TOOLS for the TASK

Learner Outcomes:
- Describe examples of interaction and interdependency within an ecosystem (*e.g., describe adaptations involved*)
- State a prediction and a hypothesis based on background information
- Conduct investigations into the relationships between and among observations, and gather and record qualitative and quantitative data

KeyTerms:

Adaptations	Habitat	Environment
Variations	Ecosystem	

Background Information: Organisms are adapted, or well suited to their environments. Physical adaptations allow some animals to eat a varied diet, and others to eat only very specific foods found within their habitats. Those organisms that can eat a greater variety of foods are more able to cope with changes to their environments.

Investigation Question: What kinds of adaptations allow different organisms to acquire different types of foods? Can animals switch to different foods if their usual food is in short supply?

Hypothesis: Form a hypothesis about which adaptations (food acquiring tools) will allow an animal to survive if it's usual food supply is restricted or disrupted.

Materials:

straws	forceps	o-shaped
toothpicks / skewers	Ziplock bags	cereal
tongs	stopwatch	rubber bands
plastic spoons	rice	raisins
clothespins		marshmallows

This investigation / activity has been adapted from:
Bullard J, Krupa G, Krupa M, et al. *Science Focus 7*. Toronto, ON: McGraw-Hill Ryerson.

Procedure:

Part A- Plentiful supply of food

1. Your teacher will divide you up into groups, each representing a different animal that has a different adaptation for acquiring food.
   - Toothpicks
   - Tongs
   - Plastic spoons
   - Clothespins
   - Forceps
   - Straws
2. There will be piles of different kinds of "food" scattered throughout the room with 10 pieces in each pile. There will be an equal number of each type of food pile and only one pile per student.
   - Cheerios
   - Rice
   - Rubber bands
   - Raisins
   - Marshmallows
3. You will be given a plastic bag which represents your "stomach". This is where you will deposit your collected food **using only the tool you are given**.
4. You will be given 30 seconds to fill your stomach as much as you can from the piles of food around the room.
5. Any animal that cannot gather any food "starves" and cannot continue to the next round.
6. Repeat steps 3-5 until all of the food is gone.
7. As a class, tally the number and type of food pieces collected by each tool.

Part B – Limited Supply

1. Repeat steps 1-7 but with only half the number of piles of raisins and half the number of piles of cheerios.

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Observations:

Part A - Table Title:

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	Rice	Cheerios	Rubber Bands	Raisins	Total food pieces
Spoon					
Toothpick					
Forceps					
Tongs					
Clothespin					
Straw					

Part B - Table Title:

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	Rice	Cheerios	Rubber Bands	Raisins	Total food pieces
Spoon					
Toothpick					
Forceps					
Tongs					
Clothespin					
Straw					

Analysis:

1. What was the manipulated variable in this experiment?

2. What was the responding variable?

3. How did we make this a "controlled" experiment?

4. How do particular adaptations of animals affect what they eat?

5. Based on your observations, which type of animal was better able to cope with changes in the food supply? How did you know?

6. Why do some animals die even when food seems to be abundant and varied? (Hint – think about another reason one of the animals in this exercise did not get as much food as another).

Conclusion: Is an animal's ability to eat a variety of food an adaptation? Explain your answer.

Extension: Research Activity

Select 5 different species of animal with different adaptations for acquiring food
(You may use similar adaptations to what we used in this activity). Research the
kinds of foods each animal eats and explain how their adaptation or tool is well
suited for their food supply.