**BEAN COUNTER**<https://www.exploratorium.edu/snacks/bean-counter-evolution>

**Aim:** To find out how adaptations effect an animal’s ability to get food.

**Materials:**

* 100 of one of: large beans, smarties, popcorn kernels or chick peas
* 4 plastic cups
* Plastic bowl
* Plastic knife, spoon, chopsticks and bulldog clip
* Stopwatch

**Method:**

1. Push together two single desks or get one double desk. This space will serve as your habitat. Make sure this space is clear of any other objects.
2. Count out 100 of each of your allocated food (each group will vary).
3. Nominate 4 participants to act as the predators. Each participant needs to collect a different utensil (mouth) for collecting prey.
4. Each predator needs a cup. This will be their stomach.
5. Review these rules with participants:  
   a. All bean-prey are of equal value.  
   b. Only the assigned “mouth” can be used to capture prey.  
   c. Captured prey must be placed into the stomach-cup to count.  
   d. Prey may not be scraped or shoved into the stomach-cup; the cup must never touch the ground.  
   e. Prey may be captured from another predator’s mouth, but not from another predator’s stomach.  
   f. All predators must stay outside the habitat until the hunt begins (when the Timer calls “GO!”)  
   g. Each round of hunting lasts one minute.  
   h. All predators must stop hunting as soon as time is called (when the Timer calls “STOP!”); prey that is in the mouth, but not yet in the stomach, must be dropped.
6. Spread the beans randomly across the habitat. The predators have 2 minutes or until all the beans are gone to eat as much as they can.
7. Record how many each predator has consumed. Share this information with the class to create a class tally.
8. OPTION: To demonstrate the importance of adaptions/evolution after each round decide which “mouth” caught the least and get one person from that group to sit out. You could do this for 3 or 4 rounds

**Results:**

**Class results:**

**Average Food Consumed by Different Predators**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Chick Peas** | **Pop Corn** | **Beans** | **Smarties** | **Total** |
| **Chop Sticks** |  |  |  |  |  |
| **Spoon** |  |  |  |  |  |
| **Knife** |  |  |  |  |  |
| **Clip** |  |  |  |  |  |
| **Total** |  |  |  |  |  |

**Questions:**

1. Which type of bean was eaten the most?
2. Which predator ate the most?
3. Which predator was best suited to eat the:  
   a.) Smalls beans  
   b.) large beans  
   c.) smarties  
   d.) popcorn
4. Imagine if ever round this was played a person from the group that ate the least amount of beans had to sit out? What would eventually happen to that predator group? Why? Is this a good or bad thing?

1 table per group

Food Type:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Round 1 | Round 2 | Round 3 | Average |
| Chop Sticks |  |  |  |  |
| Bull Dog Clip |  |  |  |  |
| Spoon |  |  |  |  |
| Knife |  |  |  |  |

Food Type:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Round 1 | Round 2 | Round 3 | Average |
| Chop Sticks |  |  |  |  |
| Bull Dog Clip |  |  |  |  |
| Spoon |  |  |  |  |
| Knife |  |  |  |  |

Food Type:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Round 1 | Round 2 | Round 3 | Average |
| Chop Sticks |  |  |  |  |
| Bull Dog Clip |  |  |  |  |
| Spoon |  |  |  |  |
| Knife |  |  |  |  |

Food Type:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Round 1 | Round 2 | Round 3 | Average |
| Chop Sticks |  |  |  |  |
| Bull Dog Clip |  |  |  |  |
| Spoon |  |  |  |  |
| Knife |  |  |  |  |