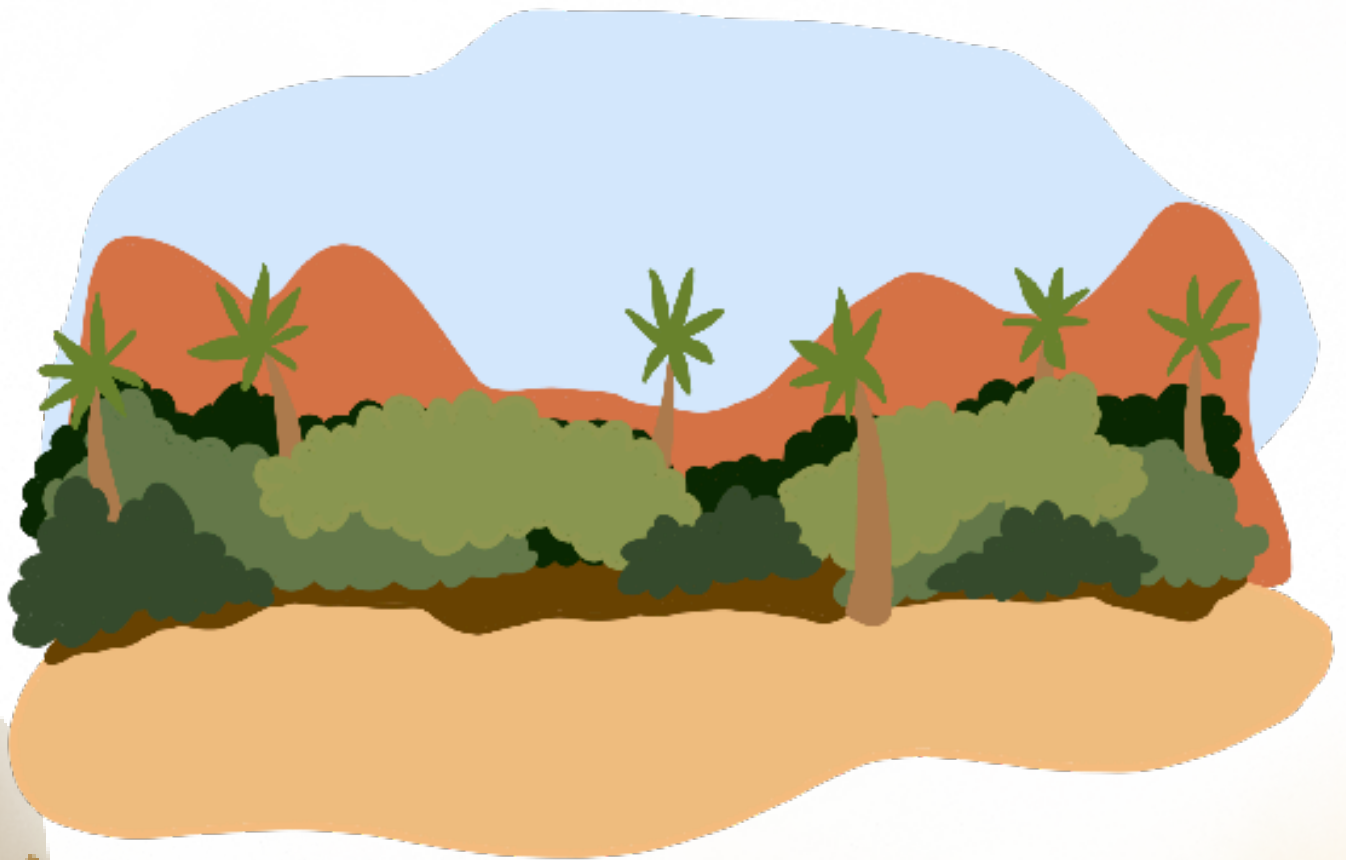


WonderHere<sup>?</sup>

# Nature & Animals

Unit Study



Nature Lovers  
MATH PROJECT

## Primary (K-1st) Math Benchmarks Covered

- Focus on asking and answering questions
- Compare, classify, and organize information through observations and measurements
- Focus on drawing conclusions
- Focus on solving everyday problems
- Develop a concept of numeracy through play
- Sequence of numbers 0-100
- Skip counting by 2s, 5s, 10s, and 100s

## Post-Primary (2nd-3rd) Math Benchmarks Covered

- Comparing numbers
- Sequence and order numbers
- Perform basic mathematic operations using natural numbers
- Round up figures and calculate with approximate values
- Learn to divide an entity into equal fractional parts
- Continue a number sequence following its rule
- Practice measuring accurately and with estimation
- Understand the concepts of perimeter and area
- Systematically collecting data on topics of interest
- Record and present data using tables and diagrams
- Understand probability in everyday situations including whether an event is impossible, probable, or certain

## Comprehensive (4th-6th) Math Benchmarks Covered

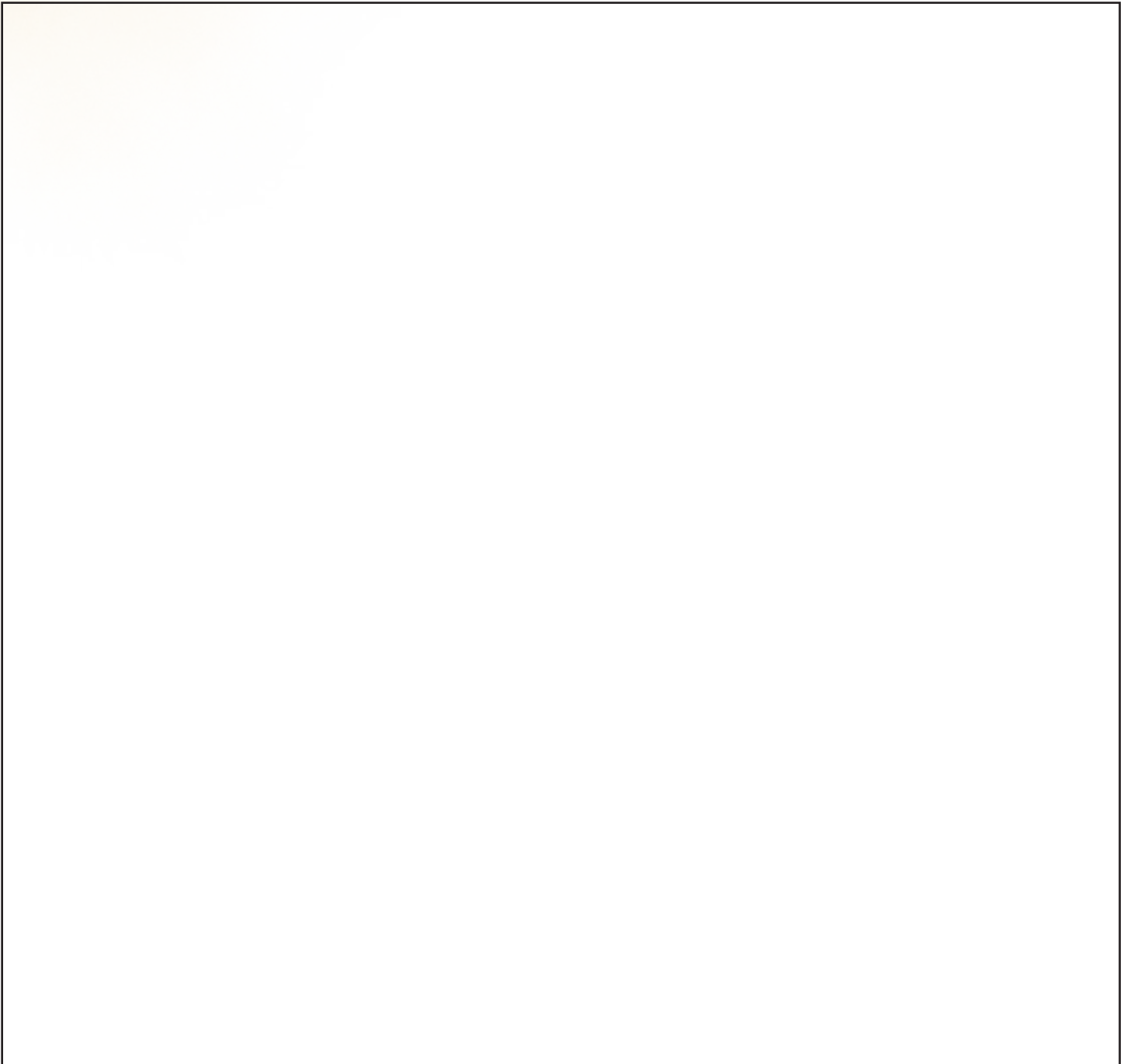
- Classification of numbers and the structure and divisibility of numbers
- Concept of a fraction
- Basic arithmetic with fractions in various situations
- Multiplication and division with natural numbers
- Continuation of number sequences following its rule
- Measuring and paying attention to the accuracy of measurement, estimation of the measurement results, and verifying measurements
- Circumference and surface area of figures of different shapes and the volumes of rectangular prisms
- How the system of measurement units is structured
- Unit conversions with the most common units of measurement

My Nature Expert Name:



A habitat is the environment in which a population lives and gets its needs met from. Populations are groups of one specific living thing. An ecosystem is a variety of populations living in community and interacting with the non-living portions of the region.

Think about what you know about different habitats. What kinds of habitats are there? Draw or write your thoughts in the box below.

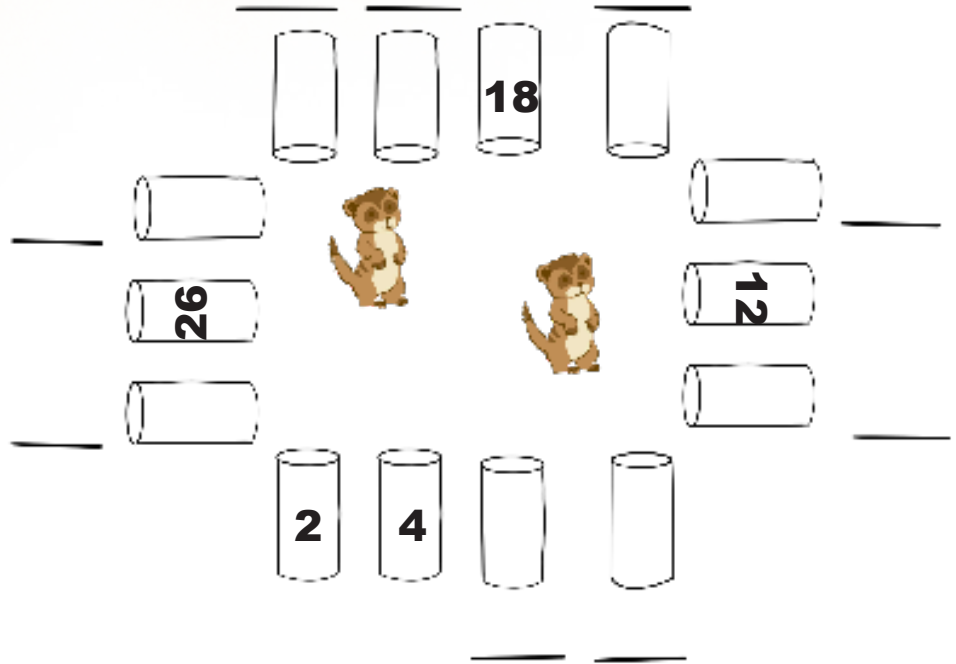




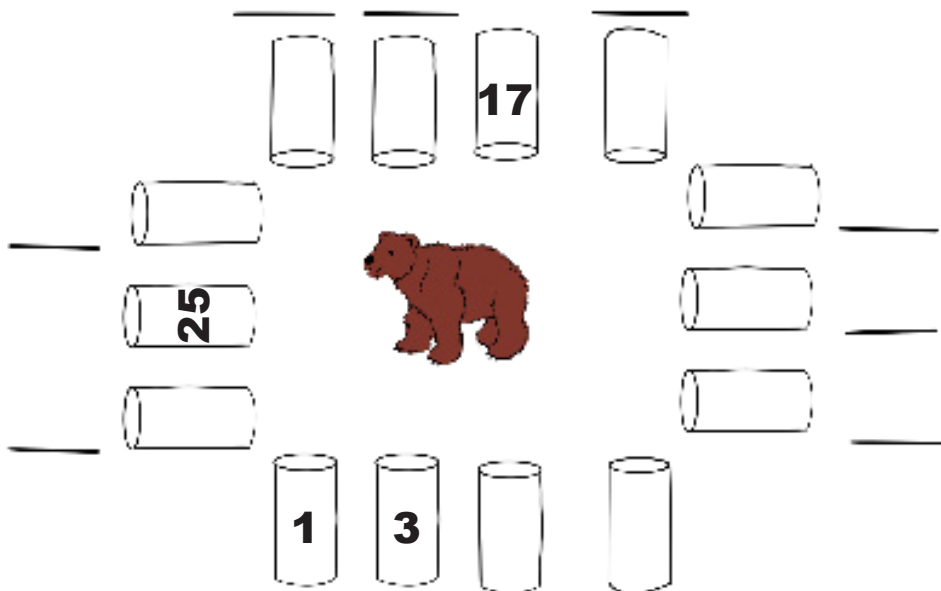
Primary: **TASK 2**

# Building a Habitat

Calling all nature lovers! We need your help to set up a habitat for some animals. The first step is setting up some enclosures for some different animals. Meerkats live in the deserts and grasslands of Africa. They are tiny and don't need their fence posts spread out very far. Follow the pattern to finish setting up the fence posts for the meerkats. Write the missing numbers on the lines.



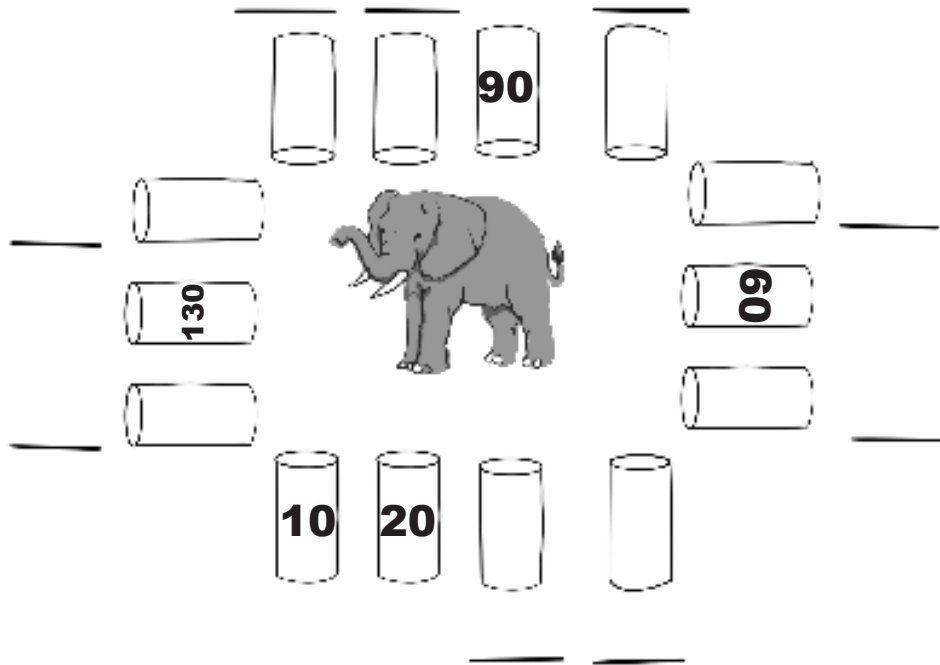
Grizzly bears live in the forests of western Canada and the northwestern United States. Grizzly bears are much larger than meerkats and won't need their fence posts put so closely together. Follow the pattern to complete the grizzly bear fence. Write the missing values on the lines.



Primary: **TASK 2**

# Building a Habitat

A little bit smaller than African elephants, Asian elephants live in forests in India and South-eastern Asia. They are large, so the fence posts in their habitat enclosure can be spaced out quite a bit. Follow the pattern to complete the fence. Write the missing numbers on the line.



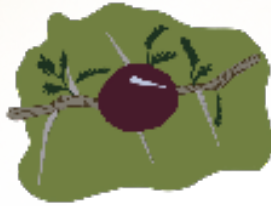
Primary: **TASK 3**

# Plants in the Habitat

Meerkats live in African grasslands called savannas. Some plants that can be found in this habitat are the baobab tree, whistling thorns, elephant grass, and candelabra trees. Follow the pattern to place these plants in the meerkat habitat.



A



B



C



D

Complete the pattern to place the plants in the habitat in the correct order.

A B C C A D A \_\_\_ C C \_\_\_ \_\_\_ A B \_\_\_ C A \_\_\_

Grizzly bears live in forests of Northwestern North America. Plants found in these areas include vine maples, western hemlock, douglas firs, and stream violets. Follow the pattern to place these plants in the grizzly bear habitat.



A



B



C



D

Complete the pattern to place the plants in the habitat in the correct order.

D B C A \_\_\_ B \_\_\_ A \_\_\_ \_\_\_ C \_\_\_ D \_\_\_ \_\_\_

# Primary: TASK 4

# Feeding Time

Animals eat food that can be found in the habitats in which they live. Whether they are herbivores searching for plants, carnivores hunting other animals, or omnivores doing both, animals' habitats provide exactly what they need. Take a look at what some of the animals from above like to eat.

Meerkats have quite a diet! They are carnivores that eat insects, spiders, snails, rodents, birds, eggs, lizards, and scorpions. Below you will find the things that meerkats eat.

Write the numbers below the food items in order from least to greatest to help the meerkat figure out what to eat first:



61



58



27



32

35



89



14



63

Grizzly bears eat a huge variety of things. They are omnivores and will eat things such as insects, flowering plants, roots, grasses, berries, fish, and even human garbage! Below you will find the things that grizzly bears eat.

Write the numbers below the food items in order from greatest to least to help the grizzly bear decide what to eat first.



77



43



98



51



24



83



94



Primary: TASK 4

# Feeding Time

Asian elephants' diets are much more simple than the meerkats and grizzly bears. They are herbivores that eat grasses, leaves, roots, tree bark, and bushes. Below you will find the things that Asian elephants eat.

Write the numbers below the food items in order from least to greatest to help the elephant decide what to eat first.



67



21



48



61



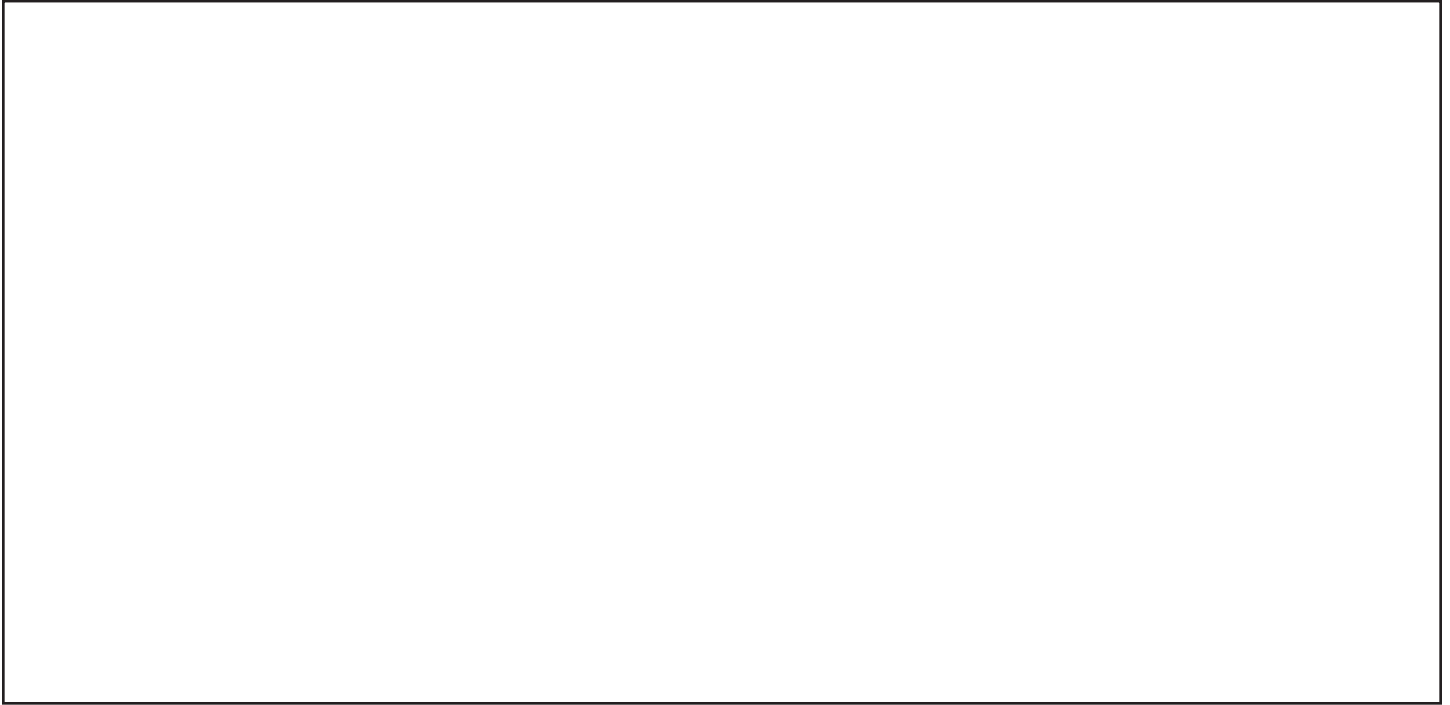
63

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Primary: **TASK 5**

# Design Your Own Habitat

Now that you've explored a little bit about habitats, think of an animal that you would like to design a habitat for. Draw a picture of that animal below.



Think about what kind of habitat your animal lives in. Draw a picture of your animal in that habitat below. Don't forget to draw the plants and food that your animal needs!



# Habitats in Danger

Habitats around the world are in danger. Pollution, farming, and illegal trading of animals are some of the dangers faced. Read the following statements below. Use positive and negative integers to numerically represent the information.

Ex: Sophia did not sell any lemonade at her lemonade stand. She spent \$20 on materials. The integer that shows Sophia's profit is -20.

Due to illegal logging, forest fires and the development of palm oil plantations, the rainforests of Borneo lost 1.21 million hectares.

The integer that represents the loss of hectares is \_\_\_\_\_

From July 2005 to September 2006, 52 new species of plants and animals were discovered in the rainforests of Borneo.

The integer that represents this increase is \_\_\_\_\_

Lange's metalmark butterfly, one of the most endangered species in the United States, is in danger because of habitat destruction. Its population has decreased by a staggering amount of 249, 846!

The integer that represents this decrease in population is \_\_\_\_\_

The Aral Sea used to be the fourth largest lake in the world; however, because of man-made dams and reservoirs it has dried up. As a result, it has lost 28 of its native species.

The integer that represents the loss of species is \_\_\_\_\_

While cold regions, like Antarctica, are in danger because of rising temperatures, there is still good news coming from them. In 2007 a study of the Weddel Sea surrounding Antarctica found 700 new species of aquatic life.

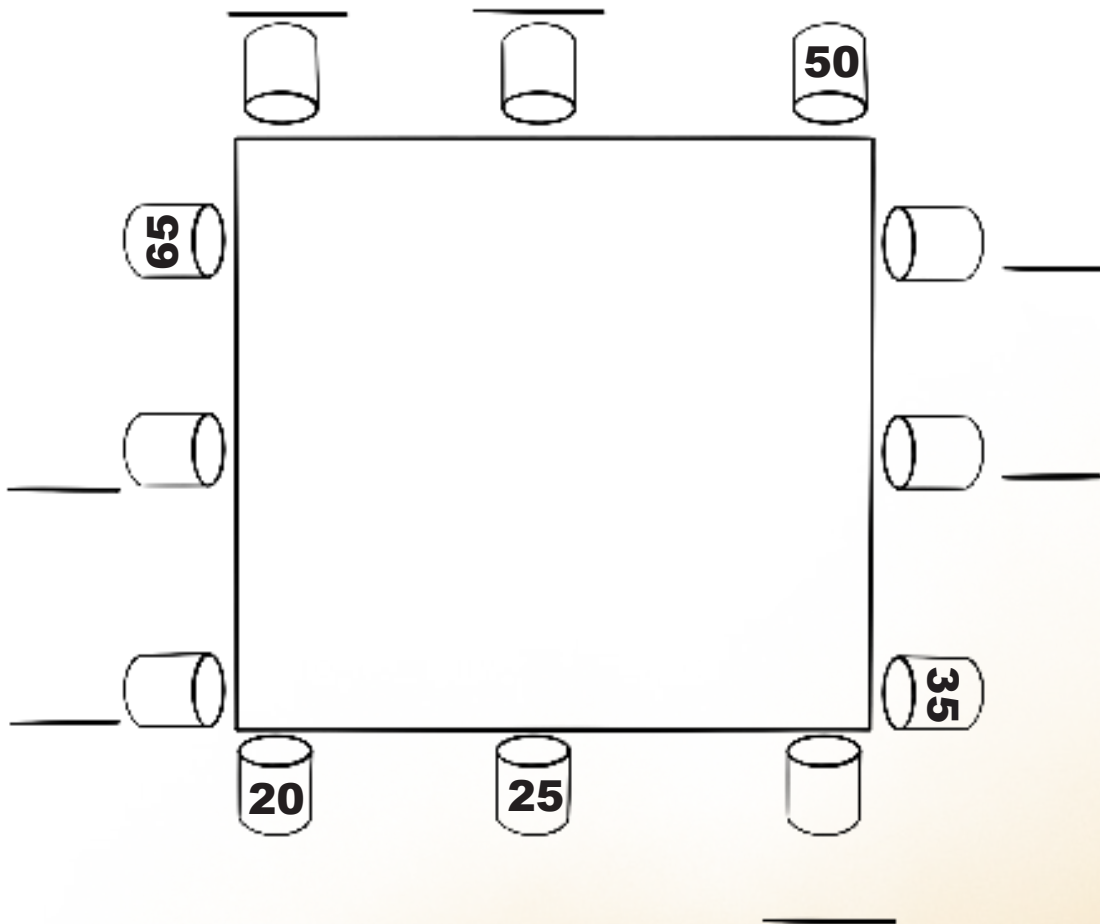
The integer that represents the founding of these new species is \_\_\_\_\_

# Building a Habitat

Calling all nature lovers! We need your help to set up a habitat for some animals. The first step is setting up some enclosures for some different animals. You will be using your knowledge of fractions to help you do this.

A fraction is a part of a whole. Below you will see whole enclosures that need to be split into smaller parts. Each of those parts will make up a fraction of the whole enclosure.

The first set of habitat enclosures are for animals from the African savanna. Three animals will be sharing the space below: meerkats, warthogs, and giraffes. Split the enclosure into four equal parts. The meerkats need  $\frac{1}{4}$  of the enclosure for their habitat, the warthogs also need  $\frac{1}{4}$  of the enclosure for their habitat, and the giraffes need  $\frac{2}{4}$  of the enclosure for their habitat.



**Scale:** 1 inch=10 miles

# Building a Habitat

Next, you'll need to find the perimeter of the enclosure to make sure you bought the right amount of fence posts. Perimeter is the space around a shape. Perimeter can be found by adding the length of all four sides. You'll need a ruler to measure the lengths of the sides of the enclosure before you can add!

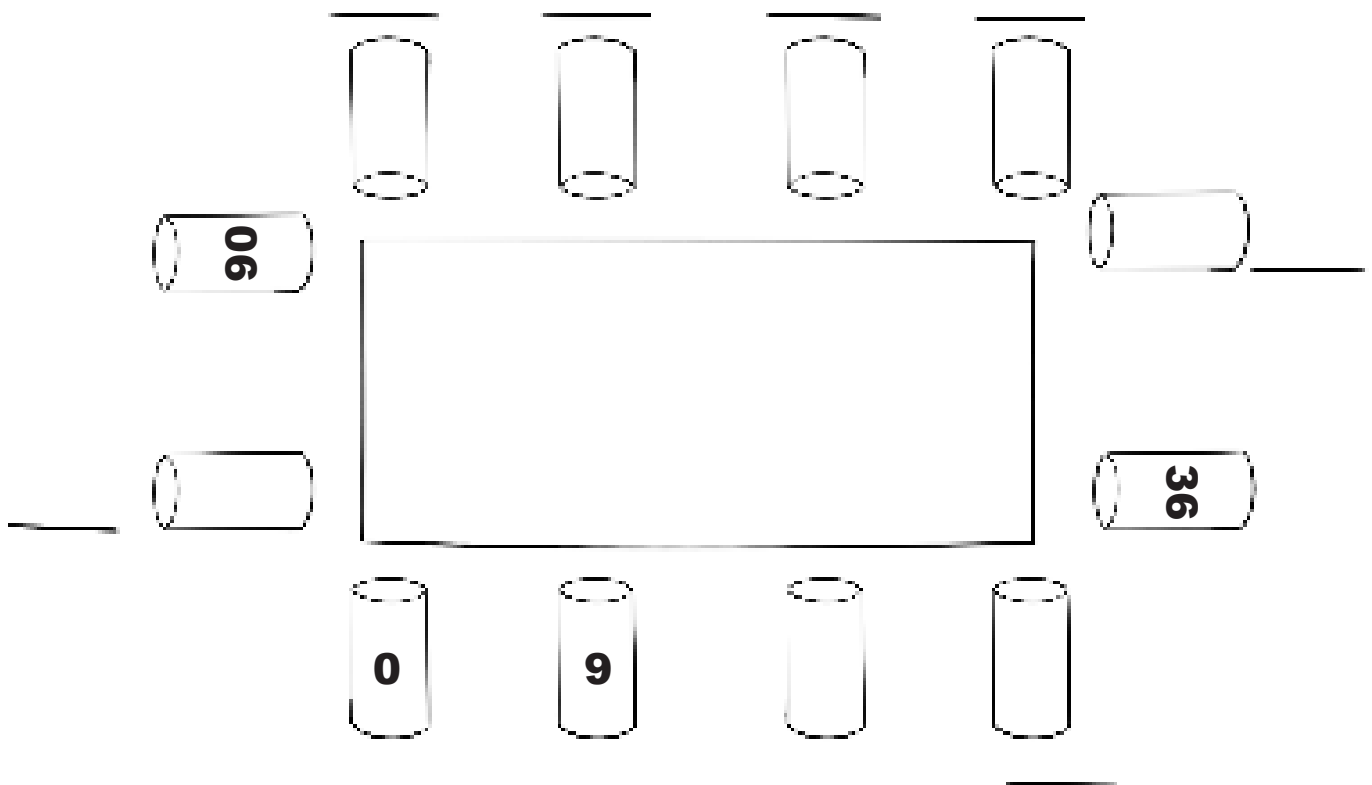
The perimeter of the enclosure is \_\_\_\_\_

Now you're ready to set up fence posts around the enclosure. To make sure you have your spacing right, follow the pattern to fill in the blank spots. Write the correct numbers on the lines above the posts.

Finally you have to put down some seed to grow the grass for the savanna habitat. In order to do this you need to find the area of the habitat. Using your measurements from above, you can find the area by multiplying the length times the width.

The area of the enclosure is \_\_\_\_\_

The next set of habitat enclosures are for animals from the Southeast Asian rainforest. Three animals will be sharing the space below: Bengal tigers, orangutans, and silvery gibbons. Split the enclosure into three equal parts. Each animal needs of the enclosure for their part of the habitat.



Animals eat food that can be found in the habitats in which they live. Whether they are herbivores searching for plants, carnivores hunting other animals, or omnivores doing both animals' habitats provide exactly what they need, Take a look at what some of the animals from above like to eat.

Meerkats have quite a diet! They are carnivores that eat insects, spiders, snails, rodents, birds, eggs, lizards, and scorpions. Below you will find the things that meerkats eat.

Write the numbers below the food items in order from least to greatest to help the meerkat figure out what to eat first:

							
61	58	27	32	35	89	14	63

Round each of the numbers above to the nearest 100.

178 \_\_\_\_\_

187 \_\_\_\_\_

718 \_\_\_\_\_

277 \_\_\_\_\_

389 \_\_\_\_\_

358 \_\_\_\_\_

235 \_\_\_\_\_

161 \_\_\_\_\_

Write a <, >, or = to compare the following values.

178 ○ 187

389 ○ 277

389 ○ 358

Warthogs are mostly herbivores. They eat whatever is available and sometimes, when other food is hard to find, that means poop! They much prefer other things such as grass, roots, berries, and bark.

Write the numbers below the food items in order from greatest to least to help the wart hog decide what to eat first.



443



698



451



224



389

Round each of the numbers above to the nearest 100.

443 \_\_\_\_\_

224 \_\_\_\_\_

689 \_\_\_\_\_

389 \_\_\_\_\_

451 \_\_\_\_\_

Write a  $<$ ,  $>$ , or  $=$  to compare the following values.

389 ○ 224

451 ○ 443

698 ○ 389

Orangutans are omnivores, although most of their diet comes from fruits. They eat all kinds of things like fruit, leaves, shoots, flowers, bark, and insects . Below you will find the things that Asian elephants eat.

Write the numbers below the food items in order from least to greatest to help the elephant decide what to eat first.



67



321



721



348



617

631

Round each of the numbers above to the nearest 100.

178 \_\_\_\_\_

187 \_\_\_\_\_

718 \_\_\_\_\_

277 \_\_\_\_\_

389 \_\_\_\_\_

358 \_\_\_\_\_

235 \_\_\_\_\_

161 \_\_\_\_\_

Write a <, >, or = to compare the following values.

617 ○ 671

348 ○ 321

631 ○ 3221



Using the terms impossible, possible, or certain answer the following questions:

How likely is it for an herbivore to eat meat? \_\_\_\_\_

How likely is it for a carnivore to eat meat? \_\_\_\_\_

How likely is it for an omnivore to eat meat? \_\_\_\_\_

How likely is it for an herbivore to eat plants? \_\_\_\_\_

How likely is it for a carnivore to eat plants? \_\_\_\_\_

How likely is it for an omnivore to eat plants? \_\_\_\_\_

# Design Your Own Habitat

Now that you've explored a little bit about habitats, think of an animal that you would like to design a habitat for. List 3-4 animals that you would consider.

1. \_\_\_\_\_ 2. \_\_\_\_\_  
3. \_\_\_\_\_ 4. \_\_\_\_\_

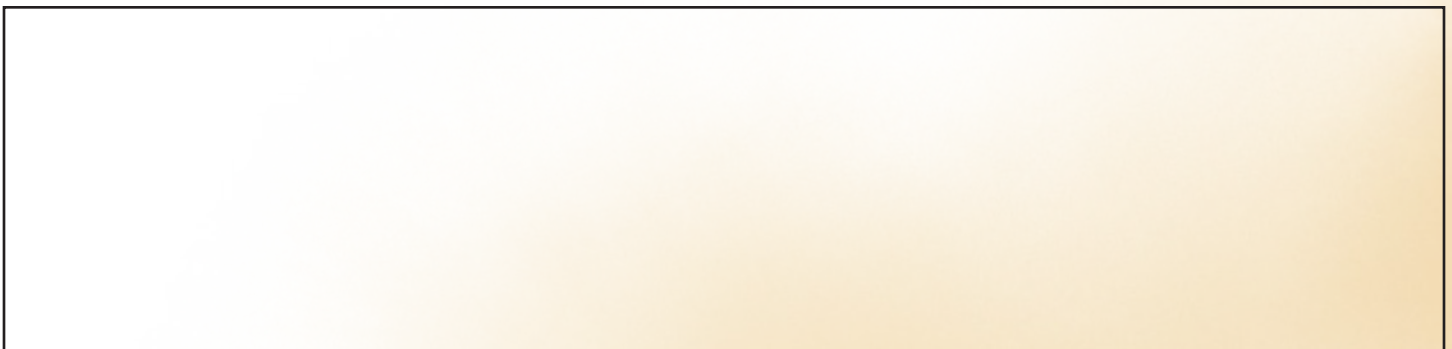
It's time to take a poll! Using the animal choices from above, poll your family, friends, and neighbors to get their opinions to help you decide. Record your data in the table below.

Animal	Number of Votes

Based on my data from above, I will design a habitat for:

\_\_\_\_\_.

Draw a picture of your animal:



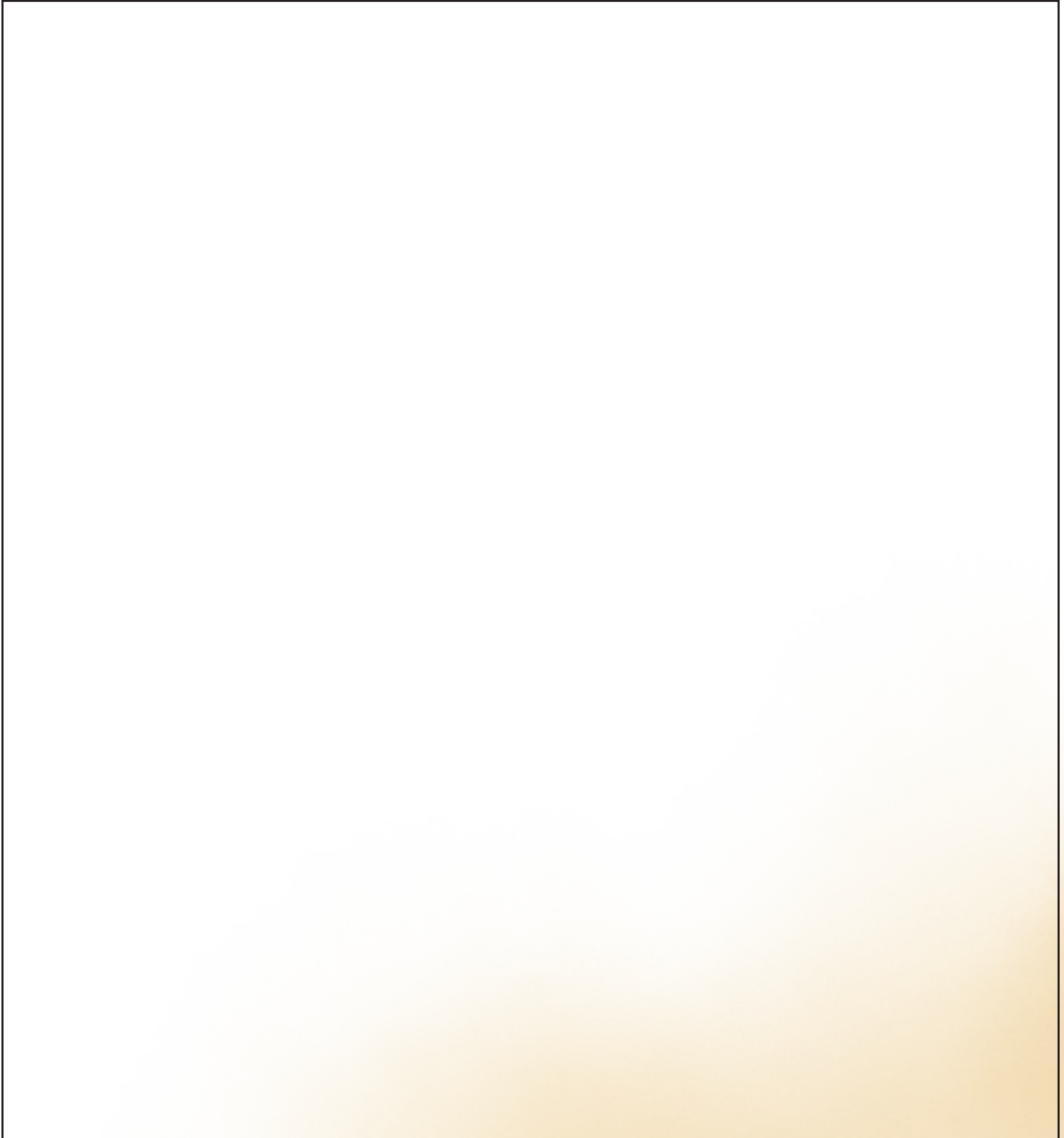
# Design Your Own Habitat

Create a bar graph to show the results from your survey. Don't forget to title and label your graph.



# Design Your Own Habitat

Think about what kind of habitat your animal lives in. If you are unsure, research what kind of plants and food your animal will need in its habitat. Draw a picture of your animal in that habitat below. Don't forget to draw the plants and food that your animal needs!



Habitats around the world are in danger. Pollution, farming, and illegal trading of animals are some of the dangers faced. Read the following statements below. Use positive and negative integers to numerically represent the information.

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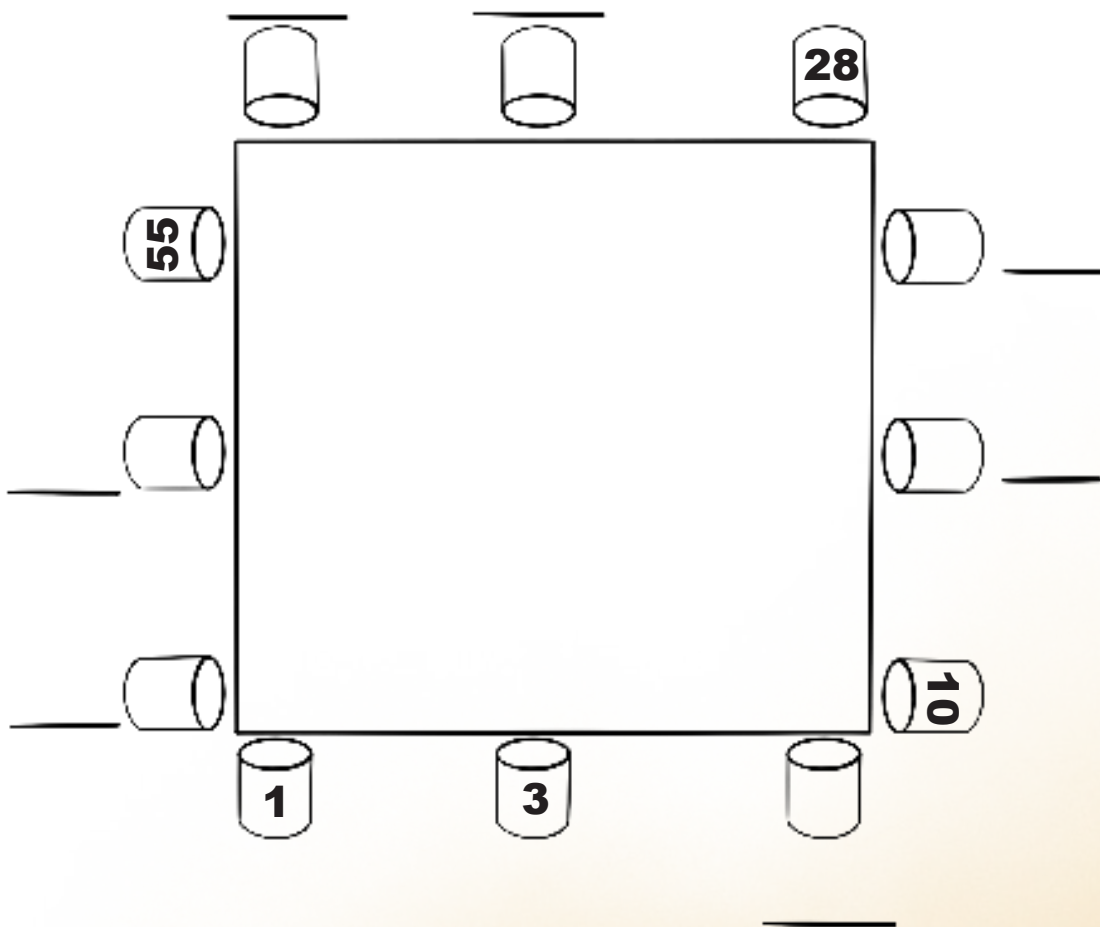
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# Comprehensive: TASK 3

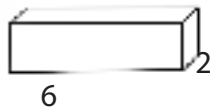
# Building a Habitat

What fraction of the enclosure is taken up by both the meerkats and the giraffes? \_\_\_\_\_

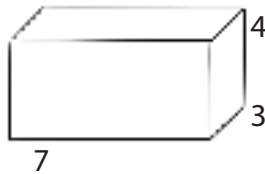
Now you're ready to set up fence posts around the enclosure. To make sure you have your spacing right, follow the pattern to fill in the blank spots. Write the correct numbers on the lines above.

Next, you have to fill up the water tanks for the animals. Below you will see the different tanks the animals need. In order to know how much water is needed, you'll need to find the volume. To do this you will need to multiply the length, width, and height of each water tank.

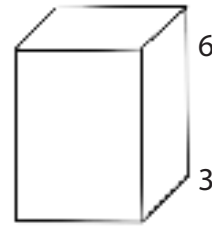
Scale: 1 inch = 10 miles



**A**



**B**



**C**

Volume of Tank A: \_\_\_\_\_

Volume of Tank B: \_\_\_\_\_

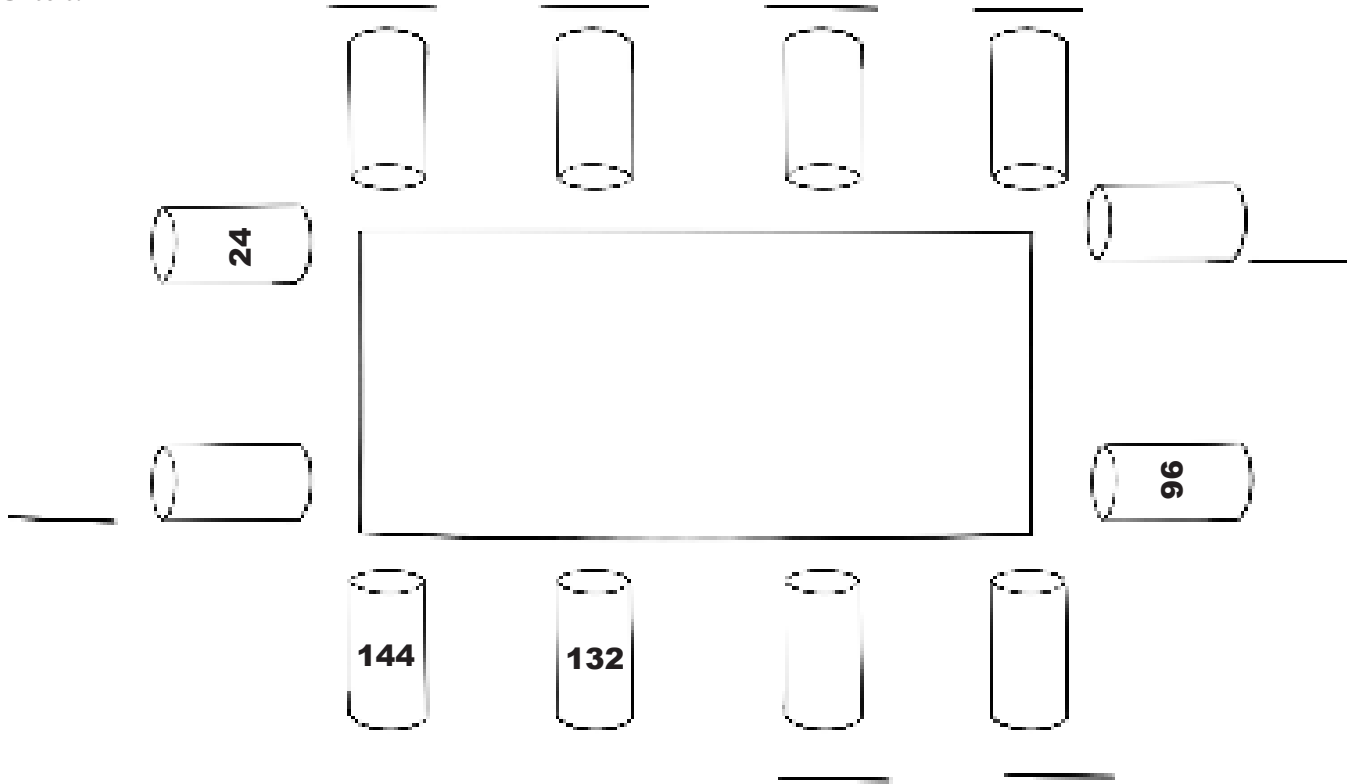
Volume of Tank C: \_\_\_\_\_

WORK SPACE

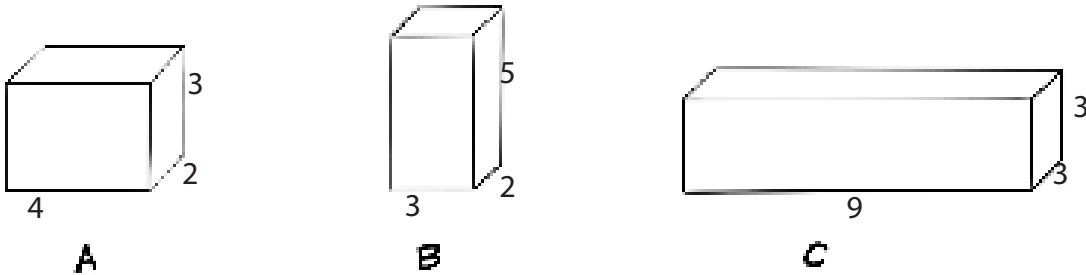
# Comprehensive: TASK 3

# Building a Habitat

The next set of habitat enclosures are for animals from the Southeast Asian rainforest. Three animals will be sharing the space below: Bengal tigers, orangutans, and silvery gibbons. Split the enclosure into three equal parts. Each animal needs of the enclosure for their part of the habitat.



Now you're ready to set up fence posts around the enclosure. To make sure you have your spacing right, follow the pattern to fill in the blank spots. Write the correct numbers on the lines above.



Volume of Tank A: \_\_\_\_\_

Volume of Tank B: \_\_\_\_\_

Volume of Tank C: \_\_\_\_\_



Animals eat food that can be found in the habitats in which they live. Whether they are herbivores searching for plants, carnivores hunting other animals, or omnivores doing both animals' habitats provide exactly what they need. Take a look at what some of the animals from above like to eat.

Meerkats have quite a diet! They are carnivores that eat insects, spiders, snails, rodents, birds, eggs, lizards, and scorpions. The meerkats have a 4 quart bucket for their food. How many cups of insects will it take to fill up their bucket with food? Use the chart below to help you.

### Standard Units of Measure: Capacity

1 cup (c) = 8 fluid ounces (fl. oz.)

1 pint (pt.) = 2 cups (c)

1 quart (qt.) = 2 pints (pt.) or 4 cups (c)

1 gallon = 4 quarts (qt.)

Number of cups needed to fill a 4 quart bucket with insects: \_\_\_\_\_

Warthogs are mostly herbivores. They eat whatever is available and sometimes, when other food is hard to find, that means poop! They much prefer other things such as grass, roots, berries, and bark.

### Standard Units of Measure: Capacity

1 cup (c) = 8 fluid ounces (fl. oz.)

1 pint (pt.) = 2 cups (c)

1 quart (qt.) = 2 pints (pt.) or 4 cups (c)

1 gallon = 4 quarts (qt.)

The warthogs have a 5 gallon bucket for their food. How many pints would it take to fill the warthogs' bucket with berries to eat? Use the chart from above to help you.

Number of pints needed to fill a 5 gallon bucket with berries: \_\_\_\_\_

Orangutans are omnivores, although most of their diet comes from fruits. They eat all kinds of things like fruit, leaves, shoots, flowers, bark, and insects .

The orangutans have three 5 gallon buckets for their food. How many cups would it take to fill up all of their buckets with fruit? Use the chart from above to help you.

Number of cups needed to fill three 5 gallon buckets with fruit: \_\_\_\_\_

# Comprehensive: **TASK 5** Design Your Own Habitat

Now that you've explored a little bit about habitats, think of an animal that you would like to design a habitat for. List 3-4 animals that you would consider.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

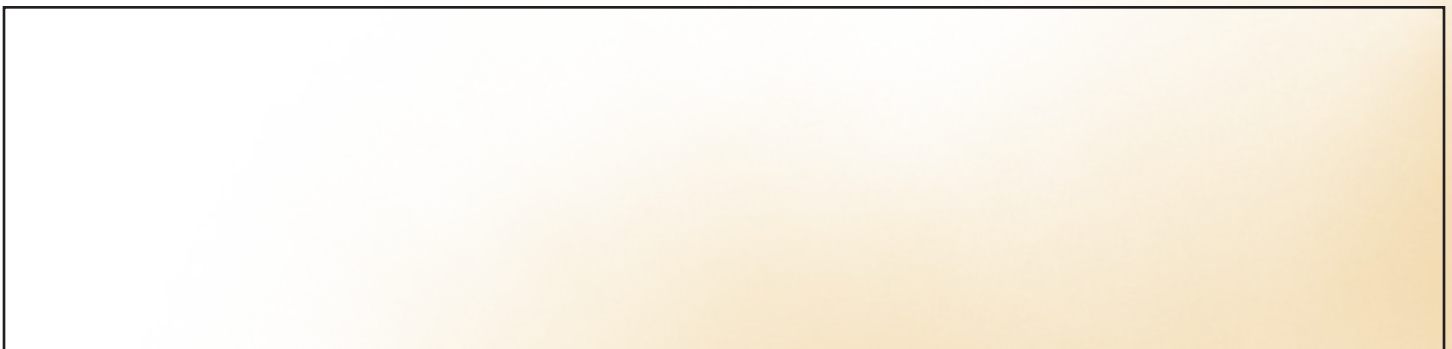
It's time to take a poll! Using the animal choices from above, poll your family, friends, and neighbors to get their opinions to help you decide. Record your data in the table below.

Animal	Number of Votes

Based on my data from above, I will design a habitat for:

\_\_\_\_\_.

Draw a picture of your animal:



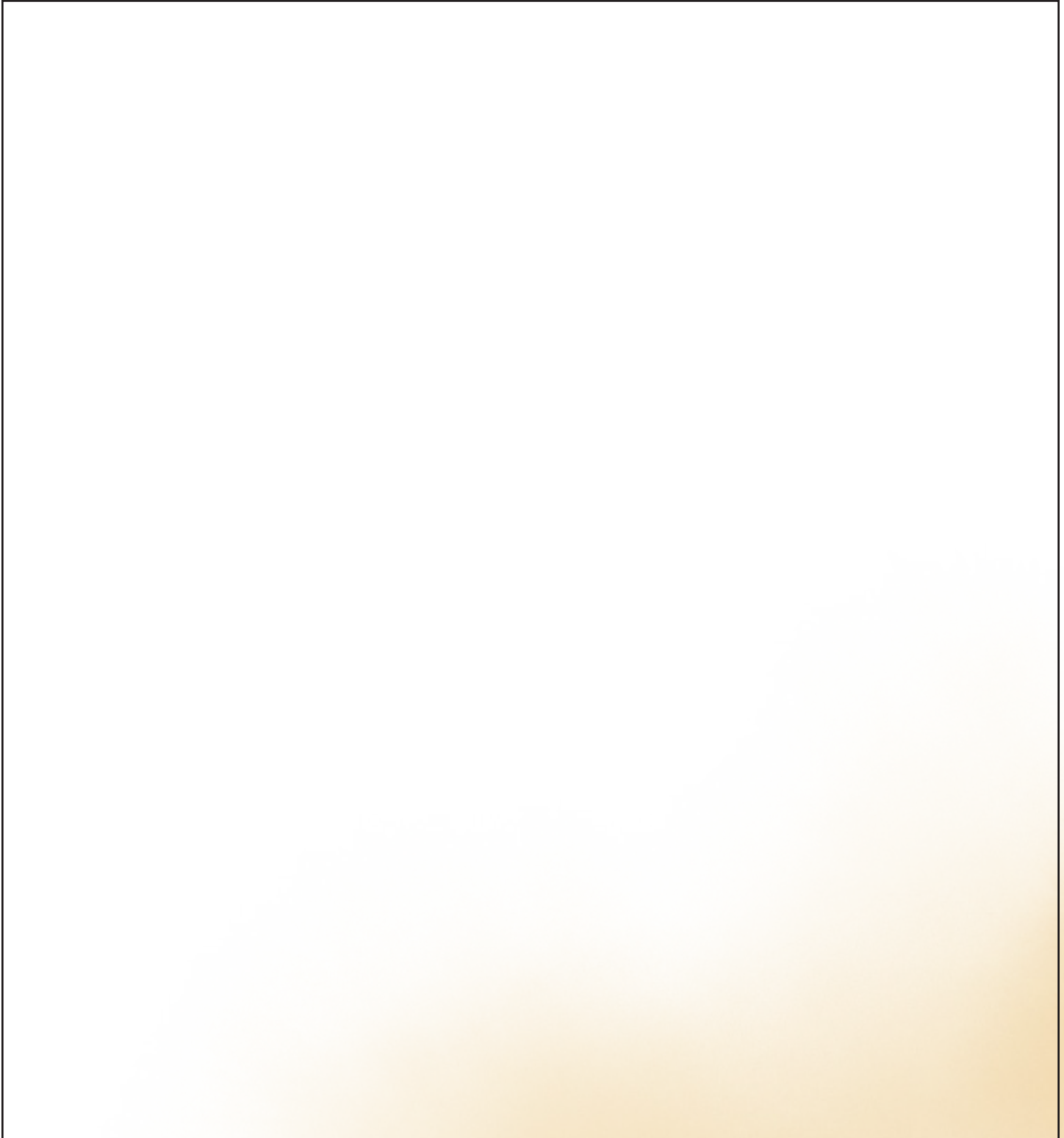
# Comprehensive: **TASK 5** Design Your Own Habitat

Create a bar graph to show the results from your survey. Don't forget to title and label your graph.



# Comprehensive: **TASK 5** Design Your Own Habitat

Think about what kind of habitat your animal lives in. If you are unsure, research what kind of plants and food your animal will need in its habitat. Draw a picture of your animal in that habitat below. Don't forget to draw the plants and food that your animal needs!



Now that you are finished with your project, take some time to reflect by answering the following questions. You may answer verbally (with a parent dictating) or by writing your responses below.

When I worked on this math project, I thought that the work was ...

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---

---

Something interesting that I discovered, was...

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---

---

Something I thought was hard was...

---

---

---

I am still wondering...

---

---

---

Overall, I think that the work I did was...

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