

Investigation Two - Elevation, Plants and Animals

Standard V Students will understand the physical characteristics of Utah's wetlands, forests, and deserts and identify common organisms for each environment.	Standard <u>V</u>
Objective 1 Describe the physical characteristics of Utah's wetlands, forests, and deserts.	Objective 1
Objective 2 Describe the common plants and animals found in Utah environments and how these organisms have adapted to the environment in which they live.	Objective 2
Intended Learning Outcomes 1. Use science process and thinking skills 4. Communicate effectively using science language and reasoning	

Background Information

Different regions of Utah have their specific patterns of interconnected life. These are groups of living things that are specially designed for their specific environments. One of the physical characteristics of these environments is elevation. Elevation affects climate and temperature which determines where plants and animals live. Other things, such as natural disasters or events will affect animal and plant distribution, but most live within certain elevations.

Pre-Assessment/Invitation to Learn

Begin by dressing a student (or yourself) in a large coat, gloves, hat, etc. and act like you're cold. Ask students what clues they can infer from your "physical adaptations" (the clothing) and your behavior. (Try to have someone state that you must be someplace "cold".) Usually, when we go to higher elevations the climate and temperature is colder. Define "elevation" for students. (A higher place or position.) Now put something on that would let students know you are in a warmer climate, such as sunglasses, hat, flip-flops, and pretend to use suntan lotion. Ask them where your elevation might be. (Lower because of warmer climate and temperature.) As students respond and discuss this, tell them they are going to do the same with clue cards about plants and animals. Elevation has a definite effect on plants and animals in different environments. Review where elevations and environments are located in Utah.

Instructional Procedure

1. Prepare a line drawing of a mountain and valley graphic on a large piece of paper hanging on the wall.

Materials

- Bulletin board paper
- Markers
- Copies of plant/animal card

2. Define the meaning of elevation (a higher place or position).
3. Discuss Utah's different elevations, and their relationship to environments, depending where you are in the state.
4. Mark elevations on the paper mountain created on the wall. Label an example of a place in each elevation next to the numbers. Discuss what kind of clothing would be needed at different elevations for humans. Help students make the connections that plants and animals also have adaptations, just like humans to help them survive in these elevations.
5. Explain that elevation is one of the things that affect where plants and animals live. When plants and animals live at higher elevations, they might need to be able to survive in the cold. At lower elevations that contain deserts, the plants and animals will change because only those that are able to survive will live there. Other reasons that affect where plants and animals live are climate and temperature. These are directly tied into elevation. All three together give us clues to where things live.
6. Pass out animal/plant cards with information that will help students determine, or match them up to different elevations. Each student will share his information with the class and then decide where that animal might live. They will then put their card up on the wall in the correct location. If a plant or animal can go in more than one location, you can either decide on the most common location, or make more than one card to place on the mountain.

The following list of plants and animals from the science vocabulary can be used in this activity.

Plants

cottonwood
cattails
bulrushes
prickly pear
sagebrush
Utah juniper
pinyon pine
quaking aspen

Animals

jackrabbit cottontail
red fox tortoise
coyote red-tailed hawk
mule deer muskrat
elk deer mice
moose pinyon jay
cougar
bobcat
beaver

Help students understand that many animals can adapt to live in a variety of different elevations depending on conditions. (Ex. If there is a drought, deer, elk, and moose will move to a location where food is available.)

Cottonwood

Large leafy tree with clusters of cottony hairs on the seeds. Lives at approximately 6,000 feet.

Jack Rabbit

Long-eared, long-haired hare that lives in flat, open deserts from 3,000 to 6,000 feet. Their predators are coyotes, foxes, eagles, and hawks.

Mule Deer

Also called the black tailed deer. Active in early morning and dusk. Roams 6,000 to 10,000 feet depending on food source of grass, leaves, twigs and bark which it loves.

Elk

A large, light brown or grayish-brown animal with long, branching antlers. Migrates with seasons: in summer up to 11,000 feet; in winter 7-10,000 feet.

Cottontail Rabbit

Mammals with soft fur, short body and long erect ears with small furry tail. Lives at 6,000 to 8,000 feet, but will roam depending on food sources.

Bulrushes

Wetland plant that grows on banks of small rivers and ponds in many places at 3,000 to 6,500 feet.

Red Fox

A mammal with upright ears, red/orange fur and a long, bushy tail that lives in mountain forests. Humans have changed behaviors so they often depend on trash for food!

Red-tailed Hawk

A very adaptable bird able to be at home in deserts and mountains, and at varying heights above sea level. They mostly feed on rabbits, snakes, lizards, and small rodents.

Pinyon Jay

These blue birds can be found in forests among the pinyon pine as low as 2,000 feet and the ponderosa pine as high as 8,000 feet. They eat pine seeds.

Pinyon Pine

Tree with yellow flowers that lives in dry desert areas between 2,000 and 7,000 feet.

Prickly Pear

Found in the deserts of Utah at 3,000 - 4,000 feet; but can be found as high as 7,000 feet at the transition area from desert to forests. Dwell in well-drained soil that is dry, rocky, or sloped.

Utah Juniper

Scraggly conifer that can live in a variety of climates and environments. Usually found in the great basin plateaus between 3,000 and 7,000 feet.

Tortoise

Slow-moving reptile that lives in dry desert environments under 6,000 feet.

Coyote

A medium-sized animal covered with coarse brown or white fur that roams a variety of elevations depending on food and temperature. Usually found 7,000 feet and below.

Muskrat

Strong swimmer that lives near fresh water and likes bulrushes and cattails.

Moose

Extremely large member of the deer family with bowl-shaped antlers. Loves food found in marshy areas at 6,000 feet and above.

Bobcat

Brown and tan striped fur with black and white stripes around its face. Can live in deserts as well as mountain areas.

Deer Mice

“White-footed” mouse that lives near humans for scraps of cloth and small trash to build nests. Moves frequently; can live anywhere there is grass, leaves, etc. for food.

Sage Brush

Plant with small, light colored leaves in a dry climate at 6,000 - 7,000 feet.

Cattails

Long, slender plant that lives in marshy places at 3,500 to 7,500 feet. Found in wet land environments.

Cougar

Tan fur with a powerful body that prefers woodlands and forests. Lives at 7,000 feet and above.

Quaking Aspen

Plant that grows at 7,000 to 8,000 feet and likes cooler temperatures.

Beaver

Small to medium sized mammal covered in fur with short body, long flat tail. Swims in forest areas at 7,000 to 8,000 feet.

Curriculum Extensions

Fine Arts/Visual Arts-

- Have the students draw pictures of the plants and animals. Put them on the elevation paper. (Standard III, Objective 1)

Language Arts-

- Have the students write reports about the plants and animals. (Standard VIII, Objective 6)
- Have the students write in paragraph form the information they learned at home (Investigation 1 homework) with their families and the information they learned in class. (Standard VIII, Objective 6)

Math -

- Find the differences between the elevations discussed. (Standard I, Objective 5)

Science-

- Find the differences in the animals and plants that live in the different elevations. (ILOs 1,4)

Assessment Suggestions

- Review with the students the animals of Utah and which environment they live in.

Resources

Websites:

- www.usoe.k12.ut.us (Click on Curriculum and Instruction, scroll down and click on science, click on 4th grade, click on Utah plants and animals.)

Homework & Family Connections

- Send home the description animal cards. Have the family read about each one. Look at the pictures on the USOE website.
- Play a game by having someone read the card and having the family guess which animal is being read about.