Team Planning Document

1. “What materials are readily available for conducting experiments on ___?”

List of Materials:

- Spider Plant Seeds and Flowers
- Incandescent Light
- Compound Microscopes
- PVC Pipes
- Fluorescent light
- Natural Light
- Fertilizer
- Soil
- Wooden planks
- Rockwool
- Growing trays
- Styrofoam
- Pots
- Water
- Pipettes
- pH Indicators
- pH Meters
- Petri Dishes
- Circuits
- Bubble Makers
- Filters
- Precise Timekeeping Instruments
- Concavity Slides
- Wet Mount Slides
- Temperature
- Knives
- Soundwave Propagator
- Computers
- Hanging Drop Slides
- Coverslips
- Measuring instruments
- Tone generator
- Different Sizes of Gravel

2. How do spider plants act? (Phylicia)

This question is asking how spider plants behave. It is important because it helps us better understand the characteristics of the plant and what conditions the plant grows well in. From this information, we can find out what is testable.

- Seeds grow on plant (tuberous roots)
- Does not self-pollinate
- Grows well in strongly-lit places, but can also survive in places with less light
    - Leaves are brighter and the white strip is wider: brighter conditions
- Grows best with moderate watering
- Grows well with fresh air
- Can be propagated by rooting the plantlets in soil or water, or dividing the root cluster
- Grows best in temperatures above 50 degrees Fahrenheit
- Plant grows towards the ground if placed in a hanging pot

3. “How can we change the humidity materials to affect the roots ? “

The third question of “The 4 Question Strategy” helps us brainstorm how to efficiently make use of the resources we are provided to measure the change in the plant’s actions. We can variate the levels of different resources provided to the plants to observe if the plants behave abnormally.

4. How can we measure the response to change?

(Kyle) We can measure the height of the plant, the diameter, the amount of plantlets, the angle the plant is growing at, the weight

Nutrient intake

Brainstorming:

Infrared vs red light for testing photoperiod… how plants cycle guard cycle/stomatal functions.

Day/night cycles

Different amounts of moisture

Different amounts of light

Different temperatures

Different composition of fertilizer

Effect of pesticide

- Constants: soil, light, temperature, height off the ground, container
- Dependent variable: health of the plant
    - Possible Data
        - Lowest point
        - Highest point
        - Height
        - Weight
        - Width
        - Angle
        - Measuring nutrients
        - Color
        - Misc.
        - pH level

Effect of different fertilizers/where the fertilizer is placed

Water vs. soil

Each sponge piece is 3x4 cm

10mL

DATA TABLES (Final Measurements)

Final Humidity:

Plant	**Relative Humidity (%)**
1W	84.12
1	65.84
2W	

With Sponge:

Plant #:	1	2	3	4	5	6
# of Roots:	9	3	4	4	2	3
Root Lengths (cm):						
Average Length of Roots (cm):						

Plant #:	7	8	9	10	11	12
# of Roots:	2	3	5	3	18	6
Root Lengths (cm):						
Average Length of Roots (cm):						

Without Sponge:

Plant #:	1	2	3	4	5	6
# of Roots:	10	3	1	5	3	6
Root Lengths (cm):						
Average Length of Roots (cm):						

Plant #:	7	8	9	10	11	12
# of Roots:	5	5	10	4	11	4
Root Lengths (cm):						
Average Length of Roots (cm):						

Independent	Dependent
Times of plants being exposed to varying qualities of light (infrared vs red).	Speed of germination of spider plant
Humidity	Time before seeds germinate
Humidity	**Number of roots, root lengths**