



Lesson Plan: Understanding Rainfall

Level: Early Stage 1

Syllabus link: STe-6ES-S “identifies how daily and seasonal changes in the environment affect humans and other living things” and STe-1WS-S “observes, questions and collects data to communicate ideas”

LESSON OUTLINE

This activity is designed to be carried out in groups of 3-4 students and will require daily re-visiting for approximately 1 week.

Students will grow sprouts using different amounts of water to help them to understand the impact of rainfall on plants. Some plants will receive no water, some will receive an adequate amount of water, and some plants will receive too much water. This experiment is to help students to understand the importance of rainfall for plant growth and the ways in which changes in the amount of rainfall affect growth.

Resources/Materials:

- ▶ Worksheet (included)
- ▶ Paper cups (3 per group)
- ▶ Alfalfa/cress seeds
- ▶ Cotton wool or dirt
- ▶ Spray bottle with water
- ▶ Scissors
- ▶ Permanent markers
- ▶ Items for decorating (optional)



Things to note:

As this activity requires time for the sprouts to grow, we recommend that you begin the experiment on a Monday, so that the seeds can be watered each day until Friday when they should have grown enough to see results.

Some alfalfa/cress seeds require light to germinate and others require darkness. Please try to purchase seeds requiring light, as this will mean you can set them up around the classroom.

Decorating the paper cups (as seen in the picture above) is optional. If you choose to include this activity, it should be done the week prior to the experiment.

Description of activity:

Setting up

Explain to the students that you will be doing an experiment to test how the amount of water a plant receives can affect its growth. Make sure to create links between the experiment and rainfall. Discuss how rainfall can vary in amount from day to day or during different seasons of the year. You can also discuss how the amount of rainfall can vary from place to place, for example in a rainforest versus the desert. Familiarise the students with the concepts of droughts and floods in relation to rainfall (ie not enough rain versus too much rain).

To get ready for the activity, split the class into groups of 3-4 students. Provide each group with 3 paper cups and some cotton wool (or alternatively they can go outside and fill their cups with dirt). They will also need spray bottles filled with water, however these can be shared between groups if there are not enough for one per group.

Get students to write their initials on each cup using permanent marker. They should also label one cup as "0", another as "1", and the final cup as "2". This will correspond to the amount of water the plants will receive.

Using the spray bottle, students should spray a small amount of water onto the cotton wool, and then place it into the cups (or spray the dirt so that it is moist).



When each group of students has prepared their cups, they will be ready to plant their seeds (we recommend that this is supervised by the teacher so students do not waste or use too many seeds). Sprinkle the seeds over the cotton wool/dirt and gently press them onto the surface.

Watering the seeds

Each of the three groups of seeds will receive differing amounts of water as follows:



Group "0": This group of seeds will receive **no further watering** beyond the initial moistening of the cotton wool during the set up process. It can be thought of as similar to drought conditions for the plants. Simply set aside this group of seeds until the end of the experiment as it requires no further action.

Group "1": This group of seeds should be **watered once per day** (eg in the morning). On the day of setting up, there will be no need to further water this group of seeds. However, for each of the following days they should be given 1 full spray in the morning (enough to make the cotton wool moist again).

Group "2": This group of seeds should be **watered twice per day** (eg once in the morning and once in the afternoon). On the day of setting up, you only need to water this group of seeds in the afternoon.

Depending on the number of spray bottles you have available in your classroom, you may like to send one or two groups at a time to water their seeds (it should only take about 2 minutes each time), whilst the rest of the class can continue to work on another activity.

Assessing the results

On the final day of the experiment (ie Friday if you began on Monday), students will be assessing their results. We have designed a worksheet to aid students in this process. Please print out the worksheets and distribute one per person.

Give the students time to draw their results. Following this, you can ask students from different groups to share their results with the rest of the class to compare. You may like to ask questions from the prompt box below to aid your discussion. It is expected that Group 0 will not grow much due to lack of water, Group 1 will grow well, and Group 2 may experience some mould from overwatering.

Concluding the activity

To conclude this activity, it is important to link these results to rainfall in the real world. You can discuss with students what might happen to plants when it doesn't rain enough (thinking of group 0) and you can also discuss what might happen to plants if it rains too much (thinking of group 2).

Additional Resources:

- ▶ The Tiny Seed by Eric Carle (storybook)
Read online at <https://www.youtube.com/watch?v=ls6wTeT2cKA>
- ▶ Video describing the different ways you can tell that rain is coming
<https://education.abc.net.au/home#!/media/30177/how-do-you-know-when-rain-is-coming->
- ▶ Video in which Grover from Sesame Street discovers that plants need water to grow
<https://www.youtube.com/watch?v=ZDjFZVqiLvY>

Key Questions to Ask

Which group of seeds grew the most?

Do the sprouts need water to grow? Do plants need rain?

Can you have too much rain?

What type of plants live in the forest where there is lots of rain?

What type of plants live in the desert where there is very little rain?

Do you like it when it rains? Do you think plants like it when it rains?



Name: _____.

Group Number	How often did you water this group?	What do they look like now? Draw a picture.	Circle the seeds that grew the best .
0	We did not water these seeds.		0
1	We watered these seeds in the morning only.		1
2	We watered these seeds in the morning and the afternoon .		2