Dinosaur Name Challenge

Creating New Dinosaurs from Old Roots

Material Needed

- Packaging foam or equivalent
- Plastic items, various types, colors, textures (caps, lids, cutlery, etc.)
- Cardboard
- Modeling clay or equal
- Scrap paper products, various types (folders, paper, envelopes, etc.)
- Chenille stems, wire, bread ties or equal
- Fabric scraps or equal
- Tape, scissors, stapler, binder clips or paperclips
- Craft sticks or equivalent
- Straws or equal
- Tape and/or glue
- Markers, crayons, or colored pencils

Grade Range

3-5
6-8

Topics/Skills

Science: Common Ancestry, Diversity, History of Earth; Language Arts: Reading Word Roots & Affixes to Decipher Meaning; Engineering: Prototypes

Learning Standards

NGSS: Earth & Space Science, Life Science; CCSS ELA: Reading Foundational Skills

Duration

45 60 minutes

Prep Time

10 minutes

Animal names sometimes seem long and daunting; but if you know the roots, they are quite descriptive of the animal itself. In this fun and creative activity, students build models of fictitious animals using Greek and Latin root words.

Activity Challenge

Create a dinosaur name using 3 or more Greek or Latin root words and build a model of that dinosaur.

Preparation

1. Review materials list and gather needed items.
2. Watch one or both short videos:
   a. Dinosaur Names: http://bit.ly/3cWrnFY
   b. Dinosaur Names for Younger Kids: http://bit.ly/2TLHy1b

To Do

1. Choose 3 or more root words from the Root Word table (see p.3). Make sure that each root word is from a separate category (colors, texture, etc.). Choose either the Greek or Latin versions of the words.
2. Write down the chosen root words together in any order. This is the name of the dinosaur! Write down the English version of the dinosaur name (see p.3).
3. Use the table below and the materials to model the new dinosaur. Be sure it has the characteristics described by the root words in its name.

Criteria (design requirements)	Constraints (design limits)
• Dinosaur name contains 3 or more roots words • Model has characteristics that reflect its root word name	• Model must include 5 or more materials • Model must be portable and free-standing

Observations

- Does the dinosaur name and model meet all the criteria and constraints? What changes, if any, could improve the model?
- Which characteristic of the dinosaur, based on its name, was the most challenging to model?
- How did the word roots in the dinosaur name influence the materials chosen to include in the model?

Extensions
- Model the environment/habitat for the dinosaur based on its features. For example, think of where its characteristics might help the dinosaur survive, if dinosaurs still roamed the Earth.
- Create longer dinosaur names using additional root words from the basic and extension word list (page 4).

The Science behind the Activity

Scientific words sound to many students like another language … because they are! Scientific nomenclature, as a standard, uses **root words** from classic Latin and Greek. Just knowing this can help students feel more at ease with long, scientific words. Learning as many roots as possible not only helps with scientific names and but also with decoding new vocabulary in general.

Paleontologists are scientists who study **paleontology** (from Greek *paleo* = "old" or "ancient", *onto* = "being", *logy* = "study"). They focus on the **geologic** (*geo* = "earth", *logy* = "study") history of life on Earth through the fossil record. Fossils are the evidence of past life on the planet and can include those formed from animal bodies or their imprints (body fossils). The evidence that paleontologists dig up, literally, helps biologists better understand the distribution of life on the Earth both past and present. **Biologists** (*bio* = "life", *logy* = "study") are scientists who study living organisms, including their structures and functions and their interactions within different environments.

Tyrannosaurus Rex = "Tyrant Lizard King"
(*tyranno* = "tyrant") + (*saurus* = "lizard") + (*rex* = "king")

Basic Root Word Sheet: categories (color, size, shape, texture, numbers, animal parts)

English	Latin	Greek	English	Latin	Greek
Colors			*Size*		
Black	arti-, nigri-	melano-	Dwarf	pumili-	nano-
Blue	cerule-	cyano-	Gigantic	ingenti-	colosso-
Green	viridi-	chloro-	Large	grandi-	macro-
White	albi-	leuco-	Short	brevi-	brachy-
Yellow	flav-	xantho-	Tall	proceri-, alti-	aepy-
Shape			*Texture*		
Curved		cyrto-, gampso-	Bare	nudi-	gymno-
Egg-shaped	ovat-		Bearded	criniti-	pogono-
Flat	plani-	platy-	Hairy	hirsut-	lasio-, trichodo-
Hollow	cavi-	coelo-	Rough	asper-	trachy-
Horned	cornut-	cerato	Spiny	spini-	acantho-, echino-
Round	circuli-	cyclo-, gyro-	Wrinkled	corrugat-	rugos-
Numbers			*Animal Parts*		
One	mono-	uni-	Beak	rostr-	rhyncho-
Two	bi-, duo-	di-	Claw	ungui-	chelo-
Three	tri-	tria-	Foot	pedi-	podo-
Four	quadri-	tetra-	Head	capit-	cephalo-
Seven	septem-	hepta-	Tail	caud-	cerco-
Ten	decim-	deca-	Tooth	denti-	odonto-

Extension Root Word List

English	Classic Root	English	Classic Root
Above	super-	Nose	rhino-
All	omni-	Opening	chasmo-
Arm	brchio-	Outside	ex-
Back	dorsal-	Over	hyper-
Bird	ornitho-	Plated	stego-
Crooked	ankylo-	Pretty	compso-
Draw	graph-	Sharp	angusti-
Duck	anato-	Silver	argentums-
Face	ops-	Skin	derm-
Far	tele-	Slow	segno-
Fast, Speedy	veloci-	Star	astral-
Finger	dactyl-	Thief	lestes-
First	proto-	Thunder	bronto-
Gold	aureus-	Toes	phalangia-
Good Mother	maia-	Tongue	lingua-
Hot	thermal-	Top	acro-
Inside	endo-	Twin	stereo-
Jaw	gnathus-	Tyrant	tyranno-
Light	photo-	Under	hypo-
Lizard	saurus-	Water	aqua-
Many	poly-	Wing	pteyg-
Meat	carni-	Wooly	lana-