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Technology Integration Workshop
2021

Unit Title: Life Cycles of Organisms and Needs of Plants

Grade Level: 3rd Grade

Subject Area: Science, writing

Duration/Length/Number of class periods: 2-3 weeks, 1 week of learning and 2-3 weeks of observation

Description: Students will learn plants need light and water for survival, exploring how varying amounts of light/ water can impact a plant's growth and life cycle.

While we are waiting for our plants to show growth, we will also discuss how organisms, with a main focus of plants, have a common life cycle, but it can vary based on different factors and type of plant.

Established Goals (National, State, Local):

Minnesota Science standards 2019

3L. 1.2.1.2. Plan and conduct an investigation to determine how amounts of sunlight and water impact the growth of a plant. (using fair tests and data to support explanations)

3L.3.1.1.2. Develop multiple models to describe how organisms have unique and diverse life cycles, but all have birth, growth, reproduction, and death in common.

ISTE Standards

3. Students apply digital tools to gather, evaluate and use information.

c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.

d. process data and report results

What Enduring Understandings are desired?

All organisms experience a life cycle. They need the right conditions to survive.

What Essential Questions will be considered?

How are sunlight and water important to plants?

How does the amount of water impact a plant's growth? Do some need more or less water for survival?

How does the amount of sun impact a plant's growth? Do some plants need more or less light for survival?

To what extent are all organisms alike? How are they different?

Students will know / be able to:

1. Students will know plants need water and light to survive and the amount of each is important to growth.
2. Students will know all organisms go through life cycle stages of life, growth, and death.
3. Students will be able to record their findings, record them on Google Sheets, and create a graph.
4. Student will learn what an infographic and use it to develop their own about life cycles.

Description	Formative	Summative	Introductory Activity	Learning Activity	Student Technology Used	Teacher Technology Used	ISTE Standards
Day 1: Main focus is on plant survival and experiment.							
Unit introduction: Learning target: I know what plants need to survive and about life cycles. Bring classroom "pet" plants up front of the room and introduce the learning target and start our discussion about plants. Students get Chromebooks out and open up the Padlet through Google Classroom. Padlet: Ask students to post things they know and want to learn about plants and organisms about what they need to survive and life cycles. (Teacher organize "post-its" into categories of plant and survival) Share and discuss the postings. Discuss the 5 things plants need: air, water, light, space, and nutrients. Ask: Are those the same things we need in order to survive? Is the amount of those things important or can it be any amount of light or water? What happens if one of the needs of a plant is missing? Brief discussion "That is what we are going to find out with our experiment!"	X		X	X	X		
Planting our seeds for experiment Materials: cups, soil, lima beans, sunflower seeds, or radish seeds With a partner, students will decide if they want to change the amount of water or the amount of light. Students will plant one with optimal sun and water. Explain control plant and how you can only change one thing. -Those who choose the water experiment will put them both in the window and give one plant less water each watering time. -Those who choose the sun experiment will put one in the window and then one in a different place in the room. Both plants will receive the same amount of water Introduce journal			X				

Ongoing: Students will track their plants' growth over a period of time, 2-3 weeks. Each day, they will measure the height of each plant (well-lit plant/poor light or well-watered/little water). They will record their findings each day (heights and appearance) in an observation journal. They will also indicate any plant development and growth.	X			X			
Post -it Exit ticket: what are 5 things plants need to survive?	X						
Day 2: Organism Life Cycles	Formative	Summative	Introductory Activity	Learning Activity	Student Technology Used	Teacher Technology Used	ISTE Standards
Introduction: While we are watching our plants and monitoring their growth with different amounts of light and water, we will also discuss the life cycle of organisms. Review Learning Target Review what plants need to survive (water, space, air, light, and nutrients) Those allow plants to have a good life. What about other organisms? Do they need these things as well? Introduce the term organism (any living thing) What would happen if they didn't have these things? (looking for---they would die, their life would end) What do we see in common between plants and other organisms, including ourselves? (Looking for the commonality of the life cycle between plants and organisms, birth/life, growth, aging, death) This leads us to our learning target: I understand all organisms go through a life cycle, but the life cycle isn't always the same.	X		X				
Look at Life Cycles of organisms-Use a few examples What is the life cycle of a butterfly? What about a frog? What about a human? A cat? Create anchor chart on ActivBoard with each of the examples discussed. Model different types of organizers Pair up students with animal + baby cards (sample cards)	X			X		X	

With a partner brainstorm life cycles of other animals, possibly draw visuals on whiteboards. *This is quick. Students don't need details about the life cycle in terms of ages, times, etc., just the steps. They can come up with more than one animal. Use examples to look at the commonalities and the differences. -Go back to learning target -review with anchor chart Plant and Animal Life Cycle Video and resources Possible anchor chart to use							
Plant experiment research-record, water, measure, etc.				X			
Day 3: Research	Formative	Summative	Introductory Activity	Learning Activity	Student Technology Used	Teacher Technology Used	ISTE Standards
Review Learning target Look at different plant life cycles and discuss how their location may affect the amount of water/ light the plant receives and how it may impact their life cycle. Also discuss how life cycles are the same but they are different for each type of plant			X			X	
Read a life cycle book			X				
Active board Flip Chart Redwoods: live for 1000+ years, produces offspring pinecones every year in maturity Apple trees: live for many years and produce fruit: Standard apple trees take 6-10 years before they are mature enough to bear fruit. Grape vines: about 3 years to mature and bear fruit, bear fruit each year Spider plant: 50+ years Petunia plant: 12-18 months Peas: short life cycle 70-80 days from seed to peas, can use peas to dry and create plants but main parent plant dies (sunflower, tomatoes, zucchini, etc.) Bowhead whales: 200 years, said to be oldest animal on planet Dog: 10-15 years, discuss different breeds have different life cycles too				X	X		

Students will begin their project of researching one plant or animal and its life cycle. Their goal is to create an infographic to compare their life cycle with that of another organism. Model what an infographic is and how to complete assignment Remind students about writing down sources for the final project. Students get Chromebooks and do research about a plant/animal's life cycle, finding facts about how long it takes to grow into adulthood, how long it lives, "right conditions" for its survival, etc.		X	X	X	X	X	X
Plant experiment research-record, water, measure, etc.				X			
Day 4: Creating infographic							
Remind students of essential questions and learning targets. Using research, students begin creating infographic. Model for students how to start/ create infographic. Review how to cite sources for pictures and facts used about their animal Discuss some of their findings and answer questions.		X		X	X	X	X
Plant experiment research-record, water, measure, etc.							
Day 5							
Mini quiz about organism life cycles		X					
Continue work on infographic as needed. Infographic is due next week to allow students time to import their personal images about their life cycle. Find app to create aged photos.		X					X
Plant experiment: research-record, water, measure, etc.							
Day 6-20 (until end of growing period)							
Share infographics with the class		X					
Continue plant research for the next few weeks. Water plants as needed, measuring each day. At the end of the designated growing period, students will take their final measurements. Students will input their measurements for each day recorded on a Google Spreadsheet template. Then turn their results into a graph to show the	X			X	X		X

growth of the two plants. Students will be creating a graph throughout the process of analyzing their plant's growth with light and water. Students share their findings with the class about their two plants. Discuss: what do they discover from the experience about plants which received more light vs. less light? more water vs. less water? Take discussion further to discuss plants that need less water and light and their adaptability. (can move this further up on in unit, but it is important for them to learn some of it on their own from experiment)							

Materials, tools and resources:

Day 1:
class plants
planting materials: seeds (Ex: sunflower, lima bean, radish), soil, cups, watering can
Chromebooks
Padlet set up
Data journals

Day 2:
Journals
whiteboards
animal partner cards
anchor charts
data journal

Day 3:
Chromebooks
Research websites and tools
data journals
information about different plant and animal life cycles

Day 4:
Chromebook
infographic resource and creator
data journals

Day 5:
Google classroom/ Google Sheets
data journals

Additional resources:
books about life cycles
information about infographics
student pictures

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