How Do Plants Grow?

A. Choose 3 or 4 plants that you can see regularly. They can be in your yard, in pots on your balcony or deck, or in your neighborhood. Look at them closely to create an initial description for each using any of these characteristics:

Guiding Question	*K-2*	*3-5*	*6+*
1. How big is the plant?	Use a stick or string (or even your hand) to measure how tall each is.	Select a suitable measuring tool such as a ruler or tape measure and measure how tall and how big around each plant is.	Select the best tool to measure the plants and decide how precise to be in your measurement. Measure the height and circumference of each plant. Develop a data recording system for these measurements and those that will follow.
2. What shape are the flowers, leaves, or seeds?	What shape can you draw that the flowers, leaves, or seeds fit into best? What patterns do you see in your plants and their parts?	Can you draw multiple shapes that, when put together, make up the shape of the flowers, leaves, or seeds? What patterns do your plants leaves, flowers, or seeds have?	Identify the shapes and angles that you see within the flowers, leaves or seeds. Pose an explanation of why the shapes and angles are important to the plants' survival.
3. What types of plants are you observing?	Does it have flowers, seeds, or fruit, if so how many?	Is it a tree, a bush, a flower, a fern? How do you know?	Take a picture of each plant and research its species using the internet or your library.
4. How does the plant fit into its community?	Did you or someone else plant it or is it growing there naturally?	How did the plant come to be where it is growing? Explain why you think your plant is best suited for its living environment (community).	What is the role of each plant in this ecosystem?
5. Think about your plants' sun time	Look at your plants at the times of day that you eat. How long is your plant in the sunshine?	Look up the time of sunrise and sunset to calculate how many hours of sun there is each day. Look at your plants at different times of the day to record how many hours of sun each gets in its location. Write fractions to describe how much of daily sunshine each plant gets.	Calculate how much sun each plant gets daily and compare them. Look up descriptions of 'full sun', 'part sun', 'part shade', and 'full shade' then classify each plant in their current environment. Compare it to the recommendations of a nursery or other plant resource.

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B. Over a period of weeks, measure each plant as you did in 1A.

Guiding Question	*K-2*	*3-5*	*6+*
1. Compare the plants.	Which plant is the biggest now? Which plant is the smallest now? Why do you think that is?	Compare these measurements with the earlier ones. Which plant grew the most? The least? Construct an argument to support your observations.	Use the original measurements and the new ones to right ratios of the growth. Which plant had the highest percent growth? The least?
2. Create a graph to show the growth of the plants	Use a picture graph to show how tall each plant is each time you measure it.	On separate graphs, graph the measurements of each plants height and distance around. Explain what your measurements mean in terms of the plants use of air, sunlight, and water.	Create appropriate scales and keys to depict the growth of all of your plants, including height and circumference on the same graph. Use colors to identify each plant and different symbols to represent the different measurements. Use your graph to model your plants growth and predict growth next season.