



“It’s a Jungle Out There: How Species Survive in the Jungle”

GRADE LEVEL: 9-12

TIME ALLOTMENT: Two or three 45-minute class periods

OVERVIEW: Using segments from the PBS program *Nature: Moment of Impact, Part 2: Jungle*, students will learn about skills and features that help species survive in the jungle. In the Introductory Activity, students will play a game where they are challenged to match species to adaptations which help them survive in the jungle. Students will create a definition for “adaptation” and revise the definition throughout the lesson, based on new information that they learn. In the Learning Activities, students will learn about the panther chameleon and the adaptations that help it survive. In an optional extension activity, students will examine the lyrics to “Karma Chameleon,” using their new knowledge of chameleons and will create a poem or song lyrics about chameleons. Students will also learn about the different layers of the jungle and the species that inhabit them, as well as how species get their prey and defend themselves from predators. In the Culminating Activity, students will create models illustrating the adaptations/skills different species use to survive.

SUBJECT MATTER: Science

Learning Objectives:

Students will be able to:

- Provide a definition for an “adaptation” and describe different adaptations that help species capture prey and protect themselves from predators.
- Describe a panther chameleon and list at least 3 adaptations that help it survive in the jungle.
- Discuss the different layers of the jungle, species that reside in each and adaptations that help them survive.
- Create a diagram and/or 3-d model to explain an adaptation that helps a species survive.
- Describe one jungle species in detail and explain the features/ skills that help it survive.

STANDARDS

National Science Education Standards

http://www.nap.edu/catalog.php?record_id=4962

Grades 9-12:

Content Standard C: Life Science

Fundamental concepts and principles that underlie this standard include:

- **The Interdependence of Organisms**
 - Organisms both cooperate and compete in ecosystems. The interrelationships and interdependencies of these organisms may generate ecosystems that are stable for



hundreds or thousands of years.

- **The Behavior Of Organisms**

- Multicellular animals have nervous systems that generate behavior. Nervous systems are formed from specialized cells that conduct signals rapidly through the long cell extensions that make up nerves. The nerve cells communicate with each other by secreting specific excitatory and inhibitory molecules. In sense organs, specialized cells detect light, sound, and specific chemicals and enable animals to monitor what is going on in the world around them.
- Organisms have behavioral responses to internal changes and to external stimuli. Responses to external stimuli can result from interactions with the organism's own species and others, as well as environmental changes; these responses either can be innate or learned. The broad patterns of behavior exhibited by animals have evolved to ensure reproductive success. Animals often live in unpredictable environments, and so their behavior must be flexible enough to deal with uncertainty and change. Plants also respond to stimuli.
- Like other aspects of an organism's biology, behaviors have evolved through natural selection. Behaviors often have an adaptive logic when viewed in terms of evolutionary principles.
- Behavioral biology has implications for humans, as it provides links to psychology, sociology, and anthropology.

MEDIA COMPONENTS

Moment of Impact, Part 2: Jungle, selected segments

Note: Clip 1 is used in Learning Activity 1. The other clips can be used by students, as they create their culminating projects.

Clip 1: “Panther Chameleon”

An overview of what skills/features help the colorful panther chameleon survive in the jungle.

Clip 2: “Amazonian Boa”

An overview of the features that help the Amazonian boa capture prey and survive the jungle.

Clip 3: “Antsy on the Forest Floor”

A close look at the leafcutter and carnivorous trap-jaw ants.

Clip 4: “Bats”

A close look at bats and how they use sound to locate prey.

Clip 5: “Cuban Crocodile”

A look at the bioengineering of the Cuban crocodile and how it navigates in water and on land.

Clip 6: “The Lizard and the Butterfly”

A close look at a basilisk lizard’s surprise attack on an unsuspecting blue morpho butterfly.



Clip 7: “Monkey Business”

An overview of the spider monkey and how it moves through the jungle.

Clip 8: “Osprey”

A brief look at the osprey and how its body design is well-suited for spotting and capturing fish.

Clip 9: “Paradise Tree Snake”

A look at how the paradise tree snake escapes danger by “snaking” through the air.

Clip 10: “Red Eyed Tree Frog”

A look at how the paradise tree snake escapes danger by “snaking” through the air.

Clip 11: “Tiger”

A look at what makes the tiger a successful hunter.

Websites:

○ **Supporting Resources for the Lesson**

The following sites are resources which can be helpful for students to use when conducting research during the following portions of the lesson:

Introductory Activity

● **The BBC Virtual Jungle website**

<http://www.bbc.co.uk/nature/programmes/tv/jungle/vjstructure.shtml>

This website features a variety of information about the structure of the jungle and the plants and animals living there.

● **Rainforest Alliance**

<http://www.rainforest-alliance.org/>

This website contains a variety of information about rainforests, including a section about rainforest species (http://www.rainforest-alliance.org/resources.cfm?id=species_profiles) which could be helpful to students in this lesson.

Note: Both of these websites can also be used by students as resources throughout the lesson.

Learning Activity 2:

● **Jungle Journey**

http://www.pbs.org/wnet/nature/fun/deepjungle_flash.html

In this section of the *Nature* website, students can explore the different layers of the jungle and the wildlife that inhabits each.

● **The Layers of the Rainforest**

<http://www.srl.caltech.edu/personnel/krubal/rainforest/Edit560s6/www/whlayers.html>

This page contains info about the 4 rainforest layers, which can be used in Learning Activity #2. (This page is within the rainforest section of the California Institute of Technology’s Space Radiation Lab website:

http://www.srl.caltech.edu/personnel/krubal/rainforest/serve_home.html)



- **Mongabay.com**

- <http://www.mongabay.com/>

- This website features a variety of information about wild lands and wildlife, including information about rainforests: <http://rainforests.mongabay.com/>. The following sections can be used to help students explore the layers of the rainforest in Learning Activity 2:

- *The Canopy*: <http://rainforests.mongabay.com/0401.htm>

- *The Forest Floor*: <http://rainforests.mongabay.com/0501.htm>

Optional Extension Activity:

- **Karma Chameleon Lyrics**

- <http://www.elyrics.net/read/c/culture-club-lyrics/karma-chameleon-lyrics.html>

- These lyrics to Boy George’s “Karma Chameleon” can be used in the optional activity.

Culminating Activity:

- **Additional Resources Page**

- <http://www.pbs.org/wnet/nature/episodes/moment-of-impact/additional-web-and-print-resources/5614/>

- This page on the *Nature* website includes links to resources about blue morpho butterflies, tigers, trap-jaw ants, spider monkeys, snakes, Cuban crocodiles, tigers and other species, which could be used by students in the culminating activity.

- **Animals of the Rainforest**

- <http://www.srl.caltech.edu/personnel/krubal/rainforest/Edit560s6/www/animals.html>

- This page provides details about different rainforest species including the blue morpho butterfly and spider monkey. (This page is within the rainforest section of the California Institute of Technology’s Space Radiation Lab website:

- http://www.srl.caltech.edu/personnel/krubal/rainforest/serve_home.html)

- **Rainforest Connection**

- <http://rainforest.montclair.edu/pwebrf/rainforest.jsp>

- This Montclair State University website includes information about various species of mammals that live in the rainforest, including bats and spider monkeys, which students can use in the culminating activity. To directly access this information, students can go to the mammal index (http://rainforest.montclair.edu/pwebrf/rainforest_mammalindex.jsp).

- **Optional related website:**

- **Jungle Survival Game**

- <http://dsc.discovery.com/survival/games/life-death-jungle/life-death-jungle.html>

- This Discovery Channel Game challenges visitors to make decisions to help them survive in the jungle.

MATERIALS

For the class:

- Computers with internet access.



- Computer, projection screen and speakers (for class viewing of online/downloaded “Panther Chameleon” video segment).
- 1 copy of the “Adaptations Game Answer Key.”

For each group of 5-10 students:

- 1 copy of the “Adaptations Game”
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PREP FOR TEACHERS

Prior to teaching this lesson, you will need to:

Preview all of the video segments and websites used in the lesson.

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

Bookmark any websites that you plan to use 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 out one copy of the “Adaptations Game” for each group of 5-10 students.

Print out one copy of the “Adaptations Game Answer Key.”

Cut out each species card along the dotted lines and paper clip each set of 10 species cards to a corresponding “Adaptations Sheet” (the first page in the “Adaptations Game”)

INTRODUCTORY ACTIVITY:

1. Let students know that today they will be learning about the jungle. Ask students if they can explain the difference between a tropical rainforest and a jungle. (*A tropical rainforest is a biome located roughly within 10 degrees of the equator. Approximately half of all plants and animal species on the planet live in the rainforest. A jungle is the dense portion of a tropical rainforest.*)
2. Explain that today you are going to explore species living in the jungle and the adaptations and skills that help them survive. Ask students to brainstorm what they think an “adaptation” is. Write down all answers. (*Possible points to raise during the discussion: An adaptation is a physical feature, behavior or skill, developed over the course of many generations, which helps a species survive. Adaptation also refers to the evolutionary process by which a species becomes better suited to its habitat.*)
3. Ask students to list some animal adaptations. Write down their responses. (*Answers might include camouflage, long necks to grab food in high places, etc.*)



4. Let students know they will be playing a game where they will learn about various adaptations that help species survive in the jungle. Divide the class into groups of 5-10 students each. Give each group an “Adaptations Game.”
5. Challenge each group to match each species to an adaptation that helps it survive. Encourage students to use print and/or online resources to help them complete this task.
Note: Some of the featured adaptations are used by more than one of the species listed on the “Species Cards” and some of the species have more than one of the adaptations listed on the “Adaptations Sheet.” For this activity, challenge students to place only one species on each adaptation.
6. Once each group has successfully matched a species to an adaptation, encourage students to work alone or in pairs to gather information about each adaptation and how it helps the species survive. Each student or pair of students should select one adaptation to research. Encourage students to use a variety of print and/or online sources, including the BBC’s Virtual Jungle website: <http://www.bbc.co.uk/nature/programmes/tv/jungle/vjsurvival.shtml>. Give students about 15 minutes to conduct their research.
7. After the groups have collected their information, ask them to share their findings with the rest of the class. Lead a discussion about the adaptations featured in the game. Refer to the “Adaptations Game Answer Key,” as needed. During the discussion, talk about how each adaptation helps the species survive in the jungle. Refer to the table below for possible items to include in the discussion.

Adaptation	Description of Adaptation	Species
brachiating	Moving by swinging the arms from one hold to another, enabling species to travel easily from one tree limb to the next.	gibbons (Spider monkeys also brachiate and are referred to as “semi-brachiators.”)
buttress roots	Large roots on the sides of a tall or shallowly-rooted tree, which collect nutrients and help prevent the tree from falling down. These are important in the rainforest, where the soil is poor and roots don’t grow deep.	trees
drip tip	A spout on the leaf which directs the water away from the tree in a fast and controlled manner. This prevents the tree from getting weighed down by the water. The slow, controlled dripping also prevents the soil beneath the tree from getting washed away.	Leaves
eye-spots	Big spots on the wings of butterflies and moths, which look like eyes. They help surprise predators, enabling the species an opportunity to flee, and also may fool predators into	blue morpho butterfly



	thinking the species is larger than it is.	
forked tongue	A tongue, which is divided into two tines at the tip. Reptiles use the tip of their tongues to smell. The forked tongue enables them to sense the direction from which a smell is coming.	Amazonian boa
elongated head and larynx	The larynx on the male hammer-headed bat takes up about half of its body length. This enlarged larynx (voice box) helps the male hammer-headed bat produce a loud sound to attract a mate.	hammer-headed bat
prehensile tail	A tail, which can grasp and/or hold objects. It serves as a 5 th limb. Animals with fully prehensile tails can use their tails to hold and manipulate objects.	spider monkeys (Some geckos and snakes also have prehensile tails.)
proboscis	A long protruding mouthpart which functions like a straw. Once the blue morpho butterfly changes from a caterpillar to a butterfly, it cannot chew. The proboscis makes it possible for the butterfly to drink fluids from rotting fruit, decomposing animals, tree sap, mud and fungi.	blue morpho butterfly
pharyngeal pouch	A structure, unique to elephants, located at the base of the tongue, which can store several liters of water. Elephants can take water from the pouch to fill up their trunks, if needed, and then drink the water or spray it over their bodies to cool down. The pouch also helps in the process of making low-frequency sounds.	elephants
setae	Moveable hair-like bristles. These are located on the bottoms of geckos' feet to help the species stick to a variety of surfaces. There are about 14,000 setae covering every square millimeter of a gecko's footpad. Each setae has a diameter of 5 micrometers (compared to human hair which has a diameter of 18 to 180 micrometers).	geckos (Butterflies also have setae.)

8. Review your description and examples of an “adaptation” that the class brainstormed earlier. Work with the class to revise the description. Encourage students to add more details to the definition of the adaptation. (*For example: An adaptation is a physical feature or a skill, developed over the course of many generations which helps a species to find, capture and kill prey and to defend itself.*)

9. Add additional examples of adaptations to the list, based on information gathered in the first activity. Create a three-column list, like the one shown below, to record student responses. (Leave room in the chart for students to add more information later in the lesson.)



Species	Adaptation	Function/Purpose of Adaptation

LEARNING ACTIVITY 1

1. Summarize that there are a variety of adaptations that help species defend themselves and find food in the jungle. FRAME clip #1, “Panther Chameleon,” by explaining that students will now learn more about a species called the panther chameleon and the adaptations that help it survive in the jungle.
2. Ask students to share information they know about chameleons. Write down the students’ responses. (*Possible answers might include that they change color.*) If students mention chameleons change color, ask them to brainstorm why they think this happens.
3. Explain that you are now going to show a video segment from the PBS program *Nature: Moment of Impact, Part 2: Jungle*. Provide a FOCUS for the clip, asking students to list 3 different skills that help the panther chameleon survive and describe how each skill helps them in the jungle.
4. PLAY Video Segment #1, “Panther Chameleon.” After playing the clip, FOLLOW UP by asking students to list some adaptations (including special skills and physical features) the panther chameleon uses to survive and describe how each of those adaptations helps it. The discussion can include the following:
 - How and why its color changes.
 - *How its color changes:* The color change takes place below transparent outer skin. Chromatophores (stretchable pigment cells) are ringed with muscle fibers. When the fibers contract, they pull on the chromatophores, quickly spreading their color. The upper layer handles red and yellow tints. Another layer of cells below reflects blue light.
 - *Why its color changes:* Panther chameleons don’t change color to camouflage their presence from surroundings. They change color to communicate. Coloring reflects their mood when sparring with other males or when attracting attention of females.
 - Special skills/ features:
 - *Tongue:* When extended, the panther chameleon’s tongue is longer than its body. The tongue enables the chameleon to quickly catch a prey. The sticky tip grabs the prey and its skin flaps keep it in place.
 - *Eyes:* Each eye can rotate and focus separately. With a pinhole in the center, each eye has a full 360 degree view.



- *Hunting Strategy*: The chameleon edges toward the prey, but doesn't chase it.

Optional Extension Activity

1. Share "Karma Chameleon" lyrics with students (<http://www.elyrics.net/read/c/culture-club-lyrics/karma-chameleon-lyrics.html>) and play the song for the class to hear.
2. Ask students to reflect upon and discuss the lyrics in relation to what they know about chameleons. Ask students to look at the bolded words and phrases below. Ask students to conduct additional research about chameleons to see how accurately the bolded words and phrases (such as "cling" or "come and go") describe chameleons:

When we **cling** our love is strong
When you go you're gone forever
You **string along**, you string along

Karma karma karma karma, karma chameleon
You come and go, you come and go
Loving would be easy **if your colors were like my dream**
Red gold and green, red gold and green

Every day is like survival
You're my lover, not my rival
Every day is like survival
You're my lover, not my rival

3. Challenge students to write their own poem or song lyrics to the tune of "Karma Chameleon," another existing song or an original composition, with words that accurately describe the panther chameleon's adaptations. Here are two sample verses (to the tune of the last two "Karma Chameleon" verses listed above):

Panther, panther, panther, panther, panther chameleon
You move so slow, you move so slow
Your eyes keep movin' & turnin' around and around
You're on the hunt, but don't make a sound

Your hue is ever changing
Where you are we do not know
Your hue is ever changing
Where you are we do not know

4. After students have written their poems/verses, ask them to present and discuss them with the group.

LEARNING ACTIVITY 2

1. Divide students into four groups. Assign each group to one of the four layers of the jungle:
1) forest floor, 2) understory, 3) canopy and 4) emergent layer.



2. Give each group 15-20 minutes to research their assigned section of the jungle. Specifically, ask students to find out the following:
 - Names of species living in the layer.
 - Adaptations that help the species protect themselves and find food.

Encourage students to use online and print resources to gather the information. Here are some websites that could be helpful:

- **The PBS Jungle Journey website:**
http://www.pbs.org/wnet/nature/fun/deepjungle_flash.html
- **The BBC Virtual Jungle website:**
<http://www.bbc.co.uk/nature/programmes/tv/jungle/vjstructure.shtml>
- **Mongabay.com's rainforest information:** <http://rainforests.mongabay.com/>:
 - The Canopy: <http://rainforests.mongabay.com/0401.htm>
 - The Forest Floor: <http://rainforests.mongabay.com/0501.htm>
- **Layers of a Rainforest:**
<http://www.srl.caltech.edu/personnel/krubal/rainforest/Edit560s6/www/whlayers.html>

3. Ask each group to present information about the layer it studied, the species that inhabit it and the adaptations that help them survive.
4. Lead a discussion with the group about the challenges of living in each of the layers of the jungle. Here are some possible items to include in the discussion:

Layer	Description	Examples of adaptations which help species survive in this layer
<i>Forest Floor</i>	There is little light that hits the forest floor, which is covered with rotting wood, twigs and leaves and is teeming with insects and microorganisms that break these down into soil.	<ul style="list-style-type: none"> ○ long snouts (giant anteaters) ○ strong jaws (ants) ○ ability to jump more than 6 ft. (agouti).
<i>Understory</i>	The understory is a shady, moist environment where thin, shade-tolerant, short trees (usually less than 60ft tall) grow. Birds, butterflies, snakes and frogs thrive here, thanks to abundance of places to feed and hide.	<ul style="list-style-type: none"> ○ strong jaws (jaguars) ○ strong tail, good swimming skills & long claws (iguanas) ○ poisonous skin (poison-dart frogs);
<i>Canopy</i>	The canopy, filled with trees 90-120 feet tall, is rich with life, including lizards, sloths, monkeys and insects.	<ul style="list-style-type: none"> ○ sharp beaks to crush nuts and berries (macaws) ○ strong tails (howler monkeys)
<i>Emergent Layer</i>	This is the jungle's highest layer. It gets the most sun and has trees up to 200 feet tall. Bats, monkeys, birds and reptiles are some of the species that live in this layer.	<ul style="list-style-type: none"> ○ long tails (kinkajou) ○ thin tongues to help get honey and other hard-to-reach food (kinkajou) ○ short wings, to facilitate flight between trees (harpy eagle).

5. Review the class' 3-column chart of adaptations and add additional adaptations to the list.

CULMINATING ACTIVITY

1. Explain to students that, working pairs or small groups, they will select a species that lives in the jungle, find out information about that species and create a 3-dimensional model or computer-animated model to illustrate how it seeks prey and/or defends itself in the jungle.



2. Ask students to review a few of the *Moment of Impact, Part 2: Jungle* video segments listed for this lesson in order to select the species they would like to research. Ask each group to select one of the following species:
 - Amazonian boa
 - basilisk lizard
 - bat
 - Cuban crocodile
 - leafcutter ant
 - blue morpho butterfly
 - osprey
 - panther chameleon
 - paradise tree snake
 - red-eyed tree frog
 - spider monkey
 - tiger
 - trap-jaw ant

3. Once students have selected their species, ask them to watch the corresponding segment again and record information about the highlighted adaptations. Encourage students to conduct additional research to find out more about their species.

4. Ask students to pick one or more adaptations to highlight in their project and to brainstorm the best ways to illustrate how that adaptation works. For example, if they have selected the panther chameleon, they could create a 3-d model of a panther chameleon that includes a “tongue” that extends to a length larger than the chameleon’s body, a body that changes color and/or eyes that each rotate 360 degrees.

5. The completed project could include a diagram, 3-d model and/or computer-generated animation and must include the following:
 - Information about adaptations/features that help the species get food and/or defend itself against predators.
 - A diagram, 3-d model or computer-generated video, created by the students, which demonstrates one or more skills/adaptations that help the species to survive. Here are some examples of adaptations that can be highlighted for each species:

Species	Adaptations
<i>Amazonian boa</i>	<ul style="list-style-type: none"> ● Patterned skin, which makes it hard to see the boa among the trees. ● Prehensile tail enables boa to hang still from a branch. ● Forked tongue provides boa with a stereoscopic sense of smell to help it locate prey. Tongue collects airborne scent particles, which its brain analyzes. ● Heat pits- help it locate prey. ● Long fangs. ● Coils, which tighten around prey to suffocate it.



Species	Adaptations
<i>Basilisk lizard</i>	<ul style="list-style-type: none"> ● Large webbed feet-- When plunged into water they create a pocket of air and force for support that enables the lizard to run on the water without sinking. ● Feet move in a sideways motion, with each foot pushing slightly outward.
<i>Bat</i>	<ul style="list-style-type: none"> ● Wings- Bats are the only mammals with wings and the capacity for true flight. ● Bats eat and sleep upside down. ● Large, hornlike ears and sharp teeth. ● Sound waves help it locate prey. It sends out pulses of sound waves to echo against the terrain. A muscle in the middle ear contracts the eardrum during each brief pulse so it only hears the echo. As the sound travels, it impacts objects and bounces back, helping the bat avoid collisions and locate prey. ● Broad, but flexible wings. Wing membrane is skin, extending from the body. It is thin, but tough and flexible and heals fast, if torn.
<i>Blue morpho butterfly</i>	<ul style="list-style-type: none"> ● Wings have overlapping scales with tiny ridges that reflect the color blue. ● When closed, the wings reveal big eyespots.
<i>Cuban crocodile</i>	<ul style="list-style-type: none"> ● Up to 15 ft in length and up to 300 pounds in weight. Agile on land and on water and can reach speeds of up to 25mph. Can jump out of water to a height of 6 feet and grab prey from trees. ● Tough, muscular bodies, scaly, heavily-armored skin, a muscular tail, a sharp sense of smell, strong legs, 66 bone-crushing teeth and reduced foot-webbing. ● Tail makes up 30% of its body mass. Tail vertebrae are connected by ball and socket joints allowing for maximum range of movement. ● A system of muscles runs from the skull to the tip of the tail, which provides the crocodile with tremendous, coordinated power.
<i>Leafcutter ant</i>	<ul style="list-style-type: none"> ● Powerful jaw muscles enable them to transport plant materials 10 times their own weight.
<i>Osprey</i>	<ul style="list-style-type: none"> ● 6-foot wingspan. Their wings are the most waterproof of any raptor. V-shaped wings (bent at the wrist joint). ● Binocular eyesight (several times more acute than humans). ● Large flight muscles (centered in the chest) ● Osprey generate airflow across their wings to create lift and help them to helicopter back up into the air after catching a fish in water. ● They have scaly feet for extra gripping power with a reversible outer toe, so that they can grab with two toes forward and two toes back. Sharp talons,
<i>Panther chameleon</i>	<ul style="list-style-type: none"> ● Tong-like feet and grasping prehensile tails keep them steady as they move through the trees. ● Fast, telescoping tongue extends to a length larger than the chameleon's body. ● Quick, color-changing skin. The color change takes place below the transparent outer skin. Chromatophores (stretchable pigment cells) are ringed with muscle fibers. When the fibers contract, they pull on the chromatophores, causing the color to spread. The upper layer handles red and yellow tints. Another layer of cells below reflects blue light. ● Eyes that each rotate and focus separately and have a pinhole in the center. The eyes provide the chameleon with a full 360 degree view.
<i>Paradise tree snake</i>	<ul style="list-style-type: none"> ● When moving through the air, the paradise tree snake sucks in its guts and flairs its ribs to make a u-shaped wing to increase its size and air resistance. Its body flattens down to the thickness of a ribbon and, as it travels through the air, it holds its tail upward and twists from side-to-side for balance. The snake can travel 300 ft. through the air.
<i>Red-eyed tree frog</i>	<ul style="list-style-type: none"> ● Vibrant colors on its body fool predators into thinking it is a poisonous frog. ● Opens its bright red eyes and reveals its bright blue sides to confuse predators and to give the frog time to flee.



Species	Adaptations
	<ul style="list-style-type: none"> ● When it closes its eyes and folds its legs, it blends in with the leaves.
<i>Spider monkey</i>	<ul style="list-style-type: none"> ● Forelimbs and hind limbs are the same length. ● Dexterous tail serves as a 5th hand and is tipped with fingerprint-like grooves. ● Spider monkeys move by brachiating- by moving arm over arm and by hurling themselves over 30ft. between trees. ● Shoulder joints are rounded to allow maximum rotation. Freewheeling wrists and hook-like hands enable them to swing easily.
<i>Tiger</i>	<ul style="list-style-type: none"> ● Small clavicle anchored to muscle, not bone, which enables long stride lengths and allows the shoulder blades to pivot freely when running. ● Rear legs are longer than the front legs. ● Leg bones have outward, jutting spurs that allow for an extended and beefed up muscle. It has sharp claws and teeth.
<i>Trap-jaw ant</i>	<ul style="list-style-type: none"> ● Generates a force 300 times its own bodyweight. ● Big contracting muscles in its head and sensory hairs on the insides of its oversized jaw.

6. Ask each group to present its work to the class and to lead a discussion about what it discovered about the species and its adaptations during the process.
7. Lead a discussion with the class, encouraging students to share facts they learned about the jungle, its species and their adaptations. Review the class' definition of an "adaptation" and revise, as needed. Ask students to look at the class' 3-column chart of adaptations and add new information learned during the lesson.