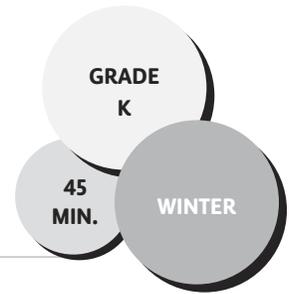


Bean Buddies

THEME: GROWING AND ACCESSING HEALTHY FOOD



ESSENTIAL QUESTION

How do we help a seed sprout?

LEARNING OBJECTIVES

- ✓ Students will be able to identify what a plant needs to grow and thrive.
- ✓ Students will be able to prepare a seedling and make predictions about its growth.

CONCEPTS

observation prediction sprout

Engaging the Classroom Teacher

- Prior to the lesson, check in with the teacher to see whether they'd prefer the version where students track the Bean Buddies growth in class (on the window) or on their own (as a necklace).
- If making Bean Buddy necklaces, make one for the teacher, so they can wear it the day of (under their shirt) and be a part of the big reveal to students.
- During Action Step 3, suggest that the teacher support students struggling to make their Bean Buddies.

LESSON DESCRIPTION

In this lesson, students listen to a story to learn about the optimal conditions for a bean seed to

germinate, and then they make Bean Buddies in zip lock bags. Students draw pictures and make predictions about their seed's growth.

MATERIALS

For each student:

- Bean seeds
- Zip lock bags (or little jewelry bags for necklaces)
- Paper towels (or 1 cotton ball for each student)
- Observation Log (p. 99)
- Permanent marker
- 2 or more spray bottles
- Crayons
- Paper and pencils
- *One Bean* by Anne Rockwell

PREPARATION

- › Soak beans overnight for better germination.
- › Photocopy the Observation Log for each student.
- › Make your own Bean Buddy beforehand to troubleshoot any issues and have a model to show students.
- › Make a sample Observation Log as a model for students.

ACTION STEPS

1. Engage: Gather students in a circle, and explain that today they'll be learning more about what plants need to grow by sprouting their very own seed. Ask, *How many people have planted a seed before?* Discuss students'

prior experiences growing plants. Then explain that you have a special buddy who you've brought with you today, and that by the end of class, everyone will have a new buddy! If you're wearing a Bean Buddy necklace, dramatically reveal it to students. **(5 min.)**

2. Reading: Read *One Bean*, which tells the story of a young boy soaking and sprouting a bean as the students will do. To check for understanding, ask questions about the story such as, *How did the boy know it was time to plant his bean?* Alternatively, for a more whimsical approach, tell students the story of "Jack and the Beanstalk." Explain that you'll be giving them magical bean seeds today as well. Have them close their eyes and imagine climbing the beanstalk that'll grow from their seeds. Ask, *What place will your beanstalk take you to?* **(5 min.)**

3. Making Bean Buddies: Say, *Now we're going to make friends with a bean!* Show students your model Bean Buddy. Encourage students to help each other while making their Bean Buddies. Pass out paper towels to each student and a couple spray bottles to share. You may want to predetermine the number of spritzes that will adequately dampen the towel, and tell students to only use that many. Then pass out one seed to each student, and have students fold their paper towel behind the bean. Finally, pass out zip lock bags, and have students place their bean inside. **(10 min.)**

4. Discussing Plant Life Cycle: Have students recall a plant's life cycle. Ask, *Which part of the plant is the bean? Which part of the plant do you expect to grow out of the seed first? What do you think will grow next?* **(5 min.)**

5. Drawing: Pass out crayons, paper, and pencils for students to draw pictures of their seeds and how they think their seeds will look in one week. This is a good time to have students use a permanent marker to write their name on the zip lock bag and their drawing. Have students clean up and collect their Bean Buddies, explaining that you'll tape them to the window to help them sprout, and that's where they'll check on them every day. (10 min.)

6. Sharing: Return to the circle, and have students share their drawings with a partner. **(5 min.)**

REFLECTION

Have students discuss the following questions in small groups, then share with the class: **(5 min.)**

Social and emotional learning

- *What was your favorite part of the activity?*
- *What was hard? How did you solve the problem?*

Check for understanding

- *What do seeds need to grow into plants?*
- *How long do you think it will take until we see the bean sprout? How big do you think its leaves will get?*
- *Why doesn't the bean seed need soil to sprout? Do you think it'll need to be in soil soon?*

ADAPTATIONS

Observation Extension: Have each student set up a log where they will record observations with pictures of the progress of the plants' growth.

Necklace Variation: A fun alternative is to have students keep the Bean Buddies in their pockets or on a string as a necklace, explaining that the warmth from their bodies will help them germinate. Have them care for their Bean Buddy independently at home, and make it a challenge to see whose Bean Buddy is alive and thriving day after day.

ACADEMIC CONNECTIONS

Next Generation Science Standards Disciplinary Core Ideas

NGSS K.LS1.C

Organization for Matter and Energy Flow in Organisms – All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow.

NGSS 1.LS1.A

Structure and Function – All organisms have external parts... Plants also have different parts (roots, stems, leaves, flowers, fruits, and seeds) that help them survive and grow.

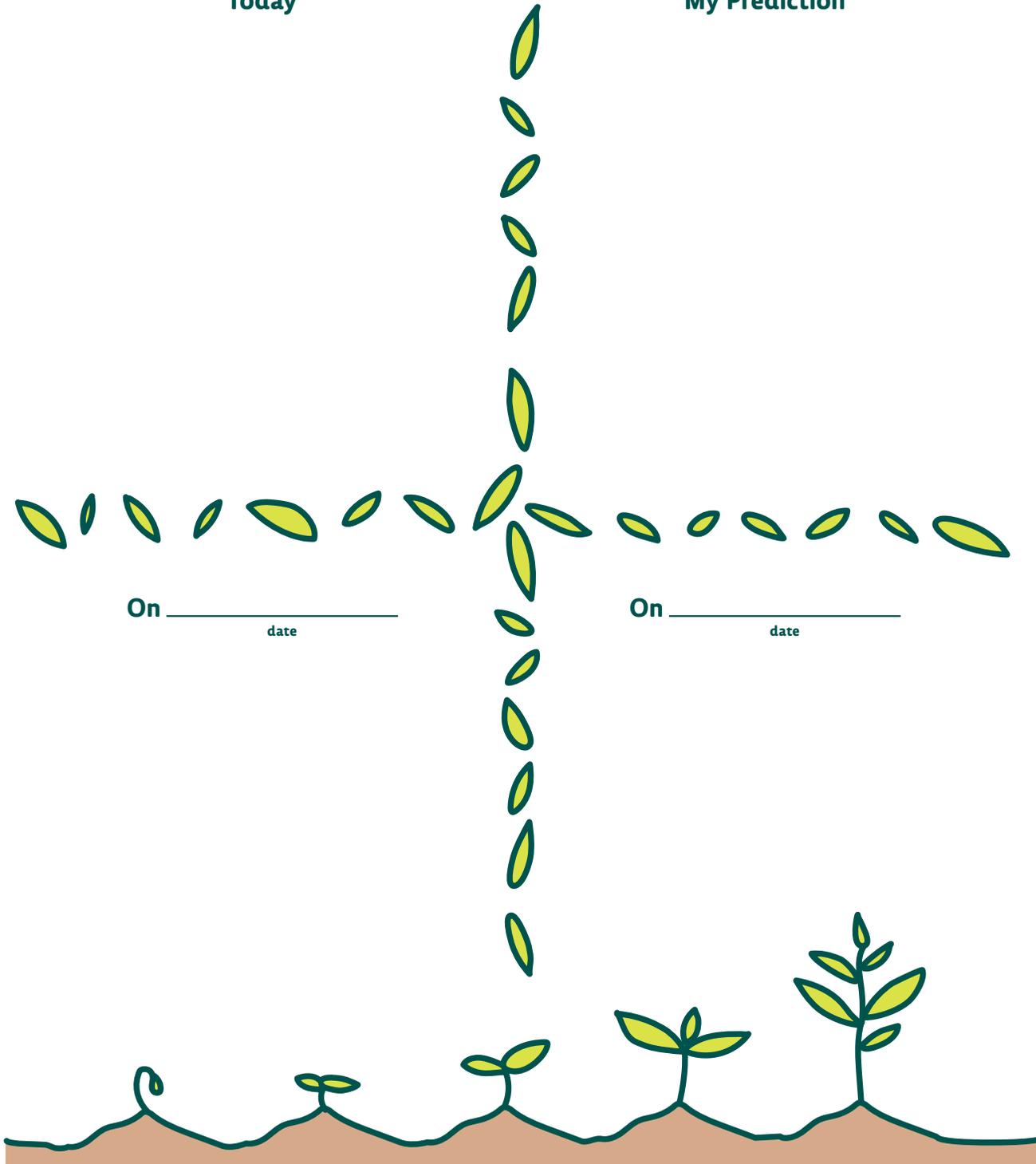
Observation Log

Name: _____

Project: _____

Today

My Prediction

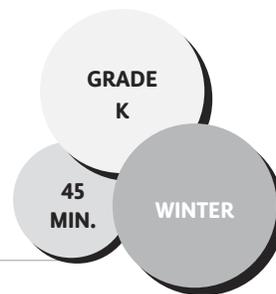


On _____
date

On _____
date

From Beautiful Beans to Delicious Dip!

THEME: PREPARING AND ACCESSING HEALTHY FOODS



ESSENTIAL QUESTION

How can we work together to create a healthy snack?

LEARNING OBJECTIVE

✓ Students will be able to prepare fresh vegetables and herbs by hand.

CONCEPTS

herb ingredient snack

Engaging the Classroom Teacher

- During Action Step 2, suggest that the teacher support students while they sort beans.
- During Action Step 5, suggest that the teacher support students while preparing the ingredients for the snack.

LESSON DESCRIPTION

In this lesson, students learn to process fresh foods by hand as they prepare herbs and vegetables to enjoy with a bean dip. This lesson can be taught in conjunction with the lesson Bean Buddies.

MATERIALS

- A mix of dried beans for students to sort, count, and explore
 - Seed Sorting Mat (p. 104)
 - Food processor or blender
 - Extension cord
 - Spoon
 - Can opener
 - Measuring spoons and cups
 - Serving bowl for dip
 - Napkins
 - Bean Dip ingredients (see recipe below)
 - 2 heads of cauliflower or broccoli or another vegetable that students can easily break down with their hands
 - 2 bunches of herbs such as rosemary, thyme, or oregano
 - Container for compost
 - Materials for cleanup
- For each group of 4–6 students:**
- 1 bowl of produce
 - 1 medium-sized bowl
 - 1 small bowl for dip
 - Several cutting mats to share

PREPARATION

- › Open the cans. Rinse and drain the beans.
- › Slice the citrus.
- › Set up an area in the room visible to students where you can plug in the food processor and make the bean dip as students watch. Have measuring cups and spoons and other ingredients stationed there.
- › Portion broccoli and herbs into bowls for students so that half of the class will be working on each.

Bean Dip Recipe Ingredients

Yield: 2 ¼ cups, 25 servings of 1 ½ table-
spoons

You can make a hummus-like dip with garbanzo beans and lemon; a black bean dip with cilantro and lime; or a white bean dip with parsley, rosemary, and thyme.

- 2 (15-ounce) cans of beans (garbanzo, black bean, or white bean), drained and rinsed
- 4 tablespoons olive oil
- 4 tablespoons fresh leafy herbs such as parsley, cilantro, or basil
- 2 tablespoons lemon or lime juice, more to taste
- 4 teaspoons herbs such as rosemary or thyme
- 1 teaspoon of salt, more to taste

Add all ingredients to a blender or food processor fitted with a steel blade, and blend until smooth. Taste and adjust seasoning, as needed.

ACTION STEPS

1. Engage: Gather students in a circle, and tell them they'll be making a tasty snack together. Ask students to raise their hands if they've eaten beans before. Ask, *How do you like to eat them?* Take a few answers, and explain that today you'll be making a bean dip with herbs to eat with veggies. **(5 min.)**

2. Exploring the Ingredients: Give groups of students a bowl with a variety of dried beans, covered with a napkin. On the count of three, have them lift the napkin to see what's underneath. Give them a few minutes to explore. Provide challenges like, *Can you find the biggest bean? The smallest? Brightest? A solid color? Spotted? Smoothest?* Challenge students to count different types and compare: *How many red beans do you have? Are there more red or white beans? Are there more solid or spotted beans?* Then pass around a couple sprigs of whatever herbs you're using. Ask students to look at them, touch them, and smell them. Ask, *What does it smell like to you?* **(5 min.)**

3. Model: Say, *When you go back to your seats, you're all going to be my helpers for making our bean dip. Some helpers will work on our veggies, and some helpers will work on our herbs.* Show students how to break up the broccoli and how to pull herb leaves from the stems. Remind them that they won't want the broccoli too small, or they won't be able to dip it. **(5 min.)**

4. Hand-Washing Break (5 min.)

5. Prepping Veggies and Herbs: Give half the students the broccoli to break up and half the students herbs to pick and tear. Provide each group

with a couple cutting mats as clean work surfaces to share, and have them put their finished product in the empty bowl you provide them. Circulate through the room, guiding students who need help. Gather the herbs and veggies, and have students clean up their spots. **(10 min.)**

6. Cooking Demonstration: Ask for students' attention at the station where you've set up your blender. Explain that you'll now show them how to make the bean dip. Add your cans of beans and other ingredients to the blender, explaining and showing students each step. To have students consider the importance of each ingredient, ask questions such as, *How do you think the flavor will change after I add the lemon?* Blend the ingredients, then say, *I'm going to try it to see if it needs anything else.* After you've made adjustments and blended again, portion the dip into bowls for each group. **(5 min.)**

7. Tasting: Tell students that everyone is going to wait until you tell them to eat. Say, *We're going to be sharing our dip, which means making sure we don't take too much and that we don't share germs.* Explain that to prevent germs they'll only dip each piece of veggie into the dip once; model what that looks like. Give each group a bowl of dip. Have one student pass out plates and another student pass out a couple veggies to each student. Have everyone taste the bean dip together. **(5 min.)**

REFLECTION

Have students discuss the following questions in small groups, then share with the class: **(5 min.)**

Social and emotional learning

- *How did working together help us make this bean dip?*
- *How would you teach your family members to make bean dip? What tips would you give them?*

Check for understanding

- *How would you describe the flavor of the bean dip? What herbs can you taste that we smelled earlier?*
- *What else might taste good dipped in bean dip?*

ADAPTATIONS

Art and Math Extension: Have students sort and count dried beans over butcher paper to practice adding and subtracting. Make bean mosaic art by providing glue and construction paper. Make bean maracas by putting beans into cans, cardboard tubes, or just about anything!

ACADEMIC CONNECTIONS

English Language Arts Common Core State Standards

CCSS.ELA-LITERACY.L.K.5.C

Identify real-life connections between words and their use (e.g., note places at school that are colorful).

CCSS.ELA-LITERACY.L.K.5.A

Sort common objects into categories (e.g. shapes, foods) to gain a sense of the concepts the categories represent.

Math Common Core State Standards

CCSS.MATH.CONTENT.K.MD.B.3

Classify objects into given categories; count the number of objects in each category and sort the categories by count.

CCSS.MATH.CONTENT.K.CC.C.6

Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.

SEED SORTING MAT



Smallest



Spotted



Long



Biggest



Solid



Round

