Bean Activity

In this activity, you will be using beans to model the process of artificial selection.

1. Pick 10 beans from your bag labeled "New Beans." Measure the length of each bean using your ruler and then calculate the average size of all 10 beans. Hint: You calculate the average by adding up all the lengths and dividing by the total number of beans. Remember that in this simulation, the first round has 10 beans; however, after the 5th and the 10th rounds, you are measuring only 6 beans.

Record Bean Length

Bean	Length at Beginning of Simulation (mm)	Length after 5 Rounds	Length after 10 Rounds
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Average length			

2. Lay your beans out in front of you. Line them up randomly. In other words, you do not want to try to line them up according to their color or their length. You partner will do the same so that you each have a line of beans in front of you. Your beans and your partner's beans should be parallel (in line with) each other.
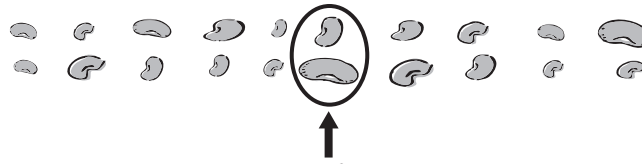
Your row of beans ➡ ⬅ **Your partner's row of beans**

Figure 1.1a. Pairs of Beans, Each Representing Two Alleles of a Single Organism

3. Players take turns picking the pairs of beans from the lines in front of them until each player has chosen three pairs. The goal is to pick the biggest pair. But you cannot mix and match among pairs! For example, if the biggest bean is paired with the smallest bean, you have to choose both. It is up to you to decide the best strategy. For example you could pick a pair with the biggest bean, even if it is paired with the smallest bean. Or you could pick a pair that has two medium beans.

After each player has chosen three pairs, have one player take the remaining unselected pairs and put them in the bag labeled "Discarded Beans." Those beans will no longer be used in the simulation.

Bean Activity (continued)

This circle represents a pair of beans. In this simulation, a pair represents one bean from your line and one bean from your partner's line.

Figure 1.1b. Pairs of Beans, Each Representing Two Alleles of a Single Organism

4. Round 2: Each player should pick four new beans from the bag labeled "New Beans." Again, each player should randomly line up his or her 10 beans, parallel to the partner's beans.

    Repeat the instructions in step 3. Do this until you have completed five rounds (a new round begins every time you select new beans).

5. After five rounds, each player needs to measure the six remaining beans in his or her row and to record the information on his or her data table (remember to do this BEFORE you pick the new beans for the next round). Calculate the average bean size.