

Nuts for Knowledge: Discovering Utah's Savvy Squirrels



Squirrels are small, charismatic mammals that live all over the United States. Here in Utah there are four squirrel species - three native and one invasive. Use the activities in this packet to learn more about the squirrel species here in Utah and possibly contribute to research being done at NHMU.

Grade Level	3rd-5th Grade
Activity Length	Multiple Class Periods. About 2 hours. Possibly longer if participating in Citizen Science projects
Materials	Paper Pencil/Pen Outdoor Area

Disciplinary Core Ideas

(LS2) Ecosystems

(LS4) Biological Evolution

SEEd Standards:

Standard 3.2.5 Engage in argument from evidence that in a particular habitat (system) some organisms can survive well, some survive less well, and some cannot survive at all. Emphasize that organisms and habitats form systems in which the parts depend upon each other. Examples of evidence could include needs and characteristics of the organisms and habitats involved such as cacti growing in dry, sandy soil but not surviving in wet, saturated soil.

Standard 4.1.1 Construct an explanation from evidence that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. Emphasize how structures support an organism's survival in its environment and how internal and external structures of plants and animals vary within the same and across multiple Utah environments. Examples of structures could include thorns on a stem to prevent predation or gills on a fish to allow it to breathe underwater.

Standard 5.3.3 Develop and use a model to describe the movement of matter among plants, animals, decomposers, and the environment. Emphasize that matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Examples could include simple food chains from ecosystems such as deserts or oceans or diagrams of decomposers returning matter to the environment.



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Student Name: _____

Squirrels are a small mammal found throughout the United States. Here in Utah there are four squirrel species. Use the photos below to examine the different squirrels and write down your observations about the different structures each squirrel has. A **structure** is a body part or a feature the squirrel has that helps it survive.



American Red Squirrel



Fox Squirrel



Rock Squirrel



Abert's Squirrel



Although all of these squirrels live in Utah, they do not all live in the same place or eat the same foods. Discover more about each of the four squirrel species below.

American Red Squirrel

Habitat: Coniferous forests (e.g., Pine trees)

Diet: Insects, seeds, bark, nuts, mushrooms and pine seeds.

Rock Squirrel

Habitat: Rocky habitats such as cliffs and canyon walls

Diet: Pinenuts, walnuts, other seeds, fruits, vegetables and insects

Fox Squirrel

Habitat: Deciduous forests (e.g., Maple trees)

Diet: Acorns and other seeds along with some fruit, berries, and insects

Abert's Squirrel

Habitat: Ponderosa Pine Forest

Diet: Mostly ponderosa pine seeds, buds, bark, and flowers

Choose one of the squirrels and draw the squirrel in its habitat. Make sure to include everything it needs to survive. When you are finished connect the squirrel to its habitat with a food chain. A **food chain** is a pathway showing the energy flowing from organism to organism.



The Fox Squirrel is an invasive species here in Utah. **Invasive species** are animals or plants that are not native to an area; they were not originally here. Many invasive species were brought to an area by humans, but we do not know how Fox Squirrels came to Utah. The Fox Squirrels were first noticed along the Jordan River in Salt Lake County (pictured below). Based on what you know about squirrels, and specifically the Fox Squirrel, why do you think this was a good habitat for them?

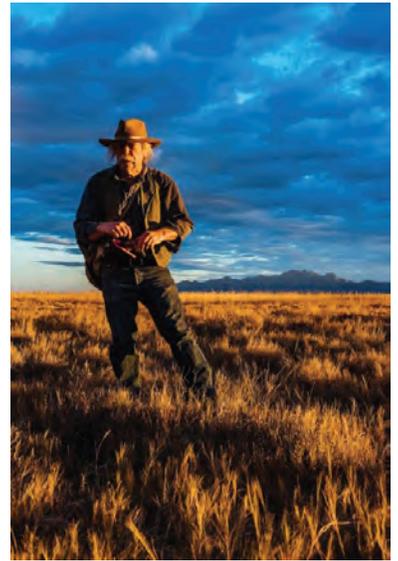


Sometimes invasive species push out native species and take over an area. Fox Squirrels live in the same cities and towns as Red Squirrels and Rock Squirrels but have not pushed these native squirrels out. Why do you think these three squirrels can live together? Do they compete for the same food or habitat?

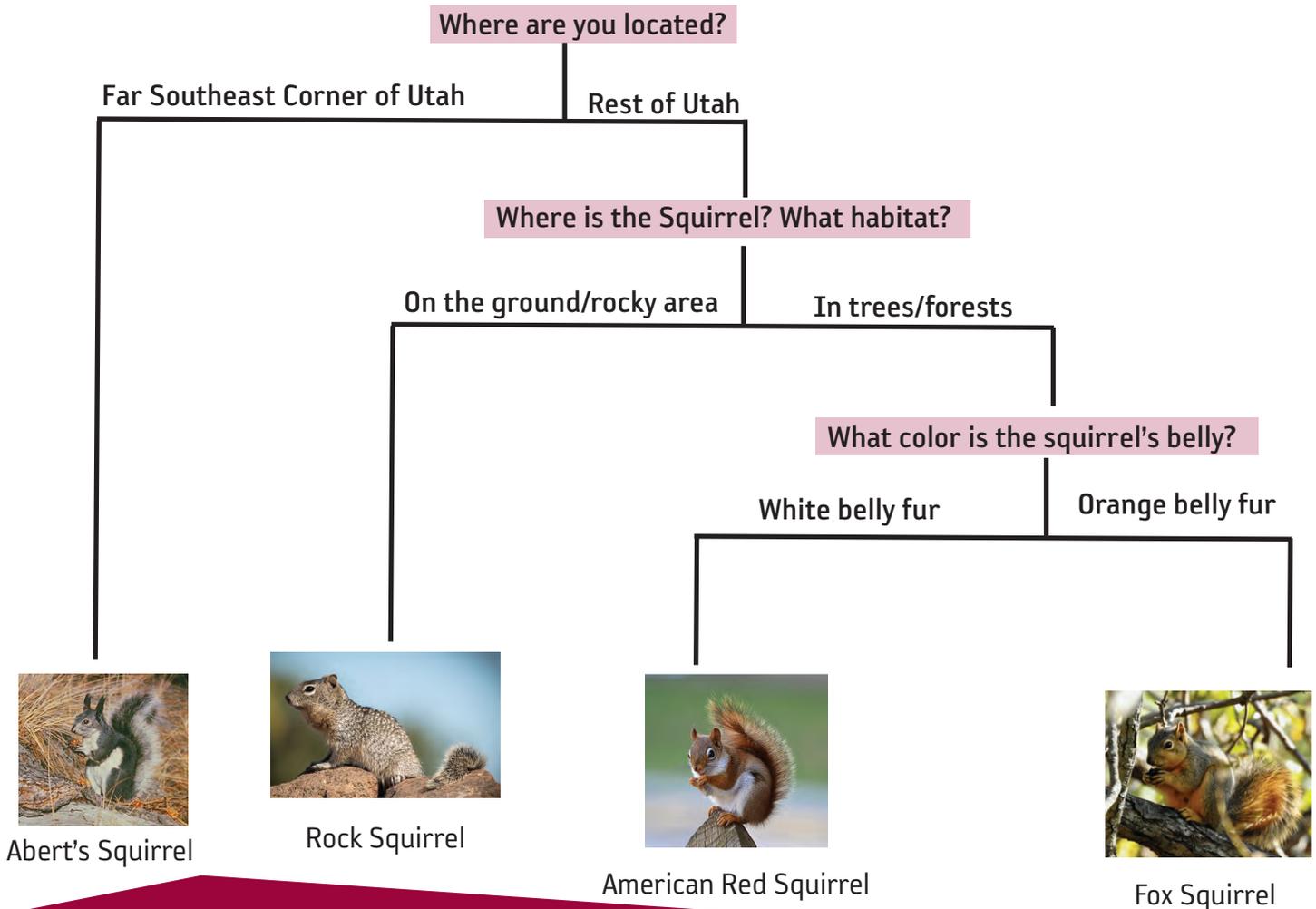


Here at NHMU we are studying Fox Squirrels so that we can learn more about them. Eric Rickart, Curator of Vertebrate Biology, is working with Citizen Scientists all over Utah to answer some questions. Where are the Fox Squirrels? What are they doing?

You can help Eric too by being a Citizen Scientist! But first, let's practice some science skills.



Scientists have to be keen observers. So the first task as a scientist is to observe a squirrel! With adult permission or supervision go outside and find a squirrel. This could be in your backyard, at a local park, or even in the trees that line a nearby street. Using the **Dichotomous Key** below find out which squirrel you are looking at. To use the key answer each of the questions and follow the path to find your answer.



Now that you have found a squirrel and identified it, what is it doing? Use the Ethogram below to record what the squirrel is doing. Watch the squirrel for 2 minutes and mark down what the squirrel is doing every 15 seconds (you can count quietly out loud or in your head). At the end you will have 8 marks.

Eating	
Running	
Walking	
Sleeping	
Playing with other squirrels	

Scientists also record their observations in a field notebook. Use the space below to sketch the squirrel you are watching. Make sure to label any structures that are important for the squirrel to survive. Then use the space to write some notes about your day.



Help NHMU Researchers learn more about squirrels during Squirrel Fest!

December 7-13, 2020

Do you see squirrels in your yard? At school? In nearby parks or on hikes with your family? NHMU scientists are interested to learn more about Fox Squirrels in Utah – like where they are living, and what they are interacting with. From December 7th-13th, we need the help of citizen scientists – like you – who can share what they are seeing!

How to join Squirrel Fest:

1. Visit our website to learn more about the squirrels that live in Utah.
2. Look for squirrels to observe in your yard, neighborhood, city, or on a hike.
3. Tell NHMU about what you see!
 - After you take a few minutes to watch squirrels, noting what they are doing, an adult can help you use NHMU's Fox Squirrel Survey form to submit this information, which will help researchers better understand where squirrels are living, when they are active, and what they are interacting with. You can submit as many entries to this form as you wish!



Kirstin Roper, © NHMU

[Click here for more information on Squirrel Fest](#)



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