystems must have more producers than consumers.

b) California Standards:

- i) 2.a. *Students know* plants are the primary source of matter and energy entering most food chains.
- ii) 2.b. *Students know* producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem.
- iii) 2.c. *Students know* decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.
- iv) 3.d. *Students know* that most microorganisms do not cause disease and that many are beneficial.

c) Learning Activities:

- i) *For Sea Grade 4: World in a Jar, p. 197*

3) HOW DO ORGANISMS COMPETE AND SURVIVE IN AN ECOSYSTEM?

a) Teaching Objectives:

- i) Identify ways in which organisms are adapted to compete for resources.
- ii) Describe some mutually beneficial interactions that occur within ecosystems.

b) California Standards:

- i) 2.b. *Students know* producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem.
- ii) 3.b. *Students know* that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.
- iii) 3.c. *Students know* many plants depend on animals for pollination and seed dispersal, and animals depend on plants for food and shelter.
- iv) 3.d. *Students know* that most microorganisms do not cause disease and that many are beneficial.

c) Learning Activities:

- i) *For Sea Grade 4: Food Web, p. 255*

4) WHAT IS EXTINCTION AND WHAT ARE ITS CAUSES?

a) Teaching Objectives:

- i) Identify trends in resource use.
- ii) Describe some natural and human causes of extinction.
- iii) Identify ways humans can work to prevent extinction of endangered species.

b) California Standards:

- i) 2.a. *Students know* plants are the primary source of matter and energy entering most food chains.
- ii) 3.b. *Students know* that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

c) Learning Activities:

- i) *For Sea Grade 8: The Bountiful Game, p. 669*

ASSESSMENT WEEK 1

1. What are the primary source of matter and energy entering most food chains?
2. Ecosystems can be characterized by both their _____ and _____ components.
3. Trout are Salmonids. **True or False.**
4. The nest or spawning area of salmon is known as the _____.
5. A newly hatched fish with yolk sac attached is called an _____.
6. After the yolk sack has been absorbed the fish is called a _____.
7. A migrating salmon that has undergone physical changes to prepare for life in salt water is called a _____?
8. Traveling between seasonal habitats is called _____?
9. The act of egg laying by the female and fertilization by the male is called _____?
10. The milky substance used by the male salmon to fertilize the eggs is known as _____?

Answers

1. Plants
2. Living and nonliving
3. True
4. Redd
5. Alevin
6. Fry
7. Smolt
8. Migration
9. Spawn
10. Sperm or Milt

ASSESSMENT WEEK 2

1. _____ takes place when consumers and producers struggle with each other for resources in an ecosystem.
2. _____ recycle matter from dead plants and animals.
3. Most microorganisms **do or do not** cause disease.
4. Does **warm or cold** water hold more oxygen?
5. A scientist that studies aquatic life is called a _____?
6. The saltiness of water is also known as _____?
7. A _____ is a device that measures water density.
8. Nitrosomas and Nitrobacter and two important types of _____ that make water safe for fish to live in.
9. Growing plants and animals in water by people is called _____.
10. Animals with no spine or backbones are called _____.

Answers

1. Competition
2. Decomposers
3. Do Not
4. Cold Water
5. Marine Biologist
6. Salinity
7. Hydrometer
8. Bacteria or microorganism
9. Aquaculture
10. Invertebrates

ASSESSMENT WEEK 3

1. An organism that eats other organisms to get the energy needed to survive is known as a _____.
2. When something decays, rots or disintegrate it is said to _____.
3. A line model that shows who eats whom is called a _____.
4. A diagram in the shape of a triangle showing how energy is moved from one trophic level to another is called a _____.
5. Food chains connected to reflect the relationships among the producers, consumers and decomposers of a community is called a _____?
6. Plant plankton is called: _____.
7. Animal plankton is called: _____.
8. An energy level in a food chain or food web is called a _____ level.
9. Are we a consumer or a producer?
10. Some microorganisms are beneficial. **True or False?**

Answers:

1. Consumer
2. Decompose
3. Food Chain
4. Food Pyramid
5. Food Web
6. Phytoplankton
7. Zooplankton
8. Trophic
9. Consumer
10. True.

WEEK 4 ASSESSMENT

1. Contaminants that are placed in the environment by individuals are called **non-point** or **point** source pollution?
2. Contaminants which enter the environment from a single source are called **non-point** or **point** source pollution?
3. All the land which drains water into a river or other body of water whenever it rains or snows is called a _____.
4. pH is a measure of which quality of water? _____.
5. A secchi disk measures what quality of water? _____.
6. Litmus paper test for what?
7. When a species dies out and is no longer able to maintain a reproducible population we say that that animal is _____.

Answers:

1. Non-point
2. Point
3. Watershed
4. Acidity
5. Clarity or Turbidity
6. Acid or Base
7. Extinct