BIG IDEA:
- There are a variety of living and non-living things.

KEY LEARNING AREA (Subject): Scientific Thinking & Expression

AGE LEVEL: Pre-Kindergarten

TITLE: Growing Plants

ALIGNMENTS:

**Learning Standards for Early Childhood: Pre-Kindergarten**

*Focus Standard: 3.1a.1: Common Characteristics of Life*

Additional Standards addressed:
- 3.1a.3 ~ Life Cycles
- 9.1C.1 ~ Representation
- 1.4.2 ~ Informational Writing
- 2.3.1 ~ Concepts of Measurement
- 15.1.1 ~ Curiosity and initiative
- 15.1.2 ~ Risk taking
- 25.1.3 ~ Competence
- 25.2.2 ~ Behavioral regulation
- 10.5.2 ~ Eye/Hand coordination

VOCABULARY:
- **Soil**: the top layer of the earth's surface. Soil is made up of rock, mineral particles, air and organic matter

ESSENTIAL QUESTION:
1. Can I tell what grows from seeds?

OBJECTIVES:

*In this activity, learners will:*

1. Name the things plants need to live/survive.
2. Plant seeds and care for them.
3. Observe changes in plants over a period of time and discuss.
4. Enhance eye hand coordination and fine motor skills by using simple gardening tools.
5. Make predictions about an outcome.

DURATION:
15 minutes & ongoing / whole, small group instruction and individual work
MATERIALS NEEDED:

- Spoons
- Garden Soil
- Transparent Cups
- Bean Seeds
- Chart Paper
- Camera for documentation
- Marker
- Pre-Made journals (Extension)

INSTRUCTIONAL PROCEDURES (LARGE GROUP/CIRCLE TIME):

- Show children the book entitled *The Carrot Seed* by Ruth Krauss. Say “Look at the cover of this book. What do you think it is going to be about? Allow time for children to respond. Why is the boy putting the seed into the ground and not into the refrigerator?
- Read the book *The Carrot Seed* by Ruth Krauss.
- Say “It is time to really put our brains to work. We all need things to grow and live. I am thinking of something that we do a few times a day, like at breakfast, lunch and dinner (differentiation – context clues). What is it? We eat, that is right. What do we eat that our bodies need to grow and live? Food, great! (Children may give you lots of different food answers here) Can you think of other things that we need to grow and live? How about this – take a deep breath? I just breathed in something very important that we all need. Air, super! We talked about the air we breathe and the food we eat. When we eat, we also usually do what? We drink. Great. What is the most important drink that our body needs for good health? Yes, water! Kiss your brain. Continue discussion as children’s interest allows.
- We just talked about what we need to grow and live. Now, what do you think that seeds/plants need to grow and live? Post a piece of chart paper with the above question listed on it: Chart children’s responses. Pay attention to children’s prior knowledge which later can be used for documentation purposes (anecdotal records).
- Explain to children that during center/work time, they will have the chance to come individually or in small groups to the table and plant their own seed. Explain that it will be their responsibility to care for the plant daily and that they will each be taking care of their plant differently. Group children into three groups (group 1 will water their plant everyday and the plant will be kept in a sunny place, group two will water their plant everyday and their plants will live in the dark closet, and group three will water their plant once per week and the plant will be in the sunny place). Explain that each child will receive a journal to keep in their cubby. After planting today, have children draw or take a picture of the seed they planted and record their prediction of what they think will happen to their seed under the picture. Have the children care for their plants for the next four weeks according to their grouping. Once per week for four weeks, they can draw the changes that they see in their plant, take pictures (with the help of staff), measure its growth, and dictate descriptions and observations that the teacher records in their journal. This is an extension that teachers will have to engage children in and support/intervene with those children who are not able to accomplish this on their own.
- Findings can be discussed informally throughout the four week period individually, in small groups, or during whole group sessions. At the end of the four weeks, revisit the children’s findings and point out differences in how the various plants grew. Why do you think one plant grew more than another? What did this plant get to help it grow that another plant didn’t? What happened when the plant did not get what it needed to grow?

FORMATIVE ASSESSMENT:

Observations will be ongoing over the course of time. As children journal the growth, at some point be sure to ask each student:

- What did your plant need to grow and live?
- What happened when you measured the plant today?
- What differences do you see from one picture (on the first day) to this picture (days/weeks later)? Why did that happen?
- Why do you think one plant grew more than another?
SUGGESTED INSTRUCTIONAL STRATEGIES:

To Motivate Students: Engage children by gathering their prior knowledge through charting the question: *What do seeds and plants need to grow and live?*

To Individualize Instruction (differentiate): Spend more time with individual children during the planting process and journaling over the course, as needed.

To Apply what they have learned: Send a note home to families sharing what the class is working on. Suggest to children that they take on a role at home helping the family water the plants or garden.

To: Extend what they have learned: See Across the Curriculum Section below.

RELATED RESOURCES:
- *Growing Vegetable Soup* by Lois Ehlert
- *Little Red Hen* by Paul Galdone
- *Planting a Rainbow* by Lois Ehlert
- *City Green* by Dyanne Disalvo-ryan
- *Sunflower House* by Eve Bunting
- *And the Good Brown Earth* by Kathy Henderson
- *The Surprise Garden* by Shari Halpern

**Across the Curriculum**
(How will you incorporate the topic throughout your interest areas)

<table>
<thead>
<tr>
<th>CREATIVE THINKING &amp; EXPRESSION</th>
<th>Art</th>
<th>Blocks</th>
<th>Dramatic Play</th>
<th>Music</th>
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<tbody>
<tr>
<td>Place various seeds in the art area if children want to create a seed collage. <em>(9.1a.1; 10.5.2)</em></td>
<td>Include a toy farm and farm machinery such as tractor. <em>(9.1b.1)</em></td>
<td>Have plastic garden tools available along with pots and artificial flowers. <em>(9.1b.1)</em></td>
<td>Develop a garden store. <em>(6.3.1)</em></td>
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<tr>
<td>Journal daily observations of plant growth. <em>(1.4.2)</em></td>
<td>Include books about plants in learning centers. <em>(1.1.1)</em></td>
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<td>Create a seed sorting activity. <em>See example below.</em> Children can sort the seeds and follow through with counting and graphing. <em>(3.1a.5; 3.1a.8; 2.6.3; 2.6.5)</em></td>
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<td>Encourage children to look for seeds on the ground. <em>(3.1a.9)</em></td>
<td>If administration allows it, plant a small garden outside and allow children the</td>
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<td>DEVELOPMENT</td>
<td>responsibility of caring for it. (3.1a.3; 3.1a.5; 3.1a.9; 3.3a.2)</td>
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| SCIENTIFIC THINKING AND TECHNOLOGY | - Have a container of various shapes and sizes of seeds along with hand lenses for further discovery and exploration. (3.1a.9)  
- Place soil and gardening tools in the sand table for further discovery and exploration. (10.5.2; 10.5.3)  
- Place sunflower with tweezers in the manipulative interest area. Children can use the tweezers to pull the sunflower seeds out. (10.5.2) |