**Biodiversity**

**Context:** Study of biodiversity and its importance to the ecosystem

**Grade Level:** 4- 6

**Science Concept**: The effect of biodiversity on the different types of forests specifically, temperate and tropical forests. A rainforest has a great variety of species but few individuals of each. A temperate forest has few species but a great variety of individuals.

**Materials:** per group of two students

1. Two shoebox lids or similar sized trays

2. Wide assortment of beans – 15 bean soup package is a good start. Supplement with other types of beans/seeds – peppercorns, coffee beans, barley, popcorn

3. Three distinguishable varieties: kidney beans, black beans, and great northern beans

4. Two plastic re-sealable bags. Each bag should have approximately the same number of beans

One bag will have the three distinguishable varieties and will be labeled “A”

One bag will have large assortment of beans described above and will be labeled “B”

5. Graph paper – 2 sheets per group

6. The Great Kapok Tree

**Focus**

Read The Great Kapok Tree (It can also be read after the activity, having students apply what they have learned in the activity to what they hear in the book.)

**Explore**

**Procedures:**

1. Collect the materials
2. Using one of the trays, sort the contents of bag “A” into piles of the same beans.
3. Count and record the number in each pile.
4. Using the other tray, sort the content of bag “B” into piles of the same beans.
5. Count and record the number in each pile.
6. Graph your results; each bag on a separate piece of graph paper or put both on the same.
7. Put the beans back into the appropriate bag.

**Reflect**

1. Have the students summarize their results.
2. What are the characteristics of the beans in bag “A”? What kind of forest would this represent? Explain.
3. What are the characteristics of the beans in bag “B”? What kind of forest would this represent? Explain.

**Apply**

One or more of the following questions/scenarios can be used.

1. What factors contribute to the relative diversities in each group?
2. Using selected websites, compare the average monthly rainfall of each of the ecosystems. How does this account for ecological differences?
3. Other than trees, what examples of biodiversity might you find in the two forests?
   1. Why does this occur?
   2. What might medical and pharmaceutical companies be concerned with the destruction of the rainforests?
   3. How would you describe a temperate rainforest to an individual who has always lived in a rainforest?
   4. What if you were a frog or a native Indian living in tropical rainforest that was being logged?

**Explore**

1. Dump each bag of beans into separate trays.
2. Shake the tray to get a fairly random and uniform distribution of the beans.
3. Each of the forests has come under attack by a disease that is fatal to one kind of tree. (You can use the scenario of a predator that preys on animals that have a symbiotic relationship with a particular tree.)
4. Remove two individuals of one kind of tree in each of the trays.

**Reflect**

1. What was the effect on the tree population in each tray?