Outline of Unit
Lesson 1: plant life cycle, parts of a plant, roots, stems
Lesson 2: leaves, photosynthesis, chlorophyll
Lesson 3: plant some seeds
Lesson 4: review concepts from lessons 1 & 2, trees
Lesson 5: What is made from trees, and science centers
Lesson 6: flower
Lesson 7: fruit
Lesson 8: review parts of plant, Seed Sort, mosaic
Lesson 9: Seed Dispersion—science walk
Lesson 10: Pumpkin Seed Math

Lesson 1: plant life cycle, parts of a plant, roots, stems
45 minutes

Science Standards

Standard 1
The Processes of Science, Communication of Science, and the Nature of Science. Students will be able to apply scientific processes, communicate scientific ideas effectively, and understand the nature of science.

Objective 1
Generating Evidence: Using the processes of scientific investigation (i.e. framing questions, designing investigations, conducting investigations, collecting data, drawing conclusions)

Indicators
a. Framing questions: Observe using senses, create a hypothesis, and focus a question that can lead to an investigation.

c. Conducting investigations: Observe, manipulate, measure, describe

Standard 4
Life Science. Students will gain an understanding of Life Science through the study of changes in organisms over time and the nature of living things.

Objective 2
Living things change and depend upon their environment to satisfy their basic needs.

Indicators
a. Identify how natural earth materials (e.g., food, water, air, light, and space), help to sustain plant and animal life.

c. Describe and model life cycles of living things.

Language Arts Standards (be sure to use Common Core) (be sure to use the new Common Core standards)

Standard 7
(Comprehension): Students understand, interpret, and analyze narrative and informational grade level text.

Objective 2
Apply strategies to comprehend text.

Indicators
a. Relate prior knowledge to make connections to text (e.g., text to text, text to self, text to world).

b. Ask questions about text read aloud and independently.

c. Make predictions using picture clues, title, text, and/or prior knowledge.

Standard 8
(Writing): Students write daily to communicate effectively for a variety of purposes and audiences.
Objective 6
Write in different forms and genres.
Indicators
c. Produce functional text (e.g., ABC books, lists, labels, signs, how-to books, observations).

Dance/Movement Standards
Standard 3
Students will develop an understanding of their environment.
Objective 1
Investigate plants and plant growth.
Indicators
a. Observe and draw pictures of plants.
e. Investigate and report conditions that affect plant growth.

My standards for dance/movement
Demonstrate body position: levels of high and low
Demonstrate body position: contraction and extension

Materials:
Daisies vascular blue food color water
Book plant diagram garage band music journals

Procedures:
1. Activate Prior Knowledge: ask questions about flowers in water in a vase
2. Read: The Tiny Seed by Eric Carle
3. Explain the parts of a plant: roots, stems, leaves, flower, fruit, seeds
   a. http://urbanext.illinois.edu/gpe/case1/c1facts2a.html
4. Explain term plant life cycle: how long it takes a plant to grow, flower, and seed
5. Focus on ROOTS and STEMS: use diagram to show how water and nutrients enter roots and stems to “feed” the plant
   a. My homemade diagram
      i. Pull fish line on back and water drops and nutrients move up the stem to the leaves and flower
6. Movement/dance: we’re plants or flowers, we’re thirsty and hungry plants and flowers, here comes some water, going up our roots and through our stems, here come some nutrients coming up from the soil, we’re healthy plants/flowers
   a. Using music from garage band
7. Writing: Parts of a plant, how water and nutrients move, what will happen when this flower drinks dyed water?
   a. Flowers in water in a vase, food color

Assessment:
1. After reading the book, assess recall through questioning strategies
2. After explaining the parts of the plant, specifically roots and stems, and showing the diagram, assess knowledge through questioning and having students relate the information to each other
3. Students perform accurately a plant taking in nourishment of water and nutrients

Lesson 2: leaves, photosynthesis, chlorophyll
45 minutes

Science Standards
Standard 1
The Processes of Science, Communication of Science, and the Nature of Science. Students will be able to apply scientific processes, communicate scientific ideas effectively, and understand the nature of science.
Objective 1
Generating Evidence: Using the processes of scientific investigation (i.e. framing questions, designing investigations, conducting investigations, collecting data, drawing conclusions)
Indicators
a. Framing questions: Observe using senses, create a hypothesis, and focus a question that can lead to an investigation.
  c. Conducting investigations: Observe, manipulate, measure, describe

Standard 4
Life Science. Students will gain an understanding of Life Science through the study of changes in organisms over time and the nature of living things.
Objective 2
Living things change and depend upon their environment to satisfy their basic needs.
Indicators
b. Identify how natural earth materials (e.g., food, water, air, light, and space), help to sustain plant and animal life.
  c. Describe and model life cycles of living things.

Language Arts Standards (be sure to use Common Core)
Standard 6
(Vocabulary): Students learn and use grade level vocabulary to increase understanding and read fluently.
Objective 1
Learn new words through listening and reading widely.
Indicators
a. Use new vocabulary learned by listening, reading, and discussing a variety of genres.
  b. Learn the meanings of a variety of grade level words (e.g., words from literature, social studies, science, math).

Standard 8
(Writing): Students write daily to communicate effectively for a variety of purposes and audiences.
Objective 6
Write in different forms and genres.
Indicators
C. Produce functional text (e.g., ABC books, lists, labels, signs, how-to books, observations).

Materials:
Book
leaf samples
space to act out photosynthesis
journals

Procedures:
1. Review parts of plant: root, stems, leaves, flower, fruit, seeds
2. Read: Why Do Leaves Change Color? by Betsy Maestro and Loretta Krupinski
3. Focus on LEAVES: what happens in many green leaves—photosynthesis
   a. Leaves are the site of the food making process called photosynthesis. In this process, carbon dioxide and water in the presence of chlorophyll (the green pigment) and light energy are changed into glucose (a sugar). This energy rich sugar is the source of food used by most plants.
   http://urbanext.illinois.edu/gpe/case1/c1facts2c.html
   b. The way plants turn water and carbon dioxide into oxygen and sugar is called photosynthesis. That means "putting together with light." A chemical called chlorophyll helps make photosynthesis happen. Chlorophyll is what gives plants their green color.
   http://www.sciencemadesimple.com/leaves.html Connect this to Spongebob Square Pants episode on Photosynthesis.
4. Why do leaves change color in the fall?
   a. Look at my leaf samples. What do you notice?
   b. During winter, there is not enough light or water for photosynthesis. The trees will rest, and live off the food they stored during the summer. They begin to shut down their food-making
factories. The green chlorophyll disappears from the leaves. As the bright green fades away, we begin to see yellow and orange colors. Small amounts of these colors have been in the leaves all along. We just can't see them in the summer, because they are covered up by the green chlorophyll. [http://www.sciencemadesimple.com/leaves.html](http://www.sciencemadesimple.com/leaves.html)

5. Writing: Describe what our daisies in dyed blue water look like today. Why are leaves green? Why do leaves change color in the fall?

Assessment:
1. After reading the book, assess recall through questioning strategies
2. After explaining about chlorophyll and photosynthesis, assess knowledge through questioning and having students relate the information to each other
3. Students write to see if their predictions from yesterday are accurate; they write to predict what could happen next.

**Lesson 3: plant some seeds**
20 minutes

**Science Standards**

**Standard 1**
The Processes of Science, Communication of Science, and the Nature of Science. Students will be able to apply scientific processes, communicate scientific ideas effectively, and understand the nature of science.

Objective 1
Generating Evidence: Using the processes of scientific investigation (i.e. framing questions, designing investigations, conducting investigations, collecting data, drawing conclusions)

Indicators
a. Framing questions: Observe using senses, create a hypothesis, and focus a question that can lead to an investigation.
b. Conducting investigations: Observe, manipulate, measure, describe

c. Identify how natural earth materials (e.g., food, water, air, light, and space), help to sustain plant and animal life.
d. Describe and model life cycles of living things.

**Standard 4**
Life Science. Students will gain an understanding of Life Science through the study of changes in organisms over time and the nature of living things.

Objective 2
Living things change and depend upon their environment to satisfy their basic needs.

Indicators
a. Identify how natural earth materials (e.g., food, water, air, light, and space), help to sustain plant and animal life.
b. Describe and model life cycles of living things.

to Life Science

**Language Arts Standards (be sure to use Common Core)**

**Standard 8**
(Writing): Students write daily to communicate effectively for a variety of purposes and audiences.

Objective 6
Write in different forms and genres.

Indicators
a. Produce functional text (e.g., ABC books, lists, labels, signs, how-to books, observations).

Materials:
Book    seeds    plastic baggies    cotton balls    water    yarn    journals

Procedures:
1. Read: *Seeds (Plant Parts Series)* by Vijaya Bodach
2. Show the students the following seeds and tell them what plant they will become: corn, wheat, soybean, flower
3. Demonstrate how to plant seeds
   a. Wet cotton balls
   b. Put cotton balls in a plastic baggie
   c. Put the seeds in the baggie
   d. Seal the baggie
   e. Hang the baggie in the window
4. Review: What do seeds need to grow?
5. Check on flowers in blue water
6. Writing: Students may choose to either write about the progress of the flowers in blue water or predict what will happen to their seeds in the baggie.

Assessment:
1. After reading the book, assess recall through questioning strategies
2. Students will plant their own seeds with the appropriate amount of water and place where they will get sunlight.
3. Students write to see if their predictions from yesterday are accurate; they write to predict what could happen with their seeds.

Lesson 4: review concepts from lessons 1 & 2, trees
45 minutes

Science Standards
Standard 1
The Processes of Science, Communication of Science, and the Nature of Science. Students will be able to apply scientific processes, communicate scientific ideas effectively, and understand the nature of science.
   Objective 1
   Generating Evidence: Using the processes of scientific investigation (i.e. framing questions, designing investigations, conducting investigations, collecting data, drawing conclusions)
   Indicators
   c. Conducting investigations: Observe, manipulate, measure, describe.

Standard 4
Life Science. Students will gain an understanding of Life Science through the study of changes in organisms over time and the nature of living things.
   Objective 2
   Living things change and depend upon their environment to satisfy their basic needs.
   Indicators
   b. Identify how natural earth materials (e.g., food, water, air, light, and space), help to sustain plant and animal life.

Fine Arts—Dance Standards
Standard 3
Students will develop an understanding of their environment.
   Objective 1
   Investigate plants and plant growth
   Indicators
   a. Observe and draw pictures of plants
   c. Observe and describe plants as they grow from seeds.

My standards for dance/movement
Demonstrate body position: levels of high and low
Demonstrate body position: contraction and extension

**Language Arts**

*Standard 6*

(Vocabulary): Students learn and use grade level vocabulary to increase understanding and read fluently.

**Objective 1**

Learn new words through listening and reading widely.

**Indicators**

c. Use new vocabulary learned by listening, reading, and discussing a variety of genres.

d. Learn the meanings of a variety of grade level words (e.g., words from literature, social studies, science, math).

*Standard 8*

(Writing): Students write daily to communicate effectively for a variety of purposes and audiences.

**Objective 6**

Write in different forms and genres

**Indicator**

b. Produce traditional and imaginative stories, narrative, and formula poetry as a shared writing activity.

**Materials:**

- Book
- space to act out plant
- plant journals
- Pictures of trees
- pictures of plants
- bark samples
- whiteboard/marker

**Procedures:**

1. **Read:** *The Magic School Bus Plants Seeds: A Book About How Living Things Grow* by Joanna Cole, John Speirs, and Bruce Degan
2. **Review:** some children act out parts of plant: roots, stems, leaves, flower
3. **Discuss:** observations made about flowers in blue water
4. **Review:** photosynthesis— all children act out process like Spongebob Square Pants
5. **Discuss:** what is the difference between a plant and a tree?
   
a. Look at pictures of trees
   
b. Look at pictures of plants
   
c. The difference is that trees have bark and are tall (13 ft +)
      
i. Look at bark samples (project box)
6. **How are plants and trees the same?**
   
a. Leaves, roots, stems, photosynthesis, flowers
7. **Japanese Kanji: How to write the word tree in another language**

   
```
    木
```

   a. 4 strokes: vertical line, horizontal line, diagonal, diagonal
   
b. Pronounced boku or moku
8. **Writing:** either what you observed about flowers in blue water or story about a tree (use boku in your writing)

**Assessment:**

1. After reading the book, assess recall through questioning strategies
2. Accurately relate differences between plants and trees
3. Students write to see if their predictions from yesterday are accurate or write a narrative about a tree
Lesson 5: What is made from trees, and science centers
45 minutes

Science Standards
Standard 1
The Processes of Science, Communication of Science, and the Nature of Science. Students will be able to apply scientific processes, communicate scientific ideas effectively, and understand the nature of science.

Objective 1
Generating Evidence: Using the processes of scientific investigation (i.e. framing questions, designing investigations, conducting investigations, collecting data, drawing conclusions)

Indicators
a. Framing questions: Observe using senses, create a hypothesis, and focus a question that can lead to an investigation.
c. Conducting investigations: Observe, manipulate, measure, describe

Standard 4
Life Science. Students will gain an understanding of Life Science through the study of changes in organisms over time and the nature of living things.

Objective 2
Living things change and depend upon their environment to satisfy their basic needs.

Indicators
e. Identify how natural earth materials (e.g., food, water, air, light, and space), help to sustain plant and animal life.
c. Describe and model life cycles of living things.

Language Arts Standards (be sure to use Common Core)
Standard 7
(Comprehension): Students understand, interpret, and analyze narrative and informational grade level text.

Objective 2
Apply strategies to comprehend text.

Indicators
a. Relate prior knowledge to make connections to text (e.g., text to text, text to self, text to world).
b. Ask questions about text read aloud and independently.
c. Make predictions using picture clues, title, text, and/or prior knowledge.

Standard 8
(Writing): Students write daily to communicate effectively for a variety of purposes and audiences.

Objective 6
Write in different forms and genres.

Indicators
a. Produce personal writing (e.g., journals, lists, friendly notes and letters, personal experiences, family stories, literature responses).

Fine Arts—Dance Standards
Standard 3
Students will develop an understanding of their environment.

Objective 1
Investigate plants and plant growth

Indicators
a. Observe and draw pictures of plants
c. Observe and describe plants as they grow from seeds.

My standards for dance/movement
Use movement to convey a message
**Math Standards**

*Standard 2*

Students will identify and use number patterns and properties to describe and represent mathematical relationships.

**Objective 1**
Recognize, describe, and represent patterns with more than one attribute.

**Indicators**
- a. Sort and classify objects using more than one attribute.
- c. Identify, create, and label growing patterns using objects, pictures, and symbolic notation.

**Materials:**
- Book
- Journals

**Centers:** poster of products made from trees
- White paper, grass, daisies in blue water
- Leaf samples
- Bark samples, magnifying glasses

**Procedures:**
1. Read: *The Giving Tree* by Shel Silverstein
2. Explain the four science centers and expectations of behavior and learning at each:
   - a. Products made from trees:
     i. Using the poster for ideas, students will play charades to act out what products are made from trees. Ex. Pretending to play a violin for “violin”
   - b. Drawing with chlorophyll and inspecting our flowers in the blue water
     i. Using grass and leaves, draw and write using the chlorophyll.
     ii. Look at the results of the flowers in the blue water
   - c. Leaf sort
     i. Using the leaf samples from the project box, students can sort the leaves by color, shape, size, etc.
   - d. Bark samples
     i. Using magnifying glasses, the students can look closely at the bark, noting the textures and patterns of different types of trees
3. Writing: Write about your predictions about the flowers in the blue water or about a product you use that is made from trees.

**Assessment:**
1. After reading the book, assess student recall through questioning strategies
2. Observe the students at the self-directed centers to assess knowledge or correct misconceptions
   - 1. Students write to see if their predictions from yesterday are accurate or write a personal experience about a product they use that is from a tree.

**Lesson 6: flower**

45 minutes

**Science Standards**

*Standard 1*

The Processes of Science, Communication of Science, and the Nature of Science. Students will be able to apply scientific processes, communicate scientific ideas effectively, and understand the nature of science.

**Objective 1**
Generating Evidence: Using the processes of scientific investigation (i.e. framing questions, designing investigations, conducting investigations, collecting data, drawing conclusions)

**Indicators**
a. Framing questions: Observe using senses, create a hypothesis, and focus a question that can lead to an investigation.

b. Conducting investigations: Observe, manipulate, measure, describe

**Standard 4**
Life Science. Students will gain an understanding of Life Science through the study of changes in organisms over time and the nature of living things.

**Objective 2**
Living things change and depend upon their environment to satisfy their basic needs.

**Indicators**

f. Identify how natural earth materials (e.g., food, water, air, light, and space), help to sustain plant and animal life.

c. Describe and model life cycles of living things.

**Language Arts Standards (be sure to use Common Core)**

**Standard 7**
(Comprehension): Students understand, interpret, and analyze narrative and informational grade level text.

**Objective 2**
Apply strategies to comprehend text.

**Indicators**

a. Relate prior knowledge to make connections to text (e.g., text to text, text to self, text to world).

b. Ask questions about text read aloud and independently.

c. Make predictions using picture clues, title, text, and/or prior knowledge.

**Standard 8**
(Writing): Students write daily to communicate effectively for a variety of purposes and audiences.

**Objective 6**
Write in different forms and genres.

**Indicators**

c. Produce functional text (e.g., ABC books, lists, labels, signs, how-to books, observations).

**Materials:**
Book paper flower website for flower fertilization projector or computer journal

**Procedures:**
1. Read: Flowers Bloom! (I Like Plants!) by Mary Dodson Wade
2. Showing paper flower made by my daughter, name the parts of the flower
   a. Petal
   b. Stigma
   c. Style
   d. Seeds
3. Watch on computer how seeds are made in a flower at [http://www.sciencekids.co.nz/gamesactivities/lifecycles.html](http://www.sciencekids.co.nz/gamesactivities/lifecycles.html)
4. Write about how their seeds are doing in the window: growing? Why? Why not?

**Assessment:**
1. After reading the book, assess student recall through questioning strategies
2. Students can name the parts and functions of a flower
3. Students write to see if their predictions about their seeds from last week are accurate and predict what will happen next.

**Lesson 7: fruit**
30 minutes

**Science Standards**

**Standard 1**
The Processes of Science, Communication of Science, and the Nature of Science. Students will be able to apply scientific processes, communicate scientific ideas effectively, and understand the nature of science.

Objective 1
Generating Evidence: Using the processes of scientific investigation (i.e. framing questions, designing investigations, conducting investigations, collecting data, drawing conclusions)

Indicators
d. Conducting investigations: Observe, manipulate, measure, describe.

Language Arts

Standard 6
(Vocabulary): Students learn and use grade level vocabulary to increase understanding and read fluently.

Objective 1
Learn new words through listening and reading widely.

Indicators
e. Use new vocabulary learned by listening, reading, and discussing a variety of genres.
f. Learn the meanings of a variety of grade level words (e.g., words from literature, social studies, science, math).

Standard 8
(Writing): Students write daily to communicate effectively for a variety of purposes and audiences.

Objective 2
Compose a written draft.

Indicator
a. Draft ideas on paper in an organized manner (e.g., beginning, middle, end) utilizing words and sentences.
b. Select appropriate words to convey meaning.

Objective 6
Write in different forms and genres

Indicator
b. Produce traditional and imaginative stories, narrative, and formula poetry as a shared writing activity.

Materials:
Book  knife  paper plate  journals
Kiwi, lemon, orange, apple, cantelope, peach, mango

Procedures:
1. Read: How Do Apples Grow? by Betsy Maestro and Giulio Maestro
2. Play name that fruit:
   a. I show the students some seeds
   b. Using smell, sight, and touch, the students guess what fruit or vegetable it comes from
   c. Explain that the vegetable part is still technically the fruit
3. Writing: Write four sentences about your favorite fruit

Assessment:
1. After reading the book, assess student recall through questioning strategies
2. Students understand that seeds are in the fruit, and the role of fruit and seeds in the plant life cycle
3. Students write about their favorite fruit using four complete sentences.

Lesson 8: review parts of plant, Seed Sort, mosaic
45 minutes
**Science Standards**

**Standard 1**
The Processes of Science, Communication of Science, and the Nature of Science. Students will be able to apply scientific processes, communicate scientific ideas effectively, and understand the nature of science.

**Objective 1**
Generating Evidence: Using the processes of scientific investigation (i.e. framing questions, designing investigations, conducting investigations, collecting data, drawing conclusions)

**Indicators**
- a. Framing questions: Observe using senses, create a hypothesis, and focus a question that can lead to an investigation.
- c. Conducting investigations: Observe, manipulate, measure, describe

**Math Standards**

**Standard 2**
Students will identify and use number patterns and properties to describe and represent mathematical relationships.

**Objective 1**
Recognize, describe, and represent patterns with more than one attribute.

**Indicators**
- b. Sort and classify objects using more than one attribute.
- c. Identify, create, and label growing patterns using objects, pictures, and symbolic notation.

**Fine Arts—Visual Arts Standards**

**Standard 1**
Students will develop a sense of self.

**Objective 3**
Develop and use skills to communicate ideas, information, and feelings.

**Indicator**
- b. Express how colors, values, and sizes have been controlled in artworks to create mood, tell stories, or celebrate events.

Materials: Book, birdseed for seed sort, graph, student samples, glue, construction paper

Procedures:
1. Read: *Seeds Sprout! (I Like Plants!)* by Mary Dodson Wade
2. Review: parts of a plant and plant life cycle
3. Introduce seed sort and art activity:
   a. Look at how different these seeds are. Describe differences.
   b. There is one way that they are all the same—they could each grow into a plant.
4. Seed sort:
   a. Explain first before dismissing to desks:
      i. Seed sort:
         1. Give a spoonful of seeds, sort into groups, count
      ii. Bar graph:
         1. Write number, label graph, color graph
   b. Show student examples of how it could be done
5. Mosaic artwork: use seeds to make a mosaic of a plant, tree, or flower

Assessment:
1. After reading the book, assess student recall through questioning strategies
2. Students execute one-to-one correspondence when counting the seeds.
3. Students complete the graph with the necessary components.
4. Students complete the art mosaic.
<table>
<thead>
<tr>
<th>Seed Sort</th>
<th>Name:__________________</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lesson 9: Seed Dispersion—science walk  
60 minutes  

Science Standards  
Standard 1  
The Processes of Science, Communication of Science, and the Nature of Science. Students will be able to apply scientific processes, communicate scientific ideas effectively, and understand the nature of science.  
Objective 1  
Generating Evidence: Using the processes of scientific investigation (i.e. framing questions, designing investigations, conducting investigations, collecting data, drawing conclusions)  
Indicators  
a. Framing questions: Observe using senses, create a hypothesis, and focus a question that can lead to an investigation.  
c. Conducting investigations: Observe, manipulate, measure, describe  

Standard 4  
Life Science. Students will gain an understanding of Life Science through the study of changes in organisms over time and the nature of living things.  
Objective 2  
Living things change and depend upon their environment to satisfy their basic needs.  
Indicators  
g. Identify how natural earth materials (e.g., food, water, air, light, and space), help to sustain plant and animal life.  
c. Describe and model life cycles of living things.  

Fine Arts—Dance  
Standard 3  
Students will develop an understanding of their environment.  
Objective 1  
Investigate plants and plant growth  
Indicator  
b. Compare seeds of plants and describe ways they may be carried through the environment (e.g., wind, water, animals).  

Materials:  
Note to parents sock  

Procedures:  
1. After sending home a letter last week to the parents, students carry a sock they brought from home on our science walk  
2. Students put sock on over their shoe  
3. We walk in grass and weeds  
4. As a group:  
a. we look at the seeds on our socks  
b. Discuss seed dispersion  
c. Seeds dispersed by animals, humans, wind, etc  
d. Walk back to school  

Assessment:  
1. Students understand seed dispersion and its purpose  

Lesson 10: Pumpkin Seed Math  
45 minutes
Science Standards

Standard 1
The Processes of Science, Communication of Science, and the Nature of Science. Students will be able to apply scientific processes, communicate scientific ideas effectively, and understand the nature of science.

Objective 1
Generating Evidence: Using the processes of scientific investigation (i.e. framing questions, designing investigations, conducting investigations, collecting data, drawing conclusions)

Indicators
a. Framing questions: Observe using senses, create a hypothesis, and focus a question that can lead to an investigation.
c. Conducting investigations: Observe, manipulate, measure, describe

Math Standards

Standard 1
Students will acquire number sense and perform simple operations with whole numbers.

Objective 1
Represent and use whole numbers up to 100.

Indicators
a. Count, read, and write whole numbers.
b. Represent whole numbers using the number line, models, and number sentences.
c. Represent whole numbers greater than 10 in groups of tens and ones using objects, pictures, and expanded notation

Materials:
Book
whiteboard/marker
ruler
yarn
newspapers
pumpkins
knife

Procedures:
1. Read: Five Little Pumpkins (Harper Growing Tree) by Dan Yaccarino
2. Explain the concept of estimation.
3. Put the class into 2 groups.
4. Show the students the board and the things we will be estimating:
   a. Measurements of pumpkins A and B
   b. Number of seeds in pumpkins A and B
   c. Temperature inside pumpkins A and B
5. Measure pumpkins: compare estimate and actual
6. Cut open pumpkins and students each take a handful
7. Students count their seeds and put into piles of 10
   a. We count all the piles of 10 for a total number
   b. Compare estimate and actual number of seeds
8. Students compare estimate and actual temperature of inside of pumpkin
9. Clean up

Assessment:
1. After reading the book, assess student recall through questioning strategies
2. Students execute one-to-one correspondence when counting the seeds
3. Students demonstrate knowledge of estimating