**Unit 4: Plant Structure Guided Notes**

**Standard**

**SC.912.L.14.7** \_\_\_\_\_\_\_\_\_\_\_\_ the structure of each of the major plant \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ processes.

**Guiding Question**

How are plant organs \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into systems that carry out the basic \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­­­­­\_\_\_\_\_\_\_\_\_\_\_ in plants, including photosynthesis?

* + Relate the structure of each of the major plant organs and tissues to physiological processes.
  + Describe how the structure of a leaf is adapted to make photosynthesis more efficient.
  + Describe the role of plant structures in regulating the exchange of gases (CO2, O2 and H2O vapor) between the leaf and the atmosphere.

Complete the table with one of the following choices:

* Stem
* Leaf
* Fruit
* Flower
* Root
* Seed

|  |  |
| --- | --- |
| **Fruit/Vegetable** | **Part of Plant** |
| Cabbage |  |
| Carrot |  |
| Celery Stalk |  |
| Corn Kernel |  |
| Garlic |  |
| Onion |  |
| Tomato |  |
| Zucchini |  |

How are plant organs organized into systems that carry out the basic physiological processes in plants, including photosynthesis?

* Angiosperms = flowering plants
  + Monocot = mono/single seed part
  + Dicot = di/2 seed parts
* Gymnosperms = NO flowers
  + Ferns
  + Conifers = cone producers

**Explain – Plant Organs**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Stem
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Flowers
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Cones

* Root
  + Absorbs \_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, supports the above-ground part of the plant
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  1. Photosynthesis requires the input of water and nutrients. How might these root functions help the process of photosynthesis?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Stem = Responsible for the size and shape of the plant
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, positions them to receive as much sunlight as possible
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ throughout the whole plant
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_produce food through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  1. Photosynthesis requires the input of sunlight. How might these stem functions help the process of photosynthesis?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Leaves
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Designed to efficiently collect light and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  1. How might these leaf functions help the process of photosynthesis?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Flowers
  + \_\_\_\_\_\_\_\_\_\_\_ = the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the flower which includes:
    - \_\_\_\_\_\_\_\_\_\_\_ = produces egg
    - \_\_\_\_\_\_\_\_\_\_\_ = sticky part that catches pollen
    - \_\_\_\_\_\_\_\_\_\_\_ = rod-shaped middle part that has a swollen base (ovary)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Flowers
  + \_\_\_\_\_\_\_\_\_\_\_ = the male part of the flower which includes:
    - \_\_\_\_\_\_\_\_\_\_\_ = stalk that holds up the anther
    - \_\_\_\_\_\_\_\_\_\_\_ = sack-like structure that contains pollen
    - Pollen grains contain the male sperm
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Flowers
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_ = green leaves that protect the flower before it opens
  + \_\_\_\_\_\_\_\_\_ = colorful, leaf-like structures that \_\_\_\_\_\_\_\_\_ animals and insects as \_\_\_\_\_\_\_\_\_\_\_
* Fruit
  + When the eggs have been \_\_\_\_\_\_\_\_\_, the ovary and surrounding tissue start to enlarge to become a \_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Cones (in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Explain – Plant Tissues**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = cells that divide for life of plant, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Ground = forms the \_\_\_\_\_\_\_\_\_\_ of the leaf
  + Makes sugars
  + Storage/support
* \_\_\_\_\_\_\_\_\_\_ = for protection
* Vascular = transport and support
  + Xylem & phloem

**Explain – Plant Structures**

* \_\_\_\_\_\_\_\_\_\_\_\_ = produces new xylem and phloem cells
* Guard cells = surround the stomata to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_ = holes in dermal tissue responsible for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_ = tissue that carries water & nutrients from roots to the leaves (direction is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
* \_\_\_\_\_\_\_\_\_\_ = tissue that carries food produced in the leaf to the rest of the plant (direction is \_\_\_\_\_\_\_\_\_\_\_\_\_\_)
* Seed = the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ egg

**Explain – Physiological Processes**

* Reproduction
* Transpiration
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Reproduction
  1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. Pollen is carried by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the stigma of another flower
  3. Pollen moves from stigma down through the style depositing sperm in the \_\_\_\_\_\_\_\_\_\_\_\_
  4. When the sperm has been deposited in the ovary, fertilization has occurred
  5. The ovary and surrounding tissue grow to become a fruit and the fertilized eggs become seeds
* Transpiration
  + \_\_\_\_\_\_\_\_\_ moves through the plant to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the leaves
  + These holes are called \_\_\_\_\_\_\_\_\_, which are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which open and close the holes
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_ = plants take in water and carbon dioxide to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = animals and plants take in oxygen and sugars to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (includes the form of sweat)
* PS and CR are \_\_\_\_\_\_\_\_\_\_\_\_\_\_ processes
  + The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of one is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the other