

“What’s in a Name?” Activity

(Grade 3-6, Age 8-11)

Teacher Page

Activity Description

Why do living things have scientific names? What do those names mean? Using a prefix and suffix chart, students will “translate” the scientific names of a number of species of sharks and then draw an image of the shark based upon their “translation.” Finally they will compare their drawings with images provided by the teacher.

Key Concepts

- Scientists use two names to identify living things: genus and species.
- The genus is the more general term. There are usually multiple species within a single genus.
- The genus and species are usually made up of Latin or Greek words.
- Scientific names often describe a living thing’s appearance, behavior or habitat.

California Science Standards

Grade 3: 3a, 3b, 5e

Grade 4: 3a, 3b, 6a

Grade 5: 6a

Grade 6: 5d

(<http://www.cde.ca.gov/re/pn/fd/documents/sci-std.pdf>)

English Language Arts

Reading

Written and Oral English Language

Conventions

Listening and Speaking

(<http://www.cde.ca.gov/re/pn/fd/documents/ela-contentstnds.pdf>)

Materials

For each student

- “What’s in a Name?” activity sheet
- Monterey Bay Aquarium Shark Spotting Guide (available at http://www.montereybayaquarium.org/efc/efc_smm/smm_activities.asp)

For the class

- Dictionaries containing prefix and suffix definitions
- Pictures of sharks (books, magazines, old calendars, web resources)

Activity Link

This activity is used in the Teaching Unit “The World of Sharks”

http://www.mbayaq.org/lc/teachers_place/activity_worldofsharks.asp

and the Ocean Explorers Teaching Unit “Mystery Fish.”

http://www.mbayaq.org/lc/teachers_place/activity_fish_mystery.asp

You’ll find other related activities, background information about sharks and their physical characteristics and more online resources students can use to research sharks.

Teacher Directions

1. Discuss with students the reasons that organisms have scientific names.
2. Have students look at scientific names of sharks in aquarium exhibits or in nonfiction resources.
3. Refer to the list of Latin and Greek words and definitions on the activity sheet. Using the list, students piece together a description of what they think the sharks’ names mean.

4. Students choose one shark. They draw a picture of what they expect their shark to look like based on its name.
5. If they visit an aquarium, have them compare their drawings with the actual sharks. Or they can look through Monterey Bay Aquarium's Online Field Guide – Living Species List to find the animals' pictures.
6. Look at common names of sharks, such as leopard, zebra and hammerhead. How do the common names compare to the meanings of the scientific names?
7. Have students share their drawings and the scientific and common names of sharks with the class. Discuss how the prefixes and suffixes helped them in drawing the sharks.

Background

People often call many plants and animals by a variety of common names, depending on where they are located. Using various common names for the same species or the same name for different species can result in confusion when discussing an individual organism. As a result, scientists use scientific names when they refer to living things.

The science of processing and naming living organisms is taxonomy. The roots of taxonomy are from the 18th century. At that time, a Swedish botanist named Karl von Linne devised a binomial system for assigning two-part scientific names to plants and animals. He is often referred to as Carolus Linnaeus, the Latinized form of his name.

The Linnaean system designates each living thing with a genus and species name. The genus is the more general term. There are often multiple species within one genus. Genera (the plural of genus) are further categorized within families, orders, classes, phyla and finally kingdoms.

The first part of the scientific name is the genus, which describes a group of plants or animals with similar characteristics. For example, the genus of zebra sharks is *Stegostoma*. The genus, or generic, name is always capitalized and may be abbreviated, *S.*

The second part of the name refers to the species, a specific group of plants or animals within the genus. Species names are always used with the genus names, as these names may occur with other genus names. Examples of species names for zebra sharks include: *Stegostoma carinatum* and *S. fasciata*.

Scientific names are usually made up of Latin or Greek words, prefixes and suffixes, that often describe the appearance or behavior of the animal. The names also tell something about the animal's relationship to other animals and may name people who were instrumental in the discovery of the animal.

For example, *Carcharhinus melanopterus* is made up of the following prefixes and suffixes:

Carch- means sharp

Rhin- means nose

Melan- means dark or black

Pter- means fin or wing

Thus, *Carcharhinus* is an animal with a sharp nose and *melanopterus* means an animal with dark or black fins. Sometimes, as is the case with *Carcharhinus melanopterus*, an animal's scientific name is somewhat related to its common name – blacktip reef shark.

Extensions

- Imagine you are the scientist responsible for proposing scientific names for some of the animals you've seen at an aquarium. With a partner, select three animals to "name." Which of the animal's characteristics would you emphasize? Use the Latin and Greek terms from the activity sheet and make up "scientific names" that identify the characteristics you've chosen. Trade with another student and try to guess which names go with which animals.
- Design a new shark species using modeling clay. Select prefixes and suffixes to help you create the body parts and coloration. Then have classmates try to name your shark.
- Have students look up the meanings of their first names. Do their names come from a foreign language? What characteristics are associated with their names?

Activity Resources

Monterey Bay Aquarium Web Site

Research shark scientific names and physical characteristics using Monterey Bay Aquarium's Shark Spotting Guide and "About the Animals" Online Field Guide.

Home Page: <http://www.montereybayaquarium.org/>

Spotting Guide: http://www.montereybayaquarium.org/efc/efc_smm/smm_activities.asp

About the Animals: http://www.montereybayaquarium.org/efc/living_species/default.asp

FishBase

FishBase provides information on more than 28,000 fish species with scientific and common names.

www.fishbase.org

Palomar College

Provides a good overview of the history of taxonomy and how living things are being classified today.

<http://anthro.palomar.edu/animal/>

What's in a Name?

Student Handout

You may have heard people use the phrase, "It's all Greek to me." In the case of scientific names, that's often true! Scientists use Greek and Latin terms to create scientific names for different living things. The scientific name may provide information about the appearance, behavior or habitat where an animal lives. It may include the name of the person who discovered the organism or someone the "discoverer" wanted to honor.

Scientific names are made of two parts: genus and species. Organisms of the same species, such as two different breeds of domestic dogs, can mate and their offspring will be able to reproduce. Organisms with the same genus are related, such as domestic dogs, *Canis familiaris*, and gray wolves, *Canis lupis*. But if they were to mate and produce offspring, their offspring would not be able to reproduce.

In this activity, you'll be looking at the scientific names of various sharks. Your job is to "translate" the scientific names of the sharks using the chart of Latin and Greek terms.

For example: *Carcharhinus melanopterus*
Carch means sharp and *rhinus* means nose.
Melan means dark or black and *pter* means wing or fin.
 So a *Carcharhinus melanopterus* has a sharp nose and black fins.

Once you've "translated" the scientific name, try to guess its common name. Match it to the shark photo or a real shark if you're visiting the aquarium.

Latin and Greek Terms and "Translations"

Latin or Greek	Meaning
Akis	pointed
Acanthias	prickly thing
Blephara	eyelid
Californi	near California
Carch	sharp, pointed
Cephal	head
Derm	skin
Fasci	banded, striped
Galapagensis	from Galapagos
Galeo	shark
Haplo	single
Hemi	half
Hetero	different
Maculo	spotted
Melan	dark, black
Noto	back











Latin or Greek	Meaning
Obesus	fat
Odous/Odon	teeth
Poro	having spots or openings
Pter	wing, fin
Rhino	nose
Scyllium	swollen
Semi	half, partly
Sphyrna	hammer
Squalus	kind of sea fish
Squatina	kind of shark
Stego	covered
Stoma	opening
Tri	three
Varium	varied
Ventr(i)	belly, stomach

<i>Scientific Name</i>	"Translation"	Common Name
<i>Carcharhinus melanopterus</i>		
<i>Carcharhinus galapagensis</i>		
<i>Cephaloscyllium ventriosum</i>		
<i>Galeorhinus galeus</i>		
<i>Haploblepharus sp.</i>		
<i>Hemiscyllium sp.</i>		
<i>Heterodontus francisci</i>		
<i>Notorynchus maculatus</i>		
<i>Poroderma africanum</i>		
<i>Sphyrna lewini</i>		
<i>Squalus acanthias</i>		
<i>Squatina californica</i>		
<i>Stegostoma varium</i>		
<i>Triaenodon obesus</i>		
<i>Triakis semifasciata</i>		

What's in a Name?

Answer Key

Scientific Name	"Translation"	Common Name
<i>Carcharhinus melanopterus</i>	sharp nose, with black fin	Blacktip reef shark
<i>Carcharhinus galapagensis</i>	sharp nose, Galapagos	Galapagos shark
<i>Cephaloscyllium ventriosum</i>	swollen head, large belly	Swell shark
<i>Galeorhinus galeus</i>	shark nose, shark	Soupspin shark
<i>Haploblepharus sp.</i>	single eyelid, species undefined	Puffadder shyshark
<i>Hemiscyllium sp.</i>	half swollen	Epaulette shark
<i>Heterodontus francisci</i>	different tooth	Horn shark
<i>Notorynchus maculatus</i>	back snout, spotted	Sevengill shark
<i>Poroderma africanum</i>	spotted skin, Africa	Pajama catshark
<i>Sphyrna lewini</i>	hammer	Scalloped hammerhead
<i>Squalus acanthias</i>	kind of sea fish, prickly	Spiny dogfish
<i>Squatina californica</i>	kind of shark, California	Pacific angel shark
<i>Stegostoma varium</i>	covered opening, varied	Zebra shark
<i>Triaenodon obesus</i>	tri-toothed, fat	Whitetip reef shark
<i>Triakis semifasciata</i>	three points, partly banded	Leopard shark

Blacktip reef shark		Cownose ray	
Epaulette shark		Galapagos shark	
Horn shark		Leopard shark	
Scalloped hammerhead		Spiny dogfish	
Swell shark		White shark	

Photos for educational use only.