County Implementation Award Program (CIAP) Math and Science Lesson

Unit Title: Molecules and Organisms: Structures and Processes

Lesson Title: Blooming changes

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Grade Level:
4th

Time Frame:
1 week

Targeted Standard(s):

4-LS1-1. Construct an argument that plants, and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. [Clarification Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.] [*Assessment Boundary: Assessment is limited to macroscopic structures within plant and animal systems.*]

Mathematics -

4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded across the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. *(4-LS1-1)*

Short Description of Targeted Phenomenon:
Students will be asked to bring a flower of any type from home to see differences amongst a wide variety of flowers. Students will be observing the flower for a period of two weeks taking detailed notes on their observations.

Three Dimensions of NGSS

Science & Engineering Practice/s (SEP):

- **Engaging in Argument from Evidence:** Construct an argument with evidence, data, and/or a model.
- Students will be taking the data that they collect over a two-week period to construct arguments about the structures and how they are affected when the flowers are picked.

Crosscutting Concept/s (CCC):
Systems and System Models

- A system can be described in terms of its components and their interactions.

Students analyze the data to observe changes over time in the flower/s when they have been out of their environment.

Disciplinary Core Idea/s (DCI):
LS1.A: Structure and Function

- Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction

- Students will analyze the data to see the way that the flowers growth may be affected by the change in the flower's natural environment.

Language Supports:
Vocabulary Cards with the parts of the flower labeled.
Labeled posters with parts of the flower.

Materials Needed:
Anchor charts (poster side)
Students bring the flowers (have a few extra different flowers for students that don't bring one from home).
Observation recording sheets.

Objective(s): Students will be able to:
1. Identify lines of symmetry within the different parts of the flower (ex: leaves).

2. Record valuable data on the observations of their flower.

3. Observe the effects on the growth from the flower due to the change in the environment of the flower and changes in the structures.

How Math and Science concepts/skills/practices were integrated in this lesson:
The math and science concepts were integrated in the lesson because the students are able to conduct observations on the flowers. Through this the students can notice what parts of the flower have lines of symmetry.

Possible Challenges /Misconceptions:
Possible challenges are that not all students may bring a flower or a wide variety of flowers to show differences in the data we are analyzing.

Formative Assessment:
3,2,1- This formative assessment will help give a view of what:
3- things they didn't know before
2-things that surprised them about the topic
1-thing that they want to start doing with what they have learned.

Lesson Opening

Teacher Actions	**Student Actions**
Hello students, We are going to take a look at these images what do you notice about these different images. Turn to your partner and notice so similarities and differences amongst the images.	Students: Will look at images and see things that they find similar in the images.

Body of Lesson	
Teacher Actions Now that we have discussed some of the similarities and differences in the flowers above and made some observations we are going to look closely at other types of flowers. I have asked all of you to bring one type of flower so that we can make observations of the different characteristics of it.	**Student Actions** As you pass the flower around the students will be looking at the different things you had discussed as a whole group to observe. Once the flower has been passed around the students will sketch the flower onto one side of the blank piece of paper.

As you can see the flower that I have brought is a sunflower I am going to pass the flower around I would like you to look closely at the flower's different parts. I want you to look at the flower's stem, roots, leaves, flower, and seed. After the flower has been passed around- hand out a blank piece of white paper and have the students sketch an image of their flowers onto the paper. Tell students to recall thinking back to their lesson on symmetry in math and to relate it to the flower. Ask the question- What may be a line of symmetry in the flower? How do you know? **Day 2** Know that as a class we have done one flower as an example the students will now do their own and make observations. **Day 3** The students will continue to observe the flower that only has water to gain nutrients from. The students will record their observations in their science notebook daily for the next 3 days to notice any changes.	Once the students have finished drawing a sketch ask them to identify some pieces of the flower that may have lines of symmetry, highlight the various structures of the plant and the function that those structures serve that allow it to survive and reproduce. **Day 2** After the students do the flower I've selected as a class they will now take the flower they have brought and do the same with their own flower. **Day 3** Students are now recording their daily observations on their own in the science notebook and seeing if the changes in the flower's environment is affecting its growth.
Lesson Closure	
Teacher Actions The teacher will have the student look at their flower and record observations on any changes in the flower.	**Student Actions** Day 4-5 The students will on the 5th day share their observations with the class**.**
Summative Assessment: Students will pick a part of the flower that shows a line a symmetry. The student will make a report and describe the line of symmetry on the flower. The student will draw pictures each day of how that may change depending on the condition of the flower only receiving nutrients from water. Students will share their findings with their group.	
Other Teaching Resources:	
Lab Safety: No lab safety for this lesson needed.	
Extensions (if any):	