Elementary Science Plant Life Cycle

Unit Plan Template

Unit Author: Jessica Argese

Unit Title: “Leafing the Nest: The Life Cycle of a Plant”

Grade Level: 3rd Grade

Subject Areas: Science, Language Arts, Mathematics, and Art

Approximate Time Needed: 40 minutes per lesson

Unit Summary:
The purpose of this unit plan is to teach science concepts through a constructive approach and in collaborative groups about the plant life cycle. Throughout all lessons, there is scaffolding, differentiation to meet every student’s needs, and hands-on engaging activities. During this unit, students will “turn into scientists” as they learn about seeds, germinations, needs for a seed to grow, and the different parts of plants.
Unit Foundation:

Curriculum-Framing Questions (Inquiry):

• **Essential Question:** *How does a plant grow?*

• **Lesson Content Questions:**
  1. *What’s in a seed?*
  2. *What is germination?*
  3. *What are the needs for a seed to grow?*
  4. *What are the main parts of a plant?*
  5. *What are the four important factors of the plant life cycle?*

Targeted Standards and Benchmarks:

**New York State Core Curriculum Standards (Science)**

*Standard 4: The Living Environment*

4.1a Plants and animals have life cycles. These may include beginning of a life, development into an adult, reproduction as an adult, and eventually death.

4.1b Each kind of plant goes through its own stages of growth and development that may include seed, young plant, and mature plant.

4.1c The length of time from beginning of development to death of the plant is called its life span.

4.1d Life cycles of some plants include changes from seed to mature plant

3.1b *Each plant has different structures that serve different functions in growth, survival, and reproduction.*

• roots help support the plant and take in water and nutrients
• leaves help plants utilize sunlight to make food for the plant
• stems, stalks, trunks, and other similar structures provide support for the plant
• some plants have flowers
• flowers are reproductive structures of plants that produce fruit which contains seeds
• seeds contain stored food that aids in germination and the growth of young plants
Reading Standards for Informational Text K-5

3. Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.

Research to Build and Present Knowledge:

8. Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

Responding to Literature

11. Create and present a poem, narrative, play, art work, or personal response to a particular author or theme studied in class.

Text Types and Purposes:

2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly
   a. Introduce a topic and group related information together; include illustrations when to aiding comprehension.
   b. Develop the topic with facts, definitions, and details.

Research to Build and Support Knowledge

6. Conduct short research projects that build knowledge about a topic.

Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

   a. Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally.
   b. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations.
   c. Use temporal words and phrases to signal event order.
   d. Provide a sense of closure.
Student Objectives/Learning Outcomes:

- Understand the first stage of the plant life cycle
- Identify the three main parts of a lima bean
- Examine and dissect lima beans
- Reflect on their observations of a lima bean
- State the definition of “germination”
- Identify and analyze the three stages of germination
- Generate questions they have on germination
- Reflect on their journal observations
- Identify and investigate the five needs of the plant
- Formulate a hypothesis
- Critique other groups' hypotheses
- Identify and label parts of a plant
- Differentiate between different kinds of plants
- Create a book on the plant life cycle incorporating all content from lessons 1-4

- The student will be able to…

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<tr>
<th>Learning Outcomes</th>
<th>New York State Standard</th>
<th>NSTA Standard</th>
<th>ACEI Standard</th>
<th>Assessment</th>
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<td>Apply scientific inquiry to examine various seeds</td>
<td>3.1b</td>
<td>2, 3, 4, 5, 6</td>
<td>1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 4, 5, 5.2</td>
<td>Exit Cards, Science Notebook</td>
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<tr>
<td>Activity</td>
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| Discuss that plants have a life cycle that includes sprouting; developing roots, stems, leaves, etc. | 3.1a, 4.1a, 4.1b, 4.1c, 4.1d | 1, 2, 2, 3.1, 3.2, 3.3, 3.4, 3.5, 4, 5, 5.2 | - “Artsy Flower” project  
- Research Paper  
- Observational Assessment (Scavenger Hunt) |
| Examine the stages of the plant life                                   | 4.1a, 4.1b, 4.1c, 4.1d | 2, 3, 4, 5, 6 | - Discussion  
- Science Notebook  
- Checklist |
| Define plant life cycle                                                | 4.1a, 4.1b, 4.1c, 4.1d | 2, 3, 4, 5, 6 | -Discussion  
-Science Notebook |
| Label the different parts of a plant                                   | 3.1b | 2, 3, 4, 5, 6 | -Exit Tickets  
- Observational Assessment  
- Collaborative Group Activities |
| Reflect daily in science journals on observation of the growth of a plant | 3.1b, 4.1a, 4.1b, 4.1c, 4.1d | 3.1b, 4.1a, 4.1b, 4.1c, 4.1d | 1, 2, 2, 3.1, 3.2, 3.3, 3.4, 3.5, 4, 5, 5.2 | - Observational assessment in lesson #4  
- Research Paper |
Unit Overview:

- **Prerequisites:** Student will need to understand the idea of a life cycle and be introduced to the purpose of the lesson.

- **Key Lessons:**
  1. “What’s in a Seed?” (Students will be introduced to what a seed is and what is inside of it).
  2. “The Germinator!” (Students will learn what germination is and what the three stages are).
  3. “What are the Five Needs for a Seed to Grow?” (Students will construct their own learning to find out the five important needs for a seed to grow: air, water, light, soil, and space).
  4. “The Seed has Sprouted!” (Students will learn about the various parts of the plant.)
  5. “The Flourishing Life Cycle.” (Students will review all that they have learned in the four lessons)

- **Lesson Plans Attached**

6. **Applied Content Areas:**

  - **Math** - Measuring the length of the different parts of a plant and finding different “plant” products.
  - **Language Arts** – Writing research papers, creating life cycle books, and writing observations/reflections.
  - **Technology** – Video, Smart Board, and PowerPoint.
Key Terms / Vocabulary:

- Seed coat
- Embryo
- Food storage
- Seed
- Stage
- Microscope
- Hydration
- Metabolism
- Digestion
- Cell division
- Sucrose
- Dormancy imbibition
- Nutrients
- Autotroph
- Growth spurt
- Fertilizer
- Chlorophyll
- Photosynthesis
- Transplant
- Abdomen
- Roots
- Stem
- Leaves
- Flower
- Adaptation
- Environment
### Assessment Plan:

- Observational Assessment
- Checklists
- Science Notebooks
- Discussion
- Exit Tickets
- 3-D Models
- Hand-Made Book
- Research
- Unit Plan Test
- Extra Activities completed will be collected

*Note: Will be looking for clear statements of the problem and procedure, evidence of conceptual understanding, evidence of changes in understanding, and realism and accuracy in drawings.*

### Differentiation Strategies:

- Collaborative group work
- Modifying the lesson for each student’s learning styles and needs
- Hand-on activities (“catches” students’ attention)
- Mini-Lessons will be given for extra support
Materials and Resources:

**Materials**

1. Science Journal
2. Science Notebook
3. Pencil
4. Pre-soaked lima beans
5. Simple tools to dissect (tweezers, toothpicks, etc.)
6. Microscopes
7. “My Lima Bean” Worksheet
8. PowerPoint for Smart Board
9. Sunflower seeds
10. Water dropper
11. Plates
12. Plant at stage one of germination
13. Plant at stage two of germination
14. Plant at stage three of germination
15. Germination video
16. Plastic cup
17. Soil
18. Directions for each group
19. Water
20. Three buckets
21. Laminated cards with different parts of a plant
22. Tape
23. List of different types of plants
24. Drawing paper
25. Construction Paper
26. Computer (to type the story)
27. Color pencils/Markers

28. Laminator

Resources:

http://www.mdusd.k12.ca.us/valhalla/poems/little_plant.html#


http://plantsinmotion.bio.indiana.edu/plantmotion/earlygrowth/germination/germ.html

http://www.youtube.com/watch?v=OQT6piZOX7c

http://www.bing.com/images/search?q=flower+multipcation+games&qs=n&form=QBIR&pq=flower+multipcation+game&sc=0-0&sp=-1&sk=#view=detail&id=634024EDE6584E19A327C1CB4D151D45ECD0543&selectedIndex=3
Lesson Plan #1

Unit: “Leafing the Nest: The Life Cycle of a Plant”

By: Jessica Argese

“What’s In A Seed?”

Grade 3

Lesson Summary/Science Ideas and Content Questions:

Students will learn the parts of a seed and its purpose. They will be able to organize their thoughts, observe/dissect a lima bean, and have the opportunity to reflect in their science journal. Students will be able to take their experiment and incorporate it into language arts.

- What’s in a seed?
- What is the purpose of a seed?

Science Standards:

Science as inquiry

Science, language arts, and writing

Learning science by collaboration

Safety
Science-Core Standards:

*Standard 4: The Living Environment*

**4.1a** Plants and animals have life cycles. These may include beginning of a life, development into an adult, reproduction as an adult, and eventually death.

**4.1b** Each kind of plant goes through its own stages of growth and development that may include a seed, young plant, and mature plant.

**3.1b** Each plant has different structures that serve different functions in growth, survival, and reproduction.

- Seeds contain stored food that aids in germination and the growth of young plants.

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**Common Core Learning Standards English Language Arts:**

*Research to Build and Present Knowledge:*

8. Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

*Responding to Literature*

11. Create and present a poem, narrative, play, art work, or personal response to a particular author or theme studied in class.

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**Safety Procedures:**

An adult should be present throughout this lesson. Students will be reminded not to play around with the microscope or the dissecting tools. Students will also be informed that they may not eat the lima bean.

**Objectives:**

*Students will be able to:*

- Understand the first stage of the plant life cycle
- Identify the three main parts of a lima bean
- Examine and dissect lima beans
Reflect on their observations of a lima bean

**Engagement:** (Prior to the lesson, lima beans will be soaked in water over night so they are softer to dissect).

**Script:**

“Good afternoon scientists! We are now at that exciting time of the year to begin our new unit on the life cycle of plants. Our first lesson today is going to focus on the first stage of a plant as we experiment with lima beans. A lima bean is one type of a seed. First, I would like you to Turn and Talk with your neighbor and discuss the purpose of a seed, state various types of seeds, and name things that have seeds.”

After students Turn and Talk to activate their prior knowledge, the students briefly can share their answers and experiences about seeds to the whole class. As a group, on the Smart Board, a chart will be created where their answers will be written. There will be a brief discussion on how humans grow up in three main stages (baby, child, and an adult), as related to a plant’s growth. The seed is known as the very first stage for a plant.

**Students will be informed that today, they will be experimenting with lima beans**

**Exploration:**

**Materials:**

- Science notebook
- Pencil
- Pre-soaked lima beans
- Simple tools to dissect (tweezers, toothpicks, etc.)
- Microscopes
- “My Lima Bean” Worksheet
- PowerPoint for Smart Board
Directions/Procedures:

Students will split into groups of four. Students will receive their own worksheet, however, they will be placed at tables where students can collaborate, share observations, and share microscopes.

Each student will get to observe a lima bean using a microscope. Students will each have a plate with two/three lima beans to dissect.

1. Safety rules and directions on how to use a microscope and dissecting tools will be modeled and discussed.

2. Observe the lima beans focusing on size, shape, and texture.

3. Write in your science journal what you see, feel, and how you think this bean can grow.

3. Dissecting may begin!


5. Take a fun guess on what you think each name for each part of the bean is and label it on your picture.

5. Write any follow up reflections in your science journal after dissecting the lima bean.

Explanation:

Key Questions:

- What did you observe? Size? Shape? Texture?
- What stage does the lima bean play a role in the plant life cycle?
- What are the three main parts of the lima bean?

Vocabulary/Terms: seed coat, embryo, food storage, seed, stage, and microscope.

**Students will have the opportunity to come up to the Smart Board and label the three main parts of a seed**
**Elaboration:**

- Students will have the opportunity to plant their own lima bean and watch it grow throughout the unit. First, students will be given clay pots. They will have the opportunity to paint the pot. Once the paint is dry, students will be given a shovel, soil, and a lima bean. Students will plant their bean, water it, and put it next to the window on the shelf in the classroom.
- Students will then write in their science notebook what they have observed after they planted their seed.

**Extended Activity (Incorporating Language Arts):**

Students will write a poem after they plant their seed. They will have the opportunity to write about their seed and what they think will happen to it throughout its life cycle. After students compose their poem, students will have the opportunity to include illustrations. An example will be first read and shown to the students:

```
Little Plant

In the heart of a seed
Buried deep, so deep
A dear little plant
Lay fast asleep!

“Wake!” Said the voice
Of the raindrops bright.
The little plant heard
And it rose to see
What the wonderful
Outside world might be!
```
**Evaluation:**

*Formative Assessment:* Students will be observationally assessed as the teacher walks around the room to hear the students Turn and Talk to one another about their knowledge on seeds. Observational assessment will also be used during the discussion after dissecting and labeling the seeds. The science journal will be collected, as well as the “My Lima Bean” worksheet and the poems.

*Summative Assessment:* Students will be given an exit ticket at the end of the lesson. The exit ticket will have a picture of a lima bean and the students will have to label the three main parts of it.

**Differentiation:**

1. After this lesson, all science notebooks and written work will be reviewed. Observations will also be taken into consideration. A rubric will be used to see if the students successfully completed each objective. For those students who did not master the concept, a mini lesson will be conducted to re-teach the main purpose of a seed and its three parts.

2. There are vivid images on the Smart Board to engage students and help them easily follow along, incorporating a graphic organizer for visual learners.

3. Observing and giving time to dissect the seed along with painting the plant pot is beneficial for tactile learners.

4. Students are placed in mixed ability cooperative groups. The groups of four will be composed of two stronger learners and two students who may need more support.

5. Students will be able to share their ideas and support one another. Desks will be set up in groups to provide a supportive environment.

6. There will be computers provided for students who struggle with their fine motor skills so they can type their poem up.

**Resources:**

http://www.mdusd.k12.ca.us/valhalla/poems/little_plant.html#

“My Lima Bean”

Draw the outside of the lima bean.  Draw the inside of the lima bean.

Draw a picture of what you think your lima bean will look like as it grows.

** Now reflect in your science journal!
**Smart Board PowerPoint**

Unit: “Leafing the Nest: The Life Cycle of a Plant”

**Lesson #1:**
What’s In A Seed?

By: Miss Argese

Good Afternoon Scientists!

Turn and talk with your neighbor about:

- The purpose a of seed.
- What are different types of seeds?
- Things that have seeds.
# Our Knowledge About Seeds!

<table>
<thead>
<tr>
<th>PURPOSE</th>
<th>TYPES OF SEEDS</th>
<th>THINGS WITH SEEDS</th>
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Before we Explore... Microscope Directions!

1. Place the slide on the microscope
2. Use stage clips
3. Click nosepiece to the lowest setting
4. Look into the eyepiece
5. Use the coarse focus
   (Using High Power)
6. Follow steps to focus using low power
7. Click the nosepiece to the longest objective
8. Do NOT use the coarse focusing knob
9. Use the fine focus knob to bring to the slide

Time To Observe & Explore!

1. Observe the lima beans. Focus on size, shape, and texture.
2. Write in your science journal what you see, feel and how you think this bean can grow.
3. Dissecting may begin!
4. Complete “My Lima Bean” worksheet.
5. Take a fun guess on what you think each name for each part of the bean is and label it on your picture.
6. Write any follow up reflections in your science journal after dissecting the lima bean.
Our Scientific Vocabulary

Words!
- Seed coat
- Embryo
- Food storage
- Seed
- Stage
- Microscope

Parts of a Seed!
Your Turn!
Time To Plant Our Lima Bean!

1. Paint your pot!

2. Use your shovel to put the soil into the pot.

3. Place in seed into the soil and cover soil on top.

4. Pour the water on top of the soil!

Plant Poetry!

IN THE HEART OF A SEED BURIED DEEP, SO DEEP,
A DEAR LITTLE PLANT LAY FAST ASLEEP!
"WAKE!" SAID THE SUNSHINE,
"AND CREEP TO THE LIGHT!"
"WAKE!" SAID THE VOICE
OF THE RAINDROPS BRIGHT.
THE LITTLE PLANT HEARD
AND IT ROSE TO SEE
WHAT THE WONDERFUL
OUTSIDE WORLD MIGHT BE!
Lesson Plan #2

Unit: “Leafing the Nest: The Life Cycle of a Plant”

By: Jessica Argese

“The Germinator!”

Grade 3

Lesson Summary/Science Ideas and Content Questions:

Students will explore three different centers to learn about the three stages of germination. They will be able to practice following directions, and reflect and compare observations in their science journal. Students engage in their adventure at each center and incorporate their knowledge into measurement.

❖ What is germination?
❖ What are the three stages of germination?

Science Standards:

Science as inquiry
Science, language arts, and mathematics
Learning science by collaboration
Safety

Science-Core Standards:

3.1b Each plant has different structures that serve different functions in growth,
survival, and reproduction.

- Flowers are reproductive structures of plants that produce fruit which contains seeds.
- Seeds contain stored food that aids in germination and the growth of young plants.

Common Core Learning Standards English Language Arts:

*Reading Standards for Informational Text K-5*

3. Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.

Safety Procedures:

An adult should be present throughout this lesson. Students will be reminded not to eat any of the seeds and will be reminded of the Internet safety rules.

Objectives:

*Students will be able to:*

- State the definition of “germination”
- Identify and analyze the three stages of germination
- Generate questions they have on germination
- Reflect on their journal observations

Engagement:

*Script:*

“Good afternoon scientists! Last class, we learned about the first stage of a plant life cycle. Who can tell me what a plant looks like at this stage? “A seed!” Correct! We also learned different parts of a seed and were able to create observations from dissecting them. Who would like to come up to the Smart Board and label the three main parts of a seed? (Students label: “embryo,” “food storage,” and “seed coat”) Great! Does anyone have any questions? I would like all of you to grab your pot that you planted your seed in, bring it to your desk, make
observations, and write them down in your science journal. What looks different? What looks the same?”

After students write their observations in their science journal, students will each be given a sunflower seed. From observing the seeds, students will be told that the next stage is known as “germination.” Students will write down in their science notebook what they think germination is and write at least three questions they have about germination.

*Note: Teacher will model how to use water dropper before students begin center #1.*

**Exploration:**

**Materials:**
- Sunflower seeds
- Water dropper
- Plates
- Plant at stage one of germination
- Plant at stage two of germination
- Plant at stage three of germination
- Germination video
- Pencil
- Science notebook

**Directions/Procedures:**

Students will be placed into the same groups of four from the previous lesson. There will be three different centers the students will rotate through. There will be three of each center set up so students can all begin at center #1. Each center will be left with directions and a student will be assigned to be the reader. The students only know that the next stage of the life cycle is called “germination,” but do not know any other information. Students will have the chance to construct their own learning.

**Center #1:** Students will each be given a seed and water dropper. Students will be given time to observe a sunflower seed using their five senses. Students will then place their seed on a plate. They will take their water droppers and drop three drops of water on to the seed. Students will
be able to see the mucus unfold. At this time, the students will flip to the last page in the directions where it will state that they are actually observing germination.

Center #2: There will be three plants on the table. All of the plants will be at different stages of the germination process and will be placed out of order. On the first page of their direction sheet, there will be a hint for them stating that there are three stages of germination. Students have to collaborate to place the plants in the correct order. After students place the plants in order, there will be an index card where they will label each stage. After students can write for each card, “stage 1,” “stage 2,” “stage 3,” and place it near the pot. Then students will look under the bottom of the pot where there will be cards with the answers. On that same card, there will also be written the name of each stage along with a brief description. Students can read each card aloud and discuss with their partner each stage. If their prediction were wrong, students can self-correct and read the cards for the explanation.

Center #3: Students will watch a brief video of a plant germinating. After they watch this video, they are to write in their science notebook what they have learned and answer any of their questions they have answered from the “engagement” part of the lesson. They will compare their answers to see if they were on the right track of the definition of “germination.”

(Will have each parent/guardian sign a permission form for students to go on this website)

   Video:

   http://plantsinmotion.bio.indiana.edu/plantmotion/earlygrowth/germination/germ.html

Explanation:

Key Questions:

- What is the second stage of a plant life cycle known as?
- What happened to the seed when drops of water were dropped on it and why did that happen?
- What happens during stage one? Hydration and Metabolism.
- What happens during stage two? Digestion of Stored Food and Translocation of Nutrients.
- What happens during stage three? Cell Division and Growth?
Elaboration:

Students will be able to see a seed go through the three complete stages of germination without having the seed buried in soil. Students will each be given a plate. A seed will be distributed and students can place the seed on the plate. Students will place filter paper on top of the plate. They can then create a hypothesis of what they believe will happen to the seed. Students may then bring home the plate (must be kept in a warm temperature) and at home they can observe the seed in the morning and at night and record all observations in their journals. Students will be able to see the complete process of germination and convey their conclusions.

Extended Activity (Incorporating Math):

Students will have the opportunity to measure a sunflower seed, a sunflower seed in its third stage of germination, and a full sunflower. After students use their rulers to measure all three, their data can be discussed with the class and written on the Smart Board.

Evaluation:

Formative Assessment: Students will be formatively assessed through observational assessment throughout each center and at the end of the lesson’s discussion. As the teacher walks around, a checklist will be used and observation notes will be written. Student’s science notebooks will also be collected.

Summative Assessment: Students will be given a worksheet with a picture of the three stages of germination. Students are to number the correct order and label each stage. After, they will be asked to write their own definition for germination.

Differentiation:

1. After this lesson, all science notebooks will be collected and written work will be reviewed. Observations will also be taken into consideration. A rubric will be used to see if the students
successfully completed each objective. For those students who did not master the concept, a mini lesson will be conducted to re-teach the content.

2. Students are placed in mixed ability cooperative groups. The groups of four will be composed of two stronger learners and two students who may need more support. Students will be able to share their ideas and support one another. Desks will be set up in groups to provide a supportive environment.

3. Visual learners during centers are able to see the seed, see the order of the different stages of each plant, and watch the germination video to see the stages form together.

4. Tactile learners are able to touch the seed and use the water droppers in order to see the mucus. They also are able to touch and move the pots to put the stages in the right order.

5. Kinesthetic learners are able to move around from center to center while learning.

6. If a student is partially blind, I can enlarge the text so he or she can see it better (for any handouts).

Resources:


http://plantsinmotion.bio.indiana.edu/plantmotion/earlygrowth/germination/germ.html
INTERNET SAFETY
CONTRACT FORM FOR MISS ARGESI’S CLASSROOM

I ______________________________ promise to obey all classroom rules about using the Internet.

- I will not bend the rules about which websites I may visit.
- I will follow the rules about how long I’m allowed to stay online.
- I will never open an email attachment from someone I don’t know or click on a web link or pop-up.
- I will never share my name, address, or telephone number or the name of my school. If anyone asks me for this information, I will tell my teacher, parent/guardian, or an adult I trust.

Student Signature: ___________________________ Date: ____________

Parent Signature: ___________________________ Date: ____________

Teacher Signature: ___________________________ Date: ____________
Hello Scientists!

• You are now at Center #1! Each of your group members may take a sunflower seed. First, observe your seed using your five senses. Then, take a water dropper and drop three drops of water on your sunflower seed!

• Write in your science journal all of your observations. Make sure to put your date in your journal and title it “Center #1 - Germination.”

You may now move to the next center!
Way to go! You’re now at Center #2!

As you can see, there are three pots that look different...

Fun Fact: There are three stages to the germination process!

1. Try to put the plants in the order of the germination process.

2. Then, take an index card for each stage and label the stage that applies.

3. Once you labeled all three stages on your index card, flip to the next
Center #2 Continues...

• On the bottom of each pot, there are the answers! Decide which member would like to read out loud each answer and read the name of the stage and description of the stage.

• If your predictions are wrong, rearrange the pots so they are in order and discuss why the process goes in this order.

You may now move to the next center!
You are now at the final center!

1. You may go onto the computers. On the desktop, there will be a link to a plant website.

2. This link will lead to a video to watch the germination process. You may click “play!” Remember to put your headphones on.

   Don’t forget about your classroom computer contract rules!

3. What did you think of this video? Share with your group. Then, open your science journal to see if you have answered any questions and compare your first germination definition to what you think it is now!
Unit: “Leafing the Nest: The Life Cycle of a Plant”
Lesson #2: “The Germinator!”

By: Miss Argese

What do we like to do?
REVIEW, REVIEW!
Grab your pot where you planted your seed!
- What looks different?
- What looks the same?

**Write down your observations in journal.

The second stage of the plant life cycle is known as “germination.”
- What do you think germination means?

Centers!!!
Put your science goggles on to explore what “germination” is!

Read and follow each direction in your packet at each center!
**Key Questions!**

1. What is the second stage of a plant life cycle known as?
2. What happened to the seed when drops of water were dropped and why did that happen?
3. What happens during stage one? Hydration and Metabolism.
4. What happens during stage two? Digestion of Stored Food and Translocation of Nutrients.
5. What happens during stage three? Cell Division and Growth.

**Scientific Vocabulary Words!**

- Hydration
- Metabolism
- Digestion
- Cell division
- Sucrose
- Dormancy
- Imbibition
- Autotroph
Let’s take a closer look....

1. You will each be given a plate.
2. A seed will be distributed and you can place the seed on the plate.
3. Place the filter paper on top of the plate.
4. Create a hypothesis of what you believe will happen to the seed.

Measuring!
Write your data in the box.
Lesson Plan #3

Unit: “Leafing the Nest: The Life Cycle of a Plant”

By: Jessica Argese

“What are the Five Needs for Seeds to Grow?”

Grade 3

Lesson Summary/Science Ideas and Content Questions:

Students will work in collaborative groups as they follow directions on how to take care of a seed. Students will be able to form a hypothesis and reflect on other student’s hypotheses. This lesson can continue into language arts as students observe their plants and use their scientific terms to explain if their hypothesis was accurate.

- What are the five needs for seeds to grow?
- What is the importance of each need?

Science Standards:

Science as inquiry

Science and Language Arts

Learning science by collaboration

Safety
Science-Core Standards:

Key Idea 1:

Living things are both similar to and different from each other and from nonliving things.

1.1b Plants require air, water, nutrients, and light in order to live and thrive.

1.2a Living things grow, take in nutrients, breathe, reproduce, eliminate waste, and die.

Common Core Learning Standards English Language Arts:

Text Types and Purposes:

2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

a. Introduce a topic and group related information together; include illustrations when to aiding comprehension.

b. Develop the topic with facts, definitions, and details.

Safety Procedures:

An adult should be present throughout this lesson. Students will be reminded not to eat any of the seeds or to play around with any of the materials.

Objectives:

Students will be able to:

- Identify and investigate the five needs of the plant
- Formulate a hypothesis
- Critique other groups' hypotheses
Engagement:

Students will have the opportunity to review what was learned from the previous germination lesson. Students will answer the following questions on germination: “What is germination?” and “What are the three stages of germination?”

After the teacher activates prior knowledge from the previous lesson, the students will then be asked to take out their science journal. Students may take a look at their plant and write down any observations. What looks different? What looks the same? What stage of its life cycle is the plant now at?

Script:

“So far, we have learned about seeds, their purpose, and how seeds germinate. However, the seed does not just grow from germination. “Turn and Talk” for a minute with your partner about what else a plant may need in order for it to grow. I will set the timer, so after one minute, you must write down your thoughts in your science journal.”

After students write down their thoughts in their science journals, they can share what they wrote with one another. Students will then be informed that all they need to do is remember that there are “five needs for a seed!” Student will then watch a brief video titled, “The Needs of A Plant:” http://www.youtube.com/watch?v=OQT6piZOX7c

Exploration:

Materials:

- Plastic cup
- Soil
- Sunflower seed
- Directions for each group
- Water
- PowerPoint for Smart Board

Directions/Procedures:

Students will be broken up into groups of four. The groups will be given a cup, soil, and a seed to plant. A member in each group will be assigned a role. There will be a facilitator, planter, group harmonizer, clean up/set up manager, and the artist (Students will know these jobs which were in taught in a previous lesson).
- Students will follow the directions on what to do in order to prepare this plant for a successful growth, fulfilling their given role.

- The first group will have accurate directions for the plant to successfully grow.

- The second group will be told not to water their plant.

- The third group will be told not to put their plant in the sunlight.

- After students complete their directions and fulfill each of their roles, as a group, they will create a hypothesis for their plant.

- Students will then gather together on the main rug. Students will be informed that each group had a different set of directions.

- Each group will have the opportunity to come up and read their directions aloud and their hypothesis. Students will be able to share if they agree with each hypothesis, elaborating on why or why not.

- At this time, the teacher will stress how important the five needs of the seed are!

**Explanation:**

**Key Questions:**

- What are the five needs of a seed?
- What is so important about each need? How are seeds like humans?
- What do our hypothesis for each group lead us to think?

*Vocabulary/ Terms: growth spurt, fertilizer, chlorophyll, photosynthesis, transplant, and abdomen.*

**Elaboration:**

A knowledgeable guest speaker (perhaps a gardener or farmer) can come in and talk with the students about how important air, water, light, soil, and space is for a plant (the five needs). The speaker can also go into more depth explaining fertilizer, chlorophyll, photosynthesis, etc. After explaining the different terms and needs, the speaker can share why he or she is interested in this subject area and how students can easily create their own garden at home.
Extended Activity (Incorporating Language Arts):

A couple of days later, students may get back into their groups of four and observe the seed they planted. Students will be able to write in their science notebooks what they observed and why they are observing what they are. For example, if the seed never germinated, the students need to explain why it didn’t, using their vocabulary words. After students write a description and explanation about their plant, students can share and see if their hypotheses about each plant were accurate.

Evaluation:

Formative Assessment: Students will be formally assessed as the teacher observes each student’s engagement in his or her job and discussion in their groups. The teacher will serve as a facilitator, asking questions as students are working in their groups. The teacher can also collect their science notebooks and read their observations.

Summative Assessment: Students will be given a questionnaire to fill out about how they felt when working in groups. Students will also be asked to take a sheet of paper for their Exit Ticket and write the five needs of a seed and the importance of each.

Differentiation:

1. After this lesson, all science notebooks and written work will be reviewed. Observations will also be taken into consideration. The teacher will use a rubric to see if the students successfully completed each objective. For the students who did not, the teacher will conduct a mini lesson to re-teach.

2. Students are each assigned a job in their group. The job will be chosen on what best role would fit the student’s leaning style and interest. For example, a student who loves to draw would be given the artist role (they would draw what they think the plant will look like when it is completely grown after following their given directions).

3. Students are placed in mixed ability cohesive groups. The groups of four will be composed of two stronger learners and two students who may need more support. Students will be able to share their ideas and support one another. Desks will be set up in groups to provide a supportive environment.
Resources:

http://www.youtube.com/watch?v=OQT6piZOX7c
Student Questionnaire On “Five Needs of A Seed” Lesson!

Name: ____________________

Date: ____________________

Directions: Mark an “X” on the line to the left of each answer that is most like how you feel for each question. Remember, this is not a test. There are no right answers. I want to know what you think.

1. How interesting did you find your work in the group?

   _____ a. Very Interesting.

   _____ b. Fairly Interesting.

   _____ c. Somewhat Interesting.

   _____ d. Not very interesting.

   _____ e. I was not interested at all.

2. How difficult did you find your work in the group?

   ______ a. Extremely difficult.

   ______ b. Fairly difficult.
c. Sometimes difficult.

d. Not too difficult -- just about right.

e. Very easy.

3. Did you understand exactly what the group was supposed to do?

a. I knew just what to do.

b. At first I didn’t understand.

c. It was never clear to me.

4. For Multiple Ability Tasks

a. What abilities did you think were important for doing a good job on this task?

b. Was there one ability on which you thought you did very well?

   Yes

   No

5. How many times did you have the chance to talk during the group session today?

   a. None.

   b. One or two times.

   c. Three to four times.

   d. Five or more times.
6. If you talked less than you wanted to, what were the main reasons?

   _____ a. I felt afraid to give my opinion.
   _____ b. Somebody else interrupted me.
   _____ c. I was not given the chance to give my opinion.
   _____ d. I talked as much as I wanted to.
   _____ e. Nobody paid attention to what I said.
   _____ f. I was not interested in the problem.
   _____ e. I was not feeling well today.

7. Did you get along with everybody in your group?

   _____ a. With few of them.
   _____ b. With half of them.
   _____ c. With most of them.
   _____ d. With all of them.
   _____ e. With none of them.
8. How many students listened to each other’s ideas?

_____ a. Only a few of them.

_____ b. Half of them.

_____ c. Most of them.

_____ d. All of them, except one.

_____ e. All of them.
Activity Card – Five Needs for Seeds!

Jobs:

Facilitator- Student’s name
  • Read directions and record responses.

Planter – Student’s name
  • Follow planting directions carefully.

Group Harmonizer – Student’s name
  • Lead discussions and make sure everyone has a chance to share their ideas.

Material Manager– Student’s name
  • Get materials and make sure you listen to everyone’s ideas.

The Artist – Student’s name
  • Draw a picture about what your group thinks your plant will look like. Make sure you listen to everyone’s ideas.
Lab Directions (Group A)

1. **Facilitator** read directions.
2. **Material Manager**, go grab all the supplies.
3. **Group Harmonizer** read norms:
   - Norms: Listen to all students and show respect to your peers
4. **Planter** – Follow the directions below carefully:
   - Place soil in cup
   - Burry seed into soil
   - Use your water dropper to drop three drops of water onto soil
   - Place on ledge near window
5. **Group Harmonizer**, lead a group discussion on what you think will happen, creating a hypothesis. Ask the group, “What do you think the plant will look like after it goes through all stages?”
6. **Facilitator** – Record hypothesis on index card to place near your plant.
7. **Artist** – Use hypothesis to draw what plant will look like.
8. **Materials Manager** – Bring supplies back and make sure desks are cleaned.
Lab Directions (Group B)

1. **Facilitator** read directions.
2. **Material Manager**, go grab all the supplies.
3. **Group Harmonizer** read norms:
   - **Norms**: Listen to all students and show respect to your peers
4. **Planter** – Follow the directions below carefully:
   - Place soil in cup
   - Burry seed into soil
   - Place on ledge near window
5. **Group Harmonizer**, lead a group discussion on what you think will happen, creating a hypothesis. Ask the group, “What do you think the plant will look like after it goes through all stages?”
6. **Facilitator** – Record hypothesis on index card to place near your plant.
7. **Artist** – Use hypothesis to draw what plant will look like.
8. **Materials Manager** – Bring supplies back and make sure desks are cleaned.
Lab Directions (Group C)

1. **Facilitator** read directions.

2. **Material Manager**, go grab all the supplies.

3. **Group Harmonizer** read norms:
   - **Norms:** Listen to all students and show respect to your peers

4. **Planter** – Follow the directions below carefully:
   - Place soil in cup
   - Bury seed into soil
   - Use your water dropper to drop three drops of water onto soil
   - Place on ledge near window

5. **Group Harmonizer**, lead a group discussion on what you think will happen, creating a hypothesis. Ask the group, “What do you think the plant will look like after it goes through all stages?”

6. **Facilitator** – Record hypothesis on index card to place near your plant.

7. **Artist** – Use hypothesis to draw what plant will look like.

8. **Materials Manager** – Bring supplies back and make sure desks are cleaned.
Unit: “Leafing the Nest: The Life Cycle of a Plant”

Lesson #3
“What are the five needs for seeds?”

By: Miss Argese
What do we like to do?
Review, Review!

What is germination?

What are the three stages of germination?

TURN AND TALK!

Timer:
http://www.timeme.com/timer-stopwatch.htm

A seed doesn't just grow from germination!

What does it need?

Video: http://www.youtube.com/watch?v=OQT6piZOX7c
Centers!

1. Get into your groups:

   Group A:  
   Group B:  
   Group C:  

   (Names would be listed)

2. Take your direction sheet and see who is assigned to what job.

3. Begin your activity!!

---

Guest Speaker!

Write down in your science journals any questions you may have!
Lesson Plan #4
Unit: “Leafing the Nest: The Life Cycle of a Plant”
By: Jessica Argese

“The Seed has Sproute!”

Grade 3

Lesson Summary/Science Ideas and Content Questions:
Students will be able to identify the different parts of a plant (stem, leaf, and root) and state details about and differentiate between various types of plants. Students will also be able to see how beneficial plants are to their everyday lives.

❖ What are the main parts of a plant?

Science Standards:
Science as inquiry
Science and Language Arts
Learning science by collaboration
Safety
Science-Core Standards:

Standard 4: The Living Environment

3.1b Each plant has different structures that serve different functions in growth, survival, and reproduction.

- roots help support the plant and take in water and nutrients
- leaves help plants utilize sunlight to make food for the plant
- stems, stalks, trunks, and other similar structures provide support for the plant
- some plants have flowers

Common Core Learning Standards English Language Arts:

Research to Build and Support Knowledge

7. Conduct short research projects that build knowledge about a topic.

Safety Procedures:

An adult should be present throughout the entire lesson. Students will be reminded that when they go outside, it is not to play around, but rather to learn. Students will be told to walk at all times while they are outside. Students will review their Internet contract form before doing online research. For the extended activity, there will be extra adults in the room. Both activities will be modeled first and students will be informed not to play with the toothpicks or point them at any of their classmates due to the sharpness involved.

Objectives:

Students will be able to:

- Identify and label parts of a plant
- Differentiate between different kinds of plants
Engagement:

Students will have the opportunity to briefly review what they learned in the previous lesson about the needs of a seed. Students will have the opportunity to come up to the Smart Board and list the five needs of a seed. Afterwards, they may observe their plant and write down any observations in their science journal. They are to write which part of the life cycle the plant is currently at.

Students will then be shown a sunflower. They will be able to get into their groups from the previous lesson. Together, students will use the strategy “Think-Pair-Share.” Students will be asked to think about: what are the parts of plants and what are the different types of plants out there. After brainstorming their ideas, they may come up to the Smart Board and write down their answers.

Exploration:

Materials:

- Three buckets
- Laminated cards with different parts of a plant
- Tape
- List of different types of plants
- Drawing paper
- Computers

Directions/Procedures:

Students will have the opportunity to go on a scavenger hunt in their groups. This scavenger hunt will be outdoors on the playground.

- There will be laminated different cards where each has a picture of a part of a plant that will be taped along the swings, slides and so forth. All parts will be different types from various plants.

- This gives students the opportunity to enjoy the outdoors, as they search for their various parts of a plant. There will be four buckets, and each will be labeled, “stems, roots, leaves, and flowers.”

- Students are to find picture cards and place them into the appropriate buckets. There will be a total of fifteen cards for each bucket.
- Students will then go back into the classroom. The class will be broken into four groups.

- Each group will be given a bucket. They will sort out all of the cards and make sure each was correctly placed in the accurate bucket.

- Another set of cards will contain facts and a description of what plant the part belongs to. Students, as a group, will have to match each picture with its description.

**Explanation:**

**Key Questions:**

1. What are the four main parts of a plant?
2. How are plant parts connected?
3. How are plants helpful to humans?

*Vocabulary/Terms: roots, stem, leaves, flower, adaptation, and environment.*

**Elaboration:**

Students choose any plant of their choice and research how the plant is beneficial to humans and if it produces a type of food. Students will be allowed to go on certain online sites provided and use library books. This is a time where the students will be working in the library. Students are to write a one page research paper on their chosen plant.

**Extended Activity (Incorporating Art):**

*Artsy Flowers*- Student will go to the art room and mold a flower out of clay. Students will be able to paint their flower and then, label each part using toothpicks with a strip of paper glued to it. The toothpick must be put into the clay before it dries. Research will be required before the activity so they know what to label each part.
**Evaluation:**

*Formative Assessment:* Student’s science notebooks will be collected. Students will have to answer after the lesson:

1. What do I do?
2. What happened?
3. What did I find out?

At this point in the unit, students’ thoughts should be developing and students should recognize that the plants have gone through germination. Students will be observationally assessed from reading answers on the Smart Board from “Think-Pair-Share” and throughout the scavenger hunt and matching activity.

*Summative Assessment:* Students’ research papers will be collected and graded. Students will also write down the three parts of a plant on their Exit Ticket.

**Differentiation:**

1. After this lesson, all science notebooks and written work will be reviewed. Observations will also be taken into consideration. The teacher will use a rubric to see if the students successfully completed each objective. For the students who did not, the teacher will conduct a mini lesson to re-teach.

2. Students are placed in mixed ability cooperative groups. The groups of four will be composed of two stronger learners and two students who may need more support. Students will be able to share their ideas and support one another. Desks will be set up in groups to provide a supportive environment.

3. Kinesthetic learners are able to move around on the playground as they search for the plant parts.

4. Students who are advanced on this topic have the opportunity to do more research.

5. Visual learners have the opportunity to use the pictures on the cards to learn about different plants as they match the description to the picture.
6. Tactile learners are able to create their own 3D flower and label the parts.

**Resources:** N/A
INTERNET SAFETY CONTRACT FORM FOR MISS ARGESSE’S CLASSROOM

I _______________________________ promise to obey all classroom rules about using the Internet.

- I will not bend the rules about which websites I may visit.
- I will follow the rules about how long I’m allowed to stay online.
- I will never open an email attachment from someone I don’t know or click on a web link or pop-up.
- I will never share my name, address, or telephone number or the name of my school. If anyone asks me for this information, I will tell my teacher, parent/guardian, or an adult I trust.

Student Signature: ______________________________ Date: ____________

Parent Signature: ______________________________ Date: ____________

Teacher Signature: ______________________________ Date: ____________
Unit: “Leafing the Nest: The Life Cycle of a Plant”

Lesson #4:
“The Seed has Sprouted!”

By: Miss Argese

What do we like to do?
Review, Review!

Five needs of a seed!

1.
2.
3.
4.
5.
**THINK-PAIR-SHARE!**

<table>
<thead>
<tr>
<th>Parts of a plant</th>
<th>Different types of plants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Image of children with backpacks](image-url)
Scavenger Hunt!

1. Sort through your bucket assigned and check to make sure all picture cards are in the correct bucket. If not, figure out with your group where it should be placed.

2. Take your various pictures of your plant part. Use your other deck of cards and read the description and facts aloud. Try to match the two cards (description and picture) together!

Research Papers!

After reading about different plants, brainstorm a plant you would like to learn more about. We will use our research and writing skills to become knowledgeable scientists!
Artsy Flower!

Create your flower out of clay!
Lesson Plan #5

Unit: “Leafing the Nest: The Life Cycle of a Plant”

By: Jessica Argese

“The Flourishing Life Cycle”

Grade 3

Lesson Summary/Science Ideas and Content Questions:

Students will review all that they have learned in the four lessons. They will take their knowledge of the life cycle of a plant and create a storybook, using specific content, illustrations, and vocabulary words.

❖ What are the four main parts of the life cycle?

Science Standards:

Science as inquiry
Science, Language Arts, and Mathematics
Learning science by collaboration
Safety
Science-Core Standards:

Standard 4: The Living Environment

4.1a Plants and animals have life cycles. These may include beginning of a life, development into an adult, reproduction as an adult, and eventually death.

4.1b Each kind of plant goes through its own stages of growth and development that may include seed, young plant, and mature plant.

4.1c The length of time from beginning of development to death of the plant is called its life span.

4.1d Life cycles of some plants include changes from seed to mature plant.

3.1b Each plant has different structures that serve different functions in growth, survival, and reproduction.

• roots help support the plant and take in water and nutrients
• leaves help plants utilize sunlight to make food for the plant
• stems, stalks, trunks, and other similar structures provide support for the plant
• some plants have flowers
• flowers are reproductive structures of plants that produce fruit which contains seeds
• seeds contain stored food that aids in germination and the growth of young plants

Common Core Learning Standards English Language Arts:

Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
a. Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally.

b. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations.

c. Use temporal words and phrases to signal event order.

d. Provide a sense of closure.

Safety Procedures:

Students will be reminded not to play with the scissors when cutting and pasting their text into their book. Students will also not be allowed to use the laminator machine. Students will ask an adult when their book is ready to be finalized.

Objectives:

Students will be able to:

- Create a book on the plant life cycle incorporating all content from lessons 1-4

Engagement:

Students will first have an opportunity to review the four parts of a plant from the previous lesson. Students will then take out their science journals and observe their plant. This is the time for the student to write any final reflections and observations (student can take their plant home this day).

Student will then be asked to come up to the board at the same time and write one thing that they have learn through out the past four lessons. Students will then sit back down in their seats. The students will be able to see all the different ideas and facts that were written and copy it down into their science notebook. The students will then be informed that the next stage is death and the life cycle begins all over again.

Exploration:

Materials:

- Construction Paper

- Computer (to type the story)
- Color pencils/ Markers
- Laminator

Directions/Procedures:

Students will have the opportunity to create their own personal plant life cycle book.

- A hand-made book will be modeled so the students can see an example.
- Each book will include a title page, the three main parts of a seed, the facts/process of germination, the needs of seeds and the parts of a plant.
- Student’s book will include illustrations, labels, vocabulary words learned, and a story. The story can get as creative as students would like as long as its main theme still focuses on the plant life cycle.
- Students may use their science notebook and journal to look back on their notes. Students will use a checklist of what needs to be incorporated into the book.
- As they create their book, they can check off what they have incorporated.

Explanation:

Key Questions:

1. What happens after the plant grows?
2. What are the three main parts of a seed?
3. What is germination?
4. What are the needs of a plant?
5. What are the parts of a plant?

Vocabulary/Terms: All will be reviewed in lessons 1-4.
Elaboration:

Students will be able to read their book to the class. After all students have shared their story with the class, they will sketch and paint a garden on piece of banner paper. This banner will be hung up in the hallway. In the middle of the poster, students’ plant books will be displayed.

Extended Activity (Incorporating Math):

Students will be able to practice times tables for 6-9. There will be equations written on a paper flowers. These times tables’ flowers will be distributed to the students. A garden will be created of flowers that have the product on it. These flower products will be mixed out of order. Students are to take their flower with the equation (example: 6x8) and go to the garden to find the product.

Evaluation:

Formative Assessment: The checklists for the hand-made books will be collected. Student’s books will then be reviewed and made sure that they followed each item on the checklist. Students will be observationally assessed throughout the engagement and how well they put all the content together throughout creating their book project.

Summative Assessment: Students will be given a unit plan test for lessons 1-4.

Differentiation:

1. After this lesson, the plant books will be reviewed. Observations will also be taken into consideration. The teacher will use the checklist to see if the students successfully completed each objective and if the students incorporated accurate content in their books. For the students who did not, the teacher will conduct a mini lesson to re-teach the section that they seem to not have a full concept on so they are prepared for their unit test.

2. Creating the book project is beneficial for visual learners and tactile learners. Also, students who are auditory learners with benefit from having the student’s present their book.
Resources:
http://www.bing.com/images/search?q=flower++multipcation+games&qs=n&form=QBIR&pq=flower+multipcation+game&sc=0-0&sp=-1&sk=#view=detail&id=634024EDE6584E19A327C1CB4D151D45ECE0543&selectedIndex=3
Extended Activity
Work Cited


(n.d.). Retrieved from http://2.bp.blogspot.com/-FAkqe6ulObQ/Tp0TzfmlllI/AAAAAAAAJao/Z8iLdhowVRk/s1600/Flowers+for+Multiplication+0
Reflection

From the very first day of class, I nervously walked into Dyson. I thought to myself, “Do I know enough about science to teach it?” Now, writing this reflection with only three more classes left, I cannot explain how excited and motivated I am to teach science in my classroom one day thanks to Dr. Morrison. I want to have fun, explore and share with my future students all the knowledge and experiments I have learned, and mostly, inform them that science can be for everyone – we are all scientists since science is about discovery. Throughout this semester, I have had a positive experience learning about different science methods, spending time at my fieldwork placement, and creating my very first science unit plan.

As a future science educator, I will take what I have learned in EDUC_242 to my future classroom. From the very first day, I plan to have a science activity. Students will draw what they think a scientist looks like. I will have the students share their drawing with their peers and then, I will show mine to the class. My drawing will be of a girl and a boy who represent average looking people. From there, I will explain scientists are not only men and people who are brilliant, but that there is an inner scientist in all of us. This will set a positive attitude for students as they begin to learn science in a constructive way. Students will construct their own knowledge through hands on activities, by activating prior knowledge, by reflecting in their science journal, etc. Lessons will be connected to the student’s own lives and science will become meaningful to them in their own way. I will keep Koch’s text with me to use as a guide and all resources that have been given to help me grow as a professional.

This semester, I was placed in a 4th grade classroom at Noxon Road Elementary School. Every Wednesday, 8:15 a.m. to 3:15 p.m., I volunteered and assisted my cooperating
teacher. Unfortunately, I had not seen many science lessons due to preparation for state mandated testing; however, I have learned many strategies from my cooperating teacher that I will use in my science class one day. My cooperating teacher had twenty-eight students in her classroom. Half of her students had IEPs so there was a wide range of abilities in this classroom. One of her strategies to check for understanding of the material was utilizing a checklist. This checklist had columns. The column going down had each student’s name and across had the objectives of the lesson and common core standards that applied to the topic being studied. She would go through each piece of the students’ work that was handed in and would go through to check if the students had mastered the objectives and fulfilled the common core standards. For the students who had not, she would mark an “x” next to their name and at the last period of the day, during independent work, she would reteach content in small groups. This strategy can apply to science when collecting the students’ science notebooks and any work that is handed in. This checklist can also be graphed to show how much each student has improved in science. At the end of the year, the teacher can show the parents/guardians the graph of improvement during conferences and also show the student how much he or she has grown as a “scientist.”

While observing a science lesson, my cooperating teacher had showed a video of the plant life cycle. She showed a video so her students were able to see the transformation of a plant. She also played science-rhyming songs to get the students engaged and so they could have an easy way of understanding the content being taught. This was beneficial for auditory and visual learners as they were able to see the stages of a plant transform and hear the material
being presented so they could process it. The students’ faces were lit up with smiles and engagement.

After watching this science lesson, the life cycle of a plant, it inspired me to create my own unit plan for grade 3 on the life cycle of a plant. Looking up the required science curriculum for grade 3 at Noxon Road Elementary School, I created one essential question: “How does a plant grow?” I have created a total of five lessons for this unit. The lessons are designed to be delivered in chronological order about the stages of the plant life cycle, incorporating the New York State common core curriculum standards for science (this has been my first time using them) as well as reading standards. When creating this unit plan, after being inspired by my cooperating teacher, I did not know where to begin. With the guidance from Dr. Morrison, I first started by asking myself, “What should be the main idea of each lesson?” and began searching through the science curriculum standards.

Creating this unit plan has been a positive learning experience for me. As I began researching my content to match the common core standards, it began to fill in my unit template. From there, I was able to use my standards to create the objectives. After determining the objectives and science standards, I determined assessments, the applied content areas, details of each key lesson, and differentiation strategies. I used my creativity, information learned in the class, and reliable scholarly resources to begin brainstorming ideas. This template helped me organize my thoughts and reminded me of all the elements that needed to be included in each lesson. After incorporating what I could into my template, I then began to create my lessons. After completing my lessons, I got to go back and fill in what I did not incorporate into the template, such as the vocabulary words. This template provided me with
an organized, professional set up that included all the objectives, common core standards, and all the content for this unit. As I created each lesson in a chronological order, I started with lesson number one and worked my way up to lesson five. I took my objectives and created the five “e’s:” “engagement,” “exploration,” “explanation,” “elaboration,” and “evaluation,” keeping in mind how I can differentiate for all students. Then, I established the extended activity, materials, and safety procedures for each lesson. As for my resources, I created the my own worksheets and PowerPoint, however, I added videos to help engage the students, integrated contract rules from a safety Internet form, and used a poem for an extended activity. These resources helped make my unit plan extra beneficial for various learning styles. Most importantly, I made sure that all the lessons included hands-on engaging activities with supportive assessments to make sure the students would understand the content and the purpose of each lesson.

In my opinion, differentiation is the most important factor in my unit plan. Differentiation is how I will be able to connect with my students and have them, not only excel in science, but also have a passion for it. During my fieldwork placement, I have seen how to take a written lesson and teach it to students, and learned to be flexible. I realized that not everything written on paper has to happen. I have been well prepared from this course. This unit plan has been beneficial to me and has helped me to prepare and succeed in my future classroom one day.