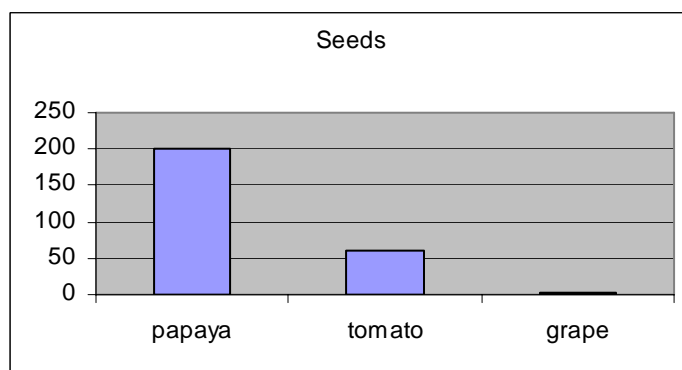




Other Homework or Classroom Exercises

Fruit seed count

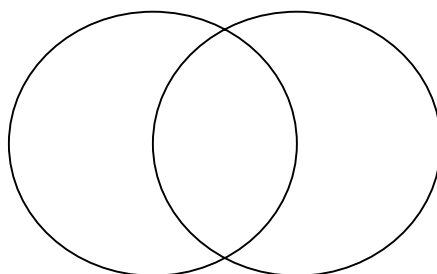
As a fun (though messy) in-class exercise, have students dissect some many-seeded fruits like tomato, grape or papaya, and count the seeds. Students can be divided into groups with each group dissecting different fruits or even dissecting the same fruits and counting the seeds, then comparing results. This is an enjoyable exercise that can go along with any discussion about plant reproduction or fruit classification. It will help impress upon the students how seeds from different species can be different in shape, size and number, and that even seeds of the same species have variation. The results can be analyzed by making a bar chart showing fruits on an x axis and number of seeds on a y axis:



Power of observation exercises

These exercises are designed to help students improve their powers of observation, which is important in science as well as other disciplines.

1. Have students compare two fruits. Dissect both fruits and list the characteristics of each (everything from color, shape, size, texture, smell, taste (if edible), skin thickness and texture, whether it is fleshy or woody, number of seeds, etc.). Then put these observations in a Venn diagram (below), with the common traits in the overlapping part and the unique traits in the outer portions of the circles. Explain that for scientists, doing this helps them to compare how similar or dissimilar two different plants are. If there are many overlapping characteristics, it might be possible that the fruits are closely related. Have the students hypothesize about how closely related their two fruits might be.



2. Give each student a peanut. Have them examine and draw their peanuts with as much detail as possible; writing down distinguishing characteristics and taking measurements of their peanut. Then have them put all their peanuts back into a container. Shake up the container and instruct students to find their own peanut from the mix. If they are good observers, they will be able to do this. This will help students learn to look closely at things in nature, which is important for being able to identify closely related species of plants.

24-hour food inventory

Over a 24-hour period, students should list *everything* that they eat, including all the major ingredients in their food. So for instance, students shouldn't just write "salad" but should list all the ingredients in the salad: lettuce, tomato, carrot etc. Likewise list major ingredients in anything else like cereal (bran, cornflakes and blueberry, for instance), sweets (almond joy = sugar, almonds, coconut and chocolate), pasta sauce (tomato puree, mushroom, garlic, vegetable oil, meat), etc. Don't forget to have the students list drinks as well, and all non-plant foods like dairy and meat.

When the list is complete, have the students go through and count how many of the things they ate or drank were fruits or products of fruits. Hopefully this course pack will have expanded their definition of "fruit" and they will realize that peanut butter, chocolate, coconut, pasta, cornflakes, and rice crispies are all derived from fruits of plants. If they are unsure about where a food comes from (i.e. what part of the plant), encourage them to make an intelligent guess and then research it themselves on the internet. Finally, have students calculate a percentage of fruit-derived foods to all other foods (fruits / other foods x 100). It will likely be greater than 50%. This will stress to them how important fruit-derived foods are in our diet.

As an extension of this, they can also figure out how many things on their list are derived from the leaves, stems, or roots of plants.