

# AMAZING PLANTS AND ANIMALS



## **BENCHMARKS AND TASKS**

**SC.F.1.1.4** The student understands that structures of living things are adapted to their function in specific environments.

**SC.F.1.1.5** The student compares and describes the structural characteristics of plants and animals.

**SC.F.2.1.2** The student knows that there are many different kinds of living things that live in a variety of environments.

**SC.G.1.1.3** The student knows that there are many different plants and animals living in many different kinds of environments (e.g., hot, cold, wet, dry, sunny, and dark).

**SC.G.1.1.4** The student knows that animals and plants can be associated with their environment by an examination of their structural characteristics.

- The student compares and contrasts to discover how animals are alike or different in the way they look and in the things they do.
- The student groups animals according to their structural characteristics.
- The student classifies vertebrate groups of animals as mammals, reptiles, birds, amphibians, or fish according to their characteristics.
- The student compares the characteristics of things that live on land, in water, and in the air.

## **KEY QUESTION**

What characteristics do groups of animals or plants share?

## **BACKGROUND INFORMATION**

There are millions of species of plants and animals in the world. Today scientists believe there could be as many as 30 million species of animals. How do we keep track of all these plants and animals? Scientists use a system of classification.

The classification system focuses on basic common traits. The more two living things have in common, the more closely related they are. Scientists often divide animals into two basic groups: vertebrates, animals with backbones; and invertebrates, animals that have no backbone.

Vertebrates include fish, reptiles, birds, amphibians and mammals.

Humans are related to frogs, fish, and snakes because they are all vertebrates. But humans are more closely related to tigers, bears, and dolphins because all of these are mammals. Mammals give birth, are warm-blooded, have hair, and nurse their young.

All animals reproduce and must be able to move. They all need food for energy to develop their bodies and to carry out the other life processes.

Animals have special adaptations to enable them to survive in their specific environments. For example, the walking stick insect can look like a twig or a stick. Chameleons change color in order to blend in with their surroundings. Penguins and seals are adapted to living in the cold Antarctic climate. They have compact, short, round bodies. This low surface-area-to-volume

ratio allows them to lose less body heat to the air around them than other animals. They also have a layer of fat just below the skin to help hold the heat.

- Mammals warm-blooded, have hair or fur, born alive
- Birds warm-blooded, have feathers, lay eggs
- Fish cold-blooded, have scales, gills, fins; lay eggs
- Reptiles cold-blooded, skin, can live in water or on land
- Amphibians smooth skin, can live in water or on land

## **MATERIALS**

### **Teacher**

Properties and Groups Attribute List  
*Why Polar Bears Like Snow and Flamingos Don't*  
(Benchmark Education Co.)

### **Per student**

magazines with pictures of animals (brought from home or supplied by teacher)  
scissors  
glue  
cardstock, heavy paper, or file folders cut into 4" x 6" pieces  
post-it notes

## **TEACHING TIPS**

Laminate the cards after the students make them, so they can be used again.

## **ENGAGE**

1. Ask students to look through magazines and cut out pictures of animals. Tell students to look for unusual animals, as well as ones familiar to them (try to end up with five pictures per student).
2. Have students paste each picture on a piece of cardstock, observe the animal, and list the animal's characteristics on a post-it note. Tell them to place the post-it note on the back of the card.
3. Collect all of the cards. Mix them up and use these for the **Explore** activity.

## **EXPLORE**

1. Place students in groups. Distribute a set of five animal cards to each student. Give the students time to study the pictures and the characteristics listed on the back.
2. Use the Properties and Groups Attribute List. Read an attribute, such as, 'it has wings'. Tell students to check their cards to see if any of the animals have that characteristic. Whenever a student has a card that matches an attribute called, that card should be placed face up on the table, along with the same-attribute cards from anyone else in the group. The activity ends when all students have placed their cards on the table. Encourage groups to discuss their picture groups and to check carefully for accuracy.

## **EXPLAIN**

1. Students can make a floor graph by placing cards in rows or columns, according to certain animal characteristics.
2. Discuss:  
*Which characteristics were the most common?*  
*Which characteristics were the least common?*  
*Were there any animals in the same group that you were surprised to see grouped together?*

*Are some animals even more closely related to each other in each group than others?  
What are those characteristics that link them more closely?*

### **EXTEND/APPLY**

1. Play Twenty Questions to help students practice identifying attributes. Choose an object from the following categories: animal, plant or mineral. Keep the object secret. Let students ask questions that you answer with *yes* or *no* until they identify the correct category. Students ask *yes* or *no* questions about its properties until they can determine the category. (If the category, *mineral*, is not familiar to your students, eliminate this category.) Be sure to ask questions about the environments and adaptations to particular environments.
2. Look through the cards of animals and use a chart or poster to create a learning wall which will provide the following learned information about each of the living things. Answer the following:  
*What is it?*  
*What does it eat?*  
*What eats it?*  
*What are some common characteristics we can learn about it?*
3. Ask students to hold up a card if they think they have a mammal. Discuss some of the characteristics of mammals. Continue with reptiles, birds, amphibians, and fish.
4. Read and discuss *Why Polar Bears Like Snow and Flamingos Don't*

### **EXTENSIONS**

1. Select a landform (e.g., mountains, desert, arctic area, ocean, wooded area, plains) and ask the students:  
*What do you already know about this place?*  
*Have you ever lived in, or visited this type of environment before? If so, what did you see?*  
*What is the weather like in this environment?*  
*Describe how you would dress for a day/night in this environment.*  
*What could cause this environment to change?*  
*What kinds of plants or animals would you expect to see in this environment?*  
*What kinds of plants or animals would you be surprised to see in this environment?*
2. Use magazine pictures to create a backdrop scene of a landform.
  - Review the features and living requirements of plants and animals that might be found there.
  - Introduce five animals and five plants that live in this environment and discuss how they are alike and how they are different.
  - Ask:  
*What do the plants and animals need to eat?*  
*How does the animal keep itself safe?*  
*Where does the animal live?*  
*Where do the plants and animals get their water?*  
*What animal might eat these animals?*  
*What animal might eat these plants?*
  - Continue to add “living things” each day until it is rich with representation of life. Encourage students to find other living things to add through research.

## **ASSESSMENT**

Teacher assessment through observation should include the following criteria:

- Tasks have been completed by the student.
- Level of detail and specificity in descriptions found in the student journal entries show growth and understanding.
- Students demonstrate understanding through successful completion of the activities and in class discussions.
- Student's answers to questions during class discussions should show evidence of conceptual knowledge.
- Acquired vocabulary should appropriately demonstrate understanding.

# PROPERTIES AND GROUPS ATTRIBUTE LIST

It gives people the milk they drink.  
It lives in a jungle.  
It eats fish.  
It eats insects.  
It can perform at the circus.  
It swims a lot.  
It sleeps most of the winter.  
It looks like a cat.  
The baby is called a cub.  
It always has stripes.  
It is always black and white.  
It's eyes are in the front.  
It has a very long neck.  
It lives where it is hot.  
A person can ride it.  
Its eyes are on the side of its head.  
It sleeps in a barn.  
It has feathers.  
It is always white.  
It has a trunk.  
It likes to hold a ball with its nose.  
It has webbed feet.  
It has a mane on its neck.  
It lives where it is cold.  
It lives in or near water.

It can fly.  
It has long ears.  
It has a snout.  
It has flippers.  
It has bright colors.  
It has pointy ears.  
It has four legs.  
It lives in the woods.  
It is very small.  
It has hooves.  
It is often a house pet.  
It has a big mouth.  
It looks like a horse.  
It lives on a farm.  
It likes to eat grass.  
It mainly eats plants.  
It gives live birth.  
It has a long tail.  
It has whiskers.  
It lives in a tree.  
It has a beak.  
It has a short tail.  
It is very big.  
It is usually brown.

It has wings.  
It roars.  
It chirps.  
It has claws.  
It has horns.  
It crawls.  
It eats nuts.  
It has claws.  
It sings.  
It has spots.  
It lays eggs.  
It has fur.  
It can fly.