

Chapter Eight

Aquatic biome



Day One:

Today, you and your child will:

1. Read the text
2. Review the text with your child
3. Complete the student worksheets
4. Collect the materials you will need for days two and three

National Science Education Standards covered this week:

An organism's patterns of behavior are related to the nature of that organism's environment, including the kinds and numbers of other organisms present, the availability of food and resources, and the physical characteristics of the environment.

The aquatic biome contains a huge temperature range from hot to cold, depending upon the type of habitat (freshwater, saltwater, estuary, etc.) Naturally, water is in abundance and very little soil exists. This biome contains a massive amount of organisms as it is the largest biome in the world.

Definitions

Aquatic biome	a biome that includes all organisms that live within fresh water or salt water
Freshwater	these habitats include ponds, streams, lakes, rivers and wetlands; they are called "freshwater" because of the low amount of salt in the water
Lakes	large bodies of water that are surrounded by land
Ponds	small bodies of water that are surrounded by land
Wetlands	large areas of shallow water; also known as swamps
Streams	small bodies of freshwater moving in one direction
Rivers	large bodies of freshwater moving in one direction
Estuaries	areas where rivers and streams flow into saltwater habitats
Marine	saltwater habitats
Oceans	the largest marine biome in the world

Sample questions to ask your child after completing the weekly reading.

Why are wetlands important for animals?

Wetlands provide plenty of shelter and food for organisms.

What is the difference between a lake and a pond?

Size...Lakes tend to be larger than ponds.

What are some examples of freshwater habitats? How are these different from saltwater habitats?

Lakes, ponds, streams and rivers are all examples of freshwater habitats. These area are different from saltwater habitats since they do not contain as much salt.

Answers to worksheet questions:

Page 1:

(word search)

Page 2:

4 - aquatic biome

3 - freshwater

9 - lakes

6 - ponds

2 - wetlands

1 - streams

5 - rivers

10 - estuaries

7 - marine

8 - oceans

Unit Two Review Answer Key

Biome	Temperature	Water	Soil	Plants and Animals
Grassland	Hot (and maybe cold)	Wet/dry season	Good nutrients	Many organisms
Deciduous forest	Hot summers, cold winters; All four seasons	Plenty	Good nutrients	Many organisms
Coniferous forest	Mostly cold	Plenty	Poor, rocky soil	Many organisms
Tropical rain forest	Always hot	Very wet	Poor, thin soil	Many organisms
Tundra	Cold	Very dry	Poor, frozen soil	Migrating birds
Desert	Hot or cold	Very dry	Poor soil	Few organisms
Aquatic	Hot to cold	Always wet	No soil	Many organisms

Day Two:

Today, you and your child will:

1. Review Day One using the following text
2. Run the first activity this week

The following text will give you the most important items to review for your activity today.

Estuaries are unique areas where freshwater habitats mix with saltwater habitats.

Most estuaries are home for species that cannot live anywhere else in the world.

The mixing of an estuary is typically caused by the increased wind and water currents of the ocean.

When two habitats collide...

Objective:

Children will explore the difference between freshwater and saltwater when these two habitats mix together to form an estuary!

Materials:

warm water

salt

blue food coloring (any color will work)

two drinking glasses

Procedure:

Fill a glass halfway with warm water and add a spoonful of salt. Stir the mixture and wait until the water is still. Look for any salt that remains in the water. Keep adding spoonful's of salt until the water cannot dissolve any more. Stir in enough blue food coloring into the glass to turn the liquid dark blue. This glass represents the salty ocean water.

Fill a second glass halfway with warm water. This glass represents fresh river water.

Now tell your child that you will be slowly pouring the freshwater into the saltwater. Have them make a prediction as to what may happen.

Take the glass with the blue solution (ocean water) and SLOWLY pour it into the glass of warm water (river water). Pour it very slowly onto the edge of the glass. You do not want to mix this solution.

Explanation:

Areas where rivers flow into the ocean are known as estuaries. Fresh water is less dense than ocean water. So, the freshwater floats on top of the denser ocean water. Ocean water is denser because it has more "stuff" in it (like a whole bunch of salt) than compared to fresh river water. In an estuary there may be a small zone between the fresh and salt water, but they tend to remain separate from each other. Further out into the ocean, the river and ocean water mix together because of the increased wind and water currents.

Day Three: Lab Activity

Today, you and your child will:

1. Review Day One using the following text
2. Run the first activity this week

The following text will give you the most important items to review for your activity today.

The density of saltwater is much higher than the density of freshwater. Because of this, saltwater sinks to the bottom of a glass of freshwater.

This change in density affects the habitats of organisms that live in estuaries. These areas provide a habitat that support unique species.

A problem solving game with saltwater...

Objective:

Children will solve a puzzle that involves different mixtures of salt-water solutions.

Materials:

salt (pickling salt works best...you can find this in the spice isle of most grocery stores)

three (or more) cups

water

clear drinking straw

food coloring

spoon

Procedure:

Fill one of the cups with tap water. The amount of water does not matter.

However, you want no more than an inch of water in the cup! Place a drop of red food coloring into this water and mix.

Place a spoonful of pickling salt into one of the cups and fill it with water. Mix until the salt dissolves.

Add a drop of yellow food coloring into this mixture and stir.

Place two spoonfuls of water into another cup, fill it with water and mix. Add a drop of green food coloring to this mixture and stir.

Have the child take their straw and insert it into the red cup of water.

Instruct them to cover the top of the straw with their finger and remove the straw. The liquid should stay in the straw.

Now, have them slowly insert their straw into the yellow water. Their finger should stay on the top of the straw. The red liquid from the first cup should stay in the straw.

Once their straw reaches the bottom of the second cup, they can slowly remove their finger and let air enter the straw. After two seconds they can recover the straw with their finger and slowly pull the straw out of the cup.

Since the red liquid in the first cup contains no salt at all, it will “stack” on top of the yellow liquid. This will form two layers of water in their straw! Try this once more with the green liquid.

Explanation:

You will want to use pickling salt since this substance dissolves clearly in water. Table salt tends to leave a cloudy appearance. The less dense an object is, the more likely it is to float on top of denser substance. In this case, the red liquid contains no salt at all. Therefore, it is less dense than the other liquids.

When the straw containing the red liquid is placed into the yellow liquid and the child’s finger is removed, air pressure in the cup forces the yellow liquid up and into to the straw. Since the yellow liquid is denser than the red liquid, the two fluids do not mix. Instead, they “stack” on top of each other. By adding the green liquid, the child can see three separate layers in their straw.

This activity can be modified for the age of the child. Three cups work just fine with younger children. You can also increase the number of salt solutions or challenge the child to find the right combination without informing them of the contents in each cup.

Test: Unit 2

Chapters 5-8

Match the words in the second column to the best available answer in the third column. Place the correct number on the blank line.

_____	coniferous forest biome	a layer of frozen soil
_____	freshwater	a biome that includes all organisms that live within fresh or salt water
_____	desert biome	a biome that is filled with trees that lose their leaves in the fall and has four separate seasons
_____	tundra	areas where rivers and streams flow into saltwater habitats
_____	deciduous forest biome	trees with short waxy needles and make seeds that are called cones
_____	biomes	this biome is always warm, has a lot of rainfall and a huge amount organisms
_____	conifers	these habitats include ponds, streams, lakes rivers and wetlands
_____	aquatic biome	a biome with few trees and good soil for many different grasses
_____	tropical rain forest biome	a biome with hot days, cold nights, very little water and few organisms
_____	grassland biome	a biome with long winters and is filled with trees known as conifers

_____	permafrost	areas of the world that have the same temperature, amount of rainfall, kind of soil and habitats
_____	estuaries	the coldest biome on the planet

Which one is right? Circle the correct answer.

- 1. The difference between tropical and temperate grasslands is:**
 - a) temperate grasslands are hot all year long
 - b) tropical grasslands are cold all year long
 - c) temperate grasslands have hot and cold seasons
- 2. Biomes have been made to group areas of the world with the same...**
 - a) temperature, rainfall, kind of soil and habitats
 - b) temperature, kinds of plants and animals and soil
 - c) kinds of plants and animals, rainfall and habitats
- 3. Trees in a coniferous forest get most of their water from:**
 - a) rain
 - b) ice
 - c) melted snow
- 4. The coldest biome in the world is the:**
 - a) tundra
 - b) coniferous forest
 - c) grassland
- 5. Freshwater biomes include:**
 - a) lakes, rivers and the ocean
 - b) ponds, lakes and streams
 - c) rivers, ponds and the ocean
- 6. How do animals that live in the tundra keep warm?**
 - a) by always moving and staying warm
 - b) by migrating and burrowing into the ground
 - c) by sleeping all winter long

Fill in the blanks in the table from this list of words:

- a) Few organisms
- b) Migrating birds
- c) Poor, rocky soil
- d) Wet/dry season
- e) Hot summers/cold winters; all four seasons
- f) Always wet

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Aquatic	Hot to cold		No soil	Many organisms

Test: Unit 2

Answer Key

Matching

10 coniferous forest biome

7 freshwater

9 desert biome

12 tundra

3 deciduous forest biome

11 biomes

5 conifers

2 aquatic biome

6 tropical rain forest biome

8 grassland biome

1 permafrost

4 estuaries

Multiple choice

1) C

2) A

3) C

4) A

5) B

6) B

Fill in the blanks

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