

# SONORAN DESERT PREDATORS AND PREY

*Students classify different Sonoran Desert animals as predators or prey (or both) and describe their adaptations for finding food and avoiding predators.*

**ARIZONA SCIENCE STANDARDS**  
SC04-S4C1-01,  
SC03-S4C4-01/03

## OBJECTIVES

Students should:

- Name and describe some Sonoran Desert predator and prey species.
- Identify vital prey/predator body parts and describe their functions.
- Identify physical and behavioral adaptations of predators and prey that allow them to survive.

## MATERIALS

- A copy of *Student Handouts - Sonoran Desert Predators and Prey* and *Adaptations for Finding Food and Getting Away* for each student
- Scissors

## BACKGROUND

Animals can be both predators and prey. A quail, for example, preys upon insects. But a hawk hunts quail. Both animals are uniquely adapted for finding prey. Both are adapted to avoid predation as well. Quail live in groups to provide safety in numbers, and sentries give warning calls if they spot a predator. A hawk's young are susceptible to predation while in the nest. Hawk adults will attack approaching predators. Other physical adaptations make animals well-suited as predators, such as sharp claws, forward-pointing eyes, and sharp canine teeth. Similarly, prey animals have predator avoidance adaptations such as camouflage, eyes on the sides of their heads, and fast running ability. This activity lets students identify different Sonoran Desert animals as predators or prey and discuss their related adaptations.

## DOING THE ACTIVITY

### SETTING THE STAGE

- 1) Ask the students to think back to what they have studied about predators and prey. Ask, "Is it possible for a predator to also be a prey animal?" (yes) Have the students think of some examples. (Quail prey upon insects but are preyed upon by hawks, bats eat insects but are eaten by owls, etc.)
- 2) For some of the examples cited, ask the students about the animals' adaptations for avoiding predators and finding prey. Ask questions such as:
  - How does this animal find its prey?
  - What are some features that make it a good hunter?
  - How does it avoid being eaten by other predators?

- 3) Explain that they are going to each get a series of cards with information about different predators and prey. They will be able to use them to describe these animals and their strategies for finding food and avoiding predators.

## SONORAN DESERT PREDATORS AND PREY

- 1) Pass out a copy of *Student Handout - Sonoran Desert Predators and Prey* to each student. Have the students cut out each card and read the information about what each animal eats. Have them sort their cards into a piles designated "predator," "prey," or "both."
- 2) Then pass out *Student Handout - Adaptations for Finding Food and Getting Away*. Ask the students to fill in the information for each animal, referring to their cards as needed. If the animal is a predator, mark an X in the space below "predator." If it is a prey animal, mark an X below "prey." If the animal is both, they can mark an X in both spaces.
- 3) Based upon what they have learned about predator and prey adaptations, have them look at the animals' features or find clues on the cards to make general statements to fill in the last two columns. Remind them to think about what the animal eats and look at the pictures to see if its body parts are designed for finding these foods. For example, mountain lions have keen eyesight and sharp claws for finding and catching prey.
- 4) Go through the mountain lion as a group and have the students fill out the answers on their sheets before

# SONORAN DESERT PREDATORS AND PREY



completing the others on their own. (See example in the left margin of this page, and refer to the *Teacher Answer Guide* on the next page for possible correct answers.) There are other answers that would be appropriate as well. Encourage “scientifically based” creativity and educated guesses.

- 5) Discuss their answers as a group. (Note: In the *Teacher Answer Guide*, answers explicitly found on the cards or based on information from previous activities are typed in normal print. Those not found on the cards but of interest to students are in italics in this guide. Mention these in your group discussion.)

## DISCUSSION

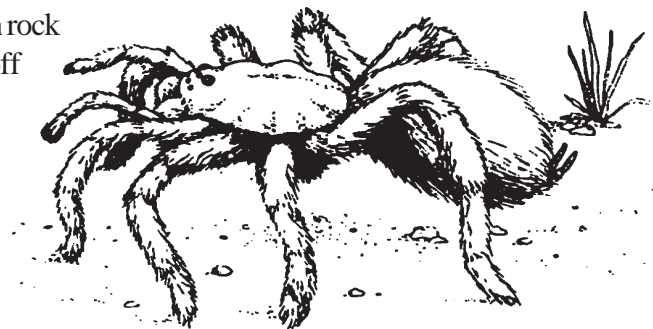
Ask the students to draw conclusions about the adaptations of predators and prey. Ask some unifying questions such as:

1. Do all prey animals have the same adaptations for avoiding predators? (no)
2. What are some common behaviors or adaptations that prey animals use to escape from or avoid predators? (live together in groups, good at retreating by jumping or climbing, camouflage)
3. What are some uncommon adaptations used for escaping predators? Give examples. (chuckwallas inflating themselves in rock crevices, tarantulas kicking off irritating hairs)

4. Which animals prey upon others? (see cards)
5. What common adaptations do predators have for catching prey? (good eyesight, eyes facing forward, sharp teeth or claws for grabbing prey)
6. What unusual adaptations do some predators have for catching prey? (venom; a long, sticky tongue)

## EXTENSION

- 1) Have the students create simple food chains based upon the cards. Have them determine which animals are prey animals to others in the group. Lay the cards out in a line showing the predatory relationships. (Examples include: kangaroo rats are eaten by western diamond-back rattlesnakes who are in turn eaten by Harris’ hawks, tarantulas are eaten by coatis, desert bighorn sheep are eaten by mountain lions.)
- 2) Are the animals that start the chain herbivores or carnivores? For those carnivores that start a chain, determine what animals they eat and what the food source of those animals is. (Tarantulas, for example, are carnivores that hunt insects. The insects they hunt ate plants or other insects that ate plants.) Have the students make cards to symbolize these links in the food chain and include them in order in the chain, i.e.  
plants → insects → tarantulas → coatis



STUDENT HANDOUT - ADAPTATIONS FOR FINDING FOOD AND GETTING AWAY

ADAPTATIONS FOR HUNTING/FINDING FOOD	ADAPTATIONS FOR ESCAPING/AVOIDING PREDATORS
great sense of smell excellent eyesight sharp claws	
PREY	(X)
PREDATOR	X
ANIMAL	MOUNTAIN LION

# SONORAN DESERT PREDATORS AND PREY

## TEACHER ANSWER GUIDE

### MOUNTAIN LION

PRED: X

PREY: X (*babies could be hunted by predators such as wolves if the parent is not there to protect them*)

ADAPTATIONS FOR HUNTING OR FINDING FOOD: excellent eyesight, sharp claws, eyes face forward, great sense of smell, good hearing

ADAPTATIONS FOR ESCAPING OR AVOIDING PREDATORS: *camouflage, hiding cubs in den*

### KANGAROO RAT

PRED:

PREY: X

ADAPTATIONS FOR HUNTING OR FINDING FOOD: can jump far distances in search of seeds, *external cheek pouches for collecting seeds*

ADAPTATIONS FOR ESCAPING OR AVOIDING PREDATORS: can leap far and change direction immediately on landing, *excellent hearing to detect hunters in dark*

### DESERT TARANTULA

PRED: X

PREY: X

ADAPTATIONS FOR HUNTING OR FINDING FOOD: large fangs for injecting venom into prey

ADAPTATIONS FOR ESCAPING OR AVOIDING PREDATORS: *lives in burrows to avoid predators; has irritating hairs on legs to kick into the eyes and nose of predators - predators scratch and claw at nose and eyes, giving tarantula time to get away*

### GAMBEL'S QUAIL

PRED: X

PREY: X

ADAPTATIONS FOR HUNTING OR FINDING FOOD: long toes for scratching up seeds and insects in dirt, strong beak for grabbing and cracking seeds and insects

ADAPTATIONS FOR ESCAPING OR AVOIDING PREDATORS: live in groups; *warning calls; quick take-offs*

### WESTERN DIAMONDBACK RATTLESNAKE

PRED: X

PREY: X

ADAPTATIONS FOR HUNTING OR FINDING FOOD: venom

ADAPTATIONS FOR ESCAPING OR AVOIDING PREDATORS: *shakes rattle to scare off predators, camouflage*

### DESERT BIGHORN SHEEP

PRED:

PREY: X

ADAPTATIONS FOR HUNTING OR FINDING FOOD: *can climb steep cliffs to reach grass and plants hard for other animals to find, grinding teeth for chewing plants*

ADAPTATIONS FOR ESCAPING OR AVOIDING PREDATORS: live in herds, eyes on the sides of their head to watch for predators, good sense of smell, good hearing, *climb steep cliffs that are hard for other animals to climb*

### HARRIS' HAWK

PRED: X

PREY: X (*babies taken from nest by owls*)

ADAPTATIONS FOR HUNTING OR FINDING FOOD: hunt together in groups (*share the food they catch*), sharp beak for killing prey, sharp claws (talons) for grabbing prey, excellent eyesight with forward-facing eyes

ADAPTATIONS FOR ESCAPING OR AVOIDING PREDATORS: *live together so parents and other adults all protect the nest*

### COATI

PRED: X

PREY: X

ADAPTATIONS FOR HUNTING OR FINDING FOOD: sharp claws for digging up insects and nuts, excellent sense of smell, long tail to balance them while climbing and looking for food, *remove tarantulas' irritating hairs by rubbing them on the ground*

ADAPTATIONS FOR ESCAPING OR AVOIDING PREDATORS: live in groups; *climbing ability to escape predators; sharp canines and claws*

### CHUCKWALLA

PRED:

PREY: X

ADAPTATIONS FOR HUNTING OR FINDING FOOD: teeth and jaws made for chewing up plants

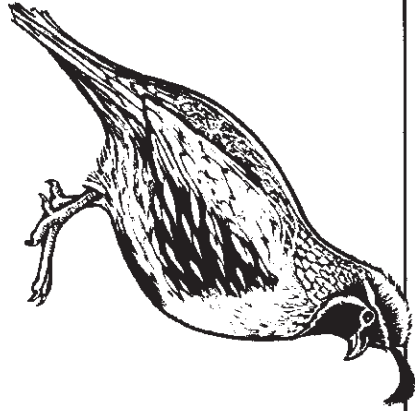
ADAPTATIONS FOR ESCAPING OR AVOIDING PREDATORS: wedge themselves in rock cracks and fill bodies with air to make it hard to remove them

**STUDENT HANDOUT - SONORAN DESERT PREDATORS AND PREY**

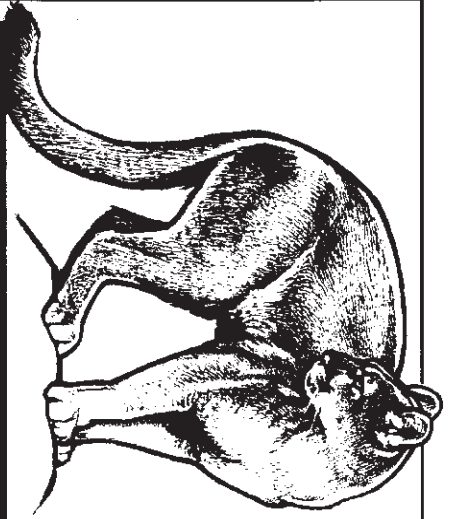
**Harris' Hawk**



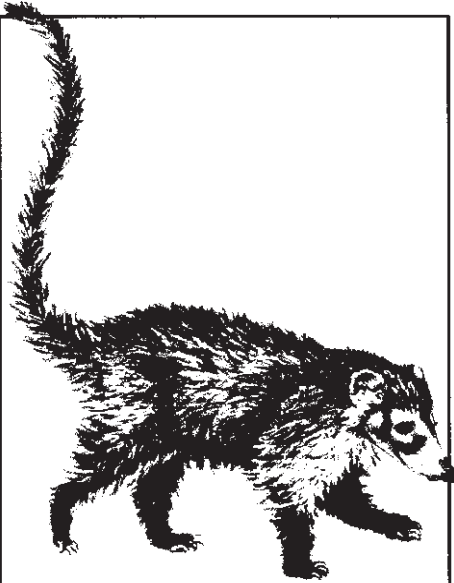
**Gambel's Quail**



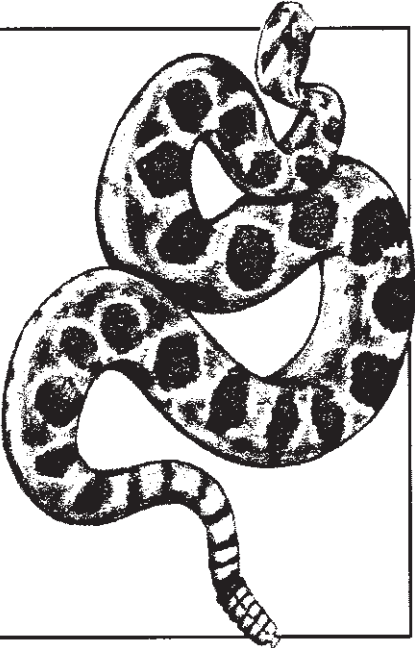
**Mountain Lion**



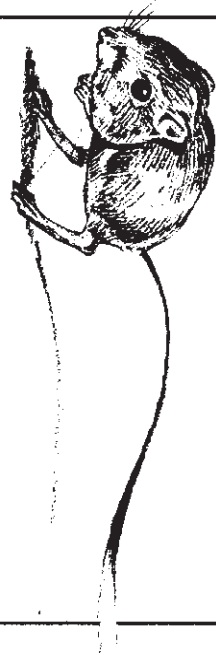
**Coati**



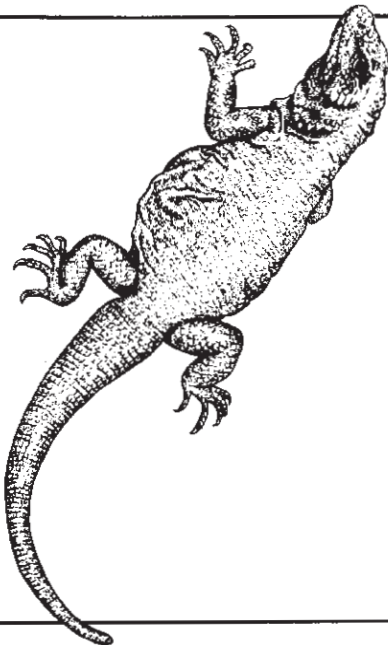
**Western Diamondback Rattlesnake**



**Kangaroo Rat**



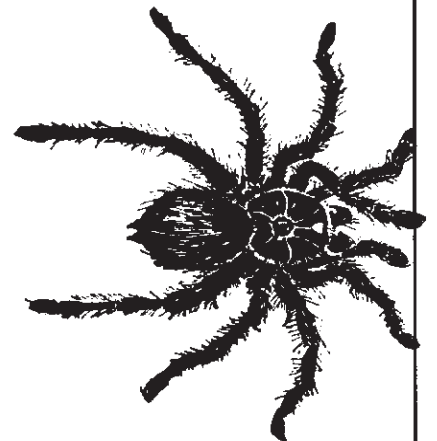
**Chuckwalla**



**Desert Bighorn Sheep**



**Desert Tarantula**





## Desert Tarantula

### ARTHROPOD

**Size:** Up to 3 inches in body length  
**Lifespan:** 25 years (female); 10 – 12 years (male)  
**Offspring:** 200 – 300 at a time  
**Habitat:** Burrows  
**Diet:** Insects, arachnids, small lizards and rodents

**Did you know that desert tarantulas:**

- use large fangs to inject venom into prey?
- are preyed upon by coatis, skunks and coyotes?

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## Kangaroo Rat

### MAMMAL

**Size:** 4 – 5 inches, without tail  
**Lifespan:** 2 – 3 years  
**Offspring:** 3 – 4 at a time  
**Habitat:** Desert  
**Diet:** Seeds

**Did you know that kangaroo rats:**

- can jump as far as 10 feet and change direction immediately upon landing?
- do not need to drink water?
- usually live alone?

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## Mountain Lion

### MAMMAL

**Weight:** 110 – 160 pounds  
**Lifespan:** 15 years  
**Offspring:** 3 – 4 at a time  
**Habitat:** Mountain regions  
**Diet:** Deer and other hooved animals

**Did you know that mountain lions:**

- remain with their mother for 1½ years?
- are rarely seen by humans?
- sometimes prey on domestic livestock?
- have no natural predators as adults?
- roam a wide area, up to 200 square miles?

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## Desert Bighorn Sheep

### MAMMAL

**Weight:** 110 – 200 pounds  
**Lifespan:** 12 years  
**Offspring:** One at a time  
**Habitat:** Remote mountain regions  
**Diet:** Grasses and woody vegetation

**Did you know that bighorn sheep:**

- have horns; male's are heavier and more curved?
- are preyed upon by mountain lions, coyotes, and golden eagles as lambs?
- live in small herds?

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## Western Diamondback Rattlesnake

### REPTILE

**Size:** 3 – 5 feet  
**Lifespan:** 20 – 25 years  
**Offspring:** 6 – 24 at a time  
**Habitat:** Desert, prairie, forest  
**Diet:** Rodents, rabbits

**Did you know that rattlesnakes:**

- are venomous?
- are preyed upon by hawks, eagles, owls and roadrunners?

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## Gambel's Quail

### BIRD

**Size:** 11 inches long  
**Offspring:** 10 – 12 at a time  
**Habitat:** Where mesquite occurs  
**Diet:** Seeds, grains, insects, berries, mesquite buds

**Did you know that Gambel's quail:**

- are active in morning and late afternoon in the summer?
- live in coveys (groups) of 20 – 40?

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## Chuckwalla

### REPTILE

**Also called:** Chuckawalla  
**Size:** Up to 1 foot in length  
**Lifespan:** 7 – 12 years  
**Offspring:** 5 – 15  
**Habitat:** Desert  
**Diet:** Leaves, flowers, seeds

**Did you know that chuckwallas:**

- wedge themselves in rock cracks and inflate their bodies by gulping air when in danger?
- have declined in numbers in drought years due to lack of food?

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## Coati

### MAMMAL

**Weight:** 10 – 13 pounds  
**Lifespan:** 15 years  
**Offspring:** 10 – 12 at a time  
**Habitat:** Tropical and subtropical woodlands and forests  
**Diet:** Insects, lizards, carrion, rodents, nuts, fruit

**Did you know that coatis:**

- have a long tail that is used for balance when climbing?
- have a great sense of smell?
- are often found in groups of 6 – 14 animals?

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## Harris' Hawk

### BIRD

**Size:** 21 inches long, 51 inch wingspan  
**Offspring:** 2 – 4 at a time  
**Habitat:** Nest in mesquite, yucca, saguaro  
**Diet:** Rodents, rabbits, birds

**Did you know that the Harris' hawk:**

- may hunt in groups?
- has a loud and rasping call?

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***STUDENT HANDOUT - ADAPTATIONS FOR FINDING FOOD AND GETTING AWAY***

<b>ANIMAL</b>	<b>PREDATOR</b>	<b>PREY</b>	<b>ADAPTATIONS FOR HUNTING/FINDING FOOD</b>	<b>ADAPTATIONS FOR ESCAPING/AVOIDING PREDATORS</b>
<b>MOUNTAIN LION</b>				
<b>KANGAROO RAT</b>				
<b>DESERT TARANTULA</b>				
<b>GAMBEL'S QUAIL</b>				
<b>WESTERN DIAMONDBACK RATTLESNAKE</b>				
<b>DESERT BIGHORN SHEEP</b>				
<b>HARRIS' HAWK</b>				
<b>COATI</b>				
<b>CHUCKWALLA</b>				