

Classification

Teacher's Guide





CLASSIFICATION

SUBJECT:

Science

GRADES:

6, 7

CURRICULUM CONNECTIONS:

Grade 6:
Diversity of Living Things

Grade 7:
Interactions within Ecosystems

OVERVIEW/BACKGROUND INFORMATION:

Classification is an organizational structure humans use to understand the world.

No matter where we go, humans and the world around us, has been classified into various categories. In order to organize living organisms into specific categories we use the taxonomic classification system. Indigenous Peoples traditionally categorized animals using 4 categories: animals that swim, walk on two legs, walk on four legs and animals that can fly (variations on this may exist). They also classified based on whether the animal was dangerous or useful or what season it was hunted in or where it was found. Our taxonomy system is constantly changing as more information is discovered through DNA analysis.

OBJECTIVES:

1. Students will be introduced to why humans classify objects and organisms.
2. Students will be introduced to the taxonomy of living things and Indigenous Peoples traditional ways of classifying animals.
3. Students will learn how to group mammals by physical characteristics
4. Students will be introduced to the binomial classification system.

KEY VOCABULARY:

Taxonomy: The science of classifying organisms.

Binomial Classification: Systematic description of species using two names, both in Latin (Genus, species)

Bacteria: Single-celled organisms that lack a nucleus and reproduce through fission or by forming spores.

Eukarya: Organisms whose cells contain a true nucleus.

Archaea: Organisms unique from bacteria and eukaryotes and often inhabiting extreme environmental conditions.

Protists: True nucleus and may be similar to: a plant (algae), fungi (slime mould) or animal (protozoa)

Fungi: Most are multi-cellular, no chlorophyll

Animals: Multiple cells, can't make their own food

Plants: Multiple cells, make their own food (chlorophyll)

Vertebrates: Animals with a backbone (more in-depth descriptions can be given for older students)

Invertebrates: Animals without a backbone (or vertebral column)

PRE-VISIT ACTIVITIES

Activity One

Classification is all around us. How would people classify or group vehicles? Discuss as a class. Then give them one to do on their own: How are items classified or grouped in a grocery store? How are sport activities grouped or classified? Or come up with one of your own. Have students provide a title for each of the groups that explains how the various items are organized.

Activity Two

Discuss with students how Indigenous Peoples would have classified animals traditionally. As the circle shape and its four quadrants are a sacred symbol for most Indigenous Peoples, how would they have divided animals into these 4 different groups? See what the students can come up with and then discuss how they divided them into animals that walk on 2 legs, walk on 4 legs, animals that can fly and animals that can swim. As a class, have students name animals that would live in Saskatchewan that would fit into each quadrant. What other things would Indigenous People represent with the 4 quadrants? Suggestions such as the 4 seasons, the 4 directions, 4 parts of self (emotional, physical, mental and spiritual), 4 stages of life (child, adolescent, adult, senior/elder and in other animal species; egg, larva, pupa, adult), 4 elements (water, air, sun, earth). Have the students create their own wheel with 4 quadrants and put in four things that are important to them in their lives.

POST-VISIT ACTIVITIES

Activity One

Provide the students with the above definitions of the four kingdoms of Eukarya (protists, fungi, animals and plants). See if students can add to the descriptions: for example: animals (can breathe and move); plants (have roots, leaves &/or flowers); fungi (eat decaying matter, no roots, leaves or flowers); protists (most live in colonies, can make their own food). Provide students with pictures/names of organisms and see if they can separate them into the four kingdoms of Eukarya.

Activity Two

Indigenous peoples had to be aware of their surroundings in order to survive life on the land. An awareness of the plants, animals and weather were crucial to their survival. See how aware your students are by asking them to leave the classroom for a few minutes and see if they can remember what's on the bulletin board, what was written on the board, what's on the teacher's desk, etc. As an extension, have the students go outside and see how many different plants and animals they can observe. Using the internet, can they classify their animals and plants into their correct classes and even orders if they can. For example: a Richardson's ground squirrel would be in the class Mammalia and the order Rodentia (mammals and rodents). Or have the students come up with a more traditional method of classification: for example, the relationship of the animal or plant to people (is it useful for hunting, for ceremonies, does it have an aesthetic purpose, etc).