

# Animals Are Classified!

**Grade Level or Special Area:** Third Grade

**Written by:**

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**Length of Unit:**

Eight lessons (one-two hours each)

## I. ABSTRACT

In this unit, students understand the meaning of classification and why it is important. They will classify animals in groups of vertebrates, invertebrates, warm-blooded, cold-blooded, mammals, fish, amphibians, birds, and reptiles. Students will also learn various research skills in a variety of media and will use those skills to research an animal of their choice. They will write a report based on their research using complete paragraphs and proper mechanics. They will review skills in capital letters, punctuation, and organization of ideas. This review will lead to the understanding of editing skills and peer editing skills before completing a final draft of their report.

## II. OVERVIEW

### A. Concept Objectives

1. Students understand the characteristics and structure of living things and how they interact with each other. (Colorado Science Standard 3 adaptation)
2. Students recognize how to read to locate, select, and make use of relevant information from a variety of media, reference, and technological sources. (Colorado Reading/Writing Standard 5)
3. Students recognize how to write and speak for a variety of purposes and audiences. (Colorado Reading/ Writing Standard 2)

### B. Content from the *Core Knowledge Sequence*

1. Scientists classify animals according to the characteristics they share, for example: Cold-blooded or warm-blooded. Vertebrates (have backbones and internal skeletons) or invertebrates (do not have backbones or internal skeletons). (page 81)
2. Different classes of vertebrates, for example: fish, amphibians, reptiles, birds, and mammals. (page 81)
3. Ask and pose plausible answers to how, why, and what-if questions in interpreting texts, both fiction and nonfiction. (page 65)
4. Know how to gather information from basic print sources (such as a children's encyclopedia), and write a short report presenting the information in his or her own words. (page 65)
5. Organize material in paragraphs and understand: how to use a topic sentence, how to develop a paragraph with examples and details, that each new paragraph is indented. (page 65)
6. In some writings, proceed with guidance through a process of gathering information, organizing thoughts, composing a draft, revising to clarify and refine his or her meaning, and proofreading with attention to spelling, mechanics, and presentation of a final draft. (page 65)

### C. Skill Objectives

1. Classifying a variety of organisms according to selected characteristics (for example, backbone vs. no backbone). (Colorado Science Standard 3.1.2)
2. Students read to locate, select, and make use of relevant information from a variety of media, reference, and technological sources. (Colorado State Reading/Writing Standard 5)

3. Using organizational features to locate media or electronic information (for example: passwords, pull-down menus, key word searches, etc.) (Colorado Reading/Writing Standard 5 expectation (adaptation))
4. Sorting information as it applies to a topic, taking notes, outlining, and identifying main ideas in resource materials. (Colorado Reading/Writing Standard 5 expectation (adaptation))
5. Knowing and using correct capitalization and punctuation. (Colorado Reading/Writing Standard 3.3 (adaptation))
6. Spelling frequently used words correctly using phonics rules and exceptions. (Colorado Reading/Writing Standard 3.4)

### III. BACKGROUND KNOWLEDGE

#### A. For Teachers

1. Hirsch, E.D. Jr. *What Your Third Grader Needs to Know*. New York: Doubleday, 2001. 0-385-49719-9.
2. Whyman, K. *The Animal Kingdom: A Guide to Vertebrate Classification and Biodiversity*. Austin, Texas: Raintree Steck-Vaughn Publishers, 2000. 0-8172-5885-X.
3. Zeman, A. and Kelly, K. *Everything You Need to Know About Science Homework: A Desk Reference for Students and Parents*. New York: Scholastic Inc. 1997. 0-590-49357-4.

#### B. For Students

1. Students should be able to produce written work with a beginning, middle, and end as well as be able to organize material in paragraphs.
2. Students should be able to revise and edit his or her own writing with assistance.
3. Students should have some knowledge of baby animals and their birth.

### IV. RESOURCES

#### A. Appendices A-J

### V. LESSONS

#### Lesson One: Why Do We Classify?

##### A. Daily Objectives

1. Concept Objective(s)
  - a. Students understand the characteristics and structure of living things and how they interact with each other. (Colorado Science Standard 3 adaptation)
2. Lesson Content
  - a. Scientists classify animals according to the characteristics they share, for example: Cold-blooded or warm-blooded. Vertebrates (have backbones and internal skeletons) or invertebrates (do not have backbones or internal skeletons) (page 81)
  - b. Different classes of vertebrates (page 81)
3. Skill Objective(s)
  - a. Classifying a variety of organisms according to selected characteristics (for example, backbone vs. no backbone). (Colorado Science Standard 3.1.2)

##### B. Materials

1. Chalkboard/Whiteboard/Chart paper
2. Chalk/Markers
3. Variety of buttons (10 per student – if possible)

4. Pencils (one per student)
  5. Paper
  6. Appendix A - one copy per student
  7. Appendix B (assessment) – one copy per student
  8. Five animal pictures (numbered/labeled 1-5) – one from each of the following classes: fish, amphibians, reptiles, mammals, birds (the best place to find these may be magazines such as *National Geographic*)
- C. *Key Vocabulary*
1. Classification – a system of grouping things which are alike in some way
  2. Appearance – the outward look of a person or thing
  3. Characteristic – a special trait, feature, or quality
- D. *Procedures/Activities*
1. Introduce the meaning of classification using the above definition. Clarify the definition by asking students to share their favorite foods and least favorite foods. Make a chart with these two categories on the board. After a list is formed on each side, ask the students to make smaller groups by finding similarities among some of the foods listed. One way to narrow this might include asking them to find healthy foods and junk foods. These groups could then be narrowed into food groups including fruits, vegetables, meats, etc.
  2. Provide various items to the students that have similarities and differences. One idea might be buttons. Divide students into groups of three-five and allow them to place items into categories of their choice. An example might be organizing the buttons according to color, shape, size, or number of holes. Observe and discuss the classification choices with the students. After 10 minutes discuss some of the choices in a whole group discussion.
  3. Using the same small groups, allow students to complete Appendix A
- E. *Assessment/Evaluation*
1. Appendix B – Display each of the five animal pictures in different areas of the classroom. Rotate small groups of students through the displays at intervals of five minutes or less. Students should fill in the chart (Appendix B) independently in the time allotted. Assessment is worth 30 points, 1 point per box.

## **Lesson Two: I Have a Backbone; Do You?**

- A. *Daily Objectives*
1. Concept Objective(s)
    - a. Students understand the characteristics and structure of living things and how they interact with each other. (Colorado Science Standard 3 adaptation)
  2. Lesson Content
    - a. Scientists classify animals according to the characteristics they share, for example: Cold-blooded or warm-blooded. Vertebrates (have backbones and internal skeletons) or invertebrates (do not have backbones or internal skeletons). (page 81)
    - b. Different classes of vertebrates, for example: fish, amphibians, reptiles, birds, and mammals. (page 81)
  3. Skill Objective(s)
    - a. Classifying a variety of organisms according to selected characteristics (for example: backbone vs. no backbone). (Colorado Science Standard 3.1.2)

- B. *Materials*
  - 1. Chalkboard/Whiteboard/Chart Paper
  - 2. Chalk/Markers
  - 3. Appendix C (one copy for teacher to read aloud)
- C. *Key Vocabulary*
  - 1. Vertebrates – animals with backbones
  - 2. Invertebrates – animals without backbones
  - 3. Exoskeleton – hard outer skin that protect soft inner bodies of invertebrates
- D. *Procedures/Activities*
  - 1. Read Appendix C to students as an introduction to the topic of the difference between vertebrates and invertebrates. Discuss major topics raised in the reading, including: why a backbone is important for some animals, why some invertebrates may need exoskeletons (protection, shelter, etc.), and why there may be different animal classes within vertebrate or invertebrate classifications. This should not be a detailed discussion about the classes, but a broad overview of what students may see as obvious differences in the animals the teacher has read about.
  - 2. Ask students to think about how this topic relates to classification as discussed in Lesson One. Discuss. (Animals are classified according to similar characteristics, as were the buttons and foods in Lesson One.)
  - 3. Compare, with students, the classifications made in the previous activities and the classifications of animals based on them having or not having a backbone.
  - 4. Divide the board or a sheet of chart paper into two columns labeled “Invertebrates” and “Vertebrates.” Allow students to share ideas of different types of animals. They should be able to tell the teacher which column to write the animal name in based on whether or not the animal has a backbone.
  - 5. Explain to students that these groups can be broken into smaller groups based on similar characteristics. This breakdown will be addressed in the following lessons.
- E. *Assessment/Evaluation*
  - 1. Chart created on board/chart paper

### **Lesson Three: How Do I Research?**

- A. *Daily Objectives*
  - 1. Concept Objective(s)
    - a. Students recognize how to read to locate, select, and make use of relevant information from a variety of media, reference, and technological sources. (Colorado Reading/Writing Standard 5)
  - 2. Lesson Content
    - a. Ask and pose plausible answers to how, why, and what-if questions in interpreting texts, both fiction and nonfiction. (page 65)
    - b. Know how to gather information from basic print sources (such as a children’s encyclopedia), and write a short report presenting the information in his or her own words. (page 65)
  - 3. Skill Objective(s)
    - a. Students read to locate, select, and make use of relevant information from a variety of media, reference, and technological sources. (Colorado State Reading/Writing Standard 5)
    - b. Using organizational features to locate media or electronic information (for example: passwords, pull-down menus, key word searches, etc.) (Colorado Reading/Writing Standard 5 expectation (adaptation))

- c. Sorting information as it applies to a topic, taking notes, outlining, and identifying main ideas in resource materials. (Colorado Reading/Writing Standard 5 expectation (adaptation))

B. *Materials*

1. Variety of reference materials (i.e. encyclopedias, Internet, CD-Rom Encarta or Grolier's encyclopedia, non-fictional books of any kind, Eyewitness Books, etc.)
2. Appendices D and E (one copy each per student)
3. Overhead transparencies of Appendices D and E
4. Pencils (one per student)
5. Highlighters (one per student)

C. *Key Vocabulary*

1. Table of contents – list of topics and their page numbers, usually found in the front of a book
2. Fact – statement that can be proven
3. Opinion – statement that tells how a person feels about a topic
4. Resource – pieces of information on a given topic

D. *Procedures/Activities*

1. Explain to students that research is a way of gathering information on a given topic. There are many different sources with which we can find this information, including encyclopedias, internet, books, etc. Students should understand that a topic could expand in several directions. Therefore, be as specific as possible when selecting a topic.
2. Discuss the difference between fact and opinion. Be sure students understand that in research, opinions are not important to add to their papers. Also, be sure they understand key words or phrases that usually are associated with opinions, including "I believe," "I think," "my idea," "my thought," "I feel," etc. Students should understand that these are statements that should not be included in their papers if they are seen in the research, nor should students form their own opinions and include them in their papers.
3. Allow students to complete Appendix D independently. Review the page as a class when everyone is finished. Remind students of the key words to look for in opinions and to ask themselves if there is a way to prove the statement. This should help them distinguish between fact and opinion.
4. Explain to students that encyclopedias are written in alphabetical volumes. They will look at an encyclopedia's spine to find the beginning letter of a research topic. Once they find the necessary volume, review guide word usage with students. Remind them that they should look at the guide words at the tops of the pages to determine whether or not a topic will be listed. This explanation may also be used with computer-accessed encyclopedias (i.e. *Encarta*, *Grolier's*, etc.).
5. Students may also utilize the Internet for research. Explain to them that a key-word search can be used to narrow their resource options. They need to understand how to type in a key word related to a research topic and click on "Search" (or "Go," "Find," etc.). When the search is complete, explain that the list found is one of websites containing the key word entered and that not all of the listed websites will relate to the topic they may be researching. They need to read the descriptions given with the websites in order to determine which sites may be helpful. This skill is also a possibility in using computer-accessed encyclopedias.
6. Explain to the students that not all information in a resource is necessary for writing a research paper. Using Appendix E, read the entire article as a group. Be sure that every student has a highlighter and re-read the article sentence by

sentence looking for specific information based on the research topic. Discuss as a class whether each sentence is important for the research. Only highlight the important sentences. When this activity is finished, the students will see that only a few select details will be pertinent to writing a research paper about this topic. Retain all copies or ask students to keep them in a science folder for use with Lesson Six.

- E. *Assessment/Evaluation*
  - 1. Appendix D

#### **Lesson Four: Vertebrates Have Class!**

- A. *Daily Objectives*
  - 1. Concept Objective(s)
    - a. Students understand the characteristics and structure of living things and how they interact with each other. (Colorado Science Standard 3 adaptation)
  - 2. Lesson Content
    - a. Scientists classify animals according to the characteristics they share, for example: Cold-blooded or warm-blooded. Vertebrates (have backbones and internal skeletons) or invertebrates (do not have backbones or internal skeletons). (page 81)
    - b. Different classes of vertebrates, for example: fish, amphibians, reptiles, birds, and mammals. (page 81)
  - 3. Skill Objective(s)
    - a. Classifying a variety of organisms according to selected characteristics (for example, backbone vs. no backbone). (Colorado Science Standard 3.1.2)
    - b. Students read to locate, select, and make use of relevant information from a variety of media, reference, and technological sources. (Colorado State Reading/Writing Standard 5)
    - c. Sorting information as it applies to a topic, taking notes, outlining, and identifying main ideas in resource materials. (Colorado Reading/Writing Standard 5 expectation (adaptation))
- B. *Materials*
  - 1. Appendix F (two pages) – one copy per student
  - 2. Pencils
  - 3. Paper
  - 4. Chalkboard/Whiteboard/Chart Paper
  - 5. Chalk/Markers
  - 6. Research materials
- C. *Key Vocabulary*
  - 1. Fish – cold-blooded, have scales, develop from eggs
  - 2. Amphibians – cold-blooded, have moist skin, develop lungs when mature
  - 3. Reptiles – develop from eggs, cold-blooded, have thick, scaly skin
  - 4. Birds – warm-blooded, have feathers and wings, hatch from eggs
  - 5. Mammals – warm-blooded, have hair, nurse young, breathe through lungs
- D. *Procedures/Activities*
  - 1. Introduce the various classes of invertebrates (arthropods, mollusks, and flatworms). Invertebrates and vertebrates are both divided into smaller classes, but we will be focusing on the five vertebrate classes.

2. Introduce the classes of vertebrates (mammals, fish, amphibians, reptiles, and birds). Read Appendix F (page 2) as a group to identify the distinguishing characteristics in each class. This activity may extend to the following day.
  3. Using Appendix F, ask students to work independently for five minutes identifying specific animals for each class. After five minutes, discuss as a group and make a group chart with students' responses in it.
  4. Divide students into five equal groups and assign each group a class to research.
  5. Each student will choose one animal from his or her assigned class to research. Each student will be responsible for producing an individual research paper about the chosen animal by the end of the unit. Review information that might be important for students to look for, such as where the animal lives, its body covering (skin, scales, hair, etc.), warm/cold blooded, how the animal moves, number of eyes, number of legs, what the animal eats, how the animal breathes, etc.
  6. Allow students to begin research. If necessary, review types of research from Lesson Three. Allow students time in the following three-five days to complete research before Lesson Six.
- E. *Assessment/Evaluation*
1. Appendix F
  2. Teacher observation of research

### **Lesson Five: Does Your Blood Run Cold?**

- A. *Daily Objectives*
1. Concept Objective(s)
    - a. Students understand the characteristics and structure of living things and how they interact with each other. (Colorado Science Standard 3 adaptation)
  2. Lesson Content
    - a. Scientists classify animals according to the characteristics they share, for example: Cold-blooded or warm-blooded. Vertebrates (have backbones and internal skeletons) or invertebrates (do not have backbones or internal skeletons). (page 81)
  3. Skill Objective(s)
    - a. Classifying a variety of organisms according to selected characteristics (for example, backbone vs. no backbone). (Colorado Science Standard 3.1.2)
- B. *Materials*
1. Chalkboard/Whiteboard/Chart Paper
  2. Chalk/Markers
  3. Appendix G (one for teacher to read aloud)
  4. List of animals (made up by teacher) – minimum of 50
- C. *Key Vocabulary*
1. Warm blooded – an animal's body temperature remains much the same, no matter if its surroundings are hot or cold
  2. Cold-blooded – an animal's body temperature depends on the temperature of its surroundings
- D. *Procedures/Activities*
1. Ask the students what they think warm and cold-blooded means. Discuss the students' responses before discussing the definitions listed above in the *Key Vocabulary*.

2. Read and discuss Appendix G with the students. Be sure to allow time for student response to questions listed about animals within each group (warm or cold-blooded).
3. Divide class into three-five equal teams. Students will play a game of *Pictionary*. Allow one student from the first team to come to the board/chart paper. Using a list of various animals, show the student the name of one animal. He/she will have two minutes to draw the animal. His/her teammates will try to guess what the animal is, but to receive the point for guessing, they will also need to specify whether the animal is warm-blooded or cold-blooded. At the end of two minutes, if they have not yet guessed, Team 2 will have a chance to “steal” the point by guessing. Two points are awarded to Team 1 if they guess correctly; one point is awarded to the “stealing” team.
4. Continue this pattern with all teams until each student has had a chance to draw.
5. Award a prize (candy, treasure box toys, certificates, play money for class store, etc.) to the students on the team with the highest score. If there is a tie between more than one team, conduct a sudden death match in which each of the tying teams chooses one player to draw. He/she will draw as many animals as possible (with correct guesses from the team) in one minute. This should alleviate the tie. If it does not, reward students on each team. They have proven their ability, after all.

E. *Assessment/Evaluation*

1. Check for student understanding during game (correct guesses).
2. Teacher observation in discussion and game

**Lesson Six: Writing a Research Report**

A. *Daily Objectives*

1. Concept Objective(s)
  - a. Students recognize how to write and speak for a variety of purposes and audiences. (Colorado Reading/ Writing Standard 2)
2. Lesson Content
  - a. Organize material in paragraphs and understand: how to use a topic sentence, how to develop a paragraph with examples and details, that each new paragraph is indented. (page 65)
  - b. In some writings, proceed with guidance through a process of gathering information, organizing thoughts, composing a draft, revising to clarify and refine his or her meaning, and proofreading with attention to spelling, mechanics, and presentation of a final draft. (page 65)
3. Skill Objective(s)
  - a. Work with a partner to use the five step writing process (1. Prewrite, 2. Rough Draft, 3. Revise, 4. Edit, 5. Final Draft) to write a research paper.
  - b. Use handwriting and at the most appropriate time, word processing to produce a product that is legible. (Colorado State Reading Standard 2.6)

B. *Materials*

1. Paper
2. Pencil (one per student)
3. Word Processor/Computer (optional)
4. Appendix E (saved from Lesson Four)
5. Chalkboard/Whiteboard/Chart Paper
6. Chalk/Markers
7. Research materials
8. Appendix H (one per student)

- C. *Key Vocabulary*
1. Rough draft – paper written for the first time that has not been revised or edited
  2. Plagiarism – writing an author’s words or ideas to use as one’s own without giving credit to the original author
- D. *Procedures/Activities*
1. Using Appendix E (saved from Lesson Four), work as a class to begin sorting highlighted information into smaller groups of related ideas. Write these on the board or on chart paper and post them where all students can easily see them.
  2. Help students to understand that each of these groups can now be written into a separate paragraph. Use one of the groups to write a class paragraph. Remind students that they must include a topic sentence and at least three detail sentences. Use student suggestions to write the class paragraph.
  3. After this paragraph is completed, remind students that each new paragraph should reflect a new topic. Allow students time to write paragraphs for each of the other groups of ideas.
  4. (This step may begin on a second day.) Give students time to organize ideas from their own animal research into topic groups. Monitor students and answer questions they may have as they begin organizing.
  5. Allow students time to write paragraphs using the topic groups they have discovered. Monitor and assist as needed. Students should be sure to include each detail in their paragraphs that they included in their topic groups. Each detail deserves a minimum of one sentence to be written about it. Help students to understand that the details will “feel left out” if they are not used.
  6. Some students may struggle with writing descriptive sentences. Remind them that they are only writing facts. They should not include their own opinions, or the opinions of any authors they read from. Also, they may find assistance in thinking about the five senses when writing detail sentences. Tell students to think about what the topic “looks like, sounds like, smells like, tastes like, and feels like.” They should understand that every sense will not be helpful, but this exercise should help them find new words to describe their topics to make a more interesting paper.
  7. This is also a good time to teach a mini lesson about plagiarism. Explain that plagiarism is a crime. To many third graders, this is may be a fear factor. They do not want to break any rules, let alone laws. The sooner students learn this concept, the better their papers will be written when they are older.
  8. A person who copied the words or the idea from another author’s writing without giving proper credit to the original author writes plagiarism. Students should understand the idea of a summary by now. They are allowed to summarize what they read in their notes as long as they do not use the exact words used by the author. Students will then combine all of their summaries and notes to formulate their own words and ideas. These ideas will become the students’ research papers. This would not be considered plagiarism because students have taken the time to learn the information that many other researchers have discovered over the years and put this information into the students’ own words to formulate a new document packed with facts. Some students will drown themselves in new words, while others may change only one or two words from the original author’s piece. This is a difficult concept for third graders to grasp, so do not expect perfection, but do expect improvement in the students’ writing.
- E. *Assessment/Evaluation*
1. Students’ paragraphs written from topic groups formed using Appendix E
  2. Checklist of the students’ rough drafts (Appendix H)

## **Lesson Seven: You Be the Editor**

### A. *Daily Objectives*

1. Concept Objective(s)
  - a. Students recognize how to write and speak for a variety of purposes and audiences. (Colorado Reading/ Writing Standard 2)
2. Lesson Content
  - a. In some writings, proceed with guidance through a process of gathering information, organizing thoughts, composing a draft, revising to clarify and refine his or her meaning, and proofreading with attention to spelling, mechanics, and presentation of a final draft. (page 65)
3. Skill Objective(s)
  - a. Knowing and using correct capitalization and punctuation. (Colorado Reading/Writing Standard 3.3 (adaptation))
  - b. Spelling frequently used words correctly using phonics rules and exceptions. (Colorado Reading/Writing Standard 3.4)

### B. *Materials*

1. Each student's rough draft
2. Microsoft Word (or other word processing program) (optional)
3. Paper
4. Pens (one per student)
5. Appendix H (one per student)

### C. *Key Vocabulary*

1. Indent – moving the first line of a paragraph in five spaces from the edge/margin
2. Revise – read and check the content of a written document
3. Edit – check for mechanical errors in a written document

### D. *Procedures/Activities*

1. Each student should have a finished rough draft.
2. Students should first be taught that revision is more important than editing. Revision is used to check content. Explain that this means to check for understanding of the writing. Ask the following questions: Does it make sense? Is each paragraph about one topic? Are there enough details? Is it organized appropriately/in order? Be sure students understand that the content is the most important part of the paper. Mechanical skills are minor changes compared to whether or not the paper is well organized and understandable.
3. There could be two mini lessons taught at this point: proofreading skills and word processing (if students will be typing reports).
4. The most commonly used marks for third graders may include: capital letters, end marks, commas, apostrophes, indents, spacing, and paragraph breaks. You may have to revisit some of the rules they have learned in previous grades.
5. When students seem to have a grasp on the basic skills, ask them to edit their own rough drafts. They should then trade with at least two other students to peer edit those drafts. After a minimum of two peer edits are complete, students need to rewrite the rough draft before editing with a teacher. Hopefully, the teacher will find very few errors after the two peer edits. Students will be asked to write a final draft in ink to be approved by the teacher. At this point, students will be ready to type a final copy. Typing is optional. You may choose to accept a handwritten ink copy.

### E. *Assessment/Evaluation*

1. Research report (Use Appendix H again to rubric final draft)
2. Editing and revising completed between rough and final draft

## **VI. CULMINATING ACTIVITY**

- A. Use Appendices I and J as final assessments of the unit.
- B. Create an animal – use this as a homework activity. Students should work with parents to create a new animal. The animal needs to have a body covering (scales, hair, feathers, etc.), some form of movement, eyes, a way to breath (lungs, gills, etc.), and must be a vertebrate. Parents may help students build the animal using common household items such as clay, boxes, string, paper cups/plates, newspaper, etc. The final product may be paper mache, cardboard, etc., but it may not be a store-bought model or a drawing. You will need to send a note home to parents explaining the expectations and guidelines for appropriate materials before assigning the project. This should be assigned no sooner than Lesson Four so that students have been introduced to vertebrates and have plenty of time to complete the models before the unit is finished.

## **VII. HANDOUTS/WORKSHEETS**

- A. Appendix A: Classification
- B. Appendix B: Characteristics
- C. Appendix C: I Have a Backbone, Do You?
- D. Appendix D: Fact or Opinion?
- E. Appendix E: Vertebrate vs. Invertebrate
- F. Appendix F: Vertebrate Classes, Animal Classification
- G. Appendix G: Does Your Blood Run Cold?
- H. Appendix H: Checklist for Evaluating Research Reports
- I. Appendix I: Classification Assessment Part 1
- J. Appendix J: Classification Assessment Part 2 (two pages)

## **VIII. BIBLIOGRAPHY**

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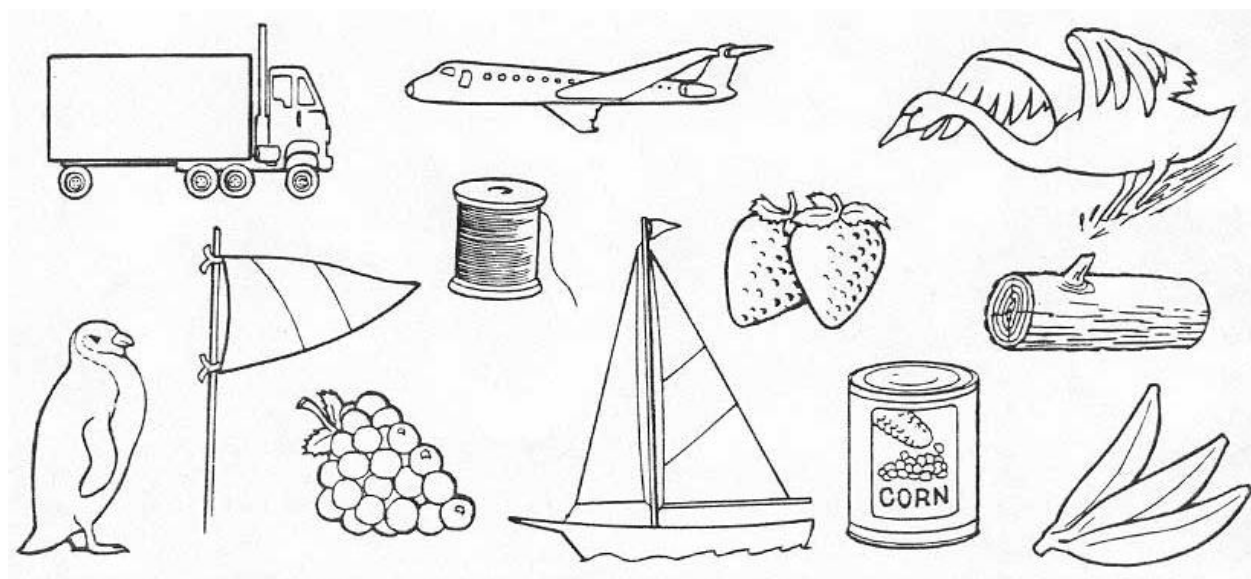
Appendix A  
**CLASSIFICATION**

The word classification means to put things into groups that are alike in some way. Classification helps us to learn how things can be related.

Classify the pictures below into four categories and then choose two other categories and fill them in with the appropriate objects.

An object can be in more than one category. Place a star by those items that belong to more than one category.

Living	Nonliving	Shape	Use		



Explain why there is more than one way to put objects into categories. \_\_\_\_\_

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(adapted from *Discover! Classification* by Delores Bouffard)

Appendix B

**CHARACTERISTICS**

<u>Characteristics</u>	<u>Animal 1</u>	<u>Animal 2</u>	<u>Animal 3</u>	<u>Animal 4</u>	<u>Animal 5</u>
<i>How it Moves</i>					
<i>Number of Legs</i>					
<i>Number of Eyes</i>					
<i>Number of Ears</i>					
<i>Type of Body Covering</i>					
<i>Where it Might Live</i>					

*Adapted from DiscoveryWorks (Houghton Mifflin Science) 2000, page C7*

1 point for each box = 30 points total

Score \_\_\_\_\_

## **I Have a Backbone, Do You?**

All the animals in the world are divided into two classes called invertebrates and vertebrates. Vertebrates are animals that have a backbone. Fish, reptiles, birds, frogs, and salamanders are all vertebrates because they have a backbone. Do you think that you have a backbone? To find out, reach around behind you and feel the ridges going down the center of your back. That is called your spine or backbone. It is made out of a stack of small bones and each one is called a vertebra. That is the reason that animals that have a backbone are called vertebrates. There are about 45,000 kinds of vertebrates.

Invertebrates are animals that do not have a backbone. Can you believe that almost all of the animals in the world do not have a backbone? Can you think of any animal that droops like a noodle and does not have a backbone? An earthworm does not have a backbone. Other creatures include jellyfish, snails, worms, spiders, and insects. There are millions of different kinds of invertebrates.

How can some invertebrates protect themselves from enemies or predators? Think of crabs and insects. They have shells around their body to keep them safe. Under the shell is a soft body that could easily be hurt by the enemy. This shell is called an exoskeleton. Exoskeletons can also be used as a home, as is the case with turtles and snails.

Why do you think that a backbone is important? If you did not have a backbone, you would look like a noodle and then you would move around like a worm. Backbones also give humans freedom to move around and not fall down as well as giving our bodies shape.

*Adapted from What Your Third Grader Needs to Know 2001 ed. and Everything You Need to Know About Science Homework*

**Name** \_\_\_\_\_ **Date** \_\_\_\_\_

### Fact or Opinion?

Read each statement carefully. Decide whether the statement is a fact or an opinion. Write an “F” on the lines in front of facts and an “O” on the lines in front of opinions.

- \_\_\_\_\_ 1. The dog is black and white.
- \_\_\_\_\_ 2. My friend is funny.
- \_\_\_\_\_ 3. That store sells books.
- \_\_\_\_\_ 4. The school building is red.
- \_\_\_\_\_ 5. Tommy is a nice person.
- \_\_\_\_\_ 6. Pizza is yummy!
- \_\_\_\_\_ 7. My favorite color is blue.
- \_\_\_\_\_ 8. The cookies are all gone.
- \_\_\_\_\_ 9. Those birds are pretty.
- \_\_\_\_\_ 10. I think skating is fun.
- \_\_\_\_\_ 11. Fred is running.
- \_\_\_\_\_ 12. Wilma is walking.
- \_\_\_\_\_ 13. We are not loud.
- \_\_\_\_\_ 14. School starts at 8:00 a.m.
- \_\_\_\_\_ 15. There are no good movies to choose from

**Total Points = 15**

**Score** \_\_\_\_\_

## Appendix E

All the animals in the world are divided into two classes called invertebrates and vertebrates. Vertebrates are animals that have a backbone. Fish, reptiles, birds, frogs, and salamanders are all vertebrates because they have a backbone. Do you think that you have a backbone? To find out, reach around behind you and feel the ridges going down the center of your back. That is called your spine or backbone. It is made out of a stack of small bones and each one is called a vertebra. That is the reason that animals that have a backbone are called vertebrates. There are about 45,000 kinds of vertebrates.

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Why do you think that a backbone is important? If you did not have a backbone, you would look like a noodle and then you would move around like a worm. Backbones also give humans freedom to move around and not fall down as well as giving our bodies shape.

*Adapted from What Your Third Grader Needs to Know 2001 ed. and Everything You Need to Know About Science Homework*

### VERTEBRATE CLASSES

List as many animals under each class as you can in five minutes. Be prepared to share your responses in a group discussion.

<b>Fish</b>	<b>Reptiles</b>	<b>Amphibians</b>	<b>Mammals</b>	<b>Birds</b>

## ANIMAL CLASSIFICATION

### FISH

- Cold-blooded
- Hatch from eggs laid by the female outside her body
- Live in water
- Use gills to take in oxygen from the water
- Covered with scales
- Have a streamline shape that allows them to slice through water

### AMPHIBIANS (means living in two places)

- Cold-blooded
- Live part of their life in water and part on land. When they are young, they have gills to take oxygen from the water. As they grow, most amphibians develop lungs that allow them to take oxygen from the air
- Usually have moist, smooth skin
- Lay eggs in water

### REPTILES

- Cold-blooded
- Hatch from eggs; babies look like tiny adults
- Have dry, thick, scaly skin
- Breathe with lungs

### BIRDS

- Warm-blooded
- Have feathers and wings
- Most can fly because of their streamline shaped body and because they have light bones
- Breathe with lungs
- Hatch from eggs
- Have beaks and scaly legs

### MAMMALS

- Warm-blooded
- Have hair on their bodies
- Breathe with lungs
- Nurse their young (babies drink milk made by their mothers' bodies)
- Give birth to live babies

*Adapted from Super Science Crosswords and What Your Third Grader Needs to Know 2001 ed.*

## Does Your Blood Run Cold?

Have you ever heard anyone say that you are warm-blooded? Well you are, but what does that mean? It means that your body stays about the same temperature (98.6 degrees Fahrenheit) even when you shiver because you are so cold or on hot summer days when you feel like you are about to melt. Warm-blooded animals sweat to cool off in order to keep their temperature the same all the time. Did you know that there are other animals as well that are warm-blooded? All birds, mammals, and even whales are warm-blooded because their bodies stay the same temperature all the time.

On the other hand, there are also cold-blooded animals. Cold-blooded means that they have ice in their blood. No, that is not true. It means that their body changes temperature according to what the temperature is around them. So, if it is scorching hot outside, then their body temperature will be hot as well. If it is cold outside, then their body temperature will drop. Can you think of an animal that likes to lie in the sun and get warm? (*snake*) If it is too cold, it cannot move very fast and will search for a warmer place. If it is too warm, it will move to a cooler place or move its body to cool off. All reptiles, amphibians, and fish are cold-blooded.

Remember that cold-blooded means that an animal's body temperature goes up or down depending to the temperature around it. Warm-blooded animals stay nearly the same temperature whether the air around them is hot or cold.

## Checklist for Evaluating Research Reports

	Yes	No
<b>Organization of Ideas</b>		
<b>Complete Paragraphs</b>		
<b>Capitalization</b>		
<b>Punctuation</b>		
<b>Overall Content</b>		

**Total Points = 25 (5 points for each category)**

**Score** \_\_\_\_\_

Appendix I

Name \_\_\_\_\_ Date \_\_\_\_\_

Classification Assessment Part 1

Classify the creatures below as invertebrates (**i**) or vertebrates (**v**).

deer	_____	starfish	_____	fish	_____
snake	_____	crab	_____	bat	_____
chicken	_____	butterfly	_____	grasshopper	_____
bird	_____	squirrel	_____	ant	_____
mouse	_____	snail	_____	spider	_____
octopus	_____	earthworm	_____	clam	_____
rabbit	_____	horse	_____	lion	_____

Total Points = 21

Score \_\_\_\_\_

Adapted from *Discover! Classification 2000*

Name \_\_\_\_\_ Date \_\_\_\_\_

## Classification Assessment Part 2

### ACROSS

1. Class of vertebrates humans belong to.
2. Live in water as babies and on land as adults
5. Birds have two legs and two \_\_\_\_\_.
7. Most of the species of \_\_\_\_\_ have light bones.
8. Helps birds fly and keeps them warm.
10. Animals that don't have backbones are called \_\_\_\_\_.
15. Fish and baby amphibians get oxygen from water using \_\_\_\_\_.
17. Reptiles, mammals, birds, and adult amphibians use these to get oxygen from air.
18. \_\_\_\_\_ animals have a body temperature that is affected by their surroundings.
19. The only group of vertebrates where most species spend all of their lives in water is \_\_\_\_\_.

### DOWN

1. Amphibians go through a set of changes as they grow called \_\_\_\_\_
3. \_\_\_\_\_ is the line of bones that runs up the middle of your back.
4. Most mammals give birth to \_\_\_\_\_ young.
6. Animals that maintain a steady body temperature
8. Most mammals have hair or \_\_\_\_\_.
9. What baby mammals drink from their mother.
11. Animals that have backbones are called \_\_\_\_\_.
12. They look like tiny adults when they hatch.
13. Most reptiles, amphibians, fish, and birds lay \_\_\_\_\_.
14. Reptiles are covered with them. Birds also have them on their legs and feet.
16. Fish and birds often have a shape that allows them to slice through water or air.

Appendix J page 2

