



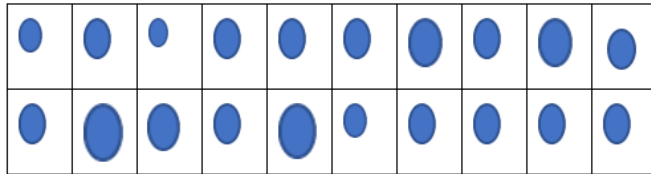
## Artificial Selection Student Worksheet Breeding Beans



1. Take turns while each person selects 10 beans each from your shared bag.
2. Measure the length of each bean in mm and record the length on your worksheet.
3. After recording your measurements, set the beans on the table in a row, next to your partner's beans.  
Make sure that the beans are lined up next to each other to create 10 sets of 2 beans (see diagram). Each set of 2 beans will be a "breeding pair."

<u>Beans</u>	<u>Length of beans before breeding</u>	<u>Length after 5 rounds of breeding</u>	<u>Length after 10 rounds of breeding</u>
1			
2			
3			
4			
5			
6			
7		-----	-----
8		-----	-----
9		-----	-----
10		-----	-----
Average length			

Diagram for step #3.



4. Figure out the average length of your beans (before breeding).  
To do this, add all the lengths together, then divide by the number of measurements. In this case, that number is 10.  
Record your average measurement on your worksheet.
  
5. Take turns picking out 3 “pairs” of beans from your groupings. Remember that you are trying to breed the biggest and best bean.  
You must, however, pick pairs that have been made when the beans were lined up. For example, if you pick a large bean, and there is a smaller bean across from it, you must use it too. Put all unwanted beans in the cup labeled “Discarded Beans.” These beans will not be used again during this activity.
  
6. Each person will randomly pick 4 new beans from the bags. This will give each group member 10 beans like before.  
Again, line the beans up in 10 sets of 2 and take turns picking out 3 pairs.  
Repeat this process 4 more times, until you have “bred” your beans 5 times.  
Each breeding ends when you put away your discarded beans.  
Measure your final 6 beans, record your measurements, find the average, and record it on your worksheet.
  
7. Repeat step #6 until you have “bred” your beans 10 times.  
Measure your final 6 beans, record your measurements, find the average, and record it on your worksheet.

Be prepared to share your results.

When directed, carefully put all the beans back in the bag, and return all materials to the WOW! volunteer.