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Directions: In order to complete some of these problems you may need to visit the exhibit at the Minnesota Zoo or research the information. If you are creating a table or graph, be sure to include titles and labels.

TROPICS TRAIL: TROPICAL BIRD SPECIES

1) As you approach the Tropics Trail you will hear many different types of birds. While you walk through the trail, record the number of different types (species) of birds that you see using a lumberman's tally (ex. IIII IIII). You don't need to record the number of actual birds, just the different species. Remember that ducks are birds too!

a) What was the total number of bird species you identified?

THERE ARE 48 BIRD SPECIES LISTED ON THE TRAIL, STUDENT COUNT MAY VARY

b) Let's consider that your total represents 2% of the number of known bird species living in the tropical rain forest. Calculate the total number of tropical bird species using your value.

USING 48 SPECIES, THE TOTAL NUMBER OF TROPICAL BIRD SPECIES WOULD BE 2400

c) Assume that the value you calculated in part (b) is only 30% of the number of known bird species worldwide. Calculate the total number of bird species **in the world**.

THE TOTAL NUMBER OF BIRD SPECIES WORLDWIDE WOULD BE 8000. IN REALITY THERE ARE APPROXIMATELY 26,666 BIRD SPECIES IN THE WORLD.



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TROPICS TRAIL: WHITE-CHEEKED GIBBON BEHAVIOR

- 2) There are two white-cheeked gibbons living on Gibbon Island. Observe one of the gibbons for 3 minutes. Every 20 seconds, record what the gibbon is doing in the chart given below. If the behavior doesn't fit any of the descriptions below, give the description an appropriate name and add it to your list. You will find the definition for "brachiation" by the exhibit.

OBSERVATIONS WILL VARY QUITE DIFFERENTLY REGARDING BEHAVIOR, ACTIVITIES WILL VARY.

- a) Which activity did your gibbon participate in most frequently?

ANSWERS WILL VARY.

- b) You recorded an activity for 10 separate time periods. Consider these ten time periods to be 100%. Express the frequency of the **most** active behavior as a percent and as a fraction in lowest terms.

ANSWERS WILL VARY.

- c) Compare your results with two students in your group that watched the other two gibbons. Which activity held the highest percentage for their results?

ANSWERS WILL VARY.

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TROPICS TRAIL: CORAL REEF INHABITANTS

3) Coral reefs are the marine equivalent of tropical rain forests. While only occupying a small portion of the entire ocean, coral reefs contain an amazing number of species. A good example is the Great Barrier Reef (GBR) off the east coast of Australia. It is the largest coral reef in the world. The GBR contains approximately 8% of the world's fish species, but it only constitutes 0.1% of the entire surface area of the ocean.

a) Find the underwater viewing area for the Coral Reef exhibit. Observe the fish for five minutes. Just as you did with the birds, count the number of different types of fish that you see. (If you need some help getting started, there are a few of the more common fish listed on the pillars by the windows.)

STUDENTS SHOULD HAVE AT LEAST 15 – 25 SPECIES (THERE ARE 19 SPECIES LISTED ON PILLARS AND APPROXIMATELY 100 SPECIES IN TOTAL)

b) There are approximately 20,000 species of fish in the world's oceans. What percentage of this number does our tropical coral reef exhibit represent?

USING 15 SPECIES, ANSWER WOULD BE 0.075%

USING 25 SPECIES, ANSWER WOULD BE 0.125%

c) Determine how many species of fish live on the Great Barrier Reef using the information given above.

1600 SPECIES OF FISH LIVE ON GREAT BARRIER REEF



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MINNESOTA TRAIL: THE MUSTELID FAMILY

3) There are 12 mammal species represented on the Minnesota Trail. Twenty-five percent are members of the family known as “mustelids”. Mustelids are described as carnivores with low-slung bodies, short legs, short ears and thick silky coats.

a) How many mustelids should you be looking for on the Minnesota Trail?

3

b) Which animals do you think they are? (Hint: None of them has quills and they don't build dams!)

FISHER, WOLVERINE AND OTTER

c) The Minnesota Zoo has approximately 450 species in total. What percentage of this total are mustelids from the Minnesota Trail? Also express your answer as a fraction in lowest terms.

0.1/150 OR 0.67 %



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SOUTH ENTRANCE: JAPANESE MACAQUE BEHAVIOR

- 4) Choose a snow monkey that you can readily identify over two separate time periods today. You will need to watch this snow monkey for 4 minutes and record its behavior every 30 seconds. Use the tables below to record your observations. If the snow monkey exhibits a behavior not listed below, please add the behavior to your list.

OBSERVATIONS WILL VARY QUITE DIFFERENTLY REGARDING BEHAVIOR, ACTIVITIES WILL VARY.

- a) What was the most frequent activity in the first time period? In the second time period?

ANSWERS WILL VARY DEPENDING ON TIME OF DAY, WHICH MONKEY IS CHOSEN AND ACCURACY OF OBSERVATIONS

- b) What fraction of recorded times was spent grooming in both time periods together?

ANSWERS WILL VARY.