

CBL BIOLOGY: LIFE SCIENCE OPTION

BSCS Green Version 10th edition



Biology, An Ecological Approach

Lesson Plan for Week 1, Day 1

Outcomes for Today

Standards Focus: 6g 7a 8ab

PREPARE

1. Background knowledge necessary for today's reading

Behavior is described as the sum of all activities carried out by a living organism. What is meant by this statement? Ask students to brainstorm examples of animal (including human) behavior. Make a list of education terms related to behavior. For example, students might mention such terms as behavior management, poor behavior, immature behavior, and so many more. With student input, make a list of typical classroom behaviors. Ask students to brainstorm with the teacher, addressing the questions, "What constitutes poor classroom behavior? What is good behavior? What is off/on task behavior?" Refer back to these throughout the next few lessons.

2. Vocabulary Word Wall

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

innate behavior adaptive tolerance instinct learned behavior

- 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.
- An organism must adapt in order to survive as a species.
- Natural selection is the process which favors individual organisms that are best adapted to their environment.

- The organisms that survive are able to reproduce and pass on their genetic material to their offspring.
- This is called survival of the fittest and was proposed by Charles Darwin.

4. Read directions for investigation

5. Read text. Chapter 20, Patterns In the Biosphere: Behavior, Selection and Survival, Text Section 20.1, pp. 568-576

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

Setting	Characters	Pages
freshwater pond	merganser family	572
Pacific Northwest	bald eagle	574
field	honeybees	574

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:

- If you are born knowing it, then it is probably innate behavior.
- If you are taught or teach yourself the behavior, then it is probably learned behavior.
- Complex behavior that does not need to be learned is known as instinct.
- Bees do a little dance to communicate to other bees such important things as the location of a nectar supply.
- Mimicry is where an animal imitates (by color or shape, etc.) another often poisonous animal.
- A chimpanzee was taught sign language.

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

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9. Explore today's simulation with inquiry activities

10. Collect data and post

One possible activity:

Gestures, Signals and Sign Language are Learned Behavior

Description of Activity

This is an excellent activity for students to understand sign language and gestures and how important they are to communication. When we think of language, we tend to think in terms of written or verbal communication skills. Watch people communicating and you will see that they are using hand signals throughout the conversation. Many people, however, for professional or physical reasons, rely on more formal hand signals and signs. Standardized signals are a limited means of communication used in certain circumstances, such as by sports referees or in situations where it is noisy and confusing.

Procedure

Go to this web site:

<http://www.nationalgeographic.com/xpeditions/lessons/06/g912/gasign.html>

This is an excellent lesson plan that takes approximately two hours if you follow the entire outline. It can be shortened as time allows.

Discussion

Follow up with a discussion on how sign language is learned as a behavior.

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 difference between innate and learned behavior? Give several examples of each.

Describe the learned behavior of newborn ducks and geese.

Explain the concept of trial and error and give an example from your own life.

Explain, making use of a drawing or diagrams, how the honeybee communicates with the little dance process.

Remember to ask literal structural idea craft author literature life

evaluate and inference questions every day.

Key Paragraph

In the broadest sense, behavior is considered to be either innate behavior or learned behavior. Innate, or inborn behavior, does not depend on individual experience. Sometimes, it is a pattern such as sucking or crying, that is ready to function when the organism is born. Dogs that have spent their entire lives inside, will attempt to bury a bone by scratching the carpet as if they were digging the soil. The same dogs will turn around on the carpet several times before lying down, even though there is no grass to trample or insects to chase out of bed. These behavior patterns are innate and characterize the species. Behavior is considered to be innate if it occurs in response to a particular stimulus the first time an individual is exposed to that stimulus.

EXTEND

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

Sign Language: Is it as effective as just talking?

Review with students the sign language activity. Then ask them to write a short paragraph in response to this prompt: Do you think sign language is as effective as verbal communication? Why or why not? Compare their answers.

12. Close with a short summary

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

CBL BIOLOGY: LIFE SCIENCE OPTION

BSCS Green Version 10th edition
Biology, An Ecological Approach
 Lesson Plan for Week 1, Day 2



Outcomes for Today

Standards Focus: 6g 7a 8ab

PREPARE

1. Background knowledge necessary for today's reading.

We often hear the term, social behavior used with such phrases as, "He has poor social skills." It is important to distinguish with students the differences between scientific explanations of behavior and conventional discussions which are non-scientific. Social interactions all have one thing in common: they are generally between the same or similar species.

2. Vocabulary Word Wall.

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

social behavior appeasement hierarchy skirmish ritual

- 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.

Behavior is the sum of all of an animal's activities.

There are two primary types of animal behavior:

- Innate behavior is programmed behavior and part of the genetic make up of the species and exemplified by each individual.
- Learned behavior is just that, behavior that is learned after birth.

Trial and error is a type of learned behavior process.

The primary purpose of the various animal behaviors is to enhance chances of survival.

There are three types of animal communication:

- visual or through sight
- vocal or with sound
- chemical, such as with smells or pheromones.

4. Read directions for investigation

5. Read Text Chapter 20, Patterns In the Biosphere: Behavior, Selection and Survival, Text Section 20.2-20.3, pp. 576-578

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

Setting	Characters	Pages
swamp	crawfish	576
wolf pack	wolves	577
chicken house	rooster and hens	578

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:

Two or more of the same species of animal interaction is known as social behavior.

Animals generally compete for food or potential mates.

Dogs and wolves show their aggression by glaring and showing their teeth.

A pecking order is a term given to animals of the same species and their status with one another in terms of hierarchy.

A skirmish between animals is somewhat like a play fight.

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:

Hierarchy in the Average High School

Procedure

Review examples of animal hierarchy with students. Explain to them that they are going to observe human behavior for examples of social hierarchy in their own school setting.

Activity

Brainstorm about just what social dominance looks like in student populations. In other words, discuss what behaviors are displayed by the dominant individuals. Next, send students out to critically observe their peers. Make sure you distinguish what is observable behavior and avoid judgments.

Discussion

Following their individual observations, discuss with students what behaviors they observed during their critical viewing exercise.

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 might be the opposite of animal competition?

Give at least two reasons why animals compete.

What is an animal skirmish?

How do members of the dog family appease one another?

What advantage is it for an animal to be at the top of the pecking order?

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

Key Paragraph

Any type of interaction between two or more animals, usually of the same species, is called social behavior. Mating is a social behavior that contributes to the reproductive success of the interacting individuals. Other social interactions are competitive rather than cooperative, usually as a result of limited resources.

EXTEND

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

The School Pecking Order

After discussing and commenting on the idea of pecking order, have students write a rap on the pecking orders at their school. This could be a follow up to some of the behaviors they observed during their activity.

12. Close with a short summary.

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

CBL BIOLOGY: LIFE SCIENCE OPTION

BSCS Green Version 10th edition
Biology, An Ecological Approach
 Lesson Plan for Week 1, Day 3



Outcomes for Today

Standards Focus: 6g 7a 8ab

PREPARE

1. Background knowledge necessary for today's reading

The idea of territory or, to use the student vernacular, "turf," is one of two concepts covered in this lesson. The short version of this is that animals need to defend their territories for survival. Ask students if they can think of instances in which humans maintain and defend a territory. There is really no end to the examples. Are our homes, territories? What about human competition for food or resources such as energy?

Courtship in animals is the second concept and is also a subject for interesting conversations. This would be a good time to introduce the concept of anthropomorphism to students. This assigning human values or characteristics to animal behavior is a relatively common phenomenon in our society. It is fine to discuss the parallels as long as you help students understand that animal behavior is without morality.

2. Vocabulary Word Wall

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

territory **territoriality** **courtship** **sexual selection**
secondary sexual characteristics

- 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.

Put simply, all living things are constantly up to something. Put another way, animals don't chill!

Animals react to various stimuli as they go through basic life functions, including eating and reproduction.

Animal behavior is categorized as learned or innate (genetic).

Social behavior involves the same species of animals interacting.

Many animal behaviors involve elaborate rituals.

Dominance is where one animal has a higher social status than its peer.

Animal hierarchies are systems that allow for domination of individuals. The benefits for the dominant individuals include food and mates.

4. Read directions for investigation.

5. Read Text Chapter 20, Patterns In the Biosphere: Behavior, Selection and Survival, Text Section 20.4-20.5, pp. 578-579.

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

Setting	Characters	Pages
nesting grounds	gannets	578
U.S. prairie	sage grouse	579

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:

All living organisms need defined space for survival.

This space is called their territory.

The process of defending this space is called territoriality.

Animal courtship is an interaction that allows animals to get close enough to mate.

Animal body parts like antlers and colorful feathers are found on different sexes

of certain animals and are known as secondary sexual characteristics. In other words you can tell the sex of the animal by looking at these characteristics such as deer antlers in the male.

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:

Male or Female, How do we know?
Secondary sexual Characteristics...

Procedure

Direct students to research and draw pictures indicating the difference between males and females of at least five animals based upon their secondary sexual characteristics.

Examples: deer, many birds, many insects, some fish

Post these pictures/illustrations about the classroom for future reference.

Discussion

Follow up with a discussion addressing such questions as:
Why would it be to an animal's advantage to show secondary sexual characteristics?

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

Compare and contrast animal territoriality and animal territory.

What are animal territories used for?

What is the purpose of animal courtship?

Name several ways in which animals mark their territories

What is the purpose of animal courtship?

Give an example of an animal courtship ritual.

What is sexual selection in the animal world?

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

Key Paragraph

Although many animals live in groups, other species live alone or in pairs. Many of these more solitary animals expend much energy to keep other members of the same species out of their territory.

EXTEND

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

Are We Animals?

After a review of animal sexual selection and mating habits, pose this question to students for a quick-write reaction to this prompt:

Do humans practice sexual selection? Explain your answer in a paragraph.

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 1, Day 4



Outcomes for Today

Standards Focus: 6g 7a 8ab

PREPARE

1. Background knowledge necessary for today's reading.

This is a lesson where it may be a good time to emphasize the use of language. For example, contrast these two statements:

- Some animals are cooperative.
- Some animals exhibit cooperative behaviors.

Discuss with students the differences and similarities in these two statements. Which one attributes human (anthropomorphic) characteristics?

Emphasize with students the fact that animals do whatever it takes to survive. If this means cooperative behavior, so be it. There is no morality in the animal world, but our media would have us believe otherwise.

2. Vocabulary Word Wall.

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

cooperative

evolve

response

stimulus nonbreeding

- 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.

Animals have the ability to adapt to the many demands found in their environment.

Behavior is the animal's activity.

Some behavior is learned while other behavior is due to basic instinct (genetic and programmed from birth).

A bird learning to fly is using both learned and innate behavior patterns.

Animals interact and react to each other. They compete for food, shelter, and mates.

Some animals exhibit cooperative behavior.

4. Read directions for investigation.

5. Read Text. Chapter 20, Patterns In the Biosphere: Behavior, Selection and Survival, Text Section 20.6, pp. 580 Investigation 20. 1 pp. 587-589.

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

Setting	Characters	Pages
Florida	Florida scrub jay	580

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:

Animal cooperation helps the species survive.

The Florida scrub jay is an example of animal cooperation. Several jays will help to raise the young.

Animals will do whatever it takes to survive. If cooperation is what it takes, they will do it.

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:

Conditioning

Conditioning is a learned response to a stimulus. In student investigation 20.1 students will experience this through a series programmed responses.

Procedure

Refer to Investigation 20.1 in the text.

Activity

This relatively straightforward activity can be completed in one class period.

Discussion

Follow up with a discussion on what conditioning means to us in our daily lives. Ask students to brainstorm some of the areas in which we as humans are conditioned.

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 your definition of cooperation? Give some examples from your own life in which cooperation resulted in your ability to survive?

What does cooperation look like for the Florida scrub jay?

What is the difference between the species and the individual?

How can cooperative behavior help with an animal's reproduction?

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

Key Paragraph

Most animals behave in ways that increase their ability to reproduce, but what about animals that give up all chances to reproduce in order to help feed another's young? In some species it is common for individuals to reduce their own reproductive success through cooperative behaviors. For example, Florida scrub jays often flock in groups of about a dozen, but usually no more than one or two pairs will mate and nest at a time. A single male and female will build a nest and produce a clutch of eggs. After the eggs hatch, the entire flock helps feed the young, with non-parents contributing as much as 50 percent.

EXTEND

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

A Fairy Tale

Many lessons for children are told through animal fairy tales. Review several common ones with students and then direct them to write a short fairy tale about animal cooperation. It would be nice if the tale had some scientific validity to it.

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 1, Day 5



Outcomes for Today

Standards Focus: 6g 7a 8ab

PREPARE

1. Background knowledge necessary for today's reading

Animals have a greater ability than plants to quickly adapt to environmental conditions. For example, deer can run away from an approaching forest fire, while the plants cannot. Humans have taken this even further in that they have now severely modified their environments. In some cases, these modifications have led to serious degradations for other plants and animals and the humans themselves. This might be a good time to talk about quality of life issues including the necessary environmental conditions to sustain life with students.

2. Vocabulary Word Wall

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

hibernation physiology anatomy dormancy metabolism

- 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.

4. Read directions for investigation.

5. Read Text Chapter 20, Patterns In the Biosphere: Behavior, Selection and Survival, Text Section 20.7, pp. 580-581.

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

Setting	Characters	Pages
nest Great Salt Lake water and land beehive freshwater lake	hibernating ground squirrel brine shrimp arrowhead plant honeybees rainbow trout	581

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:

Death Valley is an extreme place.

Bees beat their wings to move air through their hives. This helps to cool down the hive.

Hibernating animals go into a very deep sleep in which the temperature of their body is almost as cold as the environment.

Animals hibernate only in areas where the winters are very cold.

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:

Hibernation

Procedure

There are several good web links for hibernation:

<http://www.pbs.org/wgbh/nova/satoyama/hibernation.html>

<http://faculty.washington.edu/chudler/squir.html>

Activity

After reviewing these sites with students, have students create a poster on hibernation.

Discussion

Follow up with a review discussion on the subject.

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 are some of the environmental conditions in your community that an animal might need to adapt to?

What is the quickest response of an animal to an environmental change?

Give several examples of a physiological response to a change in environmental conditions.

Explain hibernation to the average Wal-Mart shopper.

In what types of climates do animals need to hibernate?

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

Key Paragraph

The quickest response of many animals to an unfavorable change in the environment is to move to a new location, sometimes just a few feet away. Rainbow trout, for example, can sense the heat and lower oxygen levels of the upper zone of a lake and move to deeper water that is cooler and has more oxygen. Other animals can modify their immediate environment by cooperative social behavior. Honeybees, for example, cool the inside of their hives on hot days by collectively beating their wings. Through such behavior, the bees can keep the hive at a set temperature, plus or minus one or two degrees.

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EXTEND

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

Human Hibernation

Ask students to write to this prompt:

If you could hibernate for three continuous months per year, what three months would you choose and why? Write a paragraph explaining your answer.

12. Close with a short summary.

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