

Hello Neighbor! Ready to Explore Biomes?



Find Out Where We Are Built to Live!

WELCOME TO OUR ZOO

We're excited to have you join us on a TEKS-based educational field trip! The staff at The Exotic Resort Zoo is standing by to give your group a completely unique learning immersion experience.

In this learning unit, we'll help to explain:

- How students will use the various senses to explore and learn through cooperative activities.
- Information covering suggested activity ideas to use before and after visiting the zoo.
- How they will be encouraged to team up with their classmates to complete activities.
- All while interacting with the animals every step of the way!

We also have extra available options for several hands-on cooperative activities to enrich their experience. Now, let's cover some of the specific goals and expectations to help make the most of your experience!

SHOW OUR STRIPES

This animal unit focuses on physical characteristics (similarities and differences), traits, structures, and functions that help animals survive within their environment.

The Zoo's (7) Focus Areas & Goals for this Section (TEKS Sections 112.11-112.16*):

1. [PHYSICAL SCIENCE] Provide a fun learning experience for each child using different senses.
2. [LIFE SCIENCES] Learn how to sort animals into groups based on physical features and habitat.
3. [LIFE SCIENCES] Understand how to correctly identify the traits different animals need to be successful in their habitat.
4. [ANIMAL FACTS] Encourage their curiosity about the natural world.
5. [DISCOVERY] Improve each child's ability to think rationally.
6. [EXPLORATION] Promote cooperative learning and social team-building with their peers.
7. [ALL] Aid in developing an understanding and factual knowledge of the environment

(* These activities may also meet other TEKS curriculum codes pertinent to your course goals)

Page 3**Introduction to BIOMES**

- Characteristics and Definition of a BIOME
- World Color Map - the Main Terrestrial BIOMES and Habitat Boundaries
- BIOME Climate Pyramid - Shows how wet/dry and hot/cold each zone can get

Pages 4-6**Terrestrial BIOMES (Land)**

- Typical characteristics of common habitats found in each zone
- Examples of common animals (fauna) and plantlife (vegetation) each zone

Page 7-8**Aquatic BIOMES (Water)**

- Typical characteristics of freshwater and salt water biomes
- Examples of common marine life and organisms (including protists)
- Examples and common characteristics of bodies of water in each zone

Page 9-14**Pre-Visit Activities Suggestions**

- Word games and vocabulary (definitions; crosswords)
- Pyramid Games (Rules, Easy & Intermediate Samples Provided)

Page 15-18**Post-Visit Activity Suggestions**

- Venn diagram examples for animal & characteristic/trait/habitat association
- Instant Recall Game (5-senses example)
- Pyramid Games (Blank template to fill in; or use prior examples)

Page 19-20**Appendix**

- World Map - BIOME Zones
- BIOME Pyramid - Climate Zones



OK, LET'S PLAY RING AROUND THE...BIOME!

All living things have a native **HABITAT**, which is their natural home. Their habitat usually meets all of their basic needs: **shelter, food, and water.**

Also, each animal is born with specific physical characteristics, traits, and behaviors.

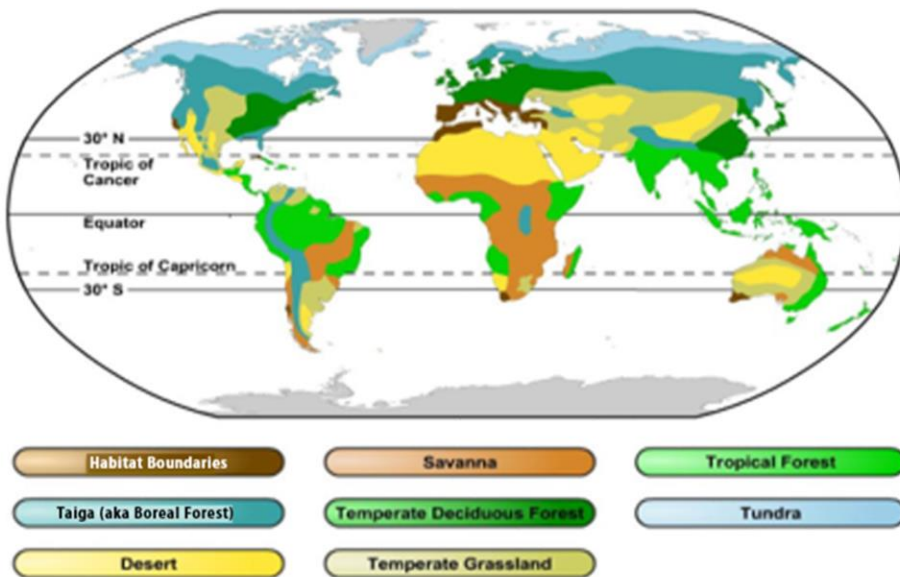
This allows them to live in specific environments where they can have enough resources to survive.

These places are regions called **BIOMES**! These are zones of the planet that have different:

1. Climate Patterns
2. Species of Plant Life
3. Access to Water

At **THE EXOTIC RESORT ZOO**, your students will discover animals from many of these **BIOMES** (except for polar and marine zones of course)!

In this handout, we will cover (6) of the basic terrestrial biomes, as well as (2) aquatic biomes.



[LEFT] This map shows students the different biomes locations:

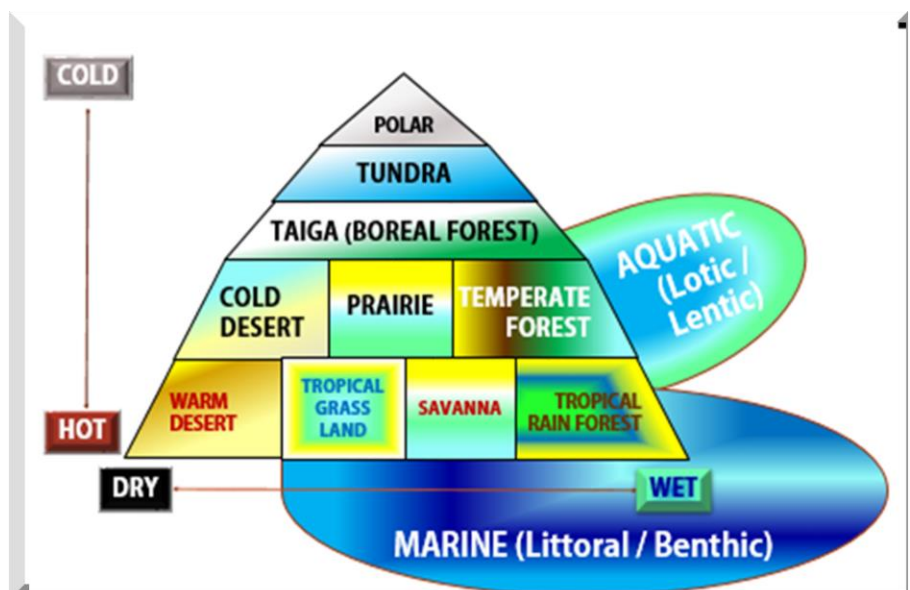
- Each zone has different weather patterns that affect plant life and water sources.
- There are also **HABITAT BOUNDARIES**. This is where several types of biomes combine!

[BELOW] This **BIOME** pyramid is stacked to show the changes:

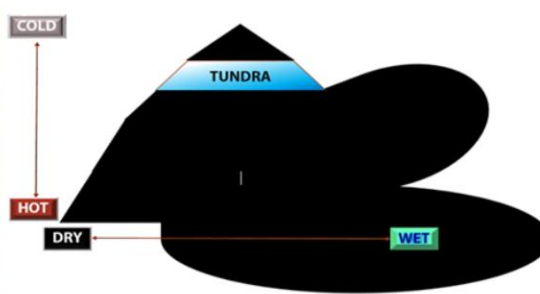
- Each biome has different temperature and moisture levels.

A **BIOME** is an environment where the climate region and dominant vegetation support a community of plants and animals in a distinct habitat.

[American Heritage Science Dictionary](http://www.AmericanHeritageScienceDictionary.com)

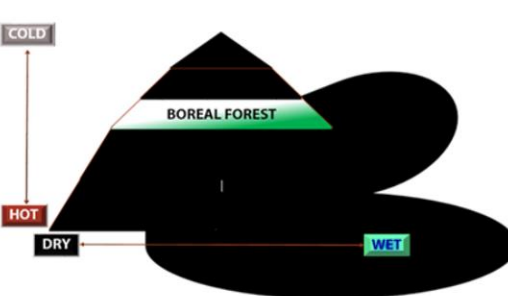


A. TUNDRA

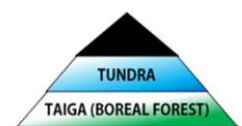


- Located in the northern parts of the earth or on the tops of very high mountains.
- It does not rain or snow often, but storms last a long time when it snows.
- Main plants that grow are lichens, mosses, grass and small shrubs are the major plants.
- There are no trees, the soil almost always frozen, and summer lasts only two months.
- *Tundra animals include:*
 - *Birds (most migrate during coldest months), reindeer, arctic fox, wolves, snowy owls, hawks, lemmings, marmots, voles, llamas (South American tundra), and elk*

B. TAIGA (AKA BOREAL FOREST)

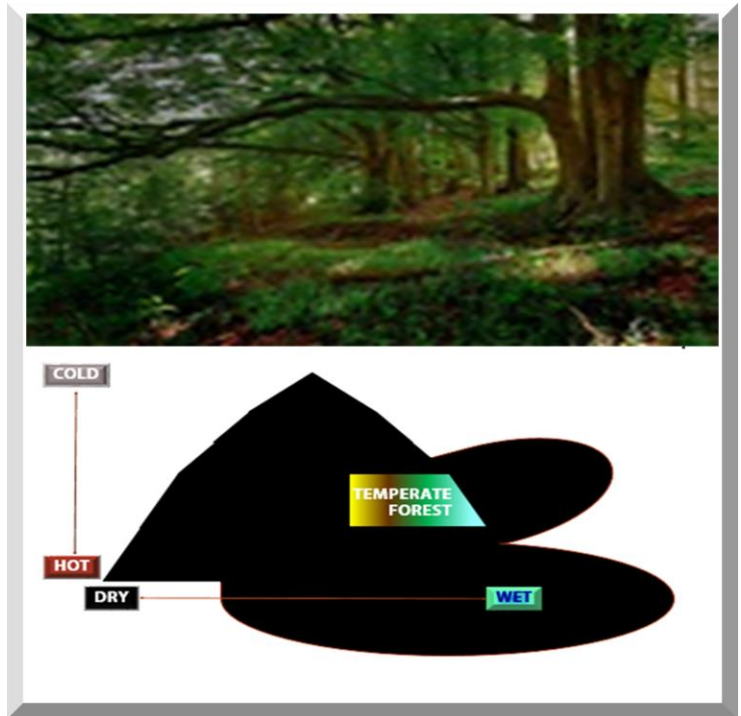


- These forests are south of the tundra or on very high mountains.
- It rains much more often than it does in the tundra.
- Summers last longer and temperatures are warmer than in the tundra
- It's normal to see trees (mostly evergreen) grow more than 20 feet tall here.
- Tons of large and small animals live here
- *Taiga animals include:*
 - *Migrating ducks and geese, deer, bears, moose, mountain goats, bighorn sheep, rabbits, squirrels, porcupines, and small birds*



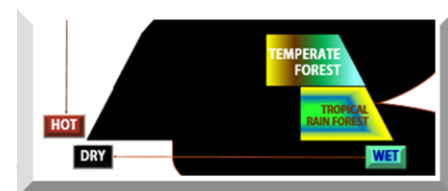
C. TEMPERATE FOREST

- There are four different seasons that last about three months. Each season has unique weather patterns.
- Most trees are deciduous. This means leaves change color and fall off in autumn.
- *Temperate forest animals include:*
 - Bear, deer, fox, raccoon, squirrels, opossum, insects, hedgehogs, kinkajou, lemur, pigs, and birds



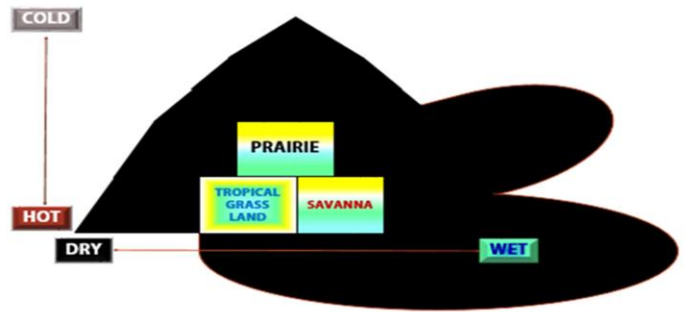
D. TROPICAL RAINFOREST

- These have many different life forms.
- Plants grow well with constant sources of energy in the warm, moist climate.
 - The sun keeps a constant temperature (average 80° F).
 - At least 80" of rain falls each year!
- Almost all rainforests are located near equator, except for the HOH rainforest (Olympic National Park, Washington)
- *Living organisms include:*
 - Palm trees, tree ferns, vines, fungi, pythons, tree frogs, monkeys, colorful birds, tapir, jaguar, kinkajou, coati mundi, sloth, lemur, and water buffalo



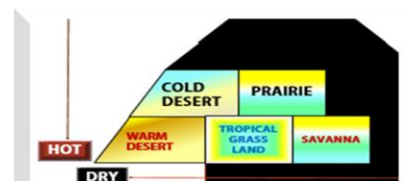
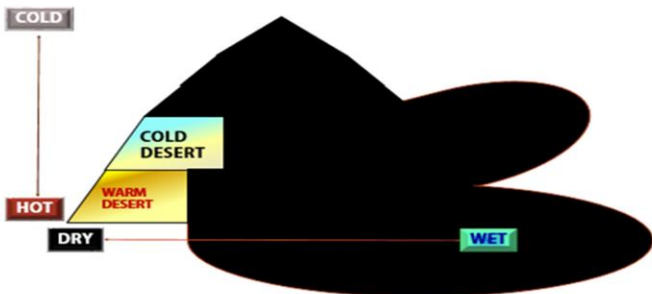
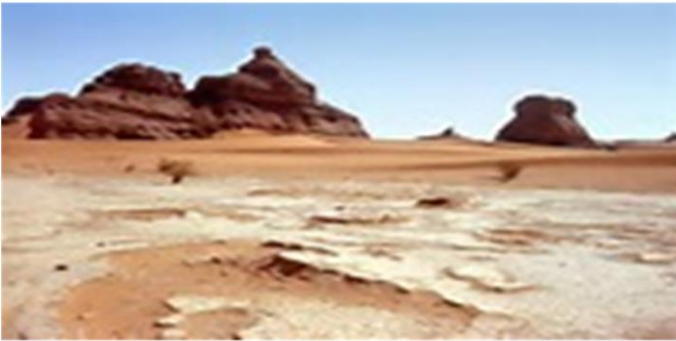
E. GRASSLAND

- Most plants are grasses.
- Very few trees exist.
- Most grasslands are used for crops and to feed grazing animals.
- Grasslands can also be called: prairies, steppes, savannas, veldts, or pampas.
- *Grassland animals include:*
 - *Antelope, badgers, prairie dogs, hems, bison, hawks, eagles, kangaroo, llamas, wallaby, gazelles, zebra, and ostriches*



F. DESERT

- Very dry climate with almost no rainfall.
- Small plants (like Cacti) must store water in their stems and roots.
- Most plants have smaller leaves or thorns. This helps them keep more water.
- Days are usually warm (or hot), but night time can get very cold!
- Most animals are nocturnal (this means they wake up at night when it's cooler).
- Because food and water is so rare, there aren't many large animals that live here.
- *Desert animals include:*
 - *Snakes, lizards, kangaroo rats, tortoises, jackrabbits, tortoises, red bearded dragons, ostriches, and kangaroos*

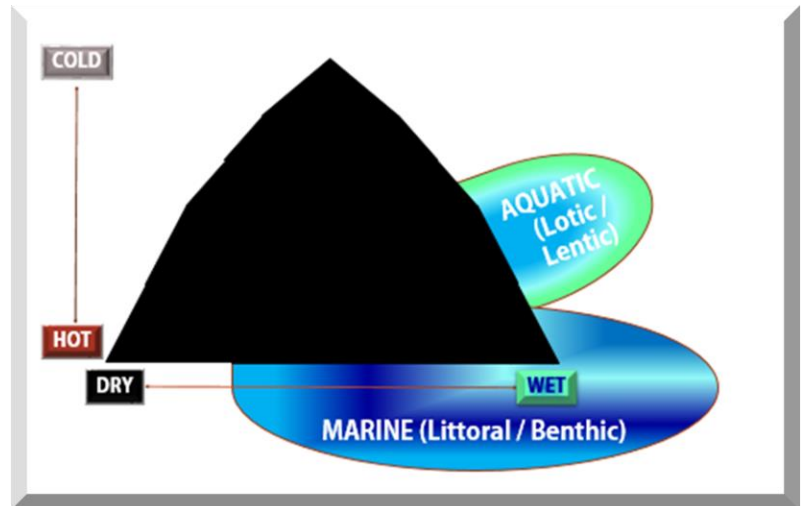


AQUATIC

Aquatic biomes aren't affected by climate the same as other biomes.

The main factors are environmental features, along with different types of biotic organisms (producers, consumers, and decomposers).

Here are a few examples of Freshwater and Marine (salt water) biomes for you to explore:



FRESHWATER



LOTIC =
Moving Water



LENTIC =
Still Water

- Freshwater is found on all seven continents in the world. Bodies of freshwater can be as large as the Great Lakes of North America...or as small as a pond in your backyard!
- Many different types of plants and biotic organisms (**protists**) grow and live in bodies of water.
- Several kinds of protists that live in all waters are:
 - Producers – plant-like protists (algae or seaweed) make their own food (light → oxygen).
 - Consumers – animal-like protists (protozoa) move around to eat other organisms
 - Decomposers – fungus-like protists grow by absorbing energy from other organisms
- Most animals are small, but all depend on these protists to live in many ways.
- *Freshwater animals include:*
 - *Fish, crayfish, insects, frogs, muskrats, and beavers*

MARINE (Salt Water)



**Littoral Zones
(Shores)**



Coasts



Open Seas



**Benthic Zones
(Ocean Bottom)**



Coral Reefs

- Salt water covers most of the earth
- Organisms range from microscopic (invisible!) to the size of HUGE whales
- Some swim (or float) and some crawl, while others even attach to the ocean floor
- Very little light reaches the bottom of the ocean, so most marine life lives near the surface.
- *Marine animals include:*
 - *Whales, dolphins, fish, seals, shrimp, krill, seaweed, jellyfish, and sea stars*
- *Smaller organisms like protists also live near the ocean surface for similar reasons:*
 - *Producers need plenty of light energy from the sun to make food and nutrients.*
 - *Consumers (and other sea life) depend on producers so they can have something to eat!*
 - *Decomposers absorb energy from anything rotting, which turns into food for plants!*

SUGGESTED ACTIVITIES

(COMPLETE BEFORE VISITING THE ZOO)



1. **Word Games:** Students complete the vocabulary and crossword puzzles ([provided](#))
2. **Pyramid Game:** Have students play this game as a simple way to learn about biomes ([Materials and instructions provided for several pyramid games](#)).
3. **Journal Writing (Part 1):** First, students choose an animal to become. Then, describe the traits or features that let them (the animal!) live in a specific BIOME.
4. **Journal Writing (Part 2):** Describe (or draw) the environment where the animal lives. Also include other animals that would live nearby. [No polar bears in deserts!](#)
5. **Animal Sorting:** Students sort animals according to their traits and characteristics.
6. **Build-a-???:** Students build an imaginary animal. They should include characteristics that would help it find food and live in one of the main biomes.

WORD GAMES (VOCABULARY WORK)



Environment



BIOME	Places with the same kinds types of plants, animals, and climate (weather, temperature)
CLIMATE	The normal type of weather in a specific place
HABITAT	Natural home of an animal, plant, or other organism
MIGRATE	When animals move from one biome to another to stay warm, find food, or just sleep!
VEGETATION	Plant life found in nature

Animals

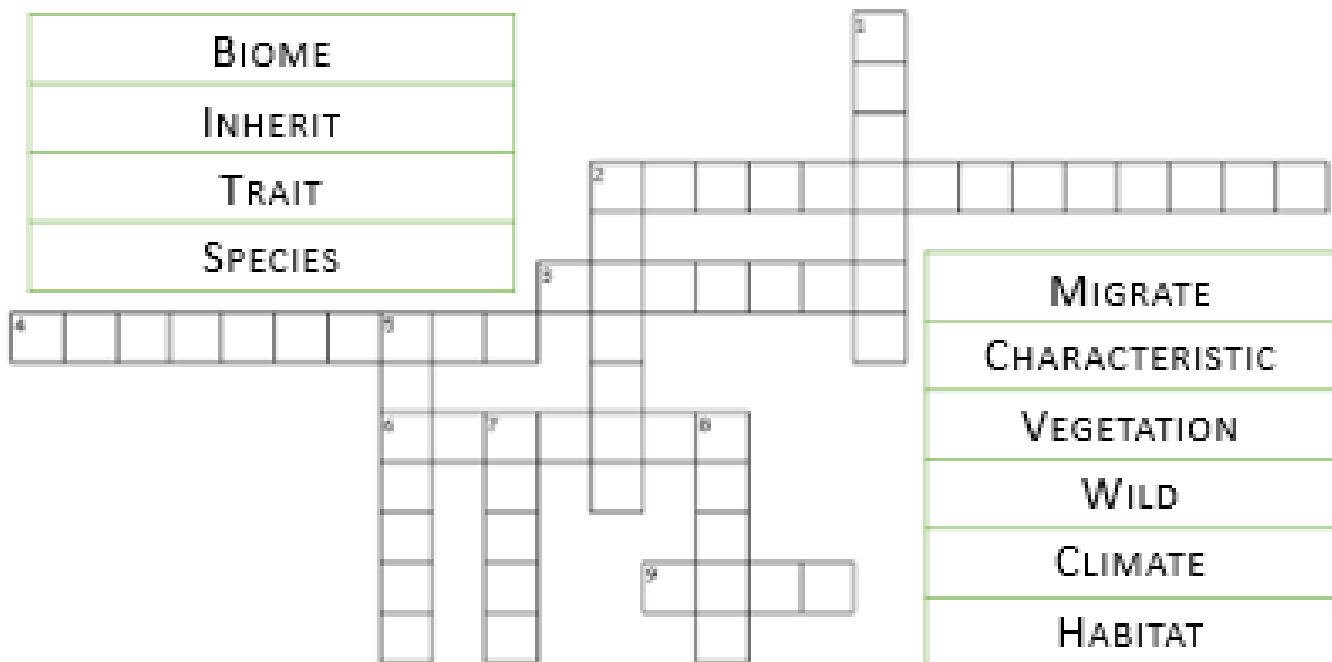


CHARACTERISTIC	A physical feature of a type of animal in a group
INHERIT	How living things get their looks from their family
SPECIES	Groups of living things that look the same and are in the same family
TRAIT	Looks that living things inherit from family tree
WILD	How things live in their natural habit (not domestic animals like cats and dogs)



Guided Word Games (Zoo Crossword)

[K-2nd Grade] Created with [Puzzlemaker](#) at [DiscoveryEducation.com](#)



Across

2. A physical feature of a type of animal in a group
3. When animals move from to another BIOME to stay warm, find food, or sleep!
4. Plant life and flowers found in nature
6. Natural home of an animal, plant, or organism
9. How things live in their natural habit (not domestic animals like cats and dogs)

Down

1. Groups of living things that look the same and are in the same family
2. Average weather conditions in a specific region over a really long period of time
5. A physical feature of a type of animal in a group
7. Places with the same kinds types of plants, animals, and climate (weather, temperature)
8. Looks that living things inherit from family tree

Pyramid Game

Where Should I Live?

Background:

This activity is derived from a TV show called "Pyramid" and is a quick and fun way to review/learn vocabulary.

Materials Required:

- Pyramids printed on each paper for each group (examples are provided in this packet)
- Pencil and paper (for point tallies)
- And a timer!

Procedure

1. **[Setup]** Divide the class into groups:
 - a) Teams of two or three contestants of **(1) Describer and (1-2) Identifiers**
 - b) You can also assign a judge/point collector if it makes sense for your class.

***Zoo Tip:** It may help to divide the class into 3 students per group so that each group will have a judge/point collector.*

2. **[Object]** Score points when teams when the (**Describer**) describes animal traits and then the (**Identifier**) uses that information to correctly identify the best-suited habitat. Be the team that scores the most points within the set time-limit (30 seconds works well).
3. **[Scoring]** Each team will have list of six animals and their habitat arranged in a pyramid chart. The describer starts with the first animal and the team scores when the identifier chooses the correct biome for that animal. Move to the next animal when you score!
4. **[Team Switch]** After 30 seconds, the roles of the group change and the game is repeated until everyone in the group has had a chance to perform each role.
5. **[Rules]** The rules are fairly simple: no root words (e.g. if the word is *headache*, no using the word 'head'). Descriptions should only in English.

***Zoo Tip:** The game usually flows better without using a lot of gestures!*

6. **[Age Range]** This activity can be made suitable to any level. Allowing more time or providing suggested descriptions for younger students, or implementing more rules forcing older students to focus more in depth.

Pyramid Game 1 (Easy – Match Glow Images to BIOMES)

25 Pts.
Grasslands

10 Pts.
Taiga

10 Pts.
Rain Forest

5 Pts.
Plains

5 Pts.
Desert

5 Pts.
Temp. Forest

LLAMA

BONGO

OSTRICH

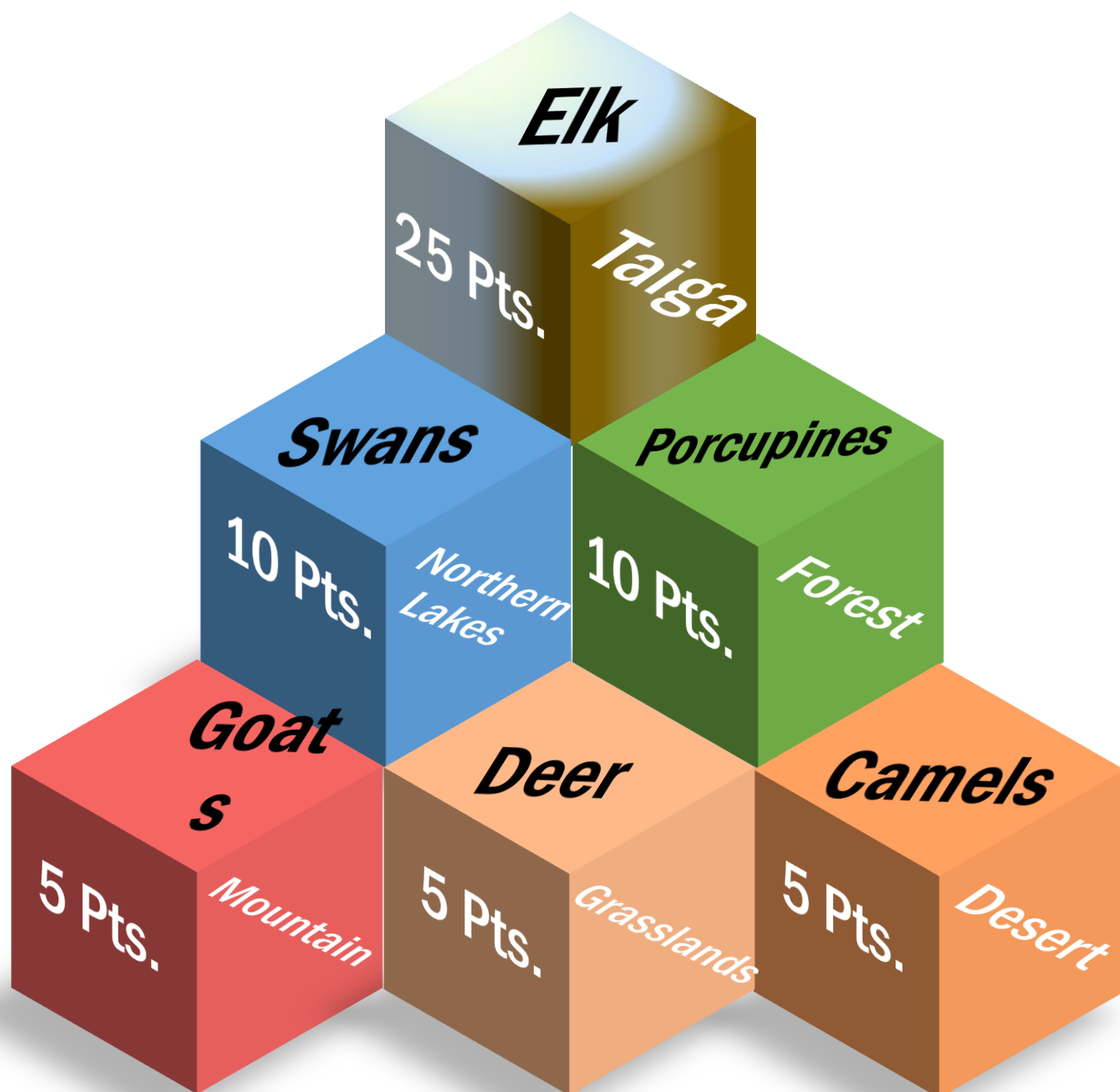
SCIMITAR-HORNED ORYX

AXIS DEER

GREATER KUDU

The image displays a pyramid-shaped matching game. At the top is a large green box labeled 'Grasslands' worth 25 points, with a 'GREATER KUDU' card to its right. Below this are two boxes: a blue 'Taiga' box (10 points) with a 'LLAMA' card to its left, and a green 'Rain Forest' box (10 points) with a 'BONGO' card to its right. The bottom row consists of three boxes: a yellow 'Plains' box (5 points) with an 'OSTRICH' card below it, an orange 'Desert' box (5 points) with a 'SCIMITAR-HORNED ORYX' card below it, and a dark green 'Temp. Forest' box (5 points) with an 'AXIS DEER' card below it. All animal cards feature a glowing effect.

3D Pyramid Game 2 (Intermediate w/no Images)



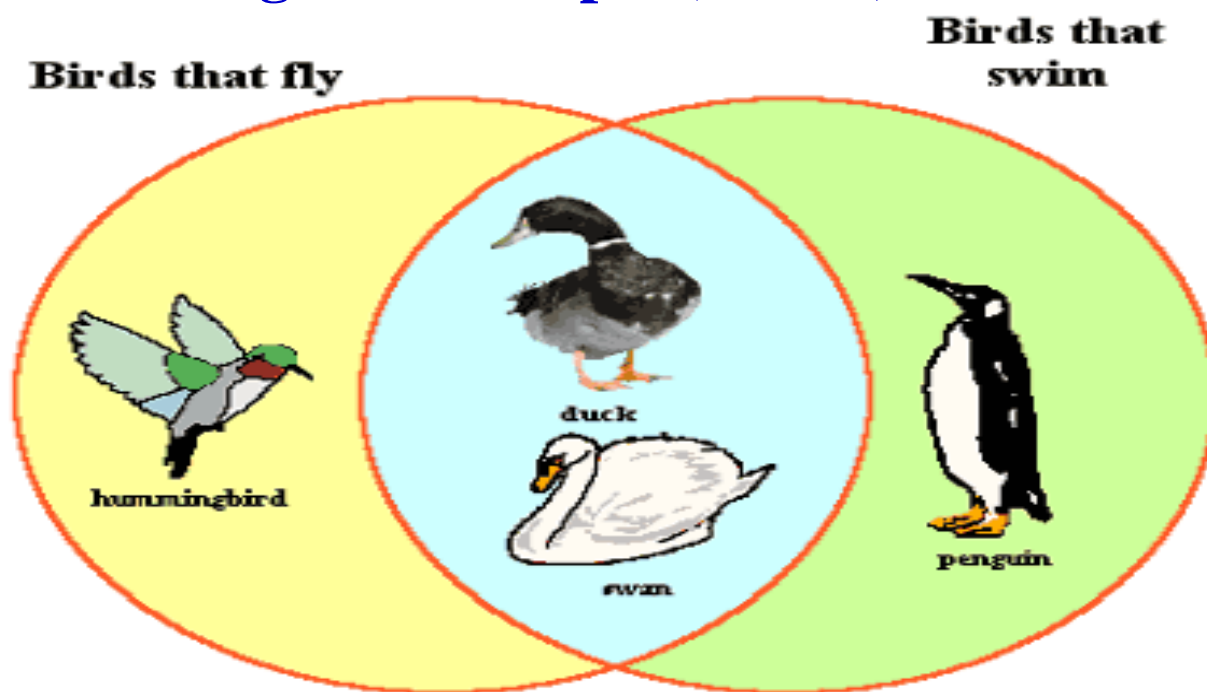
SUGGESTED ACTIVITIES

(AFTER VISITING THE EXOTIC RESORT ZOO)

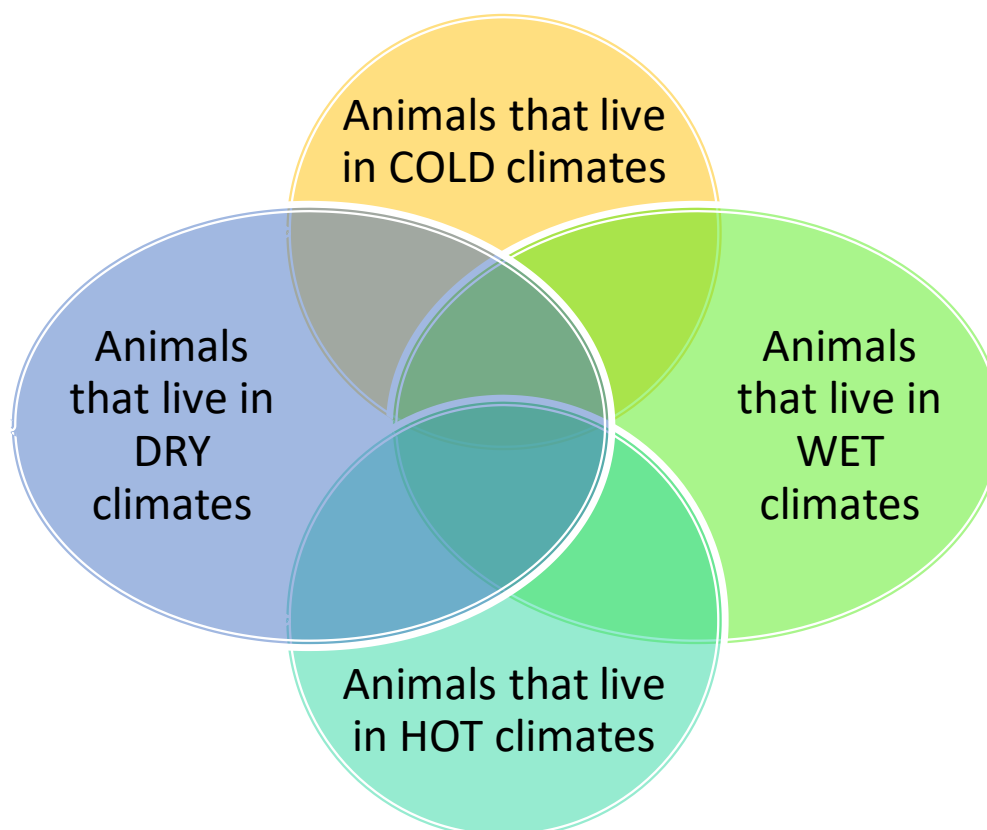


1. **Venn Diagram:** Compare animals and their traits on a white board ([see examples](#)). These can be 2-3 simple overlapping circles or more detailed with color-coded areas.
2. **Instant Recall:** Categorize animals seen at the Exotic Resort Zoo based on their traits or their natural habitat ([one example is the Five Senses exercise](#))
3. **Adaptation:** Choose animals that would survive well in each environment.
4. **Diorama:** Create a habitat for an animal at the Exotic Resort Zoo using only nature.
5. **Journal Writing:** Write a “what if” story about an animal that strayed into the wrong habitat. ([example: What if a polar bear move to the desert? Yikes!](#))
6. **‘Speak’ Animal:** Write a conversation between two animals you saw at the Exotic Resort Zoo. The animals can talk about their own habitat or where they’d like to go.

Venn Diagram Example (K-2nd)



OTHER VENN DIAGRAM IDEAS



Instant Recall (Five Senses Exercise)



What did you SEE at the Zoo?

Did you look high and low?

How about up close and far away?

Did any animals see you?



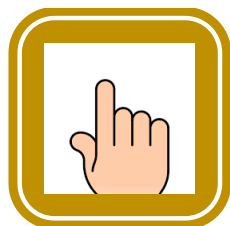
LISTEN

What noises did you hear?

Any animals? Can you make their sound?

Do the animals have ears like you?

How are they different?



TOUCH

What was your favorite animal to touch?

Did you feed any animals by hand?

Were the animals soft? Or rough?

Did any animals lick or nibble on you?!



SMELL

How do animals use their nose?

Pick an animal you want to be.

Draw/Write how the animal uses its nose.



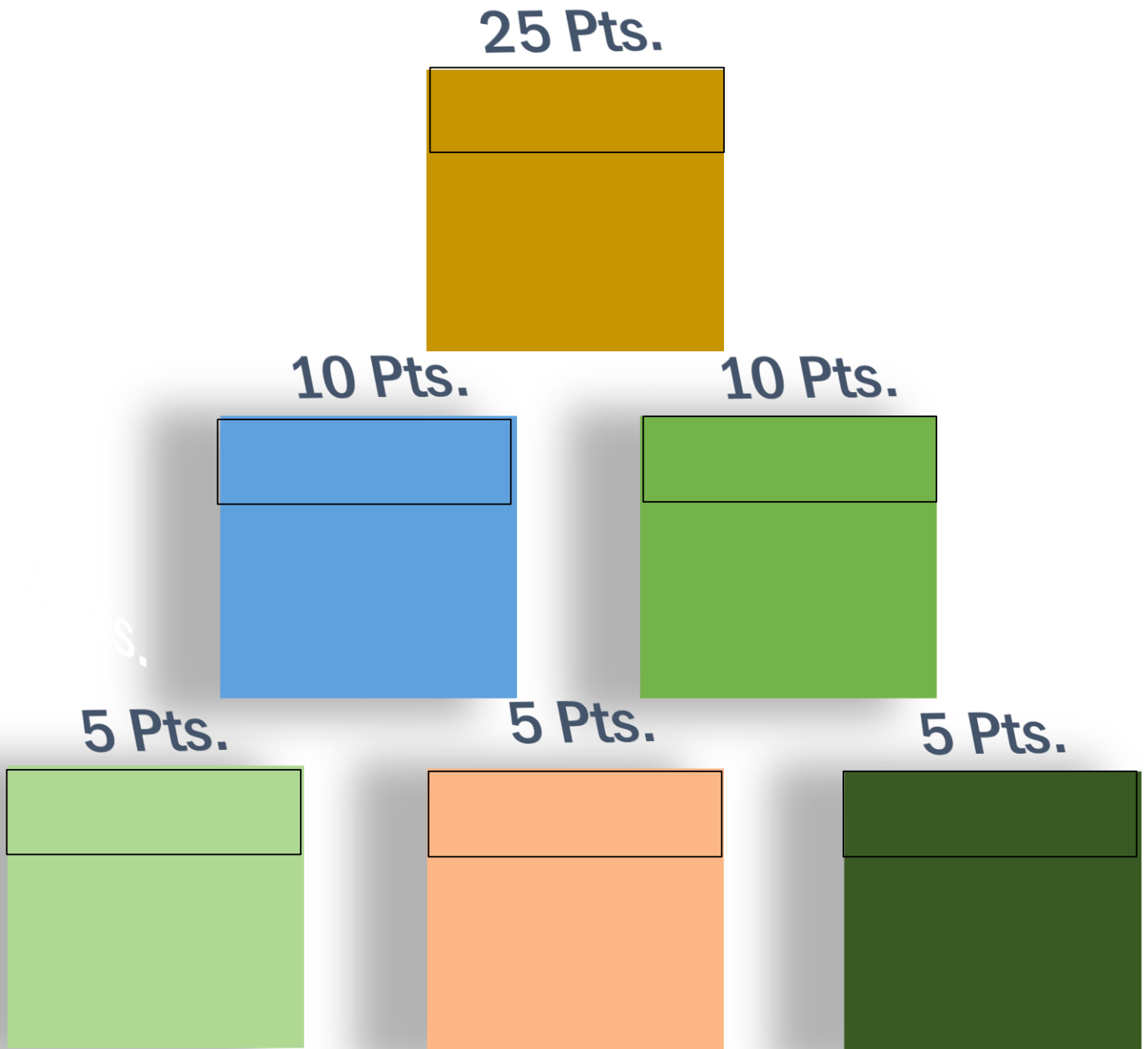
TASTE

Pick your favorite animal at the Zoo.

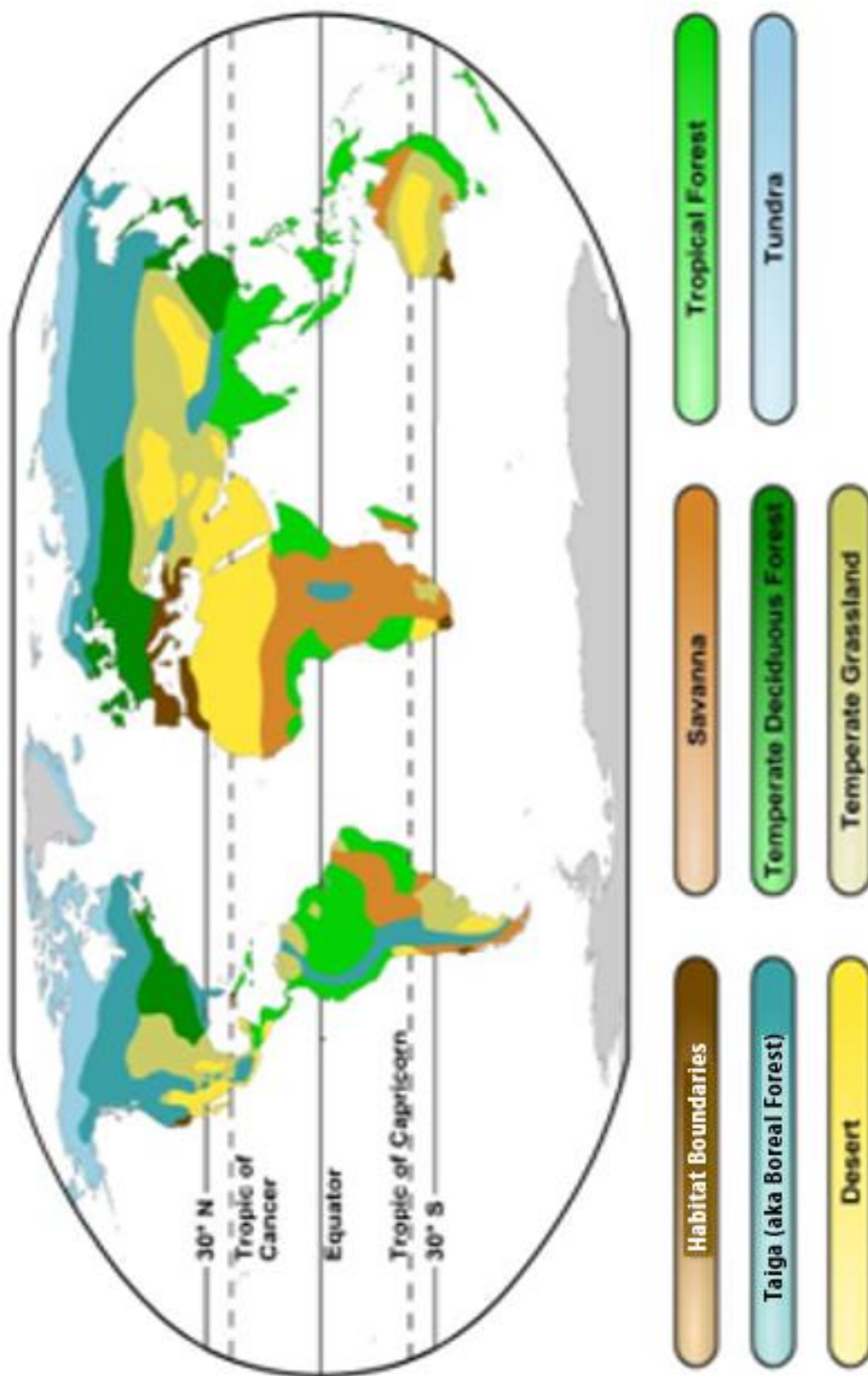
Do all the animals eat fruit?

Do all the animals eat grass?

BLANK Pyramid Game (Create New or Reuse Originals)



BIOME Zone Map



BIOME Climate Pyramid

