**Lab Unit 10 – Diversity in Transport**

**In-Lab Assignment – Transport in Plants using the Pratt Interactive Plant Model**

**Transpiration Activity:** In the Pre-Lab assignment, each student should have reviewed the anatomy of plant leaves and stems and roots. Now we’ll take a closer look at the 2 main plant transport processes ***transpiration***and ***translocation*** and see how they occur in each of these tissues and how they change over the course of an entire day (8AM – 8PM).

*As a group review these following videos from the Pre-Lab (other parts of the pre-lab may be important too):*

Transpiration: [**https://www.bbc.co.uk/programmes/p00lxt8k**](https://www.bbc.co.uk/programmes/p00lxt8k)

Transportation: [**https://www.youtube.com/watch?v=-b6dvKgWBVY&t=7s**](https://www.youtube.com/watch?v=-b6dvKgWBVY&t=7s)

Open this link for the Pratt Interactive Plant Model - <https://go.distance.ncsu.edu/home-horticulture/pratt/explore/>. Explore the different processes listed to the left, the 3 different parts of the plant highlighted by circles or from the center top menu, and also the buttons to the right indicating the different times of the day. In addition to looking at **transpiration** and **translocation**, we will also consider how the energetic processes of **photosynthesis** and **aerobic respiration** play a role in Plant Transport.

Answer the following questions and organize the indicated information within this provided Google Doc. Different groups will be assigned a different plant tissue to follow through all processes over a period of 24 hours. Groups will present their findings when you return to the whole class. One member of the group should turn in this assignment in Moodle to be graded by your TA.

1. What materials are transported in plants? (1 pt)

2. Briefly explain 2 differences between Transpiration and translocation. (2 pts)

3. Describe the main components and products of **Photosynthesis**. Why is this important for the plant? (2 pts)

4. Describe the main components and products of **Aerobic Respiration**. Why is this important for the plant? (2 pts)

5. What is the main functional role for each of the 3 main parts of a plant? List any important specific structures involved in transpiration and/or translocation found in these plant parts. (3 pts)

Leaf –

Stem –

Roots –

4. Your TA will direct your group to become an expert on one of the 3 plant parts (leaf, stem, root). You will want to make note of how the 4 processes (photosynthesis, respiration, transpiration and translocation) occur in your assigned region of the plant and how these processes may change over the course of 24 hours day. (5 pts)

**Assigned Plant Part: \_\_\_\_\_\_\_\_\_\_**

| **Processes** | **How do the rates of these processes change over 24 hours? (8-10AM, 10AM-noon, noon-3PM, 3-6PM, 6PM-8AM/overnight)** | **What is the driving force behind this process?** |
| --- | --- | --- |
| Photosynthesis |  |  |
| Respiration |  |  |
| Transpiration |  |  |
| Translocation |  |  |