



Righteous Reptiles

Lesson Overview

GRADE LEVEL

Grades 2-4

TIME ALLOTMENT

Two 45-minute class periods

OVERVIEW

This lesson introduces students to some fascinating members of the reptile kingdom, focusing on lizards and snakes. Students first view segments from the NATURE episode "The Dragon Chronicles," where they will learn about several kinds of cobras, a python, and two lizards - the water monitor and the Draco, the "flying dragon." Students will complete a chart comparing and contrasting lizards and snakes, learning about key features shared by all reptiles as they do this. They will then focus on defense mechanisms, using information from the video and web resources to compile a list of various strategies that snakes and lizards have developed as adaptations for protection from predators. Lastly, they will complete a writing and drawing assessment summarizing their knowledge of one of the snakes or lizards featured in the video segments.

SUBJECT MATTER

Living Environment/Biology



LEARNING OBJECTIVES

Students will be able to:

- Name the key distinguishing characteristics of reptiles;
- List several types of snakes and lizards, describing unique features of each;
- Describe defense strategies used by different snakes and lizards;
- Interpret information about reptiles presented in video segments;
- Use a Venn diagram to compare and contrast features of snakes and lizards;
- Write a summary sheet describing features of one species of snake or lizard.

STANDARDS

National Science Education Standards:

Standards available online at: http://www.nap.edu/openbook.php?record_id=4962&page=127

Life Science

Content Standard C

As a result of activities in grades K-4, all students should develop understanding of:

The Characteristics of Organisms

- Organisms have basic needs. For example, animals need air, water, and food; plants require air, water, nutrients, and light. Organisms can survive only in environments in which their needs can be met. The world has many different environments, and distinct environments support the life of different types of organisms.
- Each plant or animal has different structures that serve different functions in growth, survival, and reproduction. For example, humans have distinct body structures for walking, holding, seeing, and talking.



- The behavior of individual organisms is influenced by internal cues (such as hunger) and by external cues (such as a change in the environment). Humans and other organisms have senses that help them detect internal and external cues.

MEDIA COMPONENTS

NATURE: *The Dragon Chronicles*, selected segments

Clip 1: "Cobras and Pythons"

Three different snakes demonstrate their defense strategies.

Clip 2: "Water Monitor"

Water monitors in Sri Lanka are very intelligent and coexist with humans easily.

Clip 3: "Draco"

Draco is a flying lizard in India's rainforest.

Web sites:

Reptiles: Defense on Yahoo Kids http://www.nap.edu/openbook.php?record_id=4962&page=127

This page has pictures of different reptiles demonstrating the ways they defend themselves. (NOTE - if you do not have computers for student use in your classroom, print the information here for your students).

Centralpets.com - Central Lizard Page

<http://www.centralpets.com/pages/reptiles/lizards.html>



Learn more at www.pbs.org/nature.



Directory of lizards commonly kept in captivity, including Draco (Flying Dragon) and Water Monitor.

Snakes - with Kidsbiology.com

<http://www.kidsbiology.com/animals-for-children.php?category=Snakes>

Short descriptions and photos of snakes, including King Cobra, Spitting Cobra, and Reticulated Python.

MATERIALS

For the teacher:

- Righteous Reptiles Video Organizer Answer Key

For each pair of students:

- Snake/Lizard Comparison Chart

For each student:

- Righteous Reptiles Video Organizer
- Righteous Reptiles Summary Sheet

PREP FOR TEACHERS

Prior to teaching this lesson, you will need to:

Preview all of the video segments and Web sites used in the lesson.



Download the video clips used in the lesson to your classroom computer, or prepare to watch them using your classroom's Internet connection.

Bookmark the Web sites used in the lesson on each computer in your classroom. Using a social bookmarking tool such as del.icio.us or diigo (or an online bookmarking utility such as portaportal) will allow you to organize all the links in a central location.

Print and copy the student organizers mentioned in the "Materials" section.

INTRODUCTORY ACTIVITY

- 1) Explain that the students will watch some video segments featuring different snakes and lizards. Provide a focus for the students, asking them to figure out what the main form of defense is for each animal they see.
- 2) If your students have good writing skills, distribute the ["Righteous Reptiles Video Organizer"](#) to each student to help them organize their thoughts (if you have younger students, you can review the information orally without distributing the organizer).
- 3) Tell the students that they will see three different snakes in the first video clip. Remind them to figure out the defense mechanism for each one! Play segment #1, "Cobras and Pythons", for the class. Once the segment has completed, give students a few minutes to complete the first section of the organizer and review the information students noted (an Answer Key is provided).
- 4) Repeat for Video Segments 2 and 3 (each of these segments features one type of lizard).
- 5) When all the segments have been viewed, lead a discussion with the students about the animals they saw in the video. How many snakes were there? How many lizards? What were some of the special abilities of the snakes and lizards they saw?



LEARNING ACTIVITY 1 - COMPARING SNAKES AND LIZARDS

1) Divide the students into pairs. Distribute the "Snake/Lizard Comparison Chart" to each pair. Using what they have learned so far about snakes and lizards, have the students complete the Venn Diagram with the names and characteristics of lizards and snakes (characteristics shared between both lizards and snakes should fall in the center, overlapping, region). You may want to prompt your students by posting a list of possible items for the chart in a visible place in the classroom. The list might include:

- Reticulated Python
- Draco
- King Cobra
- Water Monitor
- Indonesian Spitting Cobra
- Have legs
- Dry, horny scales
- Claws on feet
- Cold-blooded
- Breathe air
- Good sense of smell
- Shed skin as they grow
- Etc.

2) Review your students' charts as a class. You may want to recreate the chart on the board and fill it in with student responses. *(From the items above, the "Lizard" category should include Draco, Water Monitor, Have legs, and Claws on feet. The "Shared" category should include Dry, horny scales, Cold-blooded, Breathe air, Good sense of smell, and Shed skin as they grow. The "Snake" category should include Reticulated Python, King Cobra, and Indonesian Spitting Cobra).* Add other items the students think of to the chart.



3) Review the shared characteristics of reptiles in the chart. Ask the students what other reptiles exist besides snakes and lizards? (*Turtles and crocodilians.*) Ask the students if other reptiles will share the same characteristics that are shared between snakes and lizards? (*Yes.*) Can they name any ways that turtles and crocodilians are different from other reptiles? (*Turtles have shells. Crocodilians have hard armor-like plates in their skin. Turtles and crocodilians all lay eggs - whereas some snakes and lizards give birth to live young and some lay eggs.*)

LEARNING ACTIVITY 2 - REPTILE DEFENSE

- 1) Remind the students of the different defense strategies they saw in the video clips. How many different ways of defending themselves did the students notice? (*Venomous bite, spitting venom, suffocation, using tail as a weapon, and flight.*)
- 2) Ask them to brainstorm other defense mechanisms other snakes and lizards might use. Come up with a preliminary list on the board.
- 3) Have the students view the page [Reptiles: Defense on Yahoo Kids](http://kids.yahoo.com/animals/reptiles/rept-defense) at <http://kids.yahoo.com/animals/reptiles/rept-defense> (students can navigate to the page in groups at computers, or you can print the information for the students). Have them make a list of the defenses used by snakes and lizards, giving an example of the reptile that uses this defense.
- 4) Complete the list on the board with the new defenses students have learned about.
- 5) Ask the students why lizards and snakes have to defend themselves? (*They have to protect themselves from predators.*) Lead a discussion about why there are so many different kinds of defense mechanisms. (*Defense strategies are adaptations that reptiles use to protect themselves from predators. Different animals develop different ways of defending themselves. Predators may learn how to defeat some defense strategies, but having a different form of defense than one's neighbor means that predators will have to learn how to defeat many defenses, which may help the prey stay alive!*)

CULMINATING ACTIVITY



1) As an assessment, ask each student to pick ONE of the snakes or lizards that was featured in the video segments they saw (King Cobra, Spitting Cobra, Reticulated Python, Water Monitor, or Draco). They will write a summary sheet describing the animal, including its means of defense and examples of special features that make it interesting. They should also include a sketch of the animal.

NOTE - younger students may find the "[Righteous Reptiles Summary Sheet](#)" organizer helpful to guide their work. Older students can complete this as a free-form assignment. To conduct further research and/or find photos of their chosen species, use school encyclopedias or direct the students to the Centralpets.com - [Central Lizard Page](#), at <http://www.centralpets.com/pages/reptiles/lizards.html> or the KidsBiology Snakes page at <http://www.kidsbiology.com/animals-for-children.php?category=Snakes>

2) Collect the summary sheets to assess student learning.



NAME: _____

DATE: _____

**Righteous Reptiles
Video Organizer**

	Name of reptile	Lizard or snake?	What is its main form of defense?	Name an interesting fact you learned about this reptile
Video segment 1				
Video segment 2				
Video segment 3				



NAME: _____

DATE: _____

**Righteous Reptiles
Video Organizer**

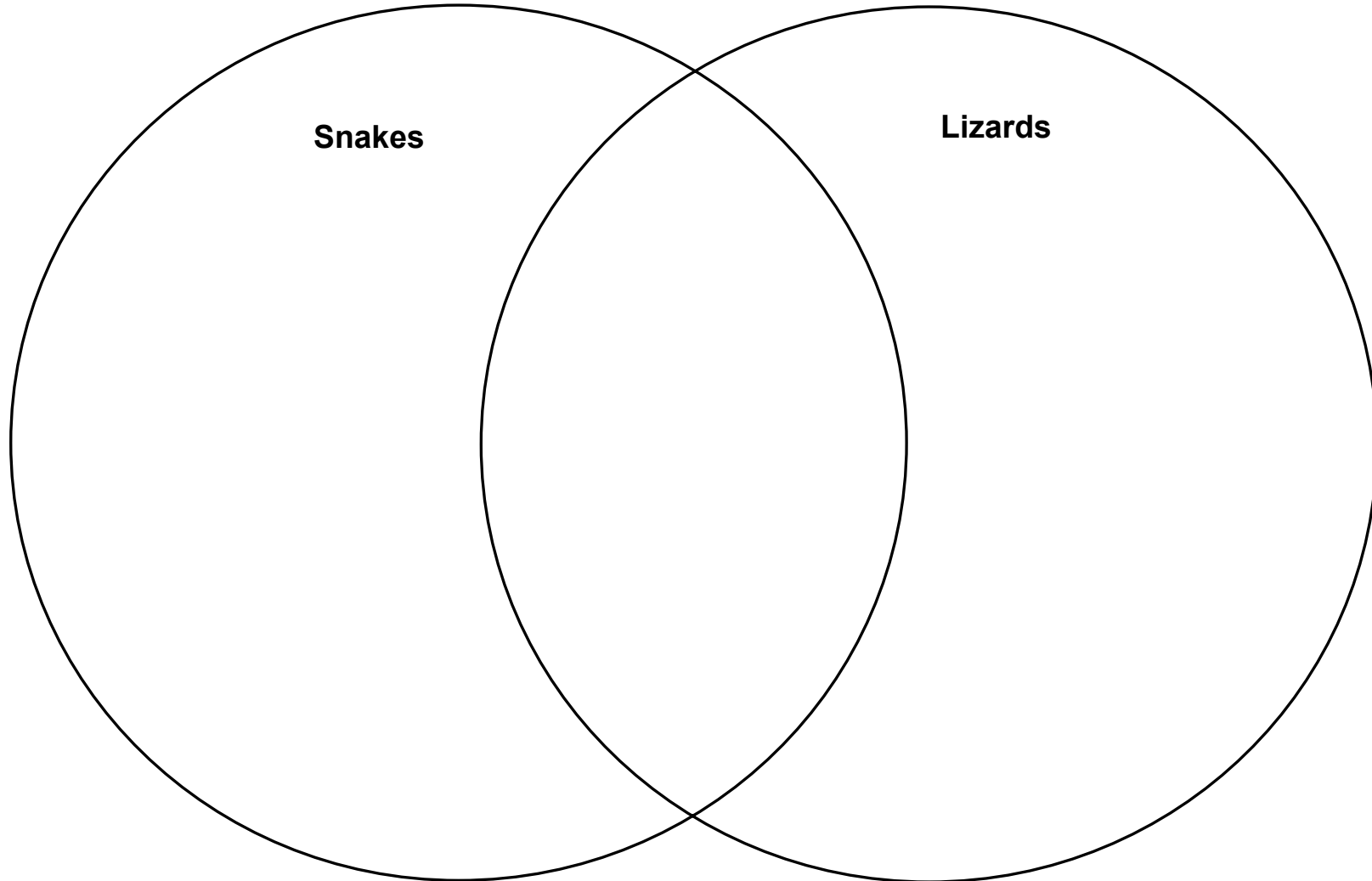
	Name of reptile	Lizard or snake?	What is its main form of defense?	Name an interesting fact you learned about this reptile
Video segment 1	Indian King Cobra	Snake	Venomous bite	<i>(Possible answers):</i> Can create enough venom to kill an elephant
	Indonesian Spitting Cobra	Snake	Spitting venom	Can spit venom; venom is less virulent than the Indian cobra's
	Reticulated Python	Snake	Very large (predators mostly smaller than it is), uses suffocation to overwhelm adversaries.	Longest snake on earth; have swallowed humans
Video segment 2	Water Monitor	Lizard	Whipping tail	Scavengers; very smart; can count; can swim; spend a lot of time in the water; weigh approx. 50lbs each
Video segment 3	Draco	Lizard	Evasion (flight)	Lives high in the rainforest canopy; "flies" (glides) by extending flaps of skin on its sides; males have dewlap; eats ants



NAME: _____

DATE: _____

**Righteous Reptiles
Snake and Lizard Comparison Chart**





NAME: _____

DATE: _____

Righteous Reptiles Summary Sheet

The _____ is a (snake/lizard) _____.

It defends itself by _____.

It is interesting because _____

Here is a drawing of a _____: