

CBL Biology: Life Science Option

BSCS Green Version 10th edition



Biology, An Ecological Approach Lesson Plan for Week 4, Day 1

Outcomes for Today

Standards Focus: 6b

PREPARE

1. Background knowledge necessary for today's reading

In the previous lesson, climate and weather were introduced and studied. In this lesson, we add another factor to the weather and climate mix and that is the effect of landforms such as mountain ranges. Spend some time taking a look at your current location and how landforms are a factor impacting weather. Review and familiarize yourself with Google Earth (you can download it for free at googleearth.com). Use this program to “fly over” your community. In other words, take a “cloud's eye journey” over your community.

2. Vocabulary Word Wall

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

leeward climatogram weather precipitation ecologist

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

READ

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

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

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

Ecosystems are biological communities with both living and non-living components.

Large ecological systems with similar ecosystems are known as biomes.

Biomes are influenced by abiotic systems such as mountain ranges and ocean currents.

The amount of solar energy absorbed by the earth is largely dependent upon the angle in which it reaches the earth.

4. Read directions for investigation

5. Read text. Chapter 22, Biomes Around the World, Text Section 22.2, pp. 627-628

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

Setting	Characters	Pages
California	Sierra Nevada Mountains the Pacific Ocean	627

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:

We experience weather every day.

Climate is the weather patterns for an area over time.

The warmest places on earth are near the equator and the coldest are at the north and south poles of the earth.

Ocean currents impact climate.

Mountain ranges also impact climate.

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

Climatograms

As we have learned, there are a number of factors that impact climate. One way to quantify weather data is by making use of a climatogram which is a graphic representation of data. Climatograms, such as the examples on page 755 of the text, indicate several climatic factors (precipitation and temperature). By studying the climatogram, we can make conclusions about the relationship between biomes and climates. You can also download more information and several good forms at:

<http://www.pbs.org/americanfieldguide/teachers/prairie/studinst.pdf>

Procedure

Look at the data on page 651 of the student text. Instruct students to create graphs similar to the ones on page 755 of the text.

In addition, research the data on page 651 and obtain figures for your local area so that students can construct a local climatogram.

Activity

After students have created colorful climatograms (graphs) have them answer the questions below under discussion.

Discussion

Compare the climatogram most like the area you live in with the others. What are the differences and similarities?

What are some of the abiotic factors (mountains, etc.) in your area that might influence climate?

Which of the climatograms on page 755 is most like your local climatogram? Why is this so?

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

Using scientific terms, describe the weather for the past week.

Using non-scientific terms, describe the same weather.

What are some landforms in your local area that impact the weather? Describe them.

Find out the temperature of the ocean (or nearby large body of water such as the Great Lakes).

How do ocean currents affect weather?

Create a diagram similar to Fig. 22.3 on page 627 for your local area. Name the land forms.

Look at the ocean current map on page 628 (Fig. 22.4). List several of the warm currents. How do you know this?

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

Key Paragraph

Sunshine or rain, hurricane or gentle breeze: Weather is what we experience every day. What, then, do we mean by climate? Think of climate as the average weather of a place. How is climate created? An important contribution is the angle of the sun's rays with respect to a specific point on earth. The angle changes with the seasons. The angle also determines the amount of solar energy an area will receive. Climate zones occur in broad belts that encircle the earth roughly along lines of latitude. The earth's warmest places are near the equator. The coldest places are at the poles.

EXTEND

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

I Am a Cloud

Write a short poem about what a cloud sees as it floats over your community.

Consider the haiku format. For more information go to:

<http://www.toyomasu.com/haiku/>

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 4, Day 2

Outcomes for Today

Standards Focus: 6b

PREPARE

1. Background knowledge necessary for today's reading

The two biomes covered in this lesson, tundra (arctic and alpine) and taiga, are generally not too familiar to most students. Some introduction is generally necessary. Perhaps the easiest concept for students to grasp is that of the alpine tundra. Most students know that as one travels up a mountain, the temperature drops. This is why mountains can remain snow-capped well into the summer. Perhaps another current connection to the arctic tundra is the controversy over oil - the proposed exploration and drilling for oil and gas in the Arctic National Wildlife Refuge of Alaska. This fragile arctic tundra contains rich energy deposits. Use these and other themes to build in the far away, yet important, ecosystems.

2. Vocabulary Word Wall

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

alpine tundra **arctic tundra** **taiga** **altitude** **latitude**

- 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.
- Large areas of the earth are characterized by similar ecosystems grouped together into biomes.

Many factors influence the life found in each biome. These include temperature ranges and variations and geographic features such as mountain ranges.

As a general rule, the colder biomes are located near the poles while those which are warmer are located near the equator.

4. Read directions for investigation

5. Read text. Chapter 22, Biomes Around the World, Text Section 22.3-22.4, pp. 629- 631.

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

Setting	Characters	Pages
arctic tundra	snowy owl, musk ox	630
alpine tundra	pika	630
taiga	moose, deer, elk, lynx	631

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:

Most of the tundra is in the far north.

Permafrost is permanently frozen ground.

Actually, the tundra is a desert. It is just so cold that the water does not evaporate.

Arctic tundra is located at high elevations such as at the tops of mountains and mountain ranges.

The taiga is a dense forested biome of spruces and other needled trees.

Animals such as moose and the predatory lynx live in the taiga.

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:

Hatchet: The Story of a Boy in the Taiga

Hatchet is the story of a boy named Brian. On a trip to the Canadian oilfields to spend the summer with his dad, the pilot of the Cessna he is traveling in suffers a heart attack and dies. Brian must land the plane in the forest. Brian learns to exist in this wilderness. He faces many dangers including hunger, animal attacks, and even a tornado. This book gives the reader a better understanding of what it is like to survive in an untamed land.

You may want to coordinate with the English teacher on this one. Or perhaps you are the English teacher! At any rate, this would be a great resource to build an understanding of the taiga biome because the boy must survive in this ecosystem. Now this is obviously more than just the simple typical activity, but rather an entire parallel cross-curricular thematic possibility. For more information on *Hatchet* by Gary Paulsen, go to:

<http://www.mce.k12tn.net/survival/hatchet/hatchet.htm>

This site has much information including lesson plans, questions, and related information on the book.

Other possible activities for a class group or individual

Bookmark Open Mind Portrait g6 Graphic Organizer

g7 Main Idea Graphic Organizer c1-12 Cubing Postcard Prop

Poster Ad Map Retelling Reader's Theatre Cartoon Rap

Key Questions

Describe the arctic tundra winter.

Describe the arctic tundra summer.

Why is it impossible for plants to grow much above a few feet in height in the arctic tundra?

Describe differences and similarities between the alpine and arctic tundra biomes.

What is the primary difference between the tundra and the taiga?

Name two predators found in the taiga.

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

Key Paragraph

Animals of the arctic tundra include year-round residents such as ptarmigan, arctic foxes, and snowshoe hares. During the summer, large flocks of migratory water birds raise their young, and caribou graze on grasses and moss.

EXTEND

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

Survivorman in the Tundra

This is a very popular new television series on the Discovery Channel. For information go to:

<http://outside.away.com/outside/features/200510/les-stroud.html>

Ask students to write a fictitious journal entry of Survivorman while living on the tundra

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 4, Day 3

Outcomes for Today

Standards Focus: 6b

PREPARE

1. Background knowledge necessary for today's reading

Can you see the forest for the trees?

We have all heard one form or another of this phrase. You might want to ask your students what this means. Have them do a quick write on the statement and then evaluate their writing. Look for any linking phrases in their statements which could lead into this lesson which is basically about the world's temperate and tropical forests. Most students possess at least a basic understanding of what a forest ecosystem is. Perhaps a little review of the history of the world's forest or those in the United States would be helpful background information for this lesson. For example, you could use a map of the historic forests in this country. You might mention that there a number of places in the world such as Lebanon and North Africa where the forests have been cut down and replaced with new ecosystems of desert, semi-desert, and scrub brush vegetation.

2. Vocabulary Word Wall

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

temperate deciduous canopy consumers epiphyte

- 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.

Climate determines ecosystems.

Temperature and precipitation impact local ecosystems.

Local climate is also influenced by land forms such as mountain ranges as well as bodies of water consisting primarily of ocean currents.

Latitude is a the measurement of the earth between the poles.

Longitude is an east and west measurement of the earth.

The further the distance from the equator, the colder the climate becomes.

The tundra biome is a cold weather series of ecosystems with limited tree growth.

The taiga, on the other hand, consists of extensive coniferous forests.

4. Read directions for investigation

5. Read text. Chapter 22, Biomes Around the World, Text Section 22.5-22.6, pp. 632-635.

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

Setting	Characters	Pages
temperate deciduous forests	Trees such as maple, oak, hickory, and beech animals including squirrels, deer mice, white-tailed deer, vireos, foxes, and skunks	632
tropical rain forest	plants including epiphytes many arboreal animals	632-633
		634

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:

The mid-latitude or temperate forests have four distinct seasons (spring-summer-winter-fall).

Tropical rain forests have wet and dry seasons but the temperature range is pretty constant.

The canopy is the top portion of a forest.

The trees in the tropical rain forests do not drop all their leaves at one time.

A deciduous forest is where the trees do drop their leaves in the fall and grow them again in the spring.

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:

Who will speak for the trees?

The Lorax is a classic children's tale by Dr. Seuss. This book is a great tool in addressing many natural resource topics. It talks about the ways in which humans use natural resources to meet their needs, and the ways in which the environment is modified during this process. It can be used to discuss how resources affect the community and jobs on a local level. It is also very useful in discussing the decisions we make and the responsibility we have to use our resources wisely. Many current ecological concerns (pollution, conservation, endangered species, etc.) can be brought to the students' attention using this book.

Procedure

Read this book to your students. Actually, students love to be read to, no matter what their age.

Activity

This website contains a wealth of information related to the story of *The Lorax*.

http://home.comcast.net/~sue.stanton/the_lorax.htm

Use this reference to design an activity in which your students will then create some posters to share with elementary school children. Perhaps they could read to some younger school children as part of a service learning project.

Discussion

Follow up with a discussion with your students on how their younger children responded to the story of *The Lorax*.

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

Using a Venn diagram, list differences and similarities between tropical rain forests and midlatitude forests.

Make an illustration of a tropical rain forest indicating some common plants and animals.

Do the same for a temperate deciduous forest.

Why are there so many arboreal animals in the tropical rain forest?

What is a limiting factor in an ecosystem such as the rain forest?

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

Key Paragraph

Midlatitude, or temperate, forests develop throughout the midlatitude regions where there is enough moisture to support the growth of large trees. This biome has four distinct seasons. Much of the farmland in the United States was once forest.

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EXTEND

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

A Sequel to *The Lorax*

Every good story can often have a sequel. Have your students write a sequel to the story of *The Lorax*. Perhaps it should be one suitable for young children.

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 4, Day 4

Outcomes for Today

Standards Focus: 6b

PREPARE

1. Background knowledge necessary for today's reading

The once great grasslands of the United States have all but disappeared. Some students may think to themselves, "So what?" These grasslands were an integral part of the history of the westward movement in this country and images of covered wagon trains snaking across the endless seas of grass continue to illustrate this period in history. Destruction of these grasslands through the conversion of the deep soils (sod) into row crops opened the way to the great dust storms of the Dust Bowl and Great Depression of the 1930's. This lesson could provide an opportunity to implement a thematic approach to the curriculum. Consider reading some passages from John Steinbeck's classic, *The Grapes of Wrath* to capture the perspective of life on a destroyed biome (the grasslands). In addition, speak to the history teacher and look for the possibilities of connections between curricula.

2. Vocabulary Word Wall

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

prairie **herbivore** **devour** **veldt** **pampas**

- 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.

Climate and topography all contribute to the development of the various biomes of the earth.

Each biome is made up of related ecosystems.

The tundra is a cool to very cold biome located in the far northern reaches of the Northern Hemisphere.

The taiga is also a cold weather biome made up of vast stretches of evergreen forest.

As we travel towards the equator, we find two types of forests: The temperate forest, found throughout the eastern United States, consists of deciduous trees; the tropical rain forest is found primarily near the equator.

Forest environments are generally indicative of areas of higher precipitation.

4. Read directions for investigation

5. Read text. Chapter 22, Biomes Around the World, Text Section 22.7, pp. 635-637.

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

Setting	Characters	Pages
North American prairie <i>then</i>	bison, pronghorn antelope	636
North American prairie <i>now</i>	cattle, sheep	636
prairie predators	wolves, rattlesnakes, badgers	
prairie consumers	meadowlarks, prairie dogs	

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:

There are three types of grasslands in North America:

1. the tall grass prairie
2. the short grass prairie
3. the mixed grass prairie

Sheep and cattle are now the most numerous animals living on the former grasslands.

Wolves have been eliminated from the land almost everywhere in the continental United States today.

Quite often, deserts are located next to grasslands.

The amount of rainfall is the primary reason that prairies are either tall grass, short grass, or mixed grass.

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:

Web Biomes Reference

In this activity, students will study a selected biome and develop study questions for future students after preparing a short report.

Procedure

Direct students to this website:

<http://www.blueplanetbiomes.org/>

Allow them to explore the website for awhile as an introductory activity. Assign no more than two students to a particular biome. For example, the grasslands could be a project for two students.

Activity

Once students know of their particularly assigned biome, ask them to become "teachers" to the rest of the class. In their mini-lesson, make sure they cover the key characteristics (plants, animals, importance to humans, etc.)

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Discussion

Follow up with a poster drawing from each biome to be posted on the classroom walls for a final review.

Optional/Alternate Activity

If you wish to study the Dust Bowl as an example of biome destruction, this site is a great resource:

<http://memory.loc.gov/learn/lessons/99/dust/intro.html>

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

So what is a prairie?

Name and describe each of the three types of grasslands in the United States.

Use a diagram format to compare prairies past and present. Include descriptions and comparisons of animals, plants, and humans.

How has wildfire helped to shape the grasslands environment?

What adaptations do large hoofed animals possess for survival on the prairie?

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

Key Paragraph

What key climatic factor resulted in the creation of North American grasslands? As you move west from the North American deciduous forests, precipitation decreases. This lack of water, rather than the amount of solar energy, is the major factor limiting plant and animal life. Grassland biomes, such as the prairies of North America, typically receive 63-71 centimeters of annual precipitation, have low winter temperatures, and may be relatively high in elevation. Drought and periodic fires keep woody shrubs and trees from invading the environment, except along streams.

EXTEND

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

Images of the Dust Bowl

Print or project the following web page:

<http://memory.loc.gov/learn/lessons/99/dust/photo.html>

These vivid photographs from the dust bowl can be a basis for students to write on the following questions:

- Speculate as to when and where these photographs may have been taken
- Which image "speaks" to you and why?
- If every picture tells a story, what story do these photographs convey?

What questions do these images evoke?

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 4, Day 5

Outcomes for Today

Standards Focus: 6b

PREPARE

1. Background knowledge necessary for today's reading

So what factors make up a desert? The simple version is that a desert is an area which experiences little rainfall. Many students have come to believe that deserts are pretty much devoid of life. Biologists certainly know that this is not the case. On the other hand, desert ecosystems are quite fragile. For example, the thin soils are quite subject to disturbance from human impact and its erosion. North American deserts have been the recipients of irreversible ecological damage. Quite often, the introduction of a typical desert animal to students in an awareness raising format can be a key first step towards forming a conservation ethic.

2. Vocabulary Word Wall

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

cloudburst taproot cuticle estivation 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 word biome refers to a primary plant community which covers a large area of land.

Biomes covered to this point in our chapter study include the tundra and taiga of the far north, the temperate and tropical forests, and the three types of grasslands.

Precipitation in the form of rain or snow is the primary factor in biome development and perpetuity.

In addition, temperature ranges and topography influence biome development.

4. Read directions for investigation

5. Read text. Chapter 22, Biomes Around the World, Text Section 22.8, pp. 637-639

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

Setting	Characters	Pages
North American deserts (plants) (animals)	cacti, creosote bushes, mesquite	

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:

Deserts and grasslands are generally neighbors.

A cloudburst is a thunderstorm producing a great deal of rain in a short amount of time.

Desert plants have two types of root systems:

- 1.) One that spreads out far and wide but shallow (to quickly soak up any rainfall).
- 2.) One that consists of a central deep taproot that reaches far down into the earth for moisture.

Seed-eating animals are common in the desert.

Some desert animals do a summer type of hibernation. This is called estivation.

Kangaroo rats can survive without drinking water.

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:

Creating Water in the Desert

Overview: This is such an easy little experiment and it's fun and informative for all ages. Based on the process of condensation, it appears to create water from nothing (which is, of course, not the case).

Teacher Preparation: Aquarium, sand, clear plastic, small container like a jar lid, plant, water.

Procedure Ideas:

1. Put 5-10 cm of sand in aquarium.
2. Hollow out a 10-15 cm depression in the sand.
3. Place jar lid in the center of the hole, and plant material (small whole plants or broken up larger ones) around the container on the sand.
4. Lay 20x20 cm clear plastic over the hole, and hold in place with sand or pebbles around the edges.
5. Put just enough sand or a pebble in the very center of the plastic to make it sag slightly. Too much weight will pull the plastic loose around the edges.
6. To speed up the process, place a light bulb over the aquarium to warm the sand and plastic, as the sun might.
7. Water from the plants will form on the underside of the plastic by evaporation (from the plants and residual moisture in the sand) and condensation. If the plastic sags enough, the moisture will run to the center of the plastic and drip into the container in the bottom of the hole.

Discussion

Follow up with a discussion on this activity with the basic question of “Where did the water come from?”

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

Make an illustration of the two primary types of root systems found in desert plants. What is a cloudburst? How might a cloudburst impact the desert environment? Name some of the adaptations of desert plants that help them survive in the desert. Why is it that many animals that live in the desert are light in color?

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

Key Paragraph

In North America, the western edge of the grassland is bordered by desert. We might define a desert biome as a region characterized by low annual rainfall, high daytime temperatures, and a high rate of evaporation. The climate of deserts may be complicated by mountains. Between the western ranges in North America, deserts occur from eastern Washington south into Mexico.

EXTEND

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

**Life is the desert, life the solitude, death joins us to the great majority.
Edward Young**

Ask students to write a short paragraph in reaction to this quote.

12. Close with a short summary

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