NATIONAL GEOGRAPHIC

How Scientists Name Things

Students learn how scientists use one of three ways to name a living thing. Students practice by inventing new names for prehistoric sea creatures.

GRADES

3 - 5

SUBJECTS

Biology, Geography, Physical Geography

CONTENTS

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OVERVIEW

Students learn how scientists use one of three ways to name a living thing. Students practice by inventing new names for prehistoric sea creatures.

For the complete activity with media resources, visit:

http://www.nationalgeographic.org/activity/how-scientists-name-things/

Program

SEA MONSTERS
A PREHISTORIC ADVENTURE

DIRECTIONS

1. Build background.
Tell students to write "marine reptile" on a piece of paper and then put their pencils down. Then have them try again, this time without using their thumb to grip the pencil. Point out

that the thumb is a body part that provides an advantage when using a tool. Explain that writing and spelling words are learned behaviors, and both the thumb and the writing are examples of adaptations.

2. Explain the three ways scientists name plants and animals.

Tell students that scientists use Greek and Latin words and scientific conventions to name plants and animals, including prehistoric marine reptiles. Introduce the three approaches:

- to reference the location where an organism was found
- in honor of a person with some connection to the discovery
- to reference a unique body part or behavior

Tell students that one way scientists name living things is by the location where the animal lived or was first discovered. For example, the mosasaur, a "Meuse River lizard," is named after a tributary of a river in the Netherlands, where the first known specimen was discovered. Ask: *Can you guess where the* Argentinosaurus *was first discovered?* (Argentina)

3. Have students brainstorm names that reference location.

Distribute copies of the handout Greek and Latin Word Parts. Have students imagine prehistoric sea creatures were discovered in your local area. Ask them to brainstorm some names for the creatures. Write the names on the board.

4. Provide examples of names that honor people.

Tell students that other dinosaurs are named after famous people or for the person who found them. For example, the *Mosasaurus hoffmanni* is named after C.K. Hoffman. Ask:
- *Who is* Nedcolbertia *named after?* (Ned Colbert, or Dr. Edwin "Ned" Colbert)
- *Who is* Ricardoestesia *named after?* (Richard Estes)
As a class, brainstorm some names of imaginary prehistoric sea creatures named after famous people and then after students.

5. Provide examples of names that refer to body parts or behavior.

Remind students that the last approach is to name animals by their body part, behavioral adaptations, or by whole body descriptions. For example, Englishman Richard Owen coined the word *Dinosauria* from "dino," (terrible) and "saur" (lizard). An *Ichthyosaur* is an "ichthy" (fish) "saur" (lizard).

6. Have students invent new names for prehistoric sea creatures.

Write the Greek and Latin word parts below on the board. Explain to students that the

activity they are about to do is just for fun. Tell them that scientists would not mix Greek and Latin word parts. Ask students to invent names for imaginary prehistoric sea creatures using three word parts: prefix, root word, and suffix. List these names and descriptions of the animals on the board. For example, a *Megabiceratosaurus* ('big two-horned lizard').

Greek and Latin Word Parts

bi-two

cephal(o)-head

cerat(o)-horn

ichthy-fish

mega-large

micro-small

odon or **oden**-tooth

ops-eye or face

ped or **pes**-foot

rex-king

rhino-nose

saur(us)-lizard

tri-three

tyrann-tyrant

uni-one

vor(e)-eating

OBJECTIVES

Subjects & Disciplines

Biology

Geography

- Physical Geography

Learning Objectives

Students will:

- explain how Greek and Latin word parts are used to name an animal
- describe the science rules and conventions for naming a new animal

Teaching Approach

- Learning-for-use

Teaching Methods

- Brainstorming
- Discussions

Skills Summary

This activity targets the following skills:

- Critical Thinking Skills
  - Applying
  - Understanding

National Standards, Principles, and Practices

NATIONAL GEOGRAPHY STANDARDS

- **Standard 17:**
How to apply geography to interpret the past

NATIONAL SCIENCE EDUCATION STANDARDS

- **(K-4) Standard C-1:**
The characteristics of organisms
- **(K-4) Standard G-1:**
Science as a human endeavor

Preparation

What You'll Need

MATERIALS YOU PROVIDE

- Paper
- Pencils
- Pens

REQUIRED TECHNOLOGY

- Internet Access: Optional
- Tech Setup: 1 computer per classroom, Projector

GROUPING

- Large-group instruction

BACKGROUND & VOCABULARY

Background Information

Animals undergo adaptations—changes to body parts and behaviors—that help them survive. Referring to adaptations is one way scientists name living things.

Prior Knowledge

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Recommended Prior Activities

- [Prehistoric Animal Adaptations](#)

Vocabulary

Term	Part of Speech	Definition
adaptation	*noun*	a modification of an organism or its parts that makes it more fit for existence. An adaptation is passed from generation to generation.

For Further Exploration

Websites

- National Geographic: Sea Monsters—A Prehistoric Adventure

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