

# Diversity Detectives

## Summary

Students will use what they know about Utah's environments and animals to become diversity detectives. They will use the clues about where the animal lives, how it moves, and what it wears to accurately name each animal. In addition, students will be able to use their imagination to explain how a unique animal is suited for its environment.

## Additional Core Ties

English Language Arts Grade 4

[Writing Standard 3 b.](#)

Mathematics Grade 4

[Strand: GEOMETRY \(4.G.\) Standard 4.G.3](#)

## Time Frame

2 class periods of 60 minutes each

## Group Size

Small Groups

## Materials

3 lunch bags or other containers for each group of 3 students

Animal cards sheet for each group of 3 students (attached)

Diversity Detectives student datasheet for each group of 3 students (attached)

- *What Do You Do With a Tail Like This?*

By Steve Jenkins and Robin Page

## Student Prior Knowledge

In Utah there are three distinct environments -- deserts, forest/mountain, and wetlands. These environments differ in temperature, precipitation, geology, vegetation, and animal life.

In Utah's three environments, there is a great abundance of biological diversity. Biological diversity is the number of species present in a community, as well as the relative abundance of each species. For example, the biological diversity of your classroom community could contain 32 humans, 3 spiders, 10 ants, and 1 fly.

Each species has adapted to live in the environment in which they are found. An adaptation is a physical characteristic or behavior that helps species survive in their environment. Adaptions occur through changes in inherited traits (genes) that are passed on to offspring over time.

For example, a normally white species of moth that lives in a city produced an offspring with a dark brown coloring. The moth with the dark brown coloring is better able to blend into the brick of the city buildings. When birds come to feed on the moths, they birds eat the white moths that stand out from the brick. The dark brown moth is not eaten. The dark brown moth reproduces producing more dark brown moths.

This new generation of dark brown moths is not eaten and lives to reproduce more dark brown moths. Over time, the population of moths in the city will become all dark brown colored. The dark brown color that helps the moth blend into its environment is an adaptation.

Other physical characteristic, besides color, that are adaptations include slimy skin, webbed feet, and two eyes facing forward. Examples of behavioral adaptations include migration, hibernation, and babies crying to get their mothers' attention.

## Intended Learning Outcomes

### 1. Use Science Process and Thinking Skills

Sort and sequence data according to a given criterion.

### 2. Manifest Scientific Attitudes and Interests

Demonstrate a sense of curiosity about nature.

## Instructional Procedures

### Day 1

Before class starts, print the drawings of the Animal Cards: Where it Lives, How it Moves, and What it Wears. Make enough copies so that a group of three students will get all twelve drawings. Cut the drawings apart. These drawings are the clues that your students use to identify animals in Utah.

Label three containers *Where it Lives, How it Moves, and What it Wears*. Make sure that there are three containers for each group of three students.

Put the clues that were cut apart into their respective containers (e.g., *Where it Lives* clues are put into the container labeled *Where it Lives*).

Explain to your students that they are going to become diversity detectives. As diversity detectives, your students are going to use clues about where animals live, how animals move, what animals wear, and their own knowledge about animals to learn what animals live in Utah. Divide your class into groups of three. Hand out three bags of different clues to each group.

Each group will get a bag that says *Where it Lives, How it Moves, What it Wears*.

Hand out a student datasheet, titled *Diversity Detectives Data*, to each student.

Explain to your students that the bags contain clues about animals that live in Utah. The clues that are given to the groups are the environment where the animals live ( *Where it Lives*), how the animals move ( *How it Moves*), and what covers the animals' bodies ( *What it Wears*).

Explain to your students that they are going to pull out clues from the bags and write them in the respective columns. Clues that are pulled from the bag labeled *Where it Lives* should be recorded under the column labeled *Where it Lives*. They should pull one clue from *Where it Lives*, then *How it Moves*, then *What it Wears* and recorded the data under the respective columns. Students should take turns pulling out clues and recording the data. This process should be repeated until the bags are empty.

Ask your students to return the clues back to the bags from which the clues were pulled.

After all groups have pulled all the clues out of their bags, explain to your students that as a group they should be detectives and discuss what animal in Utah has all the characteristics of their clues. For example, if a row lists the words *forest, hops, and fur*, the students would discuss what animal exhibits all three characteristics (a rabbit could be an answer). The animal that the group decides meet all three characteristics should be recorded under the column labeled *Name of Animal*. Be aware that not all combinations will work. If the students are unable to think of an animal, have them pull new clues from the bags.

Explain to your students that after they decide what animals fit all their clues, the group should think about what adaptations the animals have that allows them to live in particular environments. This information should be recorded under the column labeled *Animal Adaptation*.

When your students have completed their detective work, ask each group to share one set of their clues, the animals that meets those clues, and the adaptation that allows the animal to live in that environment with the entire class.

After each group has shared their data, have a class discussion about animal adaptations.

Consider asking your class these questions: Is there more than one animal that could be described by their clues? Why might animals have the same adaptations? Are some animals

adapted to live in more than one environment?

Students often a difficult time connecting what is learned in school to their home lives. To help your students make these connections, consider asking your students the following questions:

What did you learn from this activity?

If this is the first time you have introduced the information to your students ask them:

How is what you learned in this activity similar to what you already know or have experienced before?

If this is not the first time you have introduced the information to your students ask them:

Can you think of something similar that we've discussed/learned about in our class before?

What will you be able to do now that you know this information?

## Day 2

Read *What Do You Do With a Tail Like This?*

Using the sheet provided, have students pick out the different body parts (nose, ear, tail, eyes, mouth, and feet).

Using the data they've collected, have each student create a name for their animal and an environment. Encourage students to be creative. For example, your students could choose to have an animal that lives in a toy store. The animal might be brightly colored to blend in with the toys on the shelves and have big horns that can be used to hold toys.

In written form, have your students describe their animal and explain how each feature is adapted to its environment.

Have students draw a picture of their animal and identify lines of symmetry.

## Strategies for Diverse Learners

Allow students to draw their environment and show how their animal is adapted to it.

## Extensions

Students can write reports on animals described during the activity. Give them time over the next week to research an animal they have chosen and prepare a presentation to share that information with their classmates. Important information to include in the report are the questions from the activity: where does it live, how does it move, what does it wear.

Discuss adaptations of humans (adaptations do not occur individually but happen over many generations).

## Assessment Plan

Groups of students will complete a data sheet about the activity to assess their learning for the entire activity.

Class discussion during and after the activity can be used to clarify any confusion that the students may have about biological diversity and adaptations. Additionally, students understanding of adaptations can be assessed by completing the first learning extension.

Six Traits Rubric					
Assignment: Design an Environment Suited to Your Adaptations	5	4	3	2	1
Ideas and Content: The writer convinces me that their animal is well adapted to their environment by giving specific details and examples. All six adaptations (nose, ears, tail, mouth, eyes, feet) have been addressed in the paper. I am convinced this is the very best environment for this particular dragon.					

<p><b>Organization</b> The paper is orderly and organized into paragraphs. There is an introduction, a body, and a conclusion.</p>					
<p><b>Voice</b> The writer directly addressed the audience. The language is natural and makes the paper fun and interesting to read.</p>					
<p><b>Word Choice</b> Words used are specific and accurate. They are not confusing.</p>					
<p><b>Sentence Fluency</b> Sentences are complete and are logical. They show how the ideas are interrelated.</p>					
<p><b>Conventions</b> Grammar, spelling, and punctuation are correct and contribute to clarity.</p>					

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