Outcomes for Today

Standards Focus: 2d

PREPARE
1. Background knowledge necessary for today’s reading.

Why study this stuff? Who cares? You may often get this question, especially when it comes to the study of somewhat obscure organisms such as moss. You may want to propose this question. The reasons for knowledge acquisition are varied but consider these:
   - Through study comes appreciation for all forms of life.
   - One never knows what will spark a student’s interest.
   - Through appreciation comes a willingness to conserve and protect all forms of life on earth.
   See how far you can take this type of discussion. Many future careers (from landscaping to research biologist) begin by addressing these questions. Now on to the mosses and ferns!

2. Vocabulary Word Wall.

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

peat  sphagnum  peat moss  coal  carbon

- 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 first plants on earth were simple algae types growing in the seas and lakes.
  These plants did not have many specialized structures.
Dry land was ripe for colonization by plants, but first the plants needed to develop adaptations for survival on land.
All plants need water for survival.
The more specialized a plant becomes, the better able it is to survive on land.

4. Read directions for investigation/activity.


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

<table>
<thead>
<tr>
<th>Setting</th>
<th>Characters</th>
<th>Pages</th>
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<tr>
<td>wet environments on land</td>
<td>bryophytes</td>
<td>361-362</td>
</tr>
<tr>
<td>moist environments</td>
<td>club mosses and horsetails</td>
<td>362-363</td>
</tr>
<tr>
<td>tropical habitats</td>
<td>tree ferns</td>
<td>364-365</td>
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</table>

RESPOND

6. Fix the facts. Clarify what’s 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:
Bryophytes are relatively small.
Mosses do not have roots, stems, or flowers.
The mosses have primitive roots known as rhizoids.
When their environments dry out, mosses become dormant.
Club mosses get their name from their shape and they are not a “true” moss.
Horsetails are a type of primitive plant that contains much silica and they were used by early pioneers to scrub pots. They were also called scouring rushes.
Many of these primitive plants once grew in great swamps. After they died and were covered with mud, they turned to coal.
Ferns are the third major group of these plants. They are also the largest, as tree ferns can grow into tree size.
7. Post information on the billboard. Add new information to ongoing class projects 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:

Making Fern Prints
Fern fronds (leaves) are intricate and delicate and are, therefore, objects of great beauty. Introducing students to this new form of art could help build their interest in the biological aspects of ferns and life forms.

Procedure
Obtain some fern fronds. You could do this in several ways. If you have access to wild areas, you may want to carefully select some examples. Do not collect from parks or nature preserves. You could also visit a florist shop and ask for their discards. When you tell them it is for a school project, most vendors are more than happy to help. Press them between pages of newspaper for a week or two, checking periodically to make sure they are dry.

Bring the dried and flattened fronds to class for the project. Students can make fern prints by several methods:

- They could place them on a suitable background paper and spray paint over them.
- They could use charcoal or another media and make fern rubbings.
- They could arrange the fronds for lamination.

Go to these websites to view artistic arrangements of ferns:

http://www.chartingnature.com/Ferns.cfm

Discussion
Once the projects are completed, they could be displayed and given as gifts. The point here is through preservation and arrangement, student interest in the living world can only be enhanced.

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
What is meant by vascular tissue in plants?
What do mosses, horsetails, and ferns all have in common?
Describe how coal was formed.
What is meant by the term scouring rush? How did horsetails get this name?
Why do you suppose the largest ferns grow in tropical areas?

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

Key Paragraph
Relatives of the club mosses and horsetails can be traced back about 430 million years. During the Coal Age, about 300 million years ago, great parts of North America were covered by shallow swamps and seas. The warm and wet environment allowed plants to grow year round. Under these conditions, giant relatives of today’s club mosses, horsetails, and ferns, as well as seed producing plants, covered the land. Some of these plants were more than 20 meters tall. As they died, their large stems were covered with mud and soil before they completely decayed. A tremendous number of plants from the Coal Age were compressed over long periods of time and under high temperature and great pressure. Eventually, they became fossil fuels, mainly coal and some natural gas.

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

I think that I shall never see…

Ask students to write a little poem to go along with their fern print project.


Extend the reading to the students’ lives or to the world.
Outcomes for Today

Standards Focus: 2d

PREPARE

1. Background knowledge necessary for today's reading.

   The familiar shape of a pine tree is something just about anyone can relate to. What many students are unaware of is that the conifers (pines, firs, and junipers) are quite ancient evolutionarily. They have been on earth for eons. In introducing this lesson, you may want to talk about this. If you have some illustrations of previous eras on earth, have students look to see which plants might be familiar and which ones are now extinct.

2. Vocabulary Word Wall.

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

   conifer    evergreen    pulp    wood cone

   • 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.

As plants evolved on land over time, they became increasingly more complex. In terms of complexity for the land plants, here is the progression up to the conifers:

   Bryophytes (mosses, etc.), club mosses and horsetails, ferns

As plants became more complex, they developed structures such as vascular transport systems in order to survive.

   The more primitive plants reproduced both by spores and sexual reproduction. Some of the primitive plants would go through periods of dormancy (no growth) in order to survive dry periods.
4. Read directions for investigation/activity.

5. Read text. Ch 13, Eukaryotes: Plants, Text Section 13.8, pp. 367-69

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

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<th>Characters</th>
<th>Pages</th>
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</thead>
<tbody>
<tr>
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<td>ponderosa pine</td>
<td>367</td>
</tr>
<tr>
<td>branch of a Douglas fir</td>
<td>needles</td>
<td>368</td>
</tr>
<tr>
<td>branch of a juniper</td>
<td>scales</td>
<td></td>
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</tbody>
</table>

RESPOND

6. Fix the facts. Clarify what’s 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:
- This group of plants includes the pines and firs.
- These plants are of great use to humans in the following ways:
  - wood for building, furniture, and other structures.
  - paper products
  - decorative shrubs
- This group is referred to as conifers because they have cones.
- They are trees and shrubs.
- The conifers take two years to complete the process from fertilization to seed production.
- Conifers are well adapted for dry and cold environments.

7. Post information on the billboard. Add new information to ongoing class projects 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:

Conifer Walk
This is a simple “walkabout” either on the school campus and/or through the neighborhood to locate and identify conifers. If you can obtain a copy of The Pacific Coast Tree Finder, it is a great resource that can be used to identify trees. More information at:

http://www.cnps.org/store.php?crn=61&rn=283&action=show_detail

Procedure
Review the structures of the conifers and then take students on a little walk to locate them. If this is winter, it is a particularly good time as they are evergreen and stand out particularly well. As you walk about the campus and/or neighborhood, have students record their observations in a notebook.

This is a good resource for some expanded information on gymnosperms which, of course, are the largest group of conifers:

http://sftrc.cas.psu.edu/LessonPlans/Forestry/Gymnosperms.html

Discussion
Follow up your walk with a review on the observations.

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
List some of the uses of conifers to humans.
Name some of the common examples of conifers or cone bearing plants.
Why is it that conifers can survive so well in dry environments whereas ferns cannot?
What are cones?
Describe the two types of cones found on conifers.

Remember to ask □ literal □ structural □ idea □ craft □ author □ literature □ life
□ evaluate and □ inference questions every day.
Key Paragraph
Humans have used plants for food, clothing, shelter, and medicines. The conifers (division Coniferophyta) are woody vascular plants with seeds borne in cones. Conifers provide most of the paper pulp and much of the lumber used in home construction and furniture. They include pines, firs, spruces, and junipers, among many other species.

EXTEND

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

Thoughts from a pine

Have students look at this cartoon and write a little paragraph from the Pine tree’s perspective.


Extend the reading to the students’ lives or to the world.
Outcomes for Today

Standards Focus: 2d

PREPARE

1. Background knowledge necessary for today’s reading.

   We are now entering the realm of familiarity. Almost all students have knowledge of flowers, fruits, and seeds. Consider bringing a sampling of various fruits, flowers and seeds to begin the lesson. They could be put on display for discussion as well as a quick assessment of student understanding of terms and functions of each. Then they could be consumed for lunch!

2. Vocabulary Word Wall.

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

   self-pollination    nectar    coevolution    fruit    dispersal

   • 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.
   How have we come from simple algae living in the seas to complex flowering plants? Let us review the evolutionary journey:
     Simple algae > multicellular algae > bryophytes (mosses, etc.) > club mosses > horsetails > ferns-conifers (pines & firs) > flowering plants
   This evolutionary movement has been a movement from the sea to the land.

4. Read directions for investigation/activity.

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

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<th>Setting</th>
<th>Characters</th>
<th>Pages</th>
</tr>
</thead>
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<td>brightly colored flowers</td>
<td>hummingbirds</td>
<td>370</td>
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<td>(red)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>aster flower</td>
<td>bee</td>
<td>371</td>
</tr>
<tr>
<td>tomato vine</td>
<td>tomato flower and tomato fruit</td>
<td>372</td>
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</tbody>
</table>

**RESPOND**

6. Fix the facts. Clarify what’s 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:
- Flowers attract animals that pollinate them.
- Hummingbirds seek out nectar in flowers and in the process, pollinate them.
- Self-pollination must not be the best way to pollinate.
- Fruits help with the distribution of seeds.
- Some seeds are distributed (moved about) as “hitchhikers” as these seeds have ways to attach themselves to animals and humans. Burrs are an example.

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

Two possible activities:

1. Pick a Pollinator

Procedure
Review with students examples of the vast numbers of plant pollinators.

Activity
Make a list of different pollinators (one for each student). Assign each student a pair (pollinator and flower). Instruct students to create two illustrations. One should be of the pollinator and the other, the flower pollinated. Make sure their drawings are all approximately the same size. Once the students have finished their drawings, gather two groups of drawings. Sort the pollinators into one group and the flowers into another group. The task will now be for students to match the correct pollinator with the flower pollinated. This would probably work better with a class different from the class of students who created their particular group.

Discussion
Follow up with a review on adaptation and evolution. Talk about coevolution.

Parts of a Flower
Here is a simple little activity in which students identify the parts of a flower:

http://www.scsc.k12.ar.us/MosleyR/newpage1.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
What is the main purpose of a flower?
What is meant by cross pollination?
List some examples of pollinators.
What group of animals is the primary pollinator of flowering plants?
What is the reason for brightly colored flowers?
How might we be able to tell which flowers are pollinated by hummingbirds?
What do the hummingbirds get out of the deal?
Why do seeds contain food?
List examples of seeds that are food for humans.
List some of the ways in which seeds are dispersed.
Remember to ask □ literal □ structural □ idea □ craft □ author □ literature □ life □ evaluate and □ inference questions every day.

Key Paragraph
The great variety in flowers has come about, in part, by coevolution of flowers and pollination agents. For example, hummingbirds have evolved with plants that produce large quantities of nectar. Research has shown that while hummingbirds do not have a good sense of smell, they can see the color red very well. Flowers pollinated by hummingbirds usually are well adapted to their pollinators.

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

A Day In The Life Of A Pollinator
Ask students to write a little story from the perspective of a hummingbird or a bee or perhaps a fruitbat.

Extend the reading to the students' lives or to the world.
Outcomes for Today

Standards Focus: 2d

PREPARE

1. Background knowledge necessary for today’s reading.

Look outside the window of your classroom. Hopefully there are at least a few flowering plants to see. This is the final lesson on plants. Review within your mind the journey from simple to complex in the plant world. Make a diagram on the white/blackboard. Have a few examples ready for student observation.

2. Vocabulary Word Wall.

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

- tree
- herbaceous
- dicot
- monocot
- shrub

  - 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 first plants on earth were various types of aquatic algae. These algae were first single-celled organisms and, over time, became more complex multi-cellular organisms.

Over time, plants acquired adaptations such as roots, vascular tissue, coverings on their exteriors to prevent water loss, as well as increasingly complex reproductive systems.

These changes in plants are primarily adaptations to survive on land.

At the end of this evolutionary trail are the highly adapted flowering plants.
4. Read directions for investigation/activity.


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

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<th>Setting</th>
<th>Characters</th>
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<tr>
<td>produce section of a supermarket</td>
<td>apples, cucumbers, oranges, lettuce, tomatoes, squash</td>
<td>273</td>
</tr>
<tr>
<td>a study</td>
<td>Marjorie Leggit, illustrator</td>
<td>275</td>
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RESPOND

6. Fix the facts. Clarify what’s 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:
There are many types of flowering plants including the ones we are most familiar with such as pine trees and roses.
Trees are the longest living organisms on earth.
The two groups of flowering plants are monocots and dicots.
Monocots include such plants as grasses, corn, rice, and palm trees. They have leaves with parallel veins.
Dicots include such plants as roses, sunflowers, and oak trees. Their leaves are not parallel veined.
Seeds have different ways (adaptations) of traveling and finding a new place to grow.
After reading the "Biology Today" section in the text, I think that I could possibly do this. I am a good artist.

7. Post information on the billboard. Add new information to ongoing class projects 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:

Revisiting Classification

In this activity, students will review the process of classification through a simple exercise. You can build upon this by then introducing them to the dichotomous key which is used extensively in plant identification.

Procedure
See Supplemental Activity 13.1 attached to this lesson.

Discussion
Follow up the activity with a review of the levels of complexity in plants.

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
What is the definition of a tree?
What are the advantages of being a tree?
Create a Venn diagram showing differences and similarities between dicots and monocots. Use the illustration on page 374 of your text to aid you in this process.
List some examples of dicots.
List some examples of monocots.

Remember to ask literal, structural, idea, craft, author, literature, life, evaluate and inference questions every day.
**Key Paragraph**
Flowering plants are divided into two large classes - the monocots and the dicots. In monocots (monocotyledons), the embryo contains a single cotyledon. The monocots include grasses and grain-producing plants such as wheat, rice, and corn - the chief food plants of the world. The pasture grasses that feed cattle, another source of human food, are also monocots. Evidence suggests that human population could not have evolved to its present state without monocots.

**EXTEND**
11. Prompt every student to write a short product tied to today’s reading.

What do you want to be when you grow up?
After students hear about the career of Marjorie Leggit on page 375 of the text, ask them to write a short paragraph that addresses this prompt:

If you had to pick a career having to do with biology, what would it be and why would you want to do this?


Extend the reading to the students’ lives or to the world.
Supplemental Student Investigation 13.1
Classification Exercise

Objective: Students will review and understand the basic principles of classification.

Materials: Student shoes

Introduction
This is a good activity to review classification and it could be extended into a plant classification exercise. Remember that when studying taxonomy and nomenclature of living things, students can first learn to classify organisms into kingdoms, phylums, classes, etc. In this activity, they will classify their shoes. After they learn how to classify shoes, students should be able to understand why and how plants are classified.

Activity Level I and Procedure
1. Have students take off one of their shoes, and toss it into a pile in the center of the room. (You take one off, too!) (Some students may be shy about this; just let them know that all feet are somewhat funny looking and smell different; we won't know the difference.)
2. Ask for three volunteers, and inform the class that the volunteers will need their assistance in this activity.
3. Have a fourth volunteer go to the whiteboard to draw the classification scheme as the activity progresses.
4. Ask the class how you would divide the shoes into groups, based on similarities. If they attempt to produce more than three groups of shoes, limit them to three. Example: Students may divide them into sandals, boots, and tennis shoes. After the three "kingdoms" are decided, put these three kingdoms at the top of the whiteboard, and put all of the shoes into three piles. (No shoe is to be left alone in a kingdom. Force the shoe into one of those three categories or whatever categories the students chose.) Remember, no shoe left behind.
5. Ask the class to divide one of the categories into sub categories. For example, with boots there maybe be those with pointed toes and round toes. These are "phylums." Draw the phylums on the board.
6. Continue until every shoe is a species all by itself. After this lesson, discuss the taxonomy and classification of living things into kingdoms, phylums, classes, etc. Make sure the scheme on the board follows the lesson, so later you can go back and label the shoes as species, classes, etc.
7. This lesson can be reinforced by students classifying rocks and minerals (if you have some handy), other articles of clothing, or even cars. It is a wonderful hands-on activity to get kids of all ages to understand how life (and other things) are organized and made easier to understand.
Activity Level II and Procedure
Gather some examples of various plants and distribute using a similar process as was done with the shoes. Follow the same procedure, but just group the plants into groups according to what is known about plant classification.

Activity Level III and Procedure
Do some research on using dichotomous keys with plants and introduce the concept to students. A good resource can be found at

http://ctap295.borderlink.org/emiranda/ as well as
http://gk12calbio.berkeley.edu/lessons/less_fieldguide.html
Outcomes for Today

Standards Focus: 2e 9abfg

PREPARE

1. Background knowledge necessary for today’s reading.

This is the first day of a new chapter. The shift is from plants to animals. When students think of animals, they usually think of higher level chordates such as mammals and birds. Spend a little time revisiting the characteristics of animals. A review of the major concepts on page 387 is a good resource.

2. Vocabulary Word Wall.

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

symmetry  sessile  motile  terrestrial  appendage

- 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 primary differences between plants and animals are as follows:

- Most animals can move about at least during some stage of their life.
- Animals reproduce sexually.
- Animals can adapt to their environments more quickly.

4. Read directions for investigation/activity.
5. Read text. Ch14, Eukaryotes: Animals, Text Section 14.1, 14.2  pp. 386-89

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

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<th>Setting</th>
<th>Characters</th>
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<tr>
<td>Alaska</td>
<td>grizzly bears</td>
<td>387</td>
</tr>
<tr>
<td>freshwater pond</td>
<td>Daphnia</td>
<td>389</td>
</tr>
<tr>
<td>African savannah</td>
<td>elephant</td>
<td>389</td>
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</table>

RESPOND

6. Fix the facts. Clarify what’s 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:
- Most animals can move about.
- Symmetry refers to shape and arrangement of parts on an animal.
- I am sitting on my posterior.
- My anterior end is ready to speak.
- Terrestrial means on land while aquatic refers to water.
- Animals spend most of their waking hours feeding.

7. Post information on the billboard. Add new information to ongoing class projects 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:

Types of Symmetry

In this activity students will create a collage to illustrate the two types of animal symmetry explained in the text on page 388.

Procedure

Review with students the concept of radial symmetry and bilateral symmetry. Provide them with magazines (such as National Geographic) containing a variety of pictures/photographs of various species of animals. Instruct them to make a collage which shows examples of radial and bilateral symmetry. In addition, students could also find examples of several animals and label them with the terms dorsal, ventral, anterior, and posterior.

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

Explain radial and bilateral symmetry using illustrations.
Draw a typical fish indicating the following:

- dorsal, ventral, anterior, and posterior

What is the difference between a sessile and a motile animal?
What are some of the adaptations of animals that live in water?
What are some of the challenges to animals of living on land?
Name several of your appendages.

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

Key Paragraph

All animals face common problems of feeding, self-maintenance, and reproduction. In members of the same phylum, the solutions to these problems are often similar. The next section examines eight animal phyla, ranging from the least complex to the most complex. It describes the special features and modifications that improve the adaptation of each phylum to its environment.
EXTEND

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

What It Means To Be An Animal

Have students write a paragraph on what it means to be an animal. Refer to the key paragraph first. Have them pick an animal and then begin writing. For example:

I, the elephant, am faced with many challenges.


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