

SCIENCE·3D

TIGER REALM

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

This **Explore Your Backyard** activity has two options. The first option has students explore seasons in their local area and compare these to other regions. In the second option, students explore a local protected area and investigate its benefits for species.

The protected area activity is best conducted as a field trip to a local park or preserve. Ideally, it would also have students observe areas outside of the protected area to compare and contrast the types and abundance of organisms. If needed, have students use online resources to learn about a local preserve or park.



OPTION I: PROTECTED AREAS

The Nilgiri Biosphere Reserve in India provides a safe place for many species, including tigers. Parks and nature preserves are important for protecting species. Your teacher will take you to explore a protected area or assign you a location to explore online.

1. **Describe** the reason that the park or reserve was created. *Hint: Talk to park staff or look at informational signs.*

Answers will vary depending on location. Accept reasonable reasons.

2. **Observe** the species that you see. In the space provided, **draw** the habitat and some of the plants and animals you see. **Take notes** next to your drawing about how common the species are.



Answers and drawings will vary depending on the location.

3. Look for informational signs around the park or talk to park staff. **Describe** any species the park was meant to help protect that you don't see for yourself.

Answers will vary. This answer is likely to include species that are nocturnal and/or rare or difficult to see.

4. **Compare** and **contrast** the types of species and their abundance (how many there are) that you see inside the park or reserve to areas outside the park or reserve.

Answers will vary. Generally, it is more likely students will observe certain plant and animal species (and/or more of them) within the preserve than outside it.

5. **Describe** whether you think the park or reserve is helping to protect species.

Answers will vary, but should highlight the fact that the area within the preserve contains more or better habitat for species to live in.

Extend the Lesson: Have students look for species that have different characteristics (e.g. flower shapes or sizes) that might be influenced by genetics. Have students record the characteristics, develop explanations for how the trait might be controlled by genes, and propose experiments to determine how it is affected by genes.

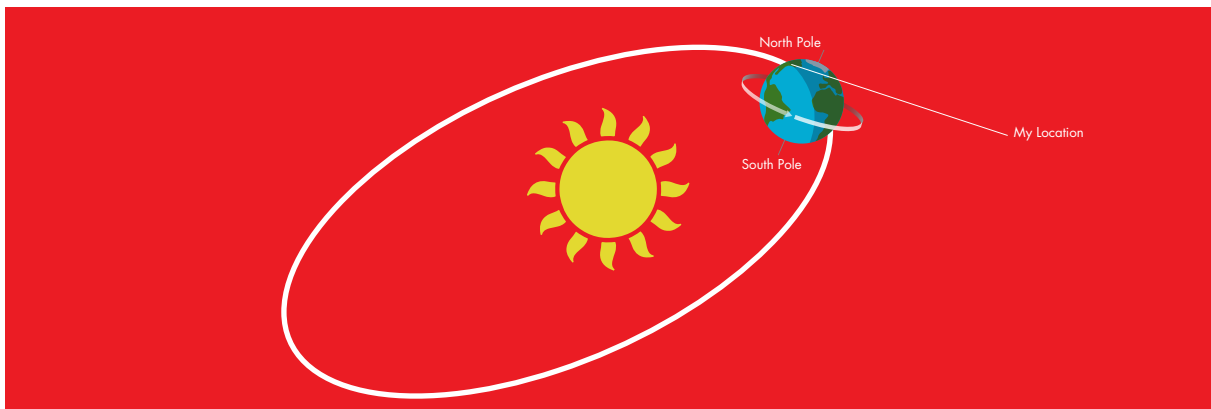
OPTION 2: SEASONS

Consider starting this activity early in the year and then revisiting it at least two more times throughout the year. This would allow students to make observations of seasonal changes themselves. Alternatively, have students make observations during one season and have them use their memories or other resources to fill in the other seasons. You could also have students compare and contrast a local season with what is occurring in another location on Earth. Make sure some students select locations from a different hemisphere and various latitudes. Then, you can have students present on the seasons in different locations around the world. Example answers for two different seasons are provided.

THE FIRST SEASON I'M EXPLORING:

1. Season: Winter (Northern Hemisphere)
2. **Draw** the position of the Earth (be sure to include the tilt of the Earth) and the sun during the season you explored. Put a star on the Earth to show your location.

Correct drawings will show the Earth tilted and the correct position and location of the Earth for the chosen season.



Now, explore the season and take notes on the following observations.

3. Temperature: Answer should match local conditions.
4. Type of precipitation: Answer should match local conditions.
5. **Draw** and make notes about what the plants look like at this time of year. For example, are they green or brown?

Drawings will vary depending on the location and season the students explore. In the example answer (winter), the drawing would include deciduous trees without leaves, brown or dried up vegetation and grasses, and possibly some evergreen conifers or shrubs.



6. **Describe** any animals that you saw and what they were doing.

Answers will depend on the location and season. For the example answer provided: Not many animals were seen (in winter). Squirrels hunkered in trees with tails wrapped around their bodies. No insects were buzzing around. Some birds with puffed-up feathers were seen.

7. **Describe** how the conditions during the season you explored influenced the plants and animals you observed. *Hint: Think about how they respond to the temperature, amount of rain or sunlight, and what is happening to other organisms around them.*

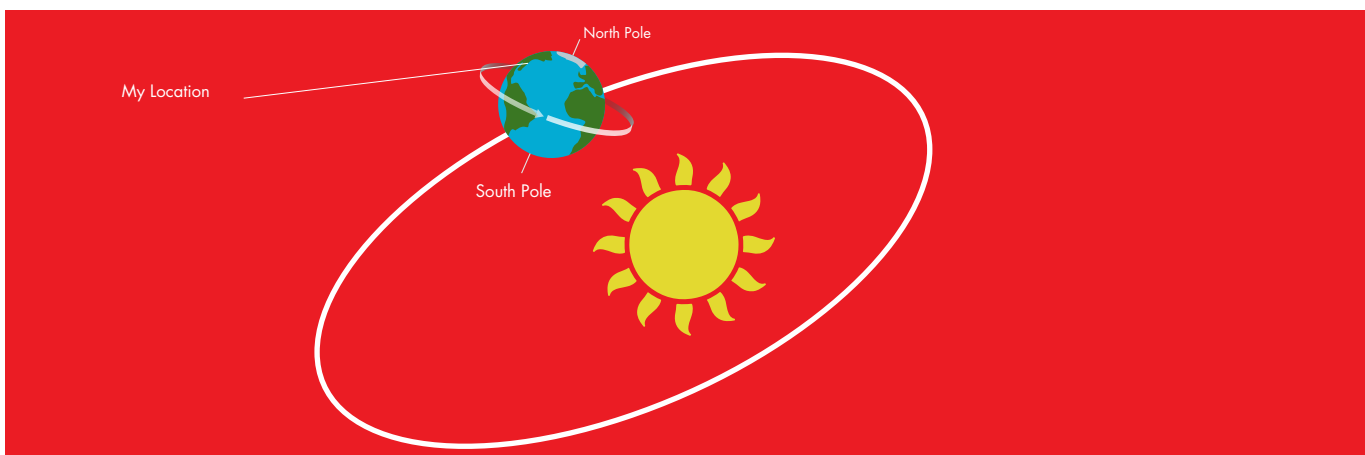
Answers will depend on location and season. For the example answer provided: The cold temperatures, shorter day lengths, and less precipitation cause some plants to lose their leaves in winter. Insects are not around this time of year because it is too cold. There is less food for birds and other animals so there are fewer of them around. Squirrels and birds use their fur and feathers to stay warm in the cold temperatures.

THE SECOND SEASON I'M EXPLORING:

8. Season: Spring (Northern Hemisphere)

9. **Draw** the position of the Earth (be sure to include the tilt of the Earth) and the sun during the season you explored. Put a star on the Earth to show your location.

Correct drawings will show the Earth tilted and the correct position and location of the Earth for the chosen season.



Now, explore the season and take notes on the following observations.

10. Temperature: Answer should match local conditions.

11. Type of precipitation: Answer should match local conditions.

12. **Draw** and make notes about what the plants look like at this time of year. For example, are they green or brown?

Drawings will vary depending on the location and season the students explore. In the example answer (spring), the drawing would include trees starting to grow leaves back and flowers blooming.



13. **Describe** any animals that you saw and what they were doing.

Answers will depend on the location and season. For the example answer provided: Animals are active. More birds are around and they are building nests. Insects are flying around flowers.

14. **Describe** how the conditions during the season you explored influenced the plants and animals you observed. *Hint: Think about how they respond to the temperature, amount of rain or sunlight, and what is happening to other organisms around them.*

Answers will depend on the location and season. For the example answer provided: The warmer temperatures, increased days, and increased rainfall caused the trees to regrow their leaves for photosynthesis. More food is available for animals, like insects. Plants and animals are starting to breed and reproduce so flowers are blooming and animals are preparing to raise offspring.

THE THIRD SEASON I'M EXPLORING:

15. Season: _____

16. **Draw** the position of the Earth (be sure to include the tilt of the Earth) and the sun during the season you explored. Put a star on the Earth to show your location.



Now, explore the season and take notes on the following observations.

17. Temperature: _____

18. Type of precipitation: _____

19. **Draw** and make notes about what the plants look like at this time of year. For example, are they green or brown?



20. **Describe** any animals that you saw and what they were doing.

21. **Describe** how the conditions during the season you explored influenced the plants and animals you observed. *Hint: Think about how they respond to the temperature, amount of rain or sunlight, and what is happening to other organisms around them.*
