



Wild Kids

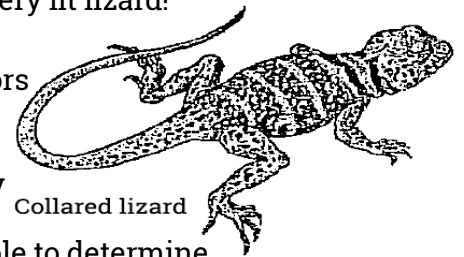
Lizard Aerobics

STUDENT GUIDE

Have you ever seen a lizard doing push-ups on a fence, wall, rock or tree trunk? Ever wonder why? There are two general reasons for lizard push-ups: breeding and temperature control. Coloration is involved in both and has a lot to do with lizard behavior.

Lizard push-ups are a form of breeding behavior. If you look carefully around a lizard doing push-ups you may see another lizard close by. If this is the case, then the lizard is “showing off” or displaying. During the breeding season, males of most lizard species become brightly colored, generally in metallic blues, greens or yellows. These colors are concentrated on the neck, sides and belly. Colored patches indicate the fitness of a lizard. Fitness is a combination of health, age, ability to avoid predators and obtain food, water and shelter. Large, brightly colored patches on a male indicate a very fit lizard!

Push-ups expose those bright colors to any nearby lizard. Other behaviors that go along with push-ups are head bobbing and inflation of the gular flap, a loose section of skin on the throat that can be expanded or inflated to show off color. If the watching lizard is a male, then both may begin push-ups. The more brightly colored and healthy lizard will obtain the best breeding site. If the watching lizard is a female, she is able to determine the fitness of the male by the size and color of his patches and his ability to do push-ups and head bobs.



Collared lizard

All of these activities can also attract the attention of predators. If you watch male lizards closely, they are on constant lookout. Their eyes are always moving. If they see an approaching predator, they will freeze instantly, no longer exposing the bright colors. The sudden lack of color and movement may cause the predator to lose sight of its intended prey. If the predator continues to approach, the lizard runs and hides before it can be caught.

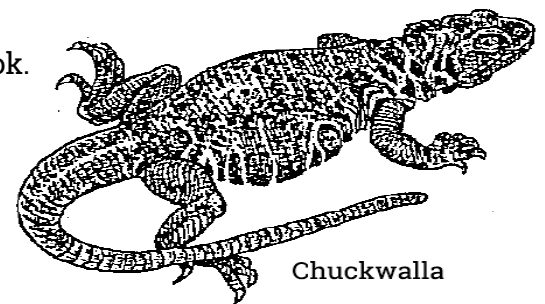
Desert spiny lizard



Lizards also do push-ups to regulate their internal body temperature. Lizards are ectothermic, meaning their internal body temperature is close to the air temperature. A lizard doing push-ups may be trying to cool down by lifting its body above the hot surface.

Behavior and color are important in regulating body temperature in lizards. To increase body temperature, the skin on the back side of a lizard becomes darker. Dark surfaces absorb more heat and get hotter. To keep the lizard from overheating, skin on the back lightens. Additional behaviors regulating body temperature include basking in the sun to warm up or hiding in shade, deep crevices or underground to cool off.

So the next time you see a lizard doing push-ups, take a closer look. You may be surprised by what you see.



Chuckwalla

THE MEANING OF SCIENTIFIC NAMES

Many scientific names are Latin or Greek in origin and if you know a few key words most scientific names are easy to decipher. Scientific names generally describe an organism's shape, color, habitat, structure, activity, texture, etc., or are named in honor of someone important. For example, if you did not know what an octopus looked like, you could get some hints from its name. "Octo" is Latin for eight and "pus" is Greek for foot. So an octopus would be a creature with eight feet. A list of common Latin and Greek word roots is given in the table to the right.

ACTIVITY 1: Use the list to decipher the following species names of Arizona lizards:

- | | |
|---------------|---------------|
| virgatus | multivirgatus |
| euryxanthus | punctatus |
| rufipunctatus | triseriata |
| trivirgatus | bilineatus |
| triangulum | melanoleucus |
| flavescens | arenicolor |

ACTIVITY 2: Make up species names for the following names:

- | | |
|---------------------------|--------------|
| six blue lined | yellow-eyed |
| white-speckled | black-necked |
| warty skin | flat-headed |
| northern yellow nose | worm-nosed |
| five-toed red belly | large-toed |
| ten wavy brown lined | green frog |
| black and white | |
| water living gray-bellied | |

ACTIVITY 3: Make up your own names. Draw a picture of your animal in its habitat. Can your classmates correctly decipher the name before they see your picture and description?

LATIN AND GREEK ROOT WORDS

QUANTITY

one: mono, uni
two: bi, di, duo
three: tri
four: quadri, tetra
five: penta
six: hexa
seven: hepta, septem
eight: octo

nine: ennea, novem
ten: deca, decim
many: multi, poly
few: oligo, pauci
all: omni
empty: ceno, vani, vacu
even-numbered: artio
odd-numbered: perisso

SHAPE

large: grandi, macro, mega
small: micro, minute, parvi
angled: anguli
crescent: lunuli
curled: cyrto, toxo
flat: platy
forked: dichu
hooked: grypho, onco

tent: scen
row: seri
line: linea, virga
wavy: undulata
thin: gracil, lepto
spot: punctat
warty: helo
wide: eury, lati

COLOR

black: melano, nigri, atr
brown: brunne, fuse
blue: cerule, cyano
gray: glauc, polio

green: chloro, virid
yellow: flav, xantho
red: erythro, rufi
white: albi, leuco

HABITAT

sand: areni
water: aqua
woods: drymo
cave: speleo
mountain: montan

island: insul, neso
marsh: eleo, limno
river: amni, potamo
sea: pelag, marin
snow: chinono, nival

DIRECTION

northern: boreal
southern: austral
eastern: eurp

western: hesperi
below: hypo
above: hyper

ANIMAL STRUCTURES

skin: derm
eye: oculi
neck: auchen
head: cephala
belly: gaster
nose: rhino
toe: dactylo

back: dorsum, noto
breast: pectus, sterni
claw: chela, onyx
leg: cnemi, scelis
face: faci, ops
tooth: dent, odonto
mouth: ora, stoma

TYPES OF ANIMALS

bird: avi, ornitho
cat: aeluro, felis
cow: boe, bov
dog: cani, cyon
frog: batracho, rana
insect: entomo

lizard: lacerta, sauro
mouse: muri, mus
reptile: herpeto
snake: aspidi, colubi,
ophio
worm: helminth, vermi



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TEACHING GUIDE

Overview

In this activity, students read a short article about the reason why lizards have different colors and why they are often seen doing push-ups. After answering some questions to determine their comprehension, they can attempt to make sense of some of the common Latin and Greek root words that are used to name lizards and other wildlife.

Suggested Procedures

1. Print the worksheet above. If possible, print it double sided.
2. Have the students read the first page.
3. Ask students the following questions and discuss:
 - What are two reasons why you might see lizards doing push-ups?
 - How do push-ups help the lizard control their body temperature?
 - Why do you think that bright colors might be indicative of an animal that is better able to survive?
4. Inform the students that they will now have the opportunity to explore scientific names. Ask them to read the first portion of the second page (before the activities begin).
5. Once completed, discuss. Then introduce the table. Make sure all of the students understand how it is set up.
6. Have students complete the first activity. In this case, they should be able to use the table to determine what the scientific names mean. Discuss the results.
7. Have students complete the Activity 2 and discuss.
8. Inform students that they will now have the opportunity to create their own scientific name for a fictional animal. They must use the chart to create a name. Then, they must draw a picture of the animal in its habitat. Give them time to complete the assignment.
9. Mix up the student drawings and the scientific names. See if students can correctly match the name to the animal. Discuss.

Grade

7th

AZ Science Standards

- 7.LIU1.11

Science and Engineering Practices

- Obtain, evaluate and communicate information

Crosscutting Concepts

- Structure and Function