

CBL Biology: Life Science Option

BSCS Green Version 10th edition



Biology, An Ecological Approach Lesson Plan for Week 6, Day 1

Outcomes for Today

Standards Focus: 6b

PREPARE

1. Background knowledge necessary for today's reading

We continue to read and hear reports about the increasing numbers of wild land fires (often referred to as forest fires). These fires seem to be increasing in both intensity and numbers. This is due to several factors including:

Population increases and home construction in traditionally fire prone areas.

Climate changes including more drought periods.

Years of fire suppression resulting in a build up of fuel in the environment.

Of all of these factors, it is the build up of fuel that is the most critical. Historical records of early pioneers traveling through the western forest speak of large open spaces under a canopy of trees. The settlers could easily guide their wagon trains through these areas. This is not the case today. Many of our western forests are extremely dense with thick dry and dead vegetation. Now, when a fire does begin, it is so intense, that the entire forest is razed. In previous times, periodic fires would burn through the ground vegetation and not kill the larger trees. This was actually a much healthier habitat for many animals as well.

2. Vocabulary Word Wall

Introduce five important, useful words from today's reading.

terrestrial

sapling

community

mesquite

drought

- Show, say, explain, expand, explode or buzz about the word briefly.
- Show, say and define the word quickly and add to the word wall.

READ

3. Review the vocabulary and concepts previously covered in this chapter

Start at the beginning and review the concepts and vocabulary covered so far.

- Mention the setting and main ideas.
- Point to the concept chart as you quickly review it.

Ecosystems are constantly evolving.

The process of one plant community being replaced by another one is known as succession.

The most stable or “final” community is known as the climax community.

Natural and human caused events can disrupt ecosystems sending the succession process back to a previous plant community.

Fire is one of these disruptive processes and has long been a part of the natural order of succession in many plant communities.

4. Read directions for investigation

5. Read text. Chapter 22, Biomes Around the World , Text Investigation 22.3, pp. 656 - 659.

Shared Reading RRP: Read, React, Predict every 2-3 pages

Tape Partner Choral Silent Round Robin Reading

Setting	Characters	Pages
midlatitude grasslands	grasses, mesquite	657
Great Lakes forest	Jack pine trees,	657
Southeastern pine forest	Longleaf pines	658

RESPOND

6. Fix the facts. Clarify what is important

Discuss the reading and add 3-5 events to the billboard.

- Discuss the text; clarify the most important facts, concepts, ideas and vocabulary.
- Decide on the 3-5 most important **concepts** and post these on the billboard.

Students might mention:

Wild fires burn through grasslands faster than they burn through forests.

Mesquite roots reach very deep into the soil.

Some plants are killed off by fire while others sprout back from the roots.

When Europeans settled in the United States, the landscape changed a great deal.

Fire has always been part of the natural cycle of nature in many areas.

Some pines only sprout after a fire.

7. Post information on the billboard. Add new information to ongoing whole class projects posted on the wall

- New concept information can be added to the billboard.
- An answer can be added to a question from the KWL Chart.
- New information can be added to ongoing charts and investigations.

EXPLORE

8. Explore today's investigation with inquiry activities

9. Explore today's simulation with inquiry activities

10. Collect data and post

One possible activity:

Fire Effects in Different Biomes

In this activity, students will observe the stages of fire in three different biomes of the United States: a midlatitude grassland, a forest in the Great Lakes region, and a pine forest in the southeastern part of the country.

Procedure

Review with the with students the four illustrations in each biome (pages 657-659 in the student text.). Ask students to make detailed observations on each vignette of the four. Divide the class into three groups and assign each group to one of the three biome situations.

Activity

Have each group follow the procedures for their biome outlined in the text. Direct them to prepare a report on their biome of study for presentation to the group. Students should also prepare a poster to aid in their discussion.

Discussion

Follow up with this lesson referenced on the web:

If Trees Could Talk

<http://www.windowsintowonderland.org/fire/teachers/treestalk.htm>

Other possible activities for a class group or individual

- Bookmark
- Open Mind Portrait
- g6 Graphic Organizer
- g7 Main Idea Graphic Organizer
- c1-12 Cubing
- Postcard
- Prop
- Poster
- Ad
- Map
- Retelling
- Reader's Theatre
- Cartoon
- Rap

Key Questions

If you were a rancher and wanted to increase your production of beef on the grasslands, why would it be important to understand the fire ecology?

Why do some plants grow back only after a fire?

Why do some plants need fire to reproduce?

Why do you suppose the early settlers found the western forests much more open than today?

Remember to ask literal structural idea craft author literature life evaluate and inference questions every day.

Key Paragraph

Fire is an important ecological factor in terrestrial ecosystems. Some fires start from natural causes, but many are caused by humans, deliberately or accidentally. No matter how they begin, fires have many effects on the organisms in their paths. The most easily observed effects are on vegetation.

EXTEND

11. Prompt every student to write a short product tied to today's reading

Only You Can Prevent forest Fires

This was Smokey the Bear's standard line for many years. Ask students to write a new message from Smokey's son, Dusty, the enlightened bear who understands fire ecology.

12. Close with a short summary

Extend the reading to the students' lives or to the world.

CBL Biology: Life Science Option

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Biology, An Ecological Approach Lesson Plan for Week 6, Day 2

Outcomes for Today

Standards Focus: 6bde

PREPARE

1. Background knowledge necessary for today's reading

The earth consists of much more water than land just in surface area. Life began in water and over the centuries human populations have settled and congregated near water sources. Consider the great cities of today and their locations. The vast oceans contain most of the water on earth and materials washed and flushed from the land eventually end up in the ocean. In addition, the ocean has a major effect on the weather. The oceans of earth contain the dissolved chemicals from the land (good and bad). All materials eventually reach the ocean. This watery environment is known as the hydrosphere.

2. Vocabulary Word Wall

Introduce five important, useful words from today's reading.

hydrosphere plankton phytoplankton zooplankton macroscopic

- Show, say, explain, expand, explode or buzz about the word briefly.
- Show, say and define the word quickly and add to the word wall.

READ

3. Review the vocabulary and concepts previously covered in this chapter

Start at the beginning and review the concepts and vocabulary covered so far.

- Mention the setting and main ideas.
- Point to the concept chart as you quickly review it.
Plants are producers as they convert sunlight to energy.
A food chain begins with producers.
Consumers eat producers and are often eaten by other consumers.
A food web refers to all the producers and consumers in a particular ecosystem and the connections between them all.

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4. Read directions for investigation

5. Read text. Chapter 23, Aquatic Ecosystems , Text Sections Introduction and 23.1, pp. 660 – 663.

- Shared Reading RRP: Read, React, Predict every 2-3 pages
 Tape Partner Choral Silent Round Robin Reading

Setting	Characters	Pages
pond ecosystem	Muskrat, egret, water snake, frog, pickerel mayfly, plankton	663

RESPOND

6. Fix the facts. Clarify what is important

Discuss the reading and add 3-5 events to the billboard.

- Discuss the text; clarify the most important facts, concepts, ideas and vocabulary.
- Decide on the 3-5 most important **concepts** and post these on the billboard.

Students might mention:

- Ponds are generally shallow.
- Pond water is not moving water.
- Ponds contain a great deal of life.
- Plankton is a group of tiny living things that just float about.
- Pond water temperatures are the same throughout because they are shallow.

7. Post information on the billboard. Add new information to ongoing whole class projects posted on the wall

- New concept information can be added to the billboard.
- An answer can be added to a question from the KWL Chart.
- New information can be added to ongoing charts and investigations.

EXPLORE

8. Explore today's investigation with inquiry activities

9. Explore today's simulation with inquiry activities

10. Collect data and post

One possible activity:

Pond Study

You can usually find some sort of a pond nearby. Even if it is rather artificial such as in a city park or golf course, there are generally many organisms to study. Do a little legwork to locate a pond that is accessible to your students. If this is not possible, then bring the pond water into the classroom.

Procedure

1. Review the material on food webs in chapter 1 of the student text.
2. Have students fill the bottom of the collecting pan with water from the pond and place it in the shade to keep it cool. Dip the net into the pond and then carefully turn it inside out in the water in the collecting pan, releasing whatever has been caught. Take samples from various microhabitats, including the surface, the bottom, sediments, and within vegetation.
3. How many organisms can students pick out and identify? Even if they can't identify the species, can they guess the role the organisms might play in the pond community? (For more information about sampling, identification, and natural history of pond insects and other invertebrates, obtain a copy of *Pond and Stream Safari* or a field guide to pond life.)
4. Have students take the samples of water and examine them under the microscope. How many different organisms can they count? How many plants? How many animals? Try collecting some pond scum. What kind of creatures do you find? Where do they fit in the food web?
5. Have students observe the rest of the animal life in and near the pond. Look for birds, fish, turtles, egg masses, and signs of animals, such as animal tracks, feces, underground burrows, and nests. Discuss what the different animals may be eating. From what they have seen, can the students surmise who are the predators and prey? Have them imagine being a specific reptile or amphibian living in the pond. What would they eat? How would they avoid being eaten?
6. Ask the students to draw a food web of the pond based on their observations.

Discussion

Follow up with a discussion on the importance of ponds.

Note: If you take some of the pond water and add a little straw to the solution, it will reward you with a real growth of microorganisms to be studied under the microscope.

Other possible activities for a class group or individual

Bookmark Open Mind Portrait g6 Graphic Organizer

g7 Main Idea Graphic Organizer c1-12 Cubing Postcard Prop

Poster Ad Map Retelling Reader's Theatre Cartoon Rap

Key Questions

Describe the food web of a typical pond.

Observe the pond illustration on pages 662-663. Create a food web with the various plants and animals.

Using a Venn diagram, compare and contrast phytoplankton and zooplankton.

Remember to ask literal structural idea craft author literature life evaluate and inference questions every day.

Key Paragraph

A pond is an example of standing water. However many ponds are fed by springs or brooks, and many have outlets. Ponds are usually defined as small, completely enclosed bodies of water that are shallow enough so that light penetrates to the bottom. Rooted plants can grow throughout a pond. Temperatures from top to bottom are relatively uniform during the warm months of the year. Whether ponds are natural or artificial, their characteristics are much the same.

EXTEND

11. Prompt every student to write a short product tied to today's reading

The Little Green Frog Part II

Assignment

Here is the first verse. Ask students to write a second verse:

There's a little green frog, swimmin in the water, a little green frog, doin what he oughter.

He jumped right off of the lily pad that the little duck bit and he said, "I'm Glad! I'm a little green frog, sittin on the water, Glug glug glug."

12. Close with a short summary

Extend the reading to the students' lives or to the world.

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Biology, An Ecological Approach Lesson Plan for Week 6, Day 3



Outcomes for Today

Standards Focus: 6bde

PREPARE

1. Background knowledge necessary for today's reading

Most students have an idea of and some level of experience with freshwater lakes. In this lesson, students will be introduced to the ecological aspects of the freshwater lakes. Quite often the words lakes, streams, rivers, and ponds are used in an unclear (pardon the pun) manner. Try and focus on the scientific aspects. Remind students that all of this terminology was created by humans using language in an attempt to help understand and study. Lakes have an important place in the earth's ecosystems and are vulnerable to human influences of pollution and degradation.

2. Vocabulary Word Wall

Introduce five important, useful words from today's reading.

water cycle diffusion thermocline sediment salinization

- Show, say, explain, expand, explode or buzz about the word briefly.
- Show, say and define the word quickly and add to the word wall.

READ

3. Review the vocabulary and concepts previously covered in this chapter

Start at the beginning and review the concepts and vocabulary covered so far.

- Mention the setting and main ideas.
- Point to the concept chart as you quickly review it.

The earth consists of mostly water.

Over 70 percent of the surface of the earth is covered by water.

The oceans are the greatest bodies of water.

The earth's water ranges from fresh to very salty.

Ponds are fresh water shallow bodies of water.

Ponds are rich in the diversity of aquatic life.

4. Read directions for investigation

5. Read text. Chapter 23, Aquatic Ecosystems , Text Sections 33.2-33.3, pp. 664 – 666.

- Shared Reading RRP: Read, React, Predict every 2-3 pages
 Tape Partner Choral Silent Round Robin Reading

Setting	Characters	Pages
typical lake	layers of water	665

RESPOND

6. Fix the facts. Clarify what is important

Discuss the reading and add 3-5 events to the billboard.

- Discuss the text; clarify the most important facts, concepts, ideas and vocabulary.
- Decide on the 3-5 most important **concepts** and post these on the billboard.

Students might mention:

Lakes are larger than ponds.

Lakes have some deep areas which are always colder and darker.

Most of the phytoplankton in a lake is near the surface.

Lakes gradually fill up with sediment.

Lakes can turn salty over time if there is no outlet.

7. Post information on the billboard. Add new information to ongoing whole class projects posted on the wall

- New concept information can be added to the billboard.
- An answer can be added to a question from the KWL Chart.
- New information can be added to ongoing charts and investigations.

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EXPLORE

8. Explore today's investigation with inquiry activities

9. Explore today's simulation with inquiry activities

10. Collect data and post

One possible activity: Water Cycle Review

The water cycle is an important concept and this would be a good time to review or reintroduce the concept. Using the illustration on page 666 of the student text, discuss the cycle with students. Also Transparency 51 in the Transparencies book could be used as a guide.

Discussion Points

What are the uses of water? Brainstorm how the earth never runs out of water when it is used for many things.

The sun is the energy source which provides heat for the evaporation of water into the atmosphere.

Evaporation is the process of changing water from its liquid to its gaseous state with heat- in the closed system of the earth.

What happens to the gaseous water? Does it stay in the oceans, rivers, etc.? Why does it rise into the atmosphere?

Condensation of the gaseous water vapor occurs as it rises into the atmosphere- condensation is the changing of water vapor back into its liquid state through cooling as condensation occurs, clouds are formed.

Explain what may happen as the water vapor becomes more solid?

The weight of the cooled water vapor causes water to fall from the clouds in the form of precipitation- can be rain, snow, sleet.

Lab Activity

Students will go by row up to the water table where they will pick up a small dixie cup and sandwich baggie. They will be instructed to add approximately 2 or 3 centimeters of water to the cups (about half). They will return to their seats with the materials.

Movement around the room should be standard room procedure set-up by teacher.

Once in their seats, each row will write their names on their baggies, along the top, then they will place their water cups into one of the corners of their baggies, tape will be passed along the rows to help secure the cups into place. Students will be instructed how to perform their seat procedures before the beginning of the lab. Once each

student has taped the cups into the bags the students will be asked to go by row to the windows where they will seal their baggies tightly and tape the baggies to the windows.

While in their seats before and after taping the baggies (mini-water cycles), the students will be asked to draw a picture of their set-up in the box for day one, and make a prediction, or hypothesis about what will happen for day two in the mini-water cycles.

Follow Up

Students will share and explain their predictions and contemplate what factors may effect their experiments and may be different than the earth's water cycle.

They should monitor their mini-water cycles for the following three days (or through Friday.)

Other possible activities for a class group or individual

Bookmark Open Mind Portrait g6 Graphic Organizer

g7 Main Idea Graphic Organizer c1-12 Cubing Postcard Prop

Poster Ad Map Retelling Reader's Theatre Cartoon Rap

Key Questions

How were most lakes formed? Use an illustration to explain your answer.

Lakes eventually turn into bogs, marshes, and meadows. Create this formation cycle with a comic strip-type illustration.

Why can't phytoplankton live near the bottom of lakes?

What is the thermocline? Again, use an illustration to assist with your answer.

If a lake has no outlet and rivers and streams continue to flow into the lake, what can be the ultimate result? Give an example of this.

Remember to ask literal structural idea craft author literature life evaluate and inference questions every day.

Key Paragraph

The amount of oxygen in the water limits the existence of aquatic consumers. Water at the surface of a lake constantly receives dissolved oxygen from photosynthetic organisms and from the air. This oxygen diffuses slowly downward from the surface. But most of the oxygen is used up by zooplankton before it diffuses very far. How does oxygen spread into deeper water?

EXTEND

11. Prompt every student to write a short product tied to today's reading

My Experience with a Lake

Ask students to write a short paragraph about their personal experience with a lake. Assist them in creating a visual picture through words.

12. Close with a short summary

Extend the reading to the students' lives or to the world.

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Biology, An Ecological Approach Lesson Plan for Week 6, Day 4

Outcomes for Today

Standards Focus: 6bde

PREPARE

1. Background knowledge necessary for today's reading

There is always something about flowing water that attracts us. Perhaps it is the sounds that tend to relax most of us. Maybe it is the fact that no two rivers or streams are the same. At any rate, these are precious resources and also easily disturbed ones. This lesson introduces students to stream life. Perhaps some students have memories of spending time in a creek. Unfortunately, for a variety of reasons, this is not the experience of many students these days. As you plan this lesson, consider the possibilities for taking a creek or stream field trip.

2. Vocabulary Word Wall

Introduce five important, useful words from today's reading.

cyanobacteria

bacteria

brook

stream

river

- Show, say, explain, expand, explode or buzz about the word briefly.
- Show, say and define the word quickly and add to the word wall.

READ

3. Review the vocabulary and concepts previously covered in this chapter

Start at the beginning and review the concepts and vocabulary covered so far.

- Mention the setting and main ideas.
- Point to the concept chart as you quickly review it.

Aquatic ecosystems are varied as well as common.

Freshwater ecosystems are found on land.

The vast oceans are salty because evaporation leaves behind dissolved minerals and salts.

Ponds are shallow freshwater ecosystems.

Ponds are rich in life because sunlight can reach to the bottom allowing for a variety of producers to grow.

Lakes are larger bodies of fresh water than ponds and have deep sections that remain cold throughout the year.

Lakes have definite layers and the top layers and bottom ones are separated by a thermocline.

4. Read directions for investigation

5. Read text. Chapter 23, Aquatic Ecosystems , Text Sections 33.3, pp. 667 – 668.

- Shared Reading RRP: Read, React, Predict every 2-3 pages
 Tape Partner Choral Silent Round Robin Reading

Setting	Characters	Pages
streams	Mussels, snails, crawfish, insect larvae	667-668

RESPOND

6. Fix the facts. Clarify what is important

Discuss the reading and add 3-5 events to the billboard.

- Discuss the text; clarify the most important facts, concepts, ideas and vocabulary.
- Decide on the 3-5 most important **concepts** and post these on the billboard.

Students might mention:

A river is larger than a stream which is larger than a brook.

Cool water can hold more oxygen

Streams have more life than brooks.

Rivers move slower than streams.

The mouth of a river is where it meets the sea.

The soil along a river is very rich and fertile.

7. Post information on the billboard. Add new information to ongoing whole class projects posted on the wall

- New concept information can be added to the billboard.
- An answer can be added to a question from the KWL Chart.
- New information can be added to ongoing charts and investigations.

EXPLORE

8. Explore today's investigation with inquiry activities

9. Explore today's simulation with inquiry activities

10. Collect data and post

One possible activity: Measuring Stream Flow

Description of activity

Hopefully there is a stream nearby your school in which students can carry out this activity. If not, see **Alternate Activity II** at the end of this activity description.

Background/Inquiry:

Streams are an essential part of all watershed systems. A stream's flow is an important ecological factor that has great bearing on the way a stream will affect the surrounding area. If a stream is flowing slowly it cannot carry as heavy a sediment load and has less power to cut new channels. If a stream is flowing rapidly it has an opposite effect. For example, streams affect erosion of agricultural land. This helps determine or shape the human practices that are used to control stream flow erosion such as levees, jetties, channeling, etc. All organisms are affected by stream flow. The ability to measure the flow of the stream is a fundamental skill in water ecology.

Introduce this lesson with preactivities that will allow students to explore stream flow. For example, throw a ball in the water and observe it. Use scientific inquiry/questioning to help the students form some sort of a hypothesis about what is going on in that turbulent or lazy stream.

Procedure

Materials

- meter tape (50-100 meter length)
- meter sticks
- paper/pencil
- calculator
- timing device (stopwatch or watch with seconds delineated)
- object to float down the stream

Safety, Handling, Disposal:

Safety near the water is essential. Review safety techniques prior to entering the field. It is suggested that a stout rope and/or personal flotation devices be readily at hand (particularly if the water source is near a larger river).

- Work with partners--keep track of each other.
- Use extreme caution in rapidly moving water areas.
- Leave as little impact on the area as possible (pack it in--pack it out).

Objectives:

Students should be able to:

- Use a meter stick to measure length.
- Use a watch to record the time of an event.
- Determine stream flow by using a formula.

Problem/Purpose:

Show students how to measure stream flow.

Example: The stream flows faster than a person can walk.

Procedure:

1. Measure off a 50-meter stretch of stream.
2. Float an object (such as a stick) through the 50-meter stretch.
3. Time, in seconds, how long it takes for the stick to float 50 meters. Record the time. Repeat three times and find the average time.
4. Measure the width of the stream in at least five different locations along the 50-meter stretch. Measure the width in meters. Find the average.
5. Measure the depth of the stream along an imaginary line running perpendicular to the stream in at least five different locations. Measure the depth in meters. Find the average.
6. Calculate the stream flow using the following formula:

$$\text{Stream flow} = \frac{(\text{length of section X average depth X average width})}{\text{time}}$$

The answer will be in cubic meters/second. Show calculations and record answers in the results area.

Discussion

Follow up with a discussion on findings. Post results back in the classroom.

Alternate Activity II

The Monterey Bay Aquarium has excellent exhibits on aquatic ecosystems including the freshwater stream. Go to:

http://www.montereybayaquarium.org/efc/efc_wao/wao_cam.asp

You will be able to see a live video of the freshwater stream including freshwater otters.

Other possible activities for a class group or individual

Bookmark Open Mind Portrait g6 Graphic Organizer

g7 Main Idea Graphic Organizer c1-12 Cubing Postcard Prop

Poster Ad Map Retelling Reader's Theatre Cartoon Rap

Key Questions

Name at least two differences between pond and flowing freshwater bodies (streams, brooks, and rivers).

Why do streams generally have more oxygen dissolved in them?

Where does most of the food in a stream come from?

Why do streams have more consumers living in them than brooks?

What is a natural levee and how is it formed?

Why is the land along rivers so good for growing crops?

Remember to ask literal structural idea craft author literature life
evaluate and inference questions every day.

Key Paragraph

Freshwater in motion has different characteristics than a standing pond or a lake. Flowing water usually is cool, although some hot springs do exist. Cool water can hold relatively large amounts of gasses in solution. As water tumbles through rapids and falls, it traps many air bubbles from which oxygen easily dissolves. Cool water in brooks usually contains much oxygen.

EXTEND

11. Prompt every student to write a short product tied to today's reading

Writing a Poem about Streams and/or Flowing Water

This link contains some interesting helpful hints to assist students in writing poetry about flowing water.

http://findarticles.com/p/articles/mi_m0EPG/is_5_35/ai_72887953

After you review the site with your students, assign them to create a poem and illustrate it. Post these around the classroom.

12. Close with a short summary

Extend the reading to the students' lives or to the world.

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Biology, An Ecological Approach Lesson Plan for Week 6, Day 5

Outcomes for Today

Standards Focus: 6bde

PREPARE

1. Background knowledge necessary for today's reading

In order to understand stream ecosystems, biologists look for stable ecosystems to study. Stable aquatic ecosystems are quite often spring fed. The characteristics of stability in temperature, water flow, and other abiotic factors in such stable ecosystems form excellent outdoor laboratories. These areas are also very precious and should be preserved in their natural state. This lesson looks at how such ecosystems are studied.

2. Vocabulary Word Wall

Introduce five important, useful words from today's reading.

productivity **biomass** **photosynthesis** **organic** **gram**

- Show, say, explain, expand, explode or buzz about the word briefly.
- Show, say and define the word quickly and add to the word wall.

READ

3. Review the vocabulary and concepts previously covered in this chapter

Start at the beginning and review the concepts and vocabulary covered so far.

- Mention the setting and main ideas.
- Point to the concept chart as you quickly review it.

Water on the earth has allowed for the evolution of many life forms.

The vast areas of water on the earth are referred to as the hydrosphere.

Aquatic ecosystems include both freshwater and saltwater environments.

Freshwater ecosystems include ponds, lakes, brooks, streams and rivers.

Each aquatic ecosystem has certain characteristics as well as associated life forms.

4. Read directions for investigation

5. Read text. Chapter 23, Aquatic Ecosystems , Text Sections 23.4 & Investigation 23.1, pp. 668 – 670 & 686- 689.

- Shared Reading RRP: Read, React, Predict every 2-3 pages
 Tape Partner Choral Silent Round Robin Reading

Setting	Characters	Pages
Rainbow Springs Florida	Bass, sunfish, snails, turtles, tape grass, algae	669

RESPOND

6. Fix the facts. Clarify what is important

Discuss the reading and add 3-5 events to the billboard.

- Discuss the text; clarify the most important facts, concepts, ideas and vocabulary.
- Decide on the 3-5 most important **concepts** and post these on the billboard.

Students might mention:

A spring is a place where water comes out from the earth.

Some springs are quite large such as Rainbow Springs in Florida

Spring-fed rivers make good study laboratories because the conditions are stable. This means that factors such as temperature and the amount of oxygen in the water remain the same.

These aquatic habitats are not very common and should be protected.

Biomass is the total amount of living, or formerly living, stuff in a given area.

7. Post information on the billboard. Add new information to ongoing whole class projects posted on the wall

- New concept information can be added to the billboard.
- An answer can be added to a question from the KWL Chart.
- New information can be added to ongoing charts and investigations.

EXPLORE

8. Explore today's investigation with inquiry activities

9. Explore today's simulation with inquiry activities

10. Collect data and post

One possible activity: Stream Study Part II

Introduction

In this activity students will study the living things in a stream. Hopefully, you have a stream or creek nearby your school where you can take students on a field study. In the previous activity we looked at stream flow. In this activity, we will study the living organisms in a stream.

Procedure

Select a section of the stream where water is flowing. Follow the guidelines in Investigation 23.1 on page 687 of your student text. Perhaps you can create a makeshift screen frame such as the one in figure 23.31.

Activity

Turn over the rocks upstream from the frame. Dislodged organisms will be loosened and remain lodged against the screen. Collect these according to the procedures outlined in the student text on page 688.

Refer to Transparency 52 to assist students in understanding productivity.

Discussion

Direct students to record their findings in their notebooks. Encourage them to make sketches of the various organisms.

Other possible activities for a class group or individual

- Bookmark Open Mind Portrait g6 Graphic Organizer
- g7 Main Idea Graphic Organizer c1-12 Cubing Postcard Prop
- Poster Ad Map Retelling Reader's Theatre Cartoon Rap

Key Questions

Why is spring water constant in temperature?

Why do large spring-fed rivers make a good study environment.

Explain biomass.

Remember to ask literal structural idea craft author literature life
evaluate and inference questions every day.

Key Paragraph

Not all springs give rise to brooks.

Some springs produce so much water that large streams flow from them. Many of the short rivers of northwest Florida, for example, originate in this manner. These short Florida rivers are excellent outdoor laboratories because they have areas in which the water volume, current, chemical composition, and temperature are stable. Ecologists have used several of them in studies on ecological productivity.

EXTEND

11. Prompt every student to write a short product tied to today's reading

I am not a mermaid

The manatee is a gentle creature that lives in the spring-fed rivers of Florida.

Instruct students to do a little research on this animal and follow up by writing a short letter of introduction for the creature.

12. Close with a short summary

Extend the reading to the students' lives or to the world.