# How We Classify Animals

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Congratulations!

You have chosen a learning program that will actively motivate your students and provide you with easily accessible and easily manageable instructional guidelines and tools designed to make your teaching role efficient and rewarding.

The AIMS Teaching Module (ATM) provides you with a video program correlated to your classroom curriculum, instructions and guidelines for use, plus a comprehensive teaching program containing a wide range of activities and ideas for interaction between all content areas. Our authors, educators, and consultants have written and reviewed the AIMS Teaching Modules to align with the Educate America Act: Goals 2000.

This ATM, with its clear definition of manageability, both in the classroom and beyond, allows you to tailor specific activities to meet all of your classroom needs.

RATIONALITY

In today’s classrooms, educational pedagogy is often founded on Benjamin S. Bloom’s “Six Levels of Cognitive Complexity.” The practical application of Bloom’s Taxonomy is to evaluate students’ thinking skills on these levels, from the simple to the complex:

1. Knowledge (rote memory skills),
2. Comprehension (the ability to relate or retell),
3. Application (the ability to apply knowledge outside its origin),
4. Analysis (relating and differentiating parts of a whole),
5. Synthesis (relating parts to a whole)
6. Evaluation (making a judgment or formulating an opinion).

The AIMS Teaching Module is designed to facilitate these intellectual capabilities, and to integrate classroom experiences and assimilation of learning with the students’ life experiences, realities, and expectations. AIMS’ learner verification studies prove that our AIMS Teaching Modules help students to absorb, retain, and to demonstrate ability to use new knowledge in their world. Our educational materials are written and designed for today’s classroom, which incorporates a wide range of intellectual, cultural, physical, and emotional diversities.

ORGANIZATION AND MANAGEMENT

To facilitate ease in classroom manageability, the AIMS Teaching Module is organized in three sections:

I. Introducing this ATM
will give you the specific information you need to integrate the program into your classroom curriculum.

II. Preparation for Viewing
provides suggestions and strategies for motivation, language preparedness, readiness, and focus prior to viewing the program with your students.

III. After Viewing the Program
provides suggestions for additional activities plus an assortment of consumable assessment and extended activities, designed to broaden comprehension of the topic and to make connections to other curriculum content areas.
FEATURES
INTRODUCING THE ATM

Your AIMS Teaching Module is designed to accompany a video program written and produced by some of the world’s most credible and creative writers and producers of educational programming. To facilitate diversity and flexibility in your classroom and to provide assessment tools, your AIMS Teaching Module features these components:

Themes
This section tells how the AIMS Teaching Module is correlated to the curriculum. Themes offers suggestions for interaction with other curriculum content areas, enabling teachers to use the teaching module to incorporate the topic into a variety of learning areas.

Overview
The Overview provides a synopsis of content covered in the video program. Its purpose is to give you a summary of the subject matter and to enhance your introductory preparation.

Objectives
The ATM learning objectives provide guidelines for teachers to assess what learners can be expected to gain from each program. After completion of the AIMS Teaching Module, your students will be able to demonstrate dynamic and applied comprehension of the topic.

Preparation for Viewing
In preparation for viewing the video program, the AIMS Teaching Module offers activity and/or discussion ideas that you may use in any order or combination.

Introduction To The Program
Introduction to the Program is designed to enable students to recall or relate prior knowledge about the topic and to prepare them for what they are about to learn.

Introduction To Vocabulary
Introduction to Vocabulary is a review of language used in the program: words, phrases, and usage. This vocabulary introduction is designed to ensure that all learners, including limited English proficiency learners, will have full understanding of the language usage in the content of the program.

Discussion Ideas
Discussion Ideas are designed to help you assess students’ prior knowledge about the topic and to give students a preview of what they will learn. Active discussion stimulates interest in a subject and can motivate even the most reluctant learner. Listening, as well as speaking, is active participation. Encourage your students to participate at the rate they feel comfortable. Model sharing personal experiences when applicable, and model listening to students’ ideas and opinions.

Focus
Help learners set a purpose for watching the program with Focus, designed to give students a focal point for comprehension continuity.

Jump Right In
Jump Right In provides abbreviated instructions for quick management of the program.

After Viewing the Program
After your students have viewed the program, you may introduce any or all of these activities to interact with other curriculum content areas, provide reinforcement, assess comprehension skills, or provide hands-on and in-depth extended study of the topic.
SUGGESTED ACTIVITIES

The Suggested Activities offer ideas for activities you can direct in the classroom or have your students complete independently, in pairs, or in small work groups after they have viewed the program. To accommodate your range of classroom needs, the activities are organized into skills categories. Their labels will tell you how to identify each activity and help you correlate it into your classroom curriculum. To help you schedule your classroom lesson time, the AIMS hourglass gives you an estimate of the time each activity should require. Some of the activities fall into these categories:

Meeting Individual Needs

These activities are designed to aid in classroom continuity. Reluctant learners and learners acquiring English will benefit from these activities geared to enhance comprehension of language in order to fully grasp content meaning.

Curriculum Connections

Many of the suggested activities are intended to integrate the content of the ATM program into other content areas of the classroom curriculum. These cross-connections turn the classroom teaching experience into a whole learning experience.

Critical Thinking

Critical Thinking activities are designed to stimulate learners’ own opinions and ideas. These activities require students to use the thinking process to discern fact from opinion, consider their own problems and formulate possible solutions, draw conclusions, discuss cause and effect, or combine what they already know with what they have learned to make inferences.

Cultural Diversity

Each AIMS Teaching Module has an activity called Cultural Awareness, Cultural Diversity, or Cultural Exchange that encourages students to share their backgrounds, cultures, heritage, or knowledge of other countries, customs, and language.

Hands On

These are experimental or tactile activities that relate directly to the material taught in the program. Your students will have opportunities to make discoveries and formulate ideas on their own, based on what they learn in this unit.

Writing

Every AIMS Teaching Module will contain an activity designed for students to use the writing process to express their ideas about what they have learned. The writing activity may also help them to make the connection between what they are learning in this unit and how it applies to other content areas.

In The Newsroom

Each AIMS Teaching Module contains a newsroom activity designed to help students make the relationship between what they learn in the classroom and how it applies in their world. The purpose of In The Newsroom is to actively involve each class member in a whole learning experience. Each student will have an opportunity to perform all of the tasks involved in production: writing, researching, producing, directing, and interviewing as they create their own classroom news program.

Extended Activities

These activities provide opportunities for students to work separately or together to conduct further research, explore answers to their own questions, or apply what they have learned to other media or content areas.

Link to the World

These activities offer ideas for connecting learners’ classroom activities to their community and the rest of the world.

Culminating Activity

To wrap up the unit, AIMS Teaching Modules offer suggestions for ways to reinforce what students have learned and how they can use their new knowledge to enhance their worldview.
ADDITIONAL ATM FEATURES

**Vocabulary**
Every ATM contains an activity that reinforces the meaning and usage of the vocabulary words introduced in the program content. Students will read or find the definition of each vocabulary word, then use the word in a written sentence.

**Checking Comprehension**
Checking Comprehension is designed to help you evaluate how well your students understand, retain, and recall the information presented in the AIMS Teaching Module. Depending on your students’ needs, you may direct this activity to the whole group yourself, or you may want to have students work on the activity page independently, in pairs, or in small groups. Students can verify their written answers through discussion or by viewing the video a second time. If you choose, you can reproduce the answers from your Answer Key or write the answer choices in a Word Bank for students to use. Students can use this completed activity as a study guide to prepare for the test.

**Reproducible Activities**
The AIMS Teaching Module provides a selection of reproducible activities, designed to specifically reinforce the content of this learning unit. Whenever applicable, they are arranged in order from low to high difficulty level, to allow a seamless facilitation of the learning process. You may choose to have students take these activities home or to work on them in the classroom independently, in pairs or in small groups.

**Checking Vocabulary**
The checking Vocabulary activity provides the opportunity for students to assess their knowledge of new vocabulary with this word game or puzzle. The format of this vocabulary activity allows students to use the related words and phrases in a different context.

**Test**
The AIMS Teaching Module Test permits you to assess students’ understanding of what they have learned. The test is formatted in one of several standard test formats to give your students a range of experiences in test-taking techniques. Be sure to read, or remind students to read, the directions carefully and to read each answer choice before making a selection. Use the Answer Key to check their answers.

**Additional AIMS Multimedia Programs**
After you have completed this AIMS Teaching Module you may be interested in more of the programs that AIMS offers. This list includes several related AIMS programs.

**Answer Key**
Reproduces tests and work pages with answers marked.

JUMP RIGHT IN

**Preparation**
- Read How We Classify Animals Themes, Overview, and Objectives to become familiar with program content and expectations.
- Use Preparation for Viewing suggestions to introduce the topic to students.

**Viewing**
- Set up viewing monitor so that all students have a clear view.
- Depending on your classroom size and learning range, you may choose to have students view How We Classify Animals together or in small groups.
- Some students may benefit from viewing the video more than one time.

After Viewing
- Select Suggested Activities that integrate into your classroom curriculum. If applicable, gather materials or resources.
- Choose the best way for students to work on each activity. Some activities work best for the whole group. Other activities are designed for students to work independently, in pairs, or in small groups. Whenever possible, encourage students to share their work with the rest of the group.
- Duplicate the appropriate number of Vocabulary, Checking Comprehension, and consumable activity pages for your students.
- You may choose to have students take consumable activities home, or complete them in the classroom, independently, or in groups.
- Administer the Test to assess students’ comprehension of what they have learned, and to provide them with practice in test-taking procedures.
- Use the Culminating Activity as a forum for students to display, summarize, extend, or share what they have learned with each other, the rest of the school, or a local community organization.
Characteristics of living things is a theme studied in the life science curriculum. Knowledge of the animal kingdom, organization of observations, and animals of land, air, and water are all related themes.

Overview

From the breathtaking beauty of coral reefs to the intriguing ugliness of the kangaroo rat, the brilliant cinematography in How We Classify Animals depicts the animal kingdom of our world. By observing similarities and differences among animals, viewers will acquire knowledge and understanding of the scientific grouping of living things, which is the process of classification. Through illustration and description, the film details the six categories of invertebrates—animals without backbones—and the five major groups of vertebrates—those animals with backbones. And, of course, included in the last category of mammals is the most complex mammal of all, Homo sapiens.

Objectives

- To define classification and to understand its importance
- To identify individual characteristics of animals
- To group animals, according to similar traits
- To distinguish the six major categories of invertebrates and the five major categories of vertebrates

Introduction to the Program

Ask students to jot down individually the names of as many animals as they can within one minute. Then give them a few minutes to group these animals together in any manner they choose. Ask a few volunteers to read their list and explain how and why they chose their particular groupings. Then explain that the class is about to learn how scientists group animals.

Introduction to Vocabulary

Before viewing How We Classify Animals, discuss these vocabulary words with students: invertebrate, classification, cold-blooded, vertebrate, warm-blooded, mammal, amphibian, soft-bodied animal, fish, and crustacean. Ask students to guess what each word means, and then have volunteers look them up.

Discussion Ideas

Refer back to the Introduction activity above. Discuss with the class other ways that have not been mentioned to classify animals. Focus on physical structure of differing animals, such as having a backbone or not.

Ask students to name a zoo, a marine park, an arboretum, a national or state forest, a farm, a desert, a seashore, an aviary, a wildlife park, or a natural history museum that they have visited. Ask students, individually or in groups formed by students who have visited similar places, to recall their visits. Which was the smallest or largest animal, plant, tree or fish? What was the most beautiful, the strangest or funniest? Describe the surroundings of the place they visited: hot/cold, damp/dry, dark/sunny, noisy/quiet? Tell how the animals and plants lived in relation to each other. In this way students can become familiar with ways in which they would classify animals.

Focus

Instruct students to watch for ways that animals in the video are classified.
**SUGGESTED ACTIVITIES**

**Language Arts**
The paragraph below provides clues to the name of an animal. Read each sentence aloud and pause after each sentence to allow time for students to name the animal. Read as many clues as necessary until the students correctly name the animal.

- I am an insect without a backbone. I am flat-bodied. I live on land.
- I have two groups of eyes, but I cannot see you clearly. Light hurts my eyes, so I run from it.
- I rest during the day, sometimes in damp, dark places in your house. I hunt for my food at night.
- I eat soft-bodied insects, such as cockroaches, lice, and silverfish. I also eat earthworms and slugs.
- I can run very fast because I have many pairs of legs.
- In fact, my name means “one hundred feet.”

What is my name? (centipede)

**Health and Nutrition**
Have students work in small groups. Assign each group a different category from the following animal groups: jointed animals, soft-bodied animals, fish, amphibians, reptiles, birds, and mammals. Have students list animals that humans eat. Then ask students to study their lists and try to find similarities in terms of what humans eat and what they don’t. Do certain patterns emerge?

**Social Studies**
Tell students to bring in magazine or newspaper articles that deal with animal rights or endangered species. Have different groups discuss: How Laws Help Save Endangered Animals, Preservation of Animals, Uses and Control of Chemical Pesticides, and Laboratory Experimentation. Have each group prepare a poster on its topic and present it to the class.

**Connection to Art**
Have students work in pairs or groups to set up a diorama. Let each group represent one of the eleven groups shown in How We Classify Animals. Have each group add to the diorama by constructing or drawing animals, or by finding pictures of specimens that represent its category. Have students attach labels of their animal groups to the diorama.

**Math**
Have students research the temperature of different areas: lakes, oceans, mountains, and deserts. Discuss the types of animals that lives in each climate. Are the animals cold-blooded or warm-blooded? How does the climate of an area affect the type of animal life that the area can support?

**Writing**
Have students choose and then research a career in a field related to animals. Careers might include marine biologist, animal psychologist, oceanographer, fisherman, zookeeper, animal trainer, zoologist, rancher, snake charmer, veterinarian, ornithologist, wildlife biologist, conservationist, or marine biologist. Ask students to imagine their life in their chosen career. Have each student write an outline or a rough draft of a factual description or a fictional story entitled “My Life as a __________.”
In the Newsroom
Have newsroom reporters prepare interviews with animal trainers (real life or fictional). Have reporters choose those trainers that they think would most interest their viewers: lion, tiger, or elephant trainer; whale, dolphin, or seal trainer; snake trainer; police dog trainer; rodeo horse trainer; bird trainer. Have a team of reporters prepare a list of questions or topics to ask or discuss with the animal trainer. Have those students who will assume the role of animal trainers prepare answers to the reporters’ list. Have a team of newscasters interview the animal trainers. If possible, have students record their program for later viewing.

Hands On
Let students set up an aquarium in the classroom to collect and exhibit various aquatic plants and animals. Have the students form groups, each group representing a category from the living things classification, i.e., plants, sponges, worms, soft-bodied, and spiny-skinned animals, and so on. Have each student group supply the aquarium with samples of its representative group. Suggest that students research or visit a pet store to determine which animals can co-exist.

Meeting Individual Needs
Have each student find an article or story from a newspaper, a book, or a film about an animal that has helped a human. Then have the students write reports telling how their real or fictional animals helped somebody. Explain that the report should contain the following: name of the animal (dog, carrier pigeon, camel, horse); a description (size, color, number of legs or none, with hair or hairless, feathers); the place where the animal lives (on land, in water, or high above the ground); and reasons that some humans might need the animal (seeing-eye dog, police dog or sheepdog; camel, ox, or mule, as a means of transportation; horse for mounted police).

Critical Thinking
Have students form two groups to debate the advantages and disadvantages to animals held in captivity, i.e., animals in zoos, circuses. Have each group research facts to support its argument. The group representing the advantages to animals in captivity should research modern improvements of breeding and longevity of animals in captivity. Other points to be made for the advantages of captivity might include a regular supply of food, medical treatment, life without fear of enemies. The opposing group should discern fact from opinion when analyzing the joys of freedom for animals. Possible points to be made for the argument against captivity might include the infliction of pain by trainers, crowded and/or unsanitary living conditions, sale of animals for laboratory experimentation. Each student on both teams should supply arguments to support their team’s position. Choose a three- or four-person debate team from each side to present their arguments. Conduct the debate with you as moderator. After the debate, have the students vote for the position each favors.

Connection to Social Studies
Explain the meaning of the word extinct to students. Have students individually or in groups research different extinct animals, e.g., the bluebuck, quagga, partly striped zebra, the wild goats of the Zillertal, or dinosaurs. Have them either present their reports orally to the class or in writing.

Culminating Activity
Let the students display their aquarium (see Hands On activity) and diorama (see Science activity) for Open House, for other classes to view, or as a class science project. Students can also display a scrapbook of their reports written for the Meeting Individual Needs or Writing activities.
VOCABULARY

Read these vocabulary words from How We Classify Animals. Read each definition and write a sentence using each word.

1. **invertebrate**: animal without a backbone

2. **classification**: grouping of animals according to their similarities

3. **cold-blooded**: body temperature changes to match air and water temperature surrounding the animal

4. **vertebrate**: animal with a backbone

5. **warm-blooded**: body temperature stays fairly constant regardless of air or water temperature surrounding animal

6. **mammal**: warm-blooded animal with some hair

7. **amphibian**: lives on land and in water

8. **gill**: the organ used by most water animals to breathe

9. **sea anemone**: the flower animal

10. **crustacean**: lives in water and has a hard shell
CHECKING COMPREHENSION

In each sentence below, circle the word that correctly completes each sentence.

1. Biologists group animals according to similarities. This is called ____________
   A. environment
   B. filtration
   C. classification
   D. protection

2. Although animals may be large or small, such as a whale or an ant, all animals of all sizes and shapes share one basic similarity. Unlike plants, animals must find their ____________.
   A. clothing
   B. worms
   C. air
   D. food

3. All animals can be placed in two major groups: animals without ____________ belong to a group called invertebrates.
   A. gills
   B. backbones
   C. stems
   D. temperatures

4. Animals that have ____________ are called vertebrates.
   A. skin
   B. teeth
   C. backbones
   D. leaves

5. About ____________ percent of animals are invertebrates.
   A. 100
   B. 75
   C. 19
   D. 90

6. Invertebrates include sponges, which filter their ____________ from water that passes through the pores in their bodies.
   A. sunlight
   B. insects
   C. food
   D. seaweed
7. Jellyfish are invertebrates with ______________ .
   A. spiny bodies
   B. many legs
   C. warty lumps
   D. stinging cells

8. Soft-bodied animals also have a ______________ for protection.
   A. fin
   B. shell
   C. fang
   D. sword

9. Vertebrates include fish. Fish are cold-blooded, which means their body heat changes with the ______________ around them.
   A. bones
   B. fins
   C. animals
   D. temperature

10. Birds are different from all other animals because they have ______________ .
    A. tentacles
    B. muscles
    C. cells
    D. feathers
SIMILAR OR DIFFERENT?

Underline the correct word or words in parentheses.

1. Do you think an elephant, a jellyfish, a man, and a rose bush look similar or different? Of course none of these look alike, but all plants and animals have something in common—they are living things, which makes them (similar, different).

2. A pencil, a computer, and a bicycle do not breathe or eat, so they are (similar to, different from) plants and animals.

3. A pigeon and an airplane both fly. A whale and a ship both move through water. But airplanes and ships neither breathe nor eat, which makes them (similar to, different from) pigeons and whales.

4. Both plants and animals need to eat. Plants make their own food, but animals must find the food they eat, which is a basic (similarity, difference) between plants and animals.

5. Because seaweed and shrimp both live in water, they have (similar, different) homes. But because seaweed is a plant and shrimp are fish, they are (similar, different).

6. A dandelion and a daisy each has a root, a stem, leaves, and a flower. Because they have (similar, different) traits, both a dandelion and a daisy belong to the plant kingdom.

7. A rattlesnake, a camel, and an eagle have a backbone. They have skeletons—bones that hold them in shape—inside their bodies. Because these animals have a (similar, different) feature called a backbone, they belong to the (same, different) group, called vertebrates.

8. Animals such as caterpillars, fleas, and spiders do not have internal bones, or a spinal column. These animals, called invertebrates, are (similar, different) because none of them has a backbone.

9. When you eat a catfish dinner, sometimes you have to pick out bones. But when you eat a lobster dinner, the meat inside the shell is boneless. Because catfish have a backbone and lobsters do not, they belong to (similar, different) groups.

10. Plants and animals are (similar, different) because they are both capable of reproduction, which means producing new living things of a (similar, different) kind.
NAME THE ANIMAL

Each animal group and description listed below are shown in How We Classify Animals. On each limb of the family tree, write the name of an animal from the group described. One is done for you.

WORD BANK
- worms
- sponges
- fish
- amphibians
- reptiles
- birds

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**JOINTED ANIMALS**

Jointed animals have a tough outer covering. Their bodies are jointed and they have pairs of limbs. These animals make up 75 percent of all animals on earth. Insects are among the jointed animals.

Circle the names of the jointed animals in the list below.

<table>
<thead>
<tr>
<th>Centipede</th>
<th>Lobster</th>
<th>Ant</th>
<th>Iguana</th>
<th>Frog</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Centipede" /></td>
<td><img src="image2.png" alt="Lobster" /></td>
<td><img src="image3.png" alt="Ant" /></td>
<td><img src="image4.png" alt="Iguana" /></td>
<td><img src="image5.png" alt="Frog" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cobra</th>
<th>Leopard</th>
<th>Beetle</th>
<th>Sea Anemone</th>
<th>Manatee</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image6.png" alt="Cobra" /></td>
<td><img src="image7.png" alt="Leopard" /></td>
<td><img src="image8.png" alt="Beetle" /></td>
<td><img src="image9.png" alt="Sea Anemone" /></td>
<td><img src="image10.png" alt="Manatee" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Jellyfish</th>
<th>Spider</th>
<th>Tarantula</th>
<th>Clam</th>
<th>Elephant</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image11.png" alt="Jellyfish" /></td>
<td><img src="image12.png" alt="Spider" /></td>
<td><img src="image13.png" alt="Tarantula" /></td>
<td><img src="image14.png" alt="Clam" /></td>
<td><img src="image15.png" alt="Elephant" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Snail</th>
<th>Scorpion</th>
<th>Shrimp</th>
<th>Bat</th>
<th>Lizard</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image16.png" alt="Snail" /></td>
<td><img src="image17.png" alt="Scorpion" /></td>
<td><img src="image18.png" alt="Shrimp" /></td>
<td><img src="image19.png" alt="Bat" /></td>
<td><img src="image20.png" alt="Lizard" /></td>
</tr>
</tbody>
</table>
In How We Classify Animals, you learned the difference between vertebrates and invertebrates. Write the names of all the animals listed below under the proper heading.

<table>
<thead>
<tr>
<th>Invertebrates</th>
<th>Vertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>bird</td>
<td>sea slug</td>
</tr>
<tr>
<td>swan</td>
<td>bee</td>
</tr>
<tr>
<td>ant</td>
<td>crocodile</td>
</tr>
<tr>
<td>worm</td>
<td>sponge</td>
</tr>
<tr>
<td>whale</td>
<td>bat</td>
</tr>
<tr>
<td>hermit crab</td>
<td>iguana</td>
</tr>
</tbody>
</table>
DANCING BEES

Have you ever seen a swarm of bees gathering food? How does a bee that finds food tell the other bees? How do the bees in the hive know where to go for the food? Scientists have discovered that bees have a “language.” One way that honeybees use their language is to spread news of a food supply throughout the hive. When an explorer bee finds food, she quickly returns to the hive and drops some of the food close to the entrance. She dances in circles to show that food is nearby. If the food is at a greater distance, she does a more complicated waggle dance. The faster she waggles, the nearer the food. If the food supply is toward the sun, the scout does a dance with rapid runs directly upward. If the food supply is opposite the sun’s direction, the dancer runs downward from the sun. From the dancing bee’s movements, the worker bees can fly directly to the food source.

Look at the pictures of the dancing bee below. Label each dance with A, B, C to show the correct location of the food supply.

A. Food is nearby.
B. Food is toward the sun.
C. Food is away from the sun.

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FIND MY HOME

Animals live in water, on land, and in the air. Some animals live in water and on land. The animals in the picture below are lost. Find each animal’s home, then fill in the blank under the correct heading.
CHECKING VOCABULARY

Draw a line to match the word to its definition.

1. warm-blooded  the organ used by most water animals to breathe

2. mammal  animal with some hair

3. amphibian  the flower animal

4. crustacean  lives in water and on land

5. sea anemone  body temperature stays fairly constant

6. cold-blooded  animal with backbone

7. gill  lives in water and has a hard shell

8. vertebrate  animals without a backbone

9. classification  body temperature changes with temperature of air or water

10. invertebrate  a group of animals according to their characteristics
Circle the correct answer.

1. Which category of animals make up 90 percent of the animal world?
   A. Mammals
   B. Vertebrates
   C. Soft-bodied animals
   D. Invertebrates

2. What does a jellyfish use to catch food?
   A. Sponges
   B. Limbs
   C. Stinging cells
   D. Muscles

3. Most amphibians need what to reproduce?
   A. Food
   B. Skeletons
   C. Joints
   D. Water

4. What is a major difference between a fish and a mammal?
   A. Fish have gills and fins
   B. Mammals are larger
   C. Only fish live in water
   D. Fish can swim

5. Where do spiny-skinned animals live?
   A. On land
   B. In the ocean
   C. On land and in water
   D. In ponds

6. Which group of animals have been on earth the longest?
   A. Birds
   B. Mammals
   C. Whales
   D. Fish
Circle the correct answer.

7. What is the main difference between plants and animals?
   A. Animals have backbones
   B. Animals move from place to place
   C. Animals cannot be mistaken for plants
   D. Animals must find their own food

8. Which invertebrate is the most advanced?
   A. Octopus
   B. Spider
   C. Jellyfish
   D. Barnacles

9. One type of crustacean is known for using empty shells as a home. Which one is it?
   A. Shrimp
   B. Lobster
   C. Barnacle
   D. Hermit crab

10. Which statement about fish is not true?
    A. All fish have gills.
    B. All fish live in water.
    C. All fish use fins for balance.
    D. All fish are warm-blooded.
ADDITIONAL AIMS MULTIMEDIA PROGRAMS

You and your students might also enjoy these other AIMS Multimedia programs:

All About Insects—9804-EN-VID
All About Reptiles—4006-EN-VID
All About Mammals—4004-EN-VID
All About Amphibians—4012-EN-VID
All About Birds—4013-EN-VID
All About Fish—4010-EN-VID

Nature's Way Series
- Discovering Natural Patterns—8633-EN-VID
- Discovering Natural Colors—8639EN-VID
- Discovering Natural Textures—8640-EN-VID

Wild World Series
- A Good Thing About Spots—9995-EN-VID
- Nina's Strange Adventure—9996-EN-VID
- A Jungle for Joey—9997-EN-VID
- A Colt Called Lucky—9998-EN-VID
- Daisy Discovers the World—9999-EN-VID

ADDITIONAL READING SUGGESTIONS

You and your students may enjoy reading:

Eyewitness Book Series, Knopf.
- Amphibian
- Bird
- Fish
- Insect
- Mammal
- Reptile
Sattler, Helen R. Fish Facts & Bird Brains: Animal Intelligence. Lodestar, 1984
VOCABULARY

Read these vocabulary words from How We Classify Animals. Read each definition and write a sentence using each word.

1. **invertebrate**: animal without a backbone

   **Answers Will Vary**

2. **classification**: grouping of animals according to their similarities

3. **cold-blooded**: body temperature changes to match air and water temperature surrounding the animal

4. **vertebrate**: animal with a backbone

5. **warm-blooded**: body temperature stays fairly constant regardless of air or water temperature surrounding animal

6. **mammal**: warm-blooded animal with some hair

7. **amphibian**: lives on land and in water

8. **gill**: the organ used by most water animals to breathe

9. **sea anemone**: the flower animal

10. **crustacean**: lives in water and has a hard shell
CHECKING COMPREHENSION

In each sentence below, circle the word that correctly completes each sentence.

1. Biologists group animals according to similarities. This is called ______________
   A. environment
   B. filtration
   C. classification
   D. protection

2. Although animals may be large or small, such as a whale or an ant, all animals of all sizes and shapes share one basic similarity. Unlike plants, animals must find their ______________.
   A. clothing
   B. worms
   C. air
   D. food

3. All animals can be placed in two major groups: animals without ______________ belong to a group called invertebrates.
   A. gills
   B. backbones
   C. stems
   D. temperatures

4. Animals that have ______________ are called vertebrates.
   A. skin
   B. teeth
   C. backbones
   D. leaves

5. About ______________ percent of animals are invertebrates.
   A. 100
   B. 75
   C. 19
   D. 90

6. Invertebrates include sponges, which filter their ______________ from water that passes through the pores in their bodies.
   A. sunlight
   B. insects
   C. food
   D. seaweed
7. Jellyfish are invertebrates with ____________.
   A. spiny bodies
   B. many legs
   C. warty lumps
   D. stinging cells

8. Soft-bodied animals also have a ____________ for protection.
   A. fin
   B. shell
   C. fang
   D. sword

9. Vertebrates include fish. Fish are cold-blooded, which means their body heat changes with the ____________ around them.
   A. bones
   B. fins
   C. animals
   D. temperature

10. Birds are different from all other animals because they have ____________.
    A. tentacles
    B. muscles
    C. cells
    D. feathers
ANSWER KEY for page 12

SIMILAR OR DIFFERENT?

Underline the correct word or words in parentheses.

1. Do you think an elephant, a jellyfish, a man, and a rose bush look similar or different? Of course none of these look alike, but all plants and animals have something in common—they are living things, which makes them (similar, different).

2. A pencil, a computer, and a bicycle do not breathe or eat, so they are (similar to, different from) plants and animals.

3. A pigeon and an airplane both fly. A whale and a ship both move through water. But airplanes and ships neither breathe nor eat, which makes them (similar to, different from) pigeons and whales.

4. Both plants and animals need to eat. Plants make their own food, but animals must find the food they eat, which is a basic (similarity, difference) between plants and animals.

5. Because seaweed and shrimp both live in water, they have (similar, different) homes. But because seaweed is a plant and shrimp are fish, they are (similar, different).

6. A dandelion and a daisy each has a root, a stem, leaves, and a flower. Because they have (similar, different) traits, both a dandelion and a daisy belong to the plant kingdom.

7. A rattlesnake, a camel, and an eagle have a backbone. They have skeletons—bones that hold them in shape—inside their bodies. Because these animals have a (similar, different) feature called a backbone, they belong to the (same, different) group, called vertebrates.

8. Animals such as caterpillars, fleas, and spiders do not have internal bones, or a spinal column. These animals, called invertebrates, are (similar, different) because none of them has a backbone.

9. When you eat a catfish dinner, sometimes you have to pick out bones. But when you eat a lobster dinner, the meat inside the shell is boneless. Because catfish have a backbone and lobsters do not, they belong to (similar, different) groups.

10. Plants and animals are (similar, different) because they are both capable of reproduction, which means producing new living things of a (similar, different) kind.
NAME THE ANIMAL

Each animal group and description listed below are shown in How We Classify Animals. On each limb of the family tree, write the name of an animal from the group described. One is done for you.

WORD BANK

worms  amphitians
sponges  reptiles
fish  birds
JOINTED ANIMALS

Jointed animals have a tough outer covering. Their bodies are jointed and they have pairs of limbs. These animals make up 75 percent of all animals on earth. Insects are among the jointed animals.

Circle the names of the jointed animals in the list below.

- Centipede
- Lobster
- Ant
- Iguana
- Frog
- Cobra
- Leopard
- Beetle
- Sea Anemone
- Manatee
- Jellyfish
- Spider
- Tarantula
- Clam
- Elephant
- Snail
- Scorpion
- Shrimp
- Bat
- Lizard
**DO I HAVE A BACKBONE?**

In How We Classify Animals, you learned the difference between vertebrates and invertebrates. Write the names of all the animals listed below under the proper heading.

<table>
<thead>
<tr>
<th>INVERTEBRATES</th>
<th>VERTEBRATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORM</td>
<td>BIRD</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>SEA SLUG</td>
<td>SWAN</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>BARNACLE</td>
<td>WHALE</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>HERMIT CRAB</td>
<td>LIZARD</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>SPONGE</td>
<td>PUFFERFISH</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>GIANT CLAM</td>
<td>LION</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>OCTOPUS</td>
<td>SNAKE</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>SEA ANEMONE</td>
<td>CROCODILE</td>
</tr>
<tr>
<td></td>
<td>BAT</td>
</tr>
<tr>
<td>CENTIPEDE</td>
<td>KANGAROO RAT</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>ANT</td>
<td>DINOSAUR</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>BEE</td>
<td>IGUANA</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>CORAL</td>
<td></td>
</tr>
</tbody>
</table>
DANCING BEES

Have you ever seen a swarm of bees gathering food? How does a bee that finds food tell the other bees? How do the bees in the hive know where to go for the food? Scientists have discovered that bees have a “language.” One way that honeybees use their language is to spread news of a food supply find throughout the hive. When an explorer bee finds food, she quickly returns to the hive and drops some of the food close to the entrance. She dances in circles to show that food is nearby. If the food is at a greater distance, she does a more complicated waggle dance. The faster she waggles, the nearer the food. If the food supply is toward the sun, the scout does a dance with rapid runs directly upward. If the food supply is opposite the sun’s direction, the dancer runs downward from the sun. From the dancing bee’s movements, the worker bees can fly directly to the food source.

Look at the pictures of the dancing bee below. Label each dance with A, B, C to show the correct location of the food supply.

A. Food is nearby.
B. Food is toward the sun.
C. Food is away from the sun.
FIND MY HOME

Animals live in water, on land, and in the air. Some animals live in water and on land. The animals in the picture below are lost. Find each animal’s home, then fill in the blank under the correct heading.
CHECKING VOCABULARY

Draw a line to match the word to its definition.

1. warm-blooded  
   the organ used by most water animals to breathe

2. mammal  
   animal with some hair

3. amphibian  
   the flower animal

4. crustacean  
   lives in water and on land

5. sea anemone  
   body temperature stays fairly constant

6. cold-blooded  
   animal with backbone

7. gill  
   lives in water and has a hard shell

8. vertebrate  
   animals without a backbone

9. classification  
   body temperature changes with temperature of air or water

10. invertebrate  
    a group of animals according to their characteristics
TEST

Circle the correct answer.

1. Which category of animals make up 90 percent of the animal world?
   A. Mammals
   B. Vertebrates
   C. Soft-bodied animals
   D. Invertebrates

2. What does a jellyfish use to catch food?
   A. Sponges
   B. Limbs
   C. Stinging cells
   D. Muscles

3. Most amphibians need what to reproduce?
   A. Food
   B. Skeletons
   C. Joints
   D. Water

4. What is a major difference between a fish and a mammal?
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