



## Engaging with Reciprocity and Interdependence




Name: \_\_\_\_\_ Date: \_\_\_\_\_

### How might plants react to changes in rainfall due to climate change?

#### Introduction

Now, we will complete our study suggested by the researchers, by mimicking the effects that a changing climate could have on plants.

Recall that the researchers used 3 different treatments to test different amounts of rainfall on plant growth. We will have our own names for our treatments.

Their Study	 Water-Reduced Treatment	 Control	 Water-Addition Treatment
Our Study	Dry Conditions	Average Conditions	Wet Conditions

For our experiment, we will use beans. The bean plant is a member of the 3 Sisters Garden, and it nourishes the soil for both the corn and squash, while the corn provides the bean plant with structural support. Please remember to treat the beans with love and care while you engage in this interdependent relationship. Although we are depleting some plants of the things they need to live, this will help us determine what actions we need to take to help them survive in drought-like conditions that are resulting from climate change. This activity should inspire us to take climate action, so that all plants can continue receiving everything they need to survive, because as we support them, they support us. Please remember to give thanks to the plants before, during, and after our investigation.

#### Materials:

What you will need:

- Pole bean seeds
- 3 pots (at least about 8-9 inches (20-23 cm) deep) with drainage holes
- Potting Soil
- Tray
- 3 bamboo poles for bean support



- Tape (for labelling)
- Marker (for labelling)

Instructions:

Place each pot on the tray. Fill each pot with potting soil until the pots are 3/4 full. Place 2-3 poles in the soil of the pot. Poke holes in the soil that are about an inch (2.5 cm) deep and place the bean seeds inside the holes. The number of holes you make depends on the diameter of the pots. Consider that seeds should be about 2-3 inches apart. Cover the holes with soil and water the pots. Label one pot "Dry Condition", another pot "Wet Condition" and the last pot "Average Condition."

They should germinate (meaning you should see sprouts) within 7-10 days, and the soil must be kept moist for them to do so. Keep an eye on your plants and water if necessary. Once the soil feels dry to the touch, water all 3 pots. Once watered, determine a watering schedule for the next 4 weeks for each of your 3 pots. Remember, one treatment will be your dry condition, so you will water that plant less frequently. You will then water your "Wet Condition" pot more frequently, and your "Normal Condition" pot will be the in between of the two treatments. For example, my average watering conditions will be every 7 days, so I will water my "Wet Conditions" pot every 4 days, and water my "Dry Conditions pot every 12 days. You may use the calendar template to determine your schedule. On the day of each water, record the date, the height of each plant, and any observations about the plant's appearance. You may use the template below to guide your planning and recording.

Results:

Record your results in your notebook or on the provided template.  
Provide a summary of your findings in the chart below.

Dry Conditions	Average Conditions	Wet Conditions



## Discussion:

Practice writing a short (300-400 word) discussion. Below is a list of questions to guide your thinking.

- What are you trying to determine in your investigation?
- How are you setting up your experiment?
- What did you find after completing your experiment?
- Did what you expect happen? If not, that is okay! Why might have something different occurred?
- What did the beans teach you about rain/watering and plant growth?
- What can the beans teach us about the relationship between rain, plants, and climate change?
- What did caring for the plants teach you about our relationship with them?
- What might happen to some plants as a result of climate change? What do you think needs to be done, in order to stop the climate crisis?

## Closing:




Because the plants provided us with knowledge, we will now give back to the plants. As a class, we will continue watering the plants until we can plant them in our outdoor garden. We will also use these plants for a seed saving activity later on, so that we can give back to them and grow more for the future.



**Watering Schedule**




**Data:**

 <b>Dry Conditions</b>	 <b>Average Conditions</b>	 <b>Wet Conditions</b>
Date: Height: Observations:	Date: Height: Observations:	Date: Height: Observations:
Date: Height: Observations:	Date: Height: Observations:	Date: Height: Observations:
Date: Height: Observations:	Date: Height: Observations:	Date: Height: Observations:
Date: Height: Observations:	Date: Height: Observations:	Date: Height: Observations:
Date:	Date:	Date:



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Height: Observations:	Height: Observations:	Height: Observations:
Date: Height: Observations:	Date: Height: Observations:	Date: Height: Observations: