

## **2<sup>nd</sup> GRADE**

### **ANIMAL CLASSIFICATION, THEIR BIOMES, AND FOOD CHAINS**

**Summary:** Students sort small plastic animals into the six classification groups of: birds, fish, mammals, amphibians, reptiles, and insects. After sorting, they discuss the characteristics of each of the groups. Students then sort pictures of animals into the six biomes of: grasslands, arctic, ocean, rainforest, forest, and desert. After sorting, the students learn about the characteristics of the six biomes studied. Finally, students construct food chains with animal cards and learn about the characteristics of food chains.

#### **Intended Learning Outcomes for 2<sup>nd</sup> Grade:**

**Objective 1:** Framing questions. Conducting investigations. Drawing conclusions.

**Objective 2:** Developing social interaction skills with peers. Sharing ideas with peers. Connecting ideas with reasons.

**Objective 3:** Ideas are supported by reasons. Communication of ideas in science is important for helping to check the reasons for ideas.

#### **Utah State Core Curriculum Tie:**

##### **Standard 4 Objective 1: Life Science**

Develop, communicate, and justify an explanation as to why a habitat is or is not suitable for a specific organism.

Compare and contrast the characteristics of living things in different habitats.

**Preparation time:** 1 hour, the first time the lesson is prepared only

**Lesson time:** 50 min

**Small group size:** works best with one adult for every 5 children

**Materials and preparation:** Once animal pictures and plastic animals are found, organized, and saved, this lesson can be used again and again with minimal preparation time.

1. animal classification: If you have small plastic animals available you can use them for this activity. If not, pictures from magazines or off of the Internet work as well. Try and have 4-6 animals of each classification type.

Mammals – include some water mammals like seals or whales

Reptiles – alligators, turtles, snakes, lizards, geckos, chameleons

Amphibians – frogs, salamanders, toads, caecilians

Birds – include a penguin, some students think they are fish

Insects – make sure they have six legs and are not spiders

Fish – include sharks as well

2. animals and biomes: Copy the six biome explanation/sorting sheets. Have about 10 – 15 pictures of animals for each biome. Sources to use for the pictures are children’s animal magazines or off of the Internet.

Rainforest – Be sure and include colorful animals that can’t live in dry environments. Examples are: frogs, salamanders, toucans, parrots, monkeys, orangutans, leopards, leaf cutter ants, and snakes.

Grasslands – Look to include lots of brown animals and animals that live in herds. Examples are: lions, elephants, giraffes, zebras, wildebeest, wild dogs, lemurs, rhinoceros, and kangaroos.

Ocean – Include mammals, fish and invertebrates. Examples are: whales, dolphins, sea turtles, fish, octopuses, jellyfish, eels, sharks, clams, and shrimp.

Desert – Include lots of brown animals. Examples are: scorpions, long eared rabbits, lizards, rattle snakes, desert fox, desert pigs, roadrunners and ostriches.

Arctic – Include lots of white animals and Arctic Ocean animals. Examples are: polar bears, lemmings, arctic fox, wolves, seals, beluga whales, penguins and narwhals.

Forest – Examples to include are: eagles, hawks, owls, turkeys, mountain lions, brown bears, deer, rabbits, coyotes, turkeys and forest birds.

3. food chains: Include about 6 food chains involving 3 – 5 organisms in each chain. Find a picture of each animal and glue it to an index card with its name written next to it. Put a mark of the same color on the back of each of the cards in the food chain so students can check if they have formed the food chain correctly when they are done. Make sure each food chain starts with a producer, which is a plant.

Example food chains:

Plant plankton in the ocean – fish - penguin – shark

Plant plankton in freshwater – salmon – grizzly bear

Grass – deer – wolf

Grass – wild boar – tiger

Grass – prairie dog – coyote

Tree leaves – elephant – lion

Grass – bug - monkey – leopard

### **Background information:**

Classification is a way to group and categorize organisms by their characteristics. Most organisms can be first classified into either plants or animals. To further classify animals, six common groups to sort them into are: fish, birds, mammals, reptiles, amphibians and insects. The common

characteristics of each group of animals are found on the sorting sheets for this activity.

Animals can also be classified by where they live. A biome is a geographic area that experiences the same conditions of climate, geology, plants and animals. Six predominant biomes are: rainforests, forests, grasslands, deserts, oceans and the arctic. The characteristics of these six biomes are found on the sorting sheets for this activity. Students are generally more familiar with the word habitat, which is a little different. A habitat is the environmental area where a particular species of animal or plant is found. A biome is generally larger and consists of an interactive group of many plants and animal's habitats. At this level, the words can be used somewhat interchangeably so that students can relate the new information to their existing idea of what a habitat is.

A food chain is the sequence of who eats whom in a biological community. The true beginning of all food chains is the sun. It gives its energy to plants, which turn it into their food. Plants are the producers of a food chain because they can produce their own food. All food chains begin with a producer. In an ocean or lake this can be plant plankton or algae. (Note that some plankton can also contain animals but we are considering the plant plankton for these food chains.) The next organism in a food chain is a consumer. Consumers are animals that eat either plants or other animals. The first consumer in a food chain is an herbivore because it eats only plants. The next animal in a food chain is a carnivore because it is eating meat. Food chains can have varying lengths. Most food chains have 3 or 4 organisms. They never usually go over 5 animals.

**Pre-lab discussion:** Talk to the students about classification in science. For students, the best way to explain classification is to use the word - sort. Have the students list the 6 main groups of animals. Explain that a biome is larger than a habitat and that animals predominantly live in one biome. Ask questions about a food chain and see if students can come up with a food chain that might work for an owl in Utah. See if they can discuss apples from trees eaten by mice, and then owls eating the mice. Explain the words producer and consumer.

### **Instructional procedure:**

**I. Animal Classification:** Students will predict which animals belong to the different classification groups and then learn the characteristics of each group.

1. Place in the middle of the table the papers with the 6 classification groups for animals: birds, fish, mammals, reptiles, amphibians, and insects.
2. Hand out one plastic animal to each student. Have them place the animal where they predict it belongs. After all the students have placed their first animal, discuss any changes that need to be made.

3. When all the animals have been placed, discuss some of the characteristics of each classification group.

**II. Animals and Biomes:** Students will predict which animals belong in each biome and then learn the characteristics of that biome. They will also discuss why animals are better suited for one biome over another.

1. Depending on how many stations you set up; put the biomes into groups of two or three. Mix all the animals together for either the two or three biomes at that station. Place in the middle of the table your biome papers. Talk about the conditions in each of the biomes.

2. Hand out one animal picture to each student. Have them place the animal where they predict it belongs. After the students have placed their first set of animals, discuss any changes that need to be made. Talk about what makes animals best suited to the environment they were placed in. Would they survive in another biome?

3. See the biome sheet for questions that can be asked for each habitat.

**III. Food chains:** Students will predict which animals belong to a food chain. They need to think about which animals live in the same location when they build their food chains.

1. All the food chains are color coded on the back to check whether they are built correctly. The grass index cards can be placed into any of the food chains that begin with grass.

2. Place all the cards face up in the center of the table and have students find all the plant cards. Start the food chains with the plants lined up in the center of the table. The other animal cards can be scattered around the outside of the table.

3. Ask the first student to find an animal that eats one of the plants and place the card under the plant card. Then ask the next student who eats that first animal and place it next in line. Move down the line and build the food chain by adding the animals that eat each other.

4. Have students keep taking turns until all the food chains are built.