

# 6-8 Taxonomy Application Activity

## Overview

### Focus Questions

How is taxonomy important in everyday life?

### Activity Synopsis

Students will research organism and learn how they are important to our lives and human existence.

### Time Frame

60 minutes

### Objectives

The learner will be able to:

- Research information from a scientific name
- Determine the usefulness of a researched organisms
- Report to classmates the importance of a researched organism

### Student and Teacher Key Terms

- Binomial nomenclature
- Taxonomy

## Standards

### *South Carolina College- and Career-Ready Science Standards 2021*

The new 2021 science standards do not address Taxonomy.

### *2014 Academic Standards and Performance Indicators for Science*

**6<sup>th</sup> Grade:** 6.S.1A.1, 6.S.1A.7, **6.S.1A.8**, 6.L.4A.1, **6.L.4A.2**

**7<sup>th</sup> Grade:** 7.S.1A.1, 7.S.1A.7, **7.S.1A.8**, 7.EC.5A.3, 7.EC.5B.3

**8<sup>th</sup> Grade:** 8.S.1A.1, 8.S.1A.7, **8.S.1A.8**

\* **Bold standards are the main standards addressed in this activity**

### Sixth Grade Performance Indicators

6.S.1A.1 Ask questions to (1) generate hypotheses for scientific investigations, (2) refine models, explanations, or designs, or (3) extend the results of investigations or challenge claims.

6.S.1A.7 Construct scientific arguments to support claims, explanations, or designs using evidence from observations, data, or informational texts.

**6.S.1A.8** Obtain and evaluate informational texts, observations, data collected, or discussions to (1) generate and answer questions, (2) understand phenomena, (3) develop models, or (4) support hypotheses, explanations, claims, or designs. Communicate observations and explanations using the conventions and expectations of oral and written language.

6.L.4A.1 Obtain and communicate information to support claims that living organisms (1) obtain and use resources for energy, (2) respond to stimuli, (3) reproduce, and (4) grow and develop

**6.L.4A.2** Develop and use models to classify organisms based on the current hierarchical taxonomic structure (including the kingdoms of protists, plants, fungi, and animals).

### Seventh Grade Performance Indicators

7.S.1A.1 Ask questions to (1) generate hypotheses for scientific investigations, (2) refine models, explanations, or designs, or (3) extend the results of investigations or challenge claims.

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7.S.1A.7 Construct scientific arguments to support claims, explanations, or designs using evidence from observations, data, or informational texts.

**7.S.1A.8** Obtain and evaluate informational texts, observations, data collected, or discussions to (1) generate and answer questions, (2) understand phenomena, (3) develop models, or (4) support hypotheses, explanations, claims, or designs. Communicate observations and explanations using the conventions and expectations of oral and written language.

7.EC.5A.3 Analyze and interpret data to predict changes in the number of organisms within a population when certain changes occur to the physical environment (such as changes due to natural hazards or limiting factors).

7.EC.5B.3 Analyze and interpret data to predict how changes in the number of organisms of one species affects the balance of an ecosystem.

## **Eighth Grade Performance Indicators**

8.S.1A.1 Ask questions to (1) generate hypotheses for scientific investigations, (2) refine models, explanations, or designs, or (3) extend the results of investigations or challenge claims.

8.S.1A.7 Construct scientific arguments to support claims, explanations, or designs using evidence from observations, data, or informational texts.

**8.S.1A.8** Obtain and evaluate informational texts, observations, data collected, or discussions to (1) generate and answer questions, (2) understand phenomena, (3) develop models, or (4) support hypotheses, explanations, claims, or designs. Communicate observations and explanations using the conventions and expectations of oral and written language.

## **Cross Curricular Standards**

### ***South Carolina College and Career Standards for ELA***

Inquiry (I) – 6-2.1, 6-3.2, 6-3.4, 6-4.3, 7-2.1, 7-3.2, 7-3.4, 7-4.3, 8-2.1, 8-3.2, 8-3.4, 8-4.3

Reading (RI) – 6-4.1, 6-6.1, 6-7.1, 7-4.1, 7-6.1, 7-7.1, 8-4.1, 8-6.1, 8-7.1

Writing (W) – 6-2.1bdm, 7-2.1bdm, 8-2.1bdm

Communication (C) – 6-1.1, 6-1.3, 6-2.1, 6-2.2, 6-2.3, 7-1.1, 7-1.3, 7-2.1, 7-2.2, 7-2.3, 8-1.1, 8-1.3, 8-2.1, 8-2.2, 8-2.3

### ***South Carolina College and Career Standards for Social Studies***

6.5.CX

## **Background**

### **Key Points**

*Key Points will give you the main information you should know to teach the activity.*

- **Taxonomy** is the classification of organisms based on shared characteristics.
- Grouping organisms using taxonomy helps us understand what organisms are closely related. By knowing the relationships between organisms we can better understand our world and the diversity of life on earth.
- Binomial nomenclature is the name system used by scientists, the *Genus species* name of an organism.
- Many plants and animals are used in our everyday lives. From the food we eat to the oxygen we breathe to the medicines we take, taxonomy can help us understand our world better and therefore live healthier lives.

### **Detailed Information**

*Detailed Information gives more in-depth background to increase your own knowledge, in case you want to expand upon the activity or you are asked detailed questions by students.*

**Taxonomy** is the classification or grouping of organisms based on shared characteristics. By grouping organisms, relationships can be studied, patterns in nature can be identified and information can be organized for all to use. With conservation being of increased value, understanding the diversity of an area is very important in making informed decisions and taxonomy is very important in discovering diversity.

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By using taxonomy, every living thing will have its own scientific name and therefore can be distinguished from any other living thing. Binomial nomenclature means “two name, naming system” and is the way scientists write/type the names of organisms. The genus species name is used. The genus name is written with a capital first letter and the species name is written with all lower case letters. The genus species name is italicized when typed and underlined when written by hand. In using the binomial nomenclature, scientist can be sure there is no confusion which organisms is being discussed. This is not the case when common names are used because most organisms have more than one common name. An example of this is the red drum. This fish has many common names, such as red drum, redfish and spottail bass, but only one scientific name, *Sciaenops ocellatus*.

To survive, humans rely on other living things. We need plants and algae to produce oxygen so we can breathe. We need plants and animals for food. We utilize plants to help provide shelter (example: wood for homes). Bacteria decompose dead organisms and recycling nutrients back to the environment for other organisms to use. We get medicines from plants and animals and also use them in everyday products such as lipstick, lotions, sunscreen and soap.

Taxonomy is the key to understanding our living world and learning to protect the earth’s resources. Scientists will always have a need to organize the living world in order to understand it better as new species are discovered, new medicines are researched and new products are demanded. Our part in everyday life is to respect the Earth and the living things on it.

## Procedures

### Materials

- [Student List of Organisms](#)
- [Taxonomy Application Report](#)
- Computer access to internet
- Reference books (library)
- [Teacher Answer Guide](#)

### Procedure

1. Have each student pick a different organism to research from the student list. Teachers could cut up the list of organisms and have students pick one out of a cup.
2. Give each student a Taxonomy Application Report to complete during their research. Explain each step of the report.
  - a. Scientific name – use binomial nomenclature
  - b. Common names – list them all
  - c. Taxonomy – they should list each taxa (kingdom, phylum/division, class, order, family, genus and species)
  - d. Distribution – they should list the range in which their organism lives
  - e. Answer questions by writing paragraphs
3. Allow students some time to research their organism and to fill out their report.
4. Lastly, have students share with the class their findings.

### Follow-up questions

- How many of the reports found organisms who contribute food to humans? How many contribute medicines? How many contribute products used by human?
- If you could cure any disease, which would you choose and why?

## Assessment

Grade each student’s Taxonomy Applications Report.

*Scoring rubric out of 100 points*

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Scientific name written correctly:	<b>5 points</b>
Common names listed:	<b>5 points</b>
Taxonomy listed with all 7 names:	<b>5 points per name (35 total)</b>
Distribution complete:	<b>5 points</b>
How organism has contributed to humans answered:	<b>30 points</b>
How student's life has been affected answered:	<b>20 points</b>

## **Cross-Curricular Extensions**

### **STEM Extension**

Have students research a plant or animal in their area that helps people. Have them design a plan to protect that organisms as well as develop a plan to make people aware of the good that organisms tributes to society.

### **6<sup>th</sup> grade Math Extension**

Have students make tables and/or graphs to depict the different ways the organisms help humans (food, medicines, products,...). (6.EE1.9)

### **Math and Social Studies Extension**

Ask students to make a timeline for how their organism was used throughout history.

### **Social Studies Extension**

Have students discover where their organism is found in the world and report on what contributions it may have made to the economy of those countries.

## **Resources**

### **Teacher Reference Books**

Chaline, Eric. Fifty Animals that Changed the Course of History. Firefly Books Inc. England. 2011.

Laws, Bill. Fifty Plants that Changed the Course of History. Firefly Books Inc. England. 2010.

### **Teacher Reference Websites**

US Department of Agriculture  
[www.usda.gov](http://www.usda.gov)

US Food and Agriculture Organization  
[www.fao.org](http://www.fao.org)

US Food and Drug Administration  
[www.fda.gov](http://www.fda.gov)