

SCIENCE 3D

RAINFOREST LIFE

In this packet, sample student answers are provided in **red** and notes to teachers are in **blue**.

In this **Science Mission**, students will explore why some animals live in groups. They will use data to make graphs and answer questions about biodiversity and the function of different animal and plant structures.

After the students watch the **Mission Video**, tell them they are about to help the science team study the plants and animals of the rainforest. This activity has students record data in tables and create bar graphs. If students have not yet studied bar graphs, provide them with the graphs in the teacher edition and have them interpret the graphs. You could also provide the first bar graph to use as a guide to draw another one later in the lesson.

Note: Students will need to different colored pencils to create the bar graph in Activity 2. If different colored pencils are not available, one bar can be shaded and the other left unfilled.



Activity 1: Why Live in a Group?

1. Many animals in the rainforest live in groups. For each animal below, write down how living in a group helps it. Use the following terms. You can use more than one term for each.

Find food

Protection from predators

Protection from changing environment

(like getting too cold)

Reproduction

Organism		How it helps
	<p>Howler monkeys live in groups and raise their young.</p>	<p>All answers can apply.</p>
	<p>Tent making bats huddle together.</p>	<p>Protection from changing environment.</p>
	<p>Coatis travel in groups.</p>	<p>Find food Protection from predators Reproduction (Protection from changing conditions can apply too.)</p>
	<p>Capuchin monkeys can search far and wide for ripe fruit</p>	<p>Find food Protection from predators Reproduction (Protection from changing conditions can apply too.)</p>
	<p>Ants live in colonies</p>	<p>All answers can apply.</p>
	<p>Frogs gather into groups to call for mates</p>	<p>Reproduction.</p>

Activity 2: When Are You Awake?

The team collected the sounds of animals during the day and at night. They also walked through the forest at different times to see what animals were around. At night they used flashlights. They used special cameras that “see” heat.

The data in Table 1 shows what they found near the swamp.

Table 1. Times different species of amphibians and reptiles were active

	Day	Night
Amphibians		
Poison dart frog	X	
Red-eyed tree frog		X
Glass frog		X
Smoky jungle frog		X
Masked tree frog		X
Reptiles		
Fer-de-lance snake		X
Bird eating snake	X	
Iguana lizard	X	
Skink lizard	X	
Anole lizard	X	
Gecko lizard		X

1. Use the information in Table 1 to **complete** Table 2.

Table 2. Number of species of amphibians and reptiles active during day and night

	Number active during day	Number active during night
Amphibians	1	4
Reptiles	4	2

2. **Draw** a bar graph to show how many species of reptiles and amphibians were active at different times. Use different colors to represent animals active during the day and at night. Give the bar graph a figure caption.

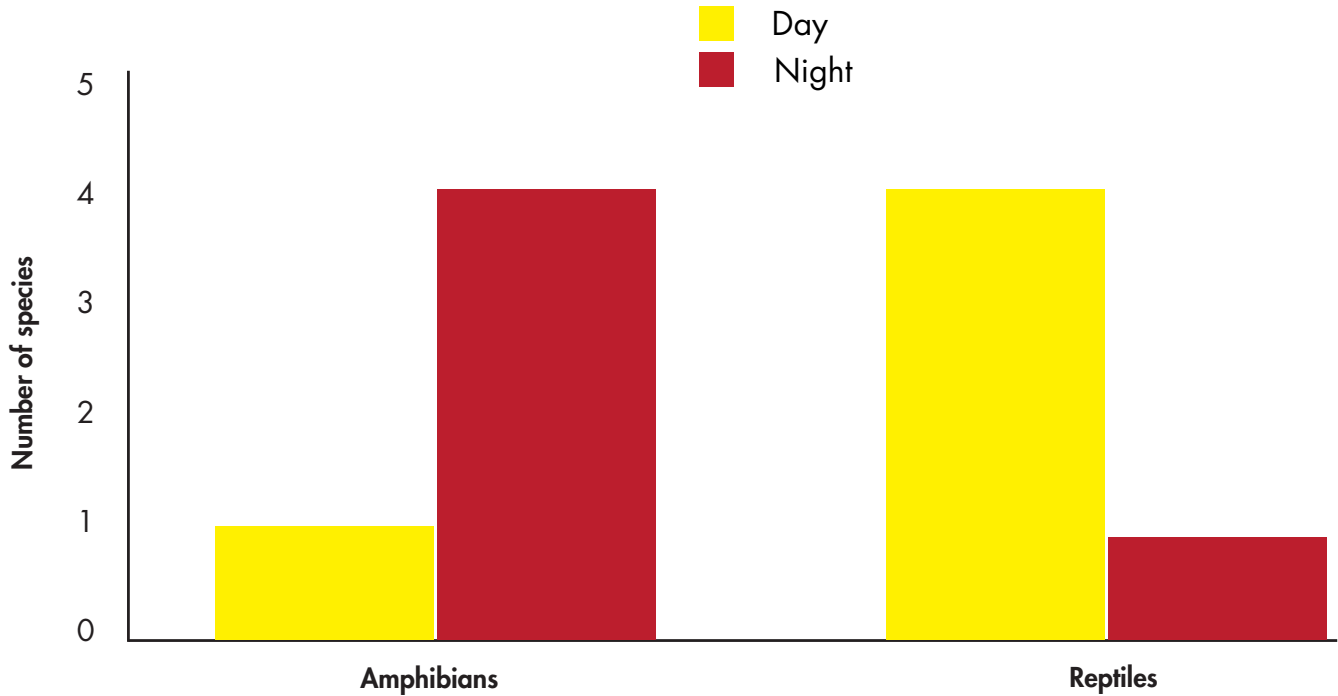


Figure 1. Activity times for amphibians and reptiles

3. **Describe** when most amphibians were active. Use evidence from the graph in your answer.

Most amphibians were active at night. One species was active during day. Four were active at night.

4. **Describe** when most reptiles were active. Use evidence from the graph in your answer.

Most reptiles were active during the day. Four species were active during the day. Two were active at night.

5. **Compare** and **contrast** when reptiles and amphibians are active.

Accept any reasonable answers. Students should notice that both groups have species active day and night. But, most reptiles are active during day and most amphibians are active at night.

The data in Table 3 shows what they found in the forest.

Table 3. Times different species of mammals and birds were active in the forest

	Day	Night
Mammals		
Capuchin monkey	X	
Howler monkey	X	
Spider monkey	X	
Sloth		X
Woolly Opossum		X
Ocelot		X
Bat		X
Birds		
Macaw	X	
Toucan	X	
Grosbeak	X	
Harpy eagle	X	
Owl		X

6. Use the information in Table 3 to **complete** Table 4.

Table 4. Number of species of mammals and birds active during day and night

	Number active during day	Number active during night
Mammals	3	4
Birds	4	1

7. **Draw** a bar graph to show how many species of mammals and birds were active at different times. Use different colors to represent animals active during the day and at night. Give the bar graph a figure caption.

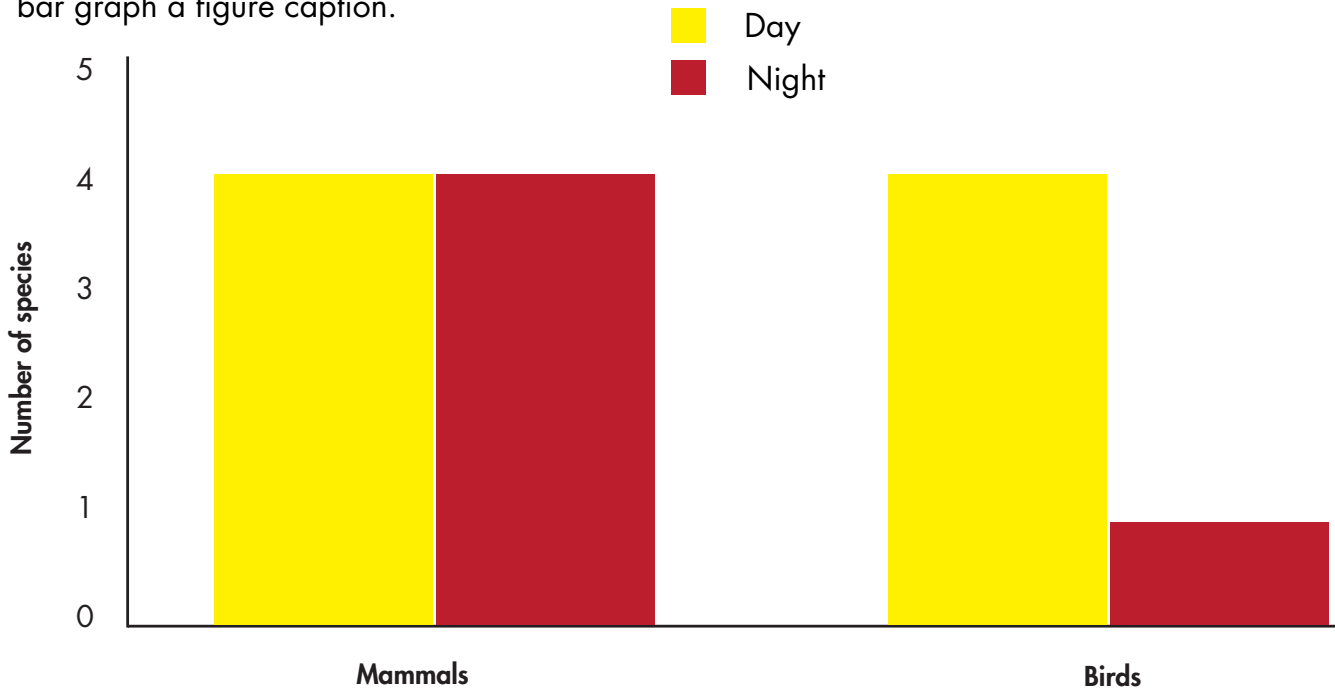


Figure 2. Activity times for mammals and birds

8. **Describe** when most mammals were active. Use evidence from the graph in your answer.

There were mammals active at night and during the day. Four were active during the day and four were active at night.

9. **Describe** when most birds were active. Use evidence from the graph in your answer.

Most birds were active during the day. Four species were active during the day. One was active at night.

10. **Compare** and **contrast** when mammals and birds are active.

Accept any reasonable answers. Students should notice that mammals had species active day and night. Most birds were active during the day except for the owl. There are the same number of mammal and bird species active during the day and fewer bird species active at night.

Activity 3: Biodiversity at Different Levels

Plants need light and water to make food. The team collected data on the amount of light there is in the canopy and on the forest floor. The data are shown in the bar graph below.

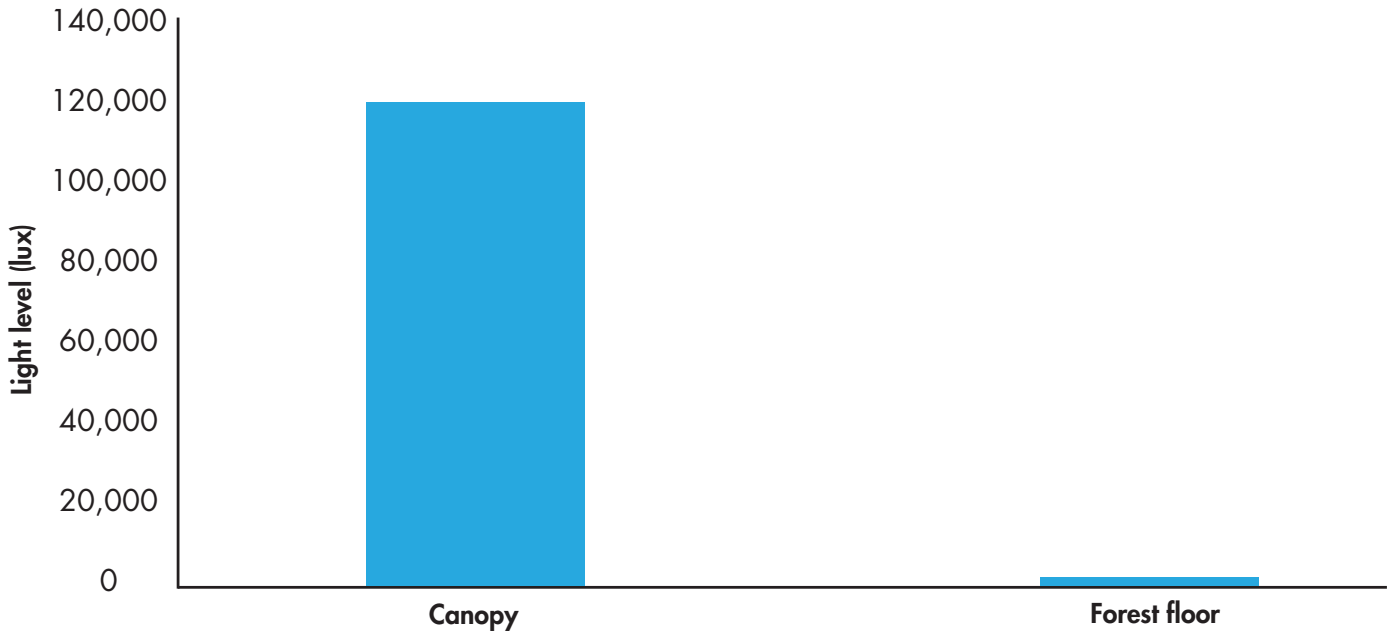
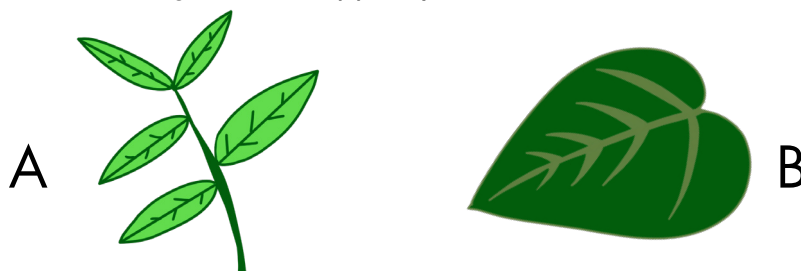


Figure 3. Amount of light reaching the canopy and the forest floor

1. **Describe** the differences in light hitting plants in the canopy with those on the forest floor. Use evidence from the graph to support your answer.

Much more light hits the leaves in the canopy than the forest floor. The light level in the canopy is about 120,000 lux. The light level on the forest floor is only a few thousand lux.

2. Look at the two leaves below. **Predict** which is from the canopy and which is from the forest floor. Use evidence from Figure 3 to support your claim.









I think leaf A is from the canopy and leaf B is from the forest floor. There is a lot of light in the canopy so leaves don't need to be big. There is not much light on the forest floor. A plant needs a big leaf to be able to collect enough light.

Extend the lesson: This can be a jumping off point to discuss the concept of surface area in engineering.

The canopy and the forest floor are very different habitats. Animals need different traits to survive in the habitats in which they live. Let's explore the animals of the canopy and the forest floor!

3. In Table 5, **predict** where each of the species below will be detected by the sound meters. Choose **Canopy** or **Forest Floor**. Then state why you chose that habitat. You can write things such as, "has arms for climbing".

Table 5. Species of the forest floor and canopy

Species	Predicted habitat	Why I made my prediction
	Canopy	Has wings
	Canopy	Arms for climbing
	Forest floor	Long legs
	Forest floor	Legs for hopping; doesn't look like it is good at climbing
	Canopy	Wings
	Forest floor	Legs for walking; large body