

CBL BIOLOGY: LIFE SCIENCE OPTION

BSCS Green Version 10th edition

Biology An Ecological Approach

Lesson Plan Quarter 2, Week 10, Day 1



Outcomes for Today

Standards Focus: 4c 6g 7acd 8abcd

PREPARE

1. Background knowledge necessary for today's reading.

The difference between acquired characteristics and genetic traits is one that eludes many students. Again, popular culture can be at play here in that many of the so called "desirable" characteristics of the human population are quite variable depending upon culture, race, and socio-economic background. Make sure you focus on the scientific aspects of this phenomenon as you begin these next several lessons.

2. Vocabulary Word Wall.

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

evolution

intron

mutation

gene pool

natural selection

- 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.

Mendel described the way genetic variation was inherited.

Changes that increase an organism's chances of survival mean that this organism is more likely to live long enough to pass these characteristics on to the next generation.

This is the simplified version of Darwin's theory of evolution.

Darwin's theory has been supported by thousands of scientists over the years since he first went public.

4. Read directions for investigation/activity.

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5. Read text. Ch 9, Evolution: Patterns and Diversity, Text Section 9.6, pp. 243-245

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

| Setting | Characters | Pages |
|-----------------------------|------------|-------|
| any population of a species | gene pool | 244 |

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:

Darwin's original ideas have remained basically the same through the years although they have been modified somewhat.

Any individual variations which cannot be passed down to the next generation of organisms do not bring about changes in the population.

Genes account for the genetic variations that can be inherited.

There are two sources of variability which bring about lasting changes in organisms. They are mutations and genetic recombinations.

Mutations are changes in the DNA structure.

The recombination of genetic material adds to the large number of genetic possibilities for the next generation.

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:

Acquired or Inherited Characteristics

Introduction

In this activity you will ask students to make a list of personal characteristics or traits and ask them to determine whether they are acquired or inherited. It would be a good idea to review this concept in detail before students begin their activity.

Procedure

Select several student volunteers. Ask the class to suggest the various traits of each volunteer. Obvious traits such as natural hair and eye color and so forth will be easily pointed out. Next ask students to individually make a list of all the traits they can think of about themselves. Have them create a chart and a personal illustration pointing out the traits. Tell them not to identify themselves on the chart. Also ask them not to include any identifying clothing or other distinguishing characteristics that would "give them away." Upon completion, direct students to post their work on the wall.

Activity

Make a list of all the names in the class and give this list each student. Have students tear or cut the individual names from the list. Ask them to take their names and post them individually on each illustration. Please emphasize that this is a quiet activity and students are NOT to coach or clue each other. Upon completion of this phase of the activity signal all students to stand by their personal illustration and sign their name.

Discussion

Ask students which of the traits noted could be passed on to their children.

Ask students which traits noted were individually acquired and will not be part of the genetic gene pool.

Talk about such terms as "Irish temper" and "Latin Lover." Are these indeed genetic?

Additional Resource

Transparency 22 in the transparencies booklet is a good resource to visually describe mutation and crossing over.

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 aren't some individual changes in an organism passed on to the next generation?

Why may some mutations go unnoticed in an organism?

What would happen to a population of animals if most of the mutations that took place over many years had a negative impact on the individual species?

What is a gene pool?

How does natural selection work to limit the gene pool?

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

Key Paragraph

In this century, although they are the framework for much of today's research, Darwin's original ideas have been modified and expanded greatly. Evolution may be defined as change in a species or population through time, but what type of change? Mendel's discoveries, which led to the chromosome theory of heredity, showed how variations could be included and maintained in a population. Darwin clearly understood that only hereditary variations could have any meaning in the evolutionary process.

EXTEND

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

The Charles Darwin Monkey



Show students the following depiction of a monkey studying a human skull. Depending upon the ability level of the class, you may want to go into more detail. Ask them to write their interpretation of the illustration or write a little rap or poem about it based upon what they have learned about Charles Darwin and evolution to date.

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 Quarter 2, Week 10, Day 2



Outcomes for Today

Standards Focus: 4c 6g 7acd 8abcdf

PREPARE

1. Background knowledge necessary for today's reading.

This lesson provides a focus on populations and how they can change over time due to several mechanisms. There are many examples of human populations that have changed primarily due to patterns of migration. Create a little interest in this lesson by holding a discussion about the biological concept of migration. Here are some points to consider and questions to use as discussion starters:

In the United States, what are the patterns of migration?

In you own community, what are the patterns of migration?

After you have discussed the migration aspect of population change, ask students to brainstorm other factors that can impact populations. Certainly there are many examples from our world today. Just pick up a newspaper.

2. Vocabulary Word Wall.

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

migration gene flow genetic drift natural selection speciation

- 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.

Heterozygous alleles are different. Examples include alleles for color, etc.

Homozygous alleles are the same.

In heterozygous combinations, one allele is dominant; that is, the plant phenotype (appearance) will be as directed by the dominant allele.

There are many factors that impact the evolution of a population.

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Some of the most unique populations of plants and animals are to be found in very isolated places.

4. Read directions for investigation/activity.

5. Read text. Ch 9, Evolution: Patterns and Diversity, Text Section 9.7, pp. 245-246

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

| Setting | Characters | Pages |
|--------------|-------------|-------|
| Pennsylvania | the Dunkers | 246 |

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:

A population of species that remains relatively stable over time is said to be in equilibrium.

The frequency of alleles in a population of organisms can be changed by either mutations or migration.

Short-lived populations (such as bacteria) are impacted much more by mutations than long-lived populations (such as the Galapagos tortoise).

Migration is the movement of organisms into or out of a population.

Small isolated populations of organisms do not have a large gene pool and can be susceptible to genetic drift.

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:

Evolution Cartoons

Over the years, there have been many cartoons created depicting various aspects of evolution. Here are two examples:



'Listen... I'm fed up with this 'weeding out the sick and the old' business... I want something in its prime.'

After some discussion and perhaps some research on cartoons by such authors as Gary Larsen (previous cartoon pictured in this lesson) students should then be directed to create their own cartoon to help explain some aspect of evolution studied to date.

Several great resources are the various books by cartoonist Gary Larsen including this reference:

http://en.wikipedia.org/wiki/The_Prehistory_of_the_Far_Side

Upon completion, have students share their cartoons with the class through a short oral presentation. Student cartoons can be posted about the classroom for display.

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

Give some examples of equilibrium in the natural world.

Name at least four factors which can impact the number of alleles in a population of organisms.

What are some factors that could significantly impact a small population of organisms?

Explain genetic drift in language that anyone shopping at Costco could understand.

What is meant by the term nonrandom?

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

Key Paragraph

A number of factors, however, can change the frequency of alleles in a population. A mutation results in the introduction of a new allele and causes an immediate, but small, shift in equilibrium. Populations of organisms (bacteria, for example) that produce a large number of offspring within a short time are influenced more by mutations than populations of organisms that produce a few offspring over a relatively long time span.

EXTEND

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

Why can't I marry my cousin?

Introduction

Review with students the fact that states have laws about such things. You may want to look up the laws about marriage in your particular state. Review a little about negative and defective recessive genes that are more likely to surface when closely related organisms mate and reproduce.

Once students have a basis of understanding of the logic for such "rules of society," have them write a little poem or limerick about not marrying their cousin because of the genetic laws of science.

Here is a good resource to assist with teaching of limericks:

<http://freespace.virgin.net/merrick.sheldon/limerickrules.htm>

For more information on this go to:

<http://www.answers.com/topic/heredity>

Scroll to the section entitled:

Breeding Within the Family

12. Close with a short summary.

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

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BSCS Green Version 10th edition

Biology An Ecological Approach

Lesson Plan Quarter 2, Week 10, Day 3



Outcomes for Today

Standards Focus: 4c 6g 7acd 8abcdf

PREPARE

1. Background knowledge necessary for today's reading.

The concept of geologic time is one that is important to understand. What is a million years? Our world is moving fast these days with fears of global warming and other human-caused environmental factors taking place in the last few hundred years. In order for students to gain an understanding of geologic time, you might want to do some sort of a timeline of the history of the earth before moving into this lesson. Note such facts as the amount of time humans have inhabited the earth compared to the time life has been on earth.

2. Vocabulary Word Wall.

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

speciation

isolation

**Grand Canyon
punctuated equilibria**

adaptive radiation

- 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 scientific theory of evolution is a widely accepted belief of the vast majority of scientific minds.

Survival of the fittest is the primary driving force of natural selection.

Mutations are random changes in the genetic code of organisms.

Variations occur in all species over time.

Migration is the process of a population of organisms moving into or out of an area.

4. Read directions for investigation/activity.

5. Read text. Ch 9, Evolution: Patterns and Diversity, Section 9.8, pp. 247-250

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

| Setting | Characters | Pages |
|-------------------|------------------------------|---------|
| Grand Canyon | Abert's and Kaibab squirrels | 247-248 |
| Galapagos Islands | "Darwin's" finches | 248 |

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:

The development of a new species of plant or animal over time is known as speciation.

If a population of animals or plants is separated (like by a mountain range or body of water), over time two different populations will develop and they will be different from their original ancestors.

This process of a population's moving (or being separated) into a new area and becoming a unique species is known as adaptive radiation.

Sometimes a number of new species seem to appear rather rapidly. This is known as punctuated equilibria.

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:

Getting Up Close to an Endangered Species

Get a copy of the following video to show your students. (Two-day activity to be continued on day five.)

DUMA

This story about a South African boy returning his pet cheetah to the wild has been called by movie critic W. Addiego, “a superior adventure film with a poetic heart, a family picture that’s neither simplistic nor condescending.” This movie is humanistic and visually extraordinary. *Duma* addresses broad themes -- parent-child relationships, the inevitability of change, finding one’s true nature -- but also glances at the social realities of a troubled nation. It is rated PG and the running time is 100 minutes. This is at least a two-period activity.

Suggested activities to go with this movie:

Have students take notes in specific assigned areas. For example, the following topics could be assigned:

- Scientific facts about cheetahs
- Why is the cheetah endangered?
- What traits does the cheetah possess for survival?
- Etc.

Upon completion of the video, have students share their notes with the class.

Note: This activity should be concluded on Week 10, Day 5.

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

Additional Resource

Transparency 23 in the transparencies booklet is a good resource to visually describe the process of two species evolving from one common ancestor.

Key Questions

Using illustrations, explain speciation.

What physical factor is responsible for the development of the Kaibab and Abert’s squirrel populations?

What is adaptive radiation? Give some examples.

Why is the cheetah particularly vulnerable to extinction?

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

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Key Paragraph

Reproductive isolation maintains the distinctness of a species. It also is necessary for the development of a new species. The evolution of a new species, through time, is known as speciation. Speciation usually does not occur within a population in which individuals are free to interbreed. If a population separates into two small groups that remain isolated, however, changes between the two groups through time may become so great that interbreeding is impossible even if the groups come into contact with one another again.

EXTEND

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

The movie *Duma* is about a boy's relationship with a wild animal. In getting to know the cheetah, we can begin to empathize with the cheetah's plight. After a brief discussion on this, ask students if they have had the good fortune to have a relationship with an animal. Ask them to write a paragraph on this. It could begin with the prompt, "I would like you to meet..."

12. Close with a short summary.

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

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BSCS Green Version 10th edition

Biology An Ecological Approach

Lesson Plan Quarter 2, Week 10, Day 4



Outcomes for Today

Standards Focus: 4c 6g 7acd 8abcdf

PREPARE

1. Background knowledge necessary for today's reading.

This is an exercise in research and data analysis. It would be a good idea to do a little preliminary work in this area before beginning the investigation. Robert Stebbins, who did the initial research on this little salamander, is a well known herpetologist. Here are several web sites with good background information:

<http://www.santarosa.edu/lifesciences2/ensatina2.htm>

<http://bio.research.ucsc.edu/~barrylab/Shawn/Research%20Interests/Color%20Evolution/Ensatina%20color.html>

Students will be carrying out this investigation which is based on Stebbins' work.

2. Vocabulary Word Wall.

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

***Ensatina* terrestrial herpetologist subspecies physiography**

- 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 review information for this investigation is to be found in section 9.8. Here are the key points:

- Reproductive isolation will eventually lead to the evolution of different species and subspecies from a common ancestor.

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- Physical barriers can lead to isolation.
- Sometimes a species will disperse into a new area and this can lead to the development of a new species or subspecies.
- This process of an organism's dispersal and eventual development into a new species is called adaptive radiation.

4. Read directions for investigation/activity.

5. Read text. Ch 9, Evolution: Patterns and Diversity, Text Section Investigation 9.2, pp. 256-259

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

| Setting | Characters | Pages |
|-------------------------|---|-------|
| mountains of California | various subspecies of the salamander, <i>Ensatina</i> | 257 |

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:

I had no idea there were so many variations of a little salamander. Stebbins must have been a patient guy to spend so much time and collect the data that he did. Some of the *Ensatina* salamanders seem much better able to blend in with their natural environment than others.

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:

Speciation Research Investigation

Note: For the **biology version**, simply follow the process in investigation 9.2 beginning on page 256 of the Green Version text.

For the life science version, please see Supplemental Investigation 9.2 attached to this lesson.

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

Questions are located in Supplemental Investigation 9.2 or Investigation 9.2

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

Key Paragraph

The small salamanders of the genus *Ensatina* are strictly terrestrial. They even lay their eggs on land. Nevertheless, these salamanders need a moist environment and do not thrive in arid regions. In California, *Ensatina eschscholtzii* has been studied by R.C. Stebbins at the University of California (Berkeley). This investigation is based on his work.

EXTEND

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

Who speaks for salamanders? *The Lorax* is a classic children's book. Obtain a copy and read it to your class. Or you could go to:

<http://www.ekcsk12.org/science/regbio/LoraxStory.htm>

Actually, young adolescents really like children's literature. In the book, this little creature, the Lorax, is the only "voice" for the Truffula Trees. After reading the book, ask students to be a voice for the *Ensatina* salamander and to write a little poem or verse defending their right to the habitat that they have occupied for eons.

More information on *The Lorax* by Dr. Seuss can be found at:

<http://en.wikipedia.org/wiki/Lorax>

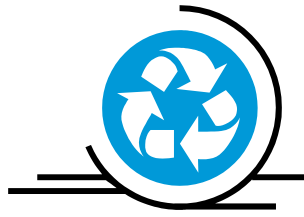
12. Close with a short summary.

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

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Supplemental Student Investigation 9.2 Speciation

Objective

To gain an understanding of the process of speciation by researching the data in the same way a field biologist would.

Materials

An outline map of California in grid format (you can print this from the Teacher Resource CD). Colored pencils with the following colors: brown, red, blue, purple, yellow, green, orange

Introduction

Review the information on this salamander from the internet resources listed in the background section of this lesson. Make sure students have some sort of understanding of the research mindset. Talk about data collection. The students essentially will be the researchers in this activity. The salamanders pictured on page 257 will be identified as subspecies and represented by the colors indicated after each one.

Note: It would be wise for the teacher to review the details outlined in Investigation 9.2 beginning on page 256 for greater detail.

Activity Level I

- Have students observe the map grid. Review the coordinate system with them so that they will know how to graph the data from each salamander subspecies on page 257.
- Using the data on page 257, have students (in small teams) mark a colored X (representing the salamander subspecies) at the proper grid intersection. For example, for salamander a, students would mark with a brown X at the locations 32/R, 32/S, 30/T, etc.
- After they have marked the locations of each of the salamanders, have the students step back and review their map for patterns, observations, and other data.

Discussion Questions

Have students answer the following questions as a small group:

1. What can you say about the distribution of the salamanders? (In other words, where are they found in California?) What environmental factors could account for this distribution?
2. Look at the map which shows the physiography. What can you say about the salamander's range? Is it more likely to be found in mountains or valleys?
3. Look at the color variation on the salamanders on page 258. What patterns do you see in relation to their various locations?
4. Do you think that the salamanders still inhabit all of the places where they were originally located by Stebbins? Why or why not?

Activity Level II

Are you located near any of the salamander locations marked on the map? If so, you may want to organize a little field trip to search for the little amphibians. Please do not remove them from their natural habitats.

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Biology An Ecological Approach

Lesson Plan Quarter 2, Week 10, Day 5



Outcomes for Today

Standards Focus: 4c 6g 7acd 8abcdf

PREPARE

1. Background knowledge necessary for today's reading.

In this final lesson of the chapter on evolution, the theme is something like this: In nature there is no such thing as a coincidence. Evolutionary biologists have documented many examples of patterns and predictability of living things. The laws of nature are important to help us make sense of the natural world we are a part of. It is important to remember that we humans cannot speed up natural processes. For example, we can't plant our vegetable garden late in the summer and then give it extra fertilizer and water to speed up things.

2. Vocabulary Word Wall.

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

**divergent evolution parallel evolution convergent evolution coevolution
pollinate**

- 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.

All living things are similar in basic ways but there is also great diversity to be found among them.

Charles Darwin first described the process of natural selection as an essential part of his theory of evolution.

Adaptations to various environments allow organisms to survive and reproduce. Our increasing knowledge of genetics and the chemistry of DNA are supportive of Darwin's original theory.

A population of organisms contains both numbers and species.

A species is a population of living things that can reproduce as well as its offspring.

The overwhelming majority of scientists and biologists support the theory of evolution.

4. Read directions for investigation/activity.

5. Read text. Ch 9, Evolution: Patterns and Diversity, Text Section 9.9, p. 250-253

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

| Setting | Characters | Pages |
|-------------------------|------------------------------|-------|
| southwest United States | yucca plant and pronuba moth | 252 |

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 is more than one pattern of evolution.

Divergent evolution is a process where populations of the same species become so different over time that they no longer are able to breed successfully with one another.

Parallel evolution is a process where organisms develop in a similar direction and may even look like one another.

When the organisms that live in the same environment begin to look like one another due to the environmental conditions, it is known as parallel evolution.

Finally, there is coevolution in which two organisms become adapted to live with and for each other. The yucca plant and the pronuba moth are an example of this.

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:

Getting Up Close to an Endangered Species

Get a copy of the following video to show your students. (Two-day activity to be continued on day five.)

DUMA

This story about a South African boy returning his pet cheetah to the wild has been called by movie critic W. Addiego, "a superior adventure film with a poetic heart, a family picture that's neither simplistic nor condescending." This movie is humanistic and visually extraordinary. *Duma* addresses broad themes -- parent-child relationships, the inevitability of change, finding one's true nature -- but also glances at the social realities of a troubled nation. It is rated PG and the running time is 100 minutes. This is at least a two-period activity.

Suggested activities to go with this movie

Have students take notes in specific assigned areas. For example the following topics could be assigned:

- Scientific facts about cheetahs
- Why is the cheetah endangered?
- What traits does the cheetah possess for survival?
- Etc.

Finally, ask students about what evolutionary adaptations the cheetah has developed for survival.

Upon completion of the video, have students share their notes with the class.

Note: This activity began on Week 10, Day 4

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

Design a matrix to describe the following:
 divergent evolution, parallel evolution, convergent evolution, and coevolution
 Include similarities and differences in the matrix.

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

Key Paragraph

A variety of evolutionary patterns can be found in the living world. Some of these patterns occur between closely related organisms.

EXTEND

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

A Look into the Future

Ask students to write a short paragraph describing how they think humans will look well into the future based upon what they have learned about the process. They may wish to include an illustration of their future human.

12. Close with a short summary.

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