

3.8 Grow Your Own Bean

Story Extension for This Lesson:

Starting the process of seeding and nursing a plant through its growth will help students experience what plants have to go through.

Grade: 3

Strand: Growth and Changes in Plants

Big Ideas:

- Plants have distinct characteristics. (Overall expectations 2 and 3)
- Plants are the primary source of food for humans. (Overall expectation 1)
- Humans need to protect plants and their habitats. (Overall expectation 1)
- Plants are important to the planet. (Overall expectation 1)

Overall Expectations:

1. assess ways in which plants have an impact on society and the environment, and ways in which human activity has an impact on plants and plant habitats
3. demonstrate an understanding that plants grow and change and have distinct characteristics

Specific Expectations:

- 2.1 follow established safety procedures during science and technology investigations (e.g., avoid touching eyes when handling plants; never taste any part of a plant unless instructed to do so by the teacher)
- 2.3 germinate seeds and record similarities and differences as seedlings develop (e.g., plant quick-growing seeds, nasturtium, morning glory, sunflower, tomato, beet, or radish seeds, in peat pellets to observe growth)
- 2.5 use scientific inquiry/experimentation skills (see page 12), and knowledge acquired from previous investigations, to investigate a variety of ways in which plants meet their basic needs
- 2.6 use appropriate science and technology vocabulary, including stem, leaf, root, pistil, stamen, flower, adaptation, and germination, in oral and written communication

Inquiry Skills:

Recording, Gathering Data, Experimenting

Instructions:

- During the story, the plants and animals hint at what could be affecting them.
- Go back and make a list of possible obstacles that would stop the forest from growing properly.
- After you have made the list, choose one of the possible reasons why the plants are not doing well, and create an experiment to see the process of germination through growth.
- Everyone can choose their own reason because they will have their own seeds to experiment with.
- The class will have a selection of control seeds, and these plants will all have their needs met.
- Use the Smarter Science model developing your experimentation model.

Materials List:

- seeds
- soil
- pots
- pencils or pens
- paper

Assessment Strategy:

Begin the investigation by asking the students to consider what they believe is the main idea of the assignment. This creates an opportunity for the students to take charge of their learning. The students will create their own main topic sentence. This can be done using The Learning Process Sheet. The student can write down the "Big Idea" and then conference with the teacher about whether or not this is accurate. On The Learning Process sheet there is room for the student to write down any new information or suggestions that come up during the conference. Once the student has the correct concept, they are ready to move forward.

From the teacher's perspective, you could level (grade) the depth of their understanding of the big idea from the content of their conversation. This process is repeated at each of the four stages of The Learning Process: Introduction; Searching; Outline; and Ta Da. In this way, the teacher has observed the thinking of the students throughout the process of creation and can identify the actual learning of the student. Each stage can receive a level (grade), which the student can see and improve upon, or move forward (if the work is only defined as Level 2 work quality, does the child accept that or want to do better?).

Handouts:

- Sprouting Up

Sprouting up

During the story, the plants and animal hint at what could be affecting them. Go back and make a list of possible things that would stop the forest from growing properly.

Symptoms from the story	
-	
-	
-	
-	
-	
-	

After you have made the list, choose one of the possible reasons why the plants are not doing well, and create an experiment to see the effect from germination through growth. Every one can choose their own reason, because you will have your own seeds to experiment with.

The class will have a selection of control seeds who get all of the proper needs for the plant. Use the Smarter Science model developing your experimentation model.

The Learning Process

Inquiry Process: Introduce – *What is the BIG idea?*

Traits

- Where should I look?
- Draw and write ideas down
- Works with groups to create a plan
- Main (“Big”) Ideas
- Completed a meeting about Main (“Big”) Ideas

Step 1: The BIG Question

Step 3: Meeting Notes

Level:

Excellence = 4, Better = 3, Okay = 2, Needs work = 1

Inquiry Process: Search – *Developing Questions, Searching for Information and Answers*

Traits

- Listens, talks, views, and reads
- Uses the Q-chart
- Works with teams
- Completed a meeting to improve questions

Guiding Questions (One (1) guiding questions from each column and each row.)

	Is/Is not	Do\Did(not)	Can (not)	Would/Should	Will	Might/Could
Who						
What						
Where						
When						
How						
Why						

Write out the completed questions in full. (You may change these or add to them during the process.)

Who	
What	
Where	
When	
How	
Why	

Step 3: Meeting Notes

Level:

Excellence = 4, Better = 3, Okay = 2, Needs work = 1

Inquiry Process: Outline – *Intensify research, Synthesize Information, Connect Knowledge*

Traits

Inquiry	
- Engages in deeper reading and researching: Books, articles, and websites. - Checks sources, are they truthful Joins information - Cooperates - Use appropriate technology - Completed a meeting with teacher about notes	
Step 3: Conference Notes	Level:
Excellence = 4, Better = 3, Okay = 2, Needs work = 1	
Inquiry Process: “Ta Da!” – <i>Sharing Learning</i>	
Traits	
- Completed a meeting - Demonstrates their thinking Teaching others - Reflects upon the learning process - Works well and sharing with teams to complete project	
Step 3: Conference Notes	Level:
Excellence = 4, Better = 3, Okay = 2, Needs work = 1	

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