

Explore: Look! A Whatchamacallit!

PROCESS AND PROCEDURES

Scientific Names - Binomial Nomenclature

Many organisms out there have common names: blue jay, oak tree, lichen. However, common names can lead to confusion about which organism is being referred to. There are at least three different blue jays depending on where you live, there are dozens of different types of oak trees, and there are probably many thousands of different types of lichen. Many people, including scientists, often want to be able to refer to an organism specifically so it won't be confused with other, often similar, organisms. To be able to do this, we use something called a "scientific name".

Scientific names are usually given by the person or persons who discover and describe a new species in a recognized scientific journal. The names are reviewed and agreed upon by an international committee of taxonomists. Scientific names are given as Latin words or words that have been "Latinized". Scientific names follow the principle of *binomial nomenclature* or "two name naming". That is to say, each scientific name has two parts to it: a genus and a species name. The scientific name is always underlined or printed in italics. The first name (the genus) is always capitalized, and the second name (the species) is always lower case.

A Dog Named Maculata

1. Read the article "A Fly Called *Iyaiyai*" to find out more about how scientific names are assigned and how silly some scientists can be!
2. Your mission for this **Explore** activity is to create **and name** a new critter that has never been seen before. In your journal, you will do four things:
 - Draw a rough draft of your critter in pencil (show the teacher before going on to your final draft)
 - List the scientific name of your critter (be sure to follow the rules for punctuation, font, etc.)
 - List the meaning of that scientific name
 - Write a brief paragraph describing the habitat for your critter and adaptations your creature has to help it survive

Take one full page in your journal for the drawing, scientific name and meaning. Describe your creature's habitat and adaptations on the opposing page.

To help you in coming up with a scientific name, there are a list of word roots at the end of this section. You are free to use other word roots not listed on the back of this paper as long as they make sense. Don't forget: you can also use the prefixes for numbers (ex: "tridactyla" would mean three fingers) when designing your names. To get full credit for your creature, you need to use at least four of the word roots listed as part of your creature's scientific name. As for the picture, you're not going to be graded on artistic ability, but creativity, effort and neatness all count.

ANALYSIS

Speciation: When one species becomes two species.

During the unit on evolution you learned about variations called *adaptations* that help organisms survive and reproduce. Sometimes, if the difference(s) is/are great enough, scientists say that a new species has evolved. This is called speciation. Evolution and speciation are not just processes that have happened in the past – they are dynamic processes that continue to happen today.

Read the article “Walking Sticks Mimic Two Leafy Species...” and answer the following questions in your journal using complete sentences.

1. What is the common name and the scientific name of the organism that is evolving into two separate species in this article?
2. Who was the walking stick named after (the scientific name) and where does she work?
3. What are the two types of plants that the walking sticks are found on?
4. What are the agents of natural selection in this article that drive the evolution of these insects?
5. What type of adaptation (mimicry, camouflage, etc.) are the walking sticks showing and how does it help them survive?

Scientific Name Word Roots

COLOR/PATTERN	
black	melano-
blue	cyano-
red	rubr-
white	alb-
green	chloro-
purple	porphyro-
yellow	galb-
orange	pyrrho-
brown	brunne-
gold	chryso--
rainbow	irido-
checkered	tesselat-
striped	vittat--
spotted	maculat-, -punctatus

SIZE/SHAPE/TEXTURE	
gigantic	titano-
large	macro-
small	micro-
tall	alti-
short	brachy-
bent	ancylo-
curved	gampso-
flat	platy-
hollow	coelo-
pointed	muricat-
round	gyro-
spiral	helico-
square	quadrat-
triangular	delt-
woolly	lachno-
wrinkled	rugos-
hairy	tricho-
rough	scabr-
smooth	aphelo-
fake, false	pseudo-
slender, thin	lepto-, -leptis

STRUCTURE	
arm	brachi-, -brachium
beak	rhyncho-, -rynchus
brain	cerebr-, -cerebrum
claw	chel-, -chela
hair	capill-, -capillus
scale	lepid-, -lepis
skin	derm-, -derma
tail	cand-, -canda
wing	ptero-, -pterum
finger	dactylo-, -dactylus
stomach	gastro-, -gaster
tooth	dent-, -dens
leg	cnemi-, -cnemus
eye	ophthalmo-, -ophthalmus
head	cephalo-, -cephala
jaw	gnatho-, -gnathus
lip	chilo-, -chilus
back	-dorsalis
bone	osteo-
nose	rhino-
horn	cero-, -ceros
foot, feet	pod-, -poda

ANIMAL/PLANT	
insect	entomo-
bird	avi-, -avis
fish	ichthyo-, -ichthys
lizard	lacerti-, -lacerta, -saurus
worm	helmintho-, -helmins
reptile	herpeto-
fungus	fungi-, -fungus
plant	phyto-, -phytum
tree	arbor-, -arbor
flower	flori-, -flora
leaf	foli-, -folium
fern	ptero-, -ptera