

Informational Books in the Preschool Classroom
Topic of Study: Growing Plants for Butterflies

***Plant the Tiny Seed* by Christie Matheson**
***One Bean* by Anne Rockwell, illustrated by Megan Halsey**
***The Carrot Seed* by Ruth Krauss, illustrated by Crockett Johnson**

Introduction

In this guide children are engaged in activities that primarily support three domains in the *Arkansas Child Development and Early Learning Standards: Birth through 60 months: Language Development, Emergent Literacy* and *Science and Technology*. The **Learning Goals** (with **Strands**) that precede each activity relate to specific areas of development and learning that are the focus of the activities.

In all three of the featured books, children are introduced to the magic of planting a seed and waiting and watching for it to grow. The seed in the book, *The Tiny Seed*, grows into a zinnia which is a garden flower that attracts butterflies. At the end of the book is a page titled PLANT YOUR OWN TINY SEEDS which gives specific instructions on how to plant and grow zinnias. In the books, *One Bean*, and the all-time favorite, *The Carrot Seed*, children plant seeds that become plants that can serve as “host plants” for butterflies. (Refer to the **Before You Begin** section for a definition for “host plants.”).

Teacher Note: *Before beginning this topic of study, the developers suggest that you read the **Before You Begin** section that follows to give you background information for the featured books and suggested activities.*

Before You Begin

Developers of this topic recommend that this topic be integrated with the topic, Butterflies, to help children understand the connection between certain plants and butterflies and the life cycle of a butterfly from egg, to caterpillar, to chrysalis, to butterfly. It is also recommended that programs purchase a Butterfly Growing Kit for the classroom so that children can observe and better understand this life cycle.

The following information is a summary of an article titled Plant a Butterfly Garden from <https://kidsgardening.org/> (2016):

- A chart with a few examples of common butterflies and their preferred food sources (carrots and beans are listed as host plants for caterpillars, zinnias are listed as nectar plants for adult butterflies).
- Consider planting a butterfly garden with plants that attract butterflies and often hummingbirds as well.
- Select an area that receives at least six to eight hours of sunlight and is sheltered from the wind.
- Select plants that grow well in your area.
- Plant two types of plants:
 - Nectar producing plants (nectar is a sugary fluid found in flowers and is food for the butterflies)
 - Leafy “host plants” that attract egg-laying butterflies. These plants also provide food for the caterpillars. (stages one and two of the life cycle of a butterfly)
- Choose plants for the butterflies that bloom throughout the growing season to attract butterflies for longer periods of time.
- Butterflies are most active in the summer.
- Plant each kind of plant in groups of at least three so that it is easy for passing butterflies to locate your flowers.
- Add a couple of large, flat rocks in the sun where butterflies can rest.
- Fill a container such as an old bird bath with water where butterflies can perch and drink safely.
- Avoid all pesticides. Butterflies are insects, so pesticides can harm them.

Teacher Notes:

- *Some of the information on the previous page can also be found on pages 28 and 29 in the National Geographic Kids, Level 1: Caterpillar to Butterflies by Laura Marsh.*
- *Developers suggest that this book and another National Geographic Kids, level 1, Seed to Plant by Kristin Baird Rattini, be purchased and reviewed so that teachers have more detailed and graphic information about planting seeds and about butterflies.*
- *Add both books to the Discovery Center or the Library Center.*
- *In both topics of study decide if the books might be appropriate to share with all or some of the children in the group. Children's questions and comments and their interest in and reaction to the books placed in a center may give you some indication as to sharing the books with them.*
- *Consider planting in the garden other host plants, such as dill, parsley and fennel that attract egg-laying butterflies and provide food for caterpillars.*

This curriculum guide can stand alone or be used as a supplement to the following:

Adventures in Learning

- Focus Area #7: Things that Grow – Topics of Study: Vegetables and Flowers

Informational Books in the Preschool Classroom

- Butterflies

Teacher Notes:

- *The topics listed above can be found on the Better Beginnings website.*
- *This curriculum guide can also be used with similar topics of study from any curriculum.*

Materials to Collect and Make

- Packets of the seeds you plan to plant – especially the 3 that are planted in the featured books: zinnia seeds, bush lima beans and carrot seeds
- Small pots or sturdy paper cups for children to plant a bean
- Watering can
- Potting soil
- Paper towels
- Make an illustrated chart for the poem and activity, Little Seeds

Story Presentations

Learning Goals:

LD1.1 Understands and responds to language (in child's home language) (*vocabulary and language comprehension*)

LD2.1 Uses increasingly complex vocabulary, grammar, and sentence structure (in child's home language) (*expressive vocabulary*)

EL1.1 Shows interest in literacy experiences (*engagement in literacy experiences, variety of interests*)

EL1.2 Engages in read-alouds and conversations about books and stories (*story comprehension*)

EL3.1 Responds to features of books and print (*book knowledge*)

ST2.1 Demonstrates knowledge of core science ideas and concepts (*stability and change*)

ST3.1 Demonstrates knowledge of the characteristics of living things, the earth's environment, and physical objects and materials (*living things, nature and the environment*)

Book: Plant the Tiny Seed

- Prepare to read the book, *Plant the Tiny Seed*, by reading the information page after the end of the story; the page titled **Plant Your Own Tiny Seed**.
- Gather a small group of children (four to six) if possible for the reading of this book because of the importance of children being able to clearly see the illustrations which are essential to the understanding of the story.
- Show the cover, give title, author and illustrator. (Explain that the author is the person who writes the story and the illustrator is the one who draws the pictures. Christie Matheson is both the author and illustrator.)
- Invite children to look at the cover and describe what they see. (3 flowers, packet of zinnia seeds, hummingbird, butterfly, 2 bees, ladybug, sun, and watering can.
- Give them hints if they do not name everything. For example, "What do you see crawling up this plant?"
- Read each page slowly, allowing children to see the illustrations and follow the instructions in the text.
- Follow up by reading the story again, pausing and inviting children to fill in the missing word. For example, on the first page: There's magic in this tiny seed. Press it down and count to _____ (three). On the next page: Plant another, then one more, press them down and count to ____ (four).

Teacher Notes:

- *Pausing and allowing children to fill in the missing word is referred to as the cloze technique.*
- *Children are also hearing rhyming words.*

Extensions:

- Read the story with two or three children who really seem interested in the story and allow them, each in turn, to physically follow the instructions on each page. For example, on page one, press down the seed and count to three.
- Read the story with two or three children and allow them, each in turn, to find the ladybug on the double-spread pages.
- Read the information page with one child who may be ready for more in-depth information.

Teacher Note: *Make sure that all children have an opportunity to hear the story.*

Book: One Bean

- Prepare to read the book, *One Bean*. This includes reading information on the inside of the back cover titled MORE ABOUT BEANS.
- Show the cover, give title, and author and illustrator.
- Invite children to look at the cover and describe what they think the boy and girl are doing.
- Point to the following three small illustrations and involve children in discussing why they think the pictures are on the cover (soil and pot, sun, and watering can).
- Explain to children that it is very important that they listen to the story very carefully because each one of them will have an opportunity to plant a bean just like the children in the story.
- Show the bush lima bean seed packet and explain that this contains the seeds they will be planting.
- Say, "Let's read and find out about planting beans and why the pictures are on the cover."
- Read the story so all children can see the pictures in the book.
- Follow up the reading by reminding children that they will be planting beans, and to make sure they do it correctly, they will look at each page and explain what the children are doing.
- Show each page and invite one child at a time to explain in his or her own words what is happening on that page.
- Know your children and assist as needed so that each child can be successful.
- Conclude the reading by again showing the cover and invite children to explain why the soil, pot, sun, and watering can are on the cover. (all are necessary for planting and growing a bean)

Additional Learning Goal:**CD3.2 Engages in symbolic and abstract thinking** (*abstract thinking*)**Teacher Notes:**

- *If possible, transplant children's bean plants to an outdoor garden and involve children in caring for the plants and watching them grow.*

Book: The Carrot Seed

- Prepare to read this storybook, a favorite of children for many years.
- Show the cover, give the title and author and illustrator.
- Say to children "This book was written many, many years ago. Many children your age have read and enjoyed this book and I hope you do, too."
- Invite children to look at the cover and discuss what they see.
- Read the story so all children can see the pictures in the book.
- Follow up the reading by reading the book again and invite children to repeat what his mother, his father and his big brother said.
- Ask children how they think the little boy felt when his family said those things to him. How do they think he felt when one day the carrot came up?

Additional Learning Goal:**SE2.2 Interprets and responds to feelings of others** (*emotion understanding*)

Additional Language and Literacy Activities

Learning Goals:

LD1.1 Understands and responds to language (in child's home language) (*vocabulary and language comprehension, follows directions*)

EL1.1 Shows interest in literacy experiences (*engagement in literacy experiences, variety of interests*)

EL2.1 Notices and manipulates the sounds of language (*rhyme*)

CD2.4 Holds and manipulates information in memory (*short-term and working memory*)

Activity: Poem: Little Seeds

- Develop a chart with the poem that follows.
- Illustrate the chart with drawings or pictures of some of the vegetables in the poem.
- Recite the poem with the children.
- Recite the poem again and pause and invite the children to fill in the rhyming words (spring/sing, beans/greens, all/fall, then/again).
- Invite children to help you find a space in the classroom where they can post the chart at their eye level so that they can look at it on their own.

Little Seeds

Little seeds we sow in spring,
growing while the robins sing,
give us carrots, peas and beans,
tomatoes, pumpkins, squash and greens.

And we pick them,
one and all,
through the summer,
through the fall.

Winter comes, then spring, and then
Little seeds we sow again.

Else Holmelund Minarik

Teacher Notes:

- *This poem can be found in Read-Aloud Rhymes for the Very Young, selected by Jack Prelutsky, illustrated by Marc Brown, page 14.*
- *Another poem about growing plants, A Spike of Green by Barbara Baker, can be found on the same page.*
- *Two poems about caterpillars and butterflies can be found on page 62 of the same book.*

Learning Environment

Library Center

- Add the following books:
Plant the Tiny Seed
One Bean
The Carrot Seed

Outdoors

Learning Goals:

ST1.1 Engages in the scientific process to collect, analyze, and communicate information (*observations, questions and predictions*)

ST2.1 Demonstrates knowledge of core science ideas and concepts (*stability and change*)

ST3.1 Demonstrates knowledge of the characteristics of living things, the earth's environment, and physical objects and materials (*living things*)

Activity: Planting and Growing Zinnias Outdoors

- Wait for warm weather. (after final frost)
- Plant the seeds in a spot that gets plenty of sunshine.
- Plant the seeds about 3 or more inches apart in rich soil about ¼ inch deep
- Water the soil to keep it moist, but not soaking wet.
- Watch for little seedlings to sprout in four or five days.
- Watch for flowers to appear (in about six weeks after seeds are planted).
- Watch for butterflies, hummingbirds and bees to be attracted to the colorful zinnia flowers.

Teacher Notes:

- *Butterflies like lots of bright colors.*
- *Zinnias can be planted indoors in a flowerpot big enough for the roots the plant will grow. However, they will only attract butterflies if they are transplanted outdoors. Refer to the Better Beginnings website for Adventures in Learning #7: Things that Grow: Flowers, page 6, for detailed steps for planting a Flower Garden (Growing flowers from seeds).*
- *Zinnias planted indoors also need seeds, soil, water and a sunny place.*

Teacher Notes:

- *The information about planting zinnias comes from the page PLANT YOUR OWN TINY SEEDS found at the back of the featured book, Plant a Tiny Seed.*
- *Cover the table with newspaper when planting seeds in potting soil for easy clean up.*

Discovery Center

- Display these two National Geographic Kids, Level 1 books in the Discovery Center”
Seed to Plant
Caterpillar to Butterfly

Activity: Planting Beans

Teacher Note:

- Place the book, *One Bean*, in the Discovery Center.
- Involve children in planting bush lima bean seeds as directed in the book, *One Bean*.

Planting and Growing Bush Lima Beans

- Place a baby lima bean seed on a wet paper and cover it with another wet paper towel.
- Wait for bean to split.
- Fill a paper cup (or small pot) with black potting soil
- Lay the bean in the cup and cover it with soil.
- Place it in a window where it can get sun
- Water it when soil is dry
- Watch for greenish-white stalk to poke up from soil
- Watch for heart shaped leaves to appear
- Fill a flowerpot with potting soil
- Take bean out of cup and plant in flowerpot
- Watch it grow
- Wait for little green bumps (buds) to appear
- Watch the buds burst open and white flowers blossom
- Watch the white flowers fall off and tiny bean pods take their place
- Watch the tiny bean pods grow bigger
- Split a pod and see smooth and shiny beans
- Eat the beans that grew inside the pods

Teacher Notes:

- Make an illustrated card for each of the major stages of this activity.
- Place the appropriate card on the Discovery table next to the book, *One Bean*, opened to the corresponding page. For example, Card #1 would be placed on the table when children are to do that activity and the book is opened to the page that begins: *I put it on a wet paper towel...*
- Read the card with the children and explain that the card tells them what to do.
- Observe the plants and change the cards when appropriate.

Cards

Card #1: Place baby lima bean seed on wet paper.
Cover with another wet paper towel.

Card #2: Watch and wait for bean to split

Card #3: Plant the split bean
Fill paper cup with black potting soil
Lay bean in cup and cover with soil
Place cup in window where it can get sun

Card #4: Water when soil is dry

Card #5: Watch
For greenish-white stalk to poke up from soil
For heart shaped leaves to appear

Card #6: Plant the bean seedling
Fill flower pot with potting soil
Take bean out of cup and plant in flowerpot

Card #7: Wait and watch
For little buds to appear
For buds to burst open and white flowers blossom
For white flowers to fall off and tiny bean pods take their place
For tiny bean pods to grow bigger

Card #8: Split a pod
Eat the beans that grow inside the pod

Transition Activities

Learning Goal:

CD2.2 Shows flexibility in adjusting thinking and behavior to different contexts (*adjusting behavior to match context*)

- Use the Little Seed poem chart for this activity.
- Recite the poem with children.
- Say the poem again, pausing for two designated children to say the rhyming word.
- Continue until all children have transitioned to the next activity.

Family Connection and Engagement

- Communicate with families that children have been learning about planting and growing plants that attract butterflies.
- Invite families to observe all planting and growing activities that are occurring in the classroom and outdoors.
- Suggest that families help their children become aware of butterflies they see in their environment.

Additional Books

From Seed to Plant by Gail Gibbons

National Geographic Kids, Level 1, Seed to Plant by Kristin Baird Rattini

National Geographic Kids, Level 1, Caterpillar to Butterfly by Laura Marsh