Welcome to NSTA's Daily Do
Teachers and families across the country are facing a new reality of providing opportunities for students to do science through distance and home learning. The Daily Do is one of the ways NSTA is supporting teachers and families with this endeavor. Each weekday, NSTA will share a sensemaking task teachers and families can use to engage their students in authentic, relevant science learning. We encourage families to make time for family science learning (science is a social process!) and are dedicated to helping students and their families find balance between learning science and the day-to-day responsibilities they have to stay healthy and safe.

What is Sensemaking?
Sensemaking is actively trying to figure out how the world works (science) or how to design solutions to problems (engineering). Students do science and engineering through the science and engineering practices. Engaging in these practices necessitates students be part of a learning community to be able to share ideas, evaluate competing ideas, give and receive critique, and reach consensus. Whether this community of learners is made up of classmates or family members, students and adults build and refine science and engineering knowledge together.
Introduction

Today's task, Where did the plant come from?, engages Pre-K and K students and their families in science and engineering practices and uses the thinking tool of patterns to make sense of the idea that plants need water and sunlight to grow and also the idea that different types of plants have many parts in common.

Young students and their siblings can plant and care for their sprouted seeds indoors or outdoors. They might spend the summer months wondering and noticing How big might the plant grow? How many leaves might it have? Where will the new seeds come from?

Preparation

Materials

Variety of large, dried seeds such as

- kidney beans
- pinto beans
- black beans
- mung beans
- peas
- corn kernels
- green beans

paper towels or napkins
plastic baggies (snack-, sandwich-, or quart-sized) OR clear glass jars with lids (any size)
water
picture of each seed type (optional)
picture of plant grown from each seed type (optional)
stickers or small sticky notes (optional)
A few days before engaging students with this task, choose one type of seed to sprout ahead of time (directions below). Students can observe the sprouted seed and ask questions. You can use these questions to collaboratively generate ideas for investigations.

Note: Make sure all of the seeds you’re using sprout in about the same amount of time.

**Investigation**

**SORTING SEEDS**

Place all the seeds in clear plastic bag so students can see there are many different kinds of seeds in the bag. You need enough seeds to share a small handful of seeds to each student.

You might say to students, "I found this bag of seeds but they’re all mixed up. Would you help me sort them?" Ask students to put like seeds together. You might give students a paper mat with drawn circles to place like seeds together.

As you walk around the room, ask students about the choices they are making

- Why did you put this seed here (point to a seed in a pile) and this seed here (point to a different seed in a pile)?
- What are some things that are the same about all these seeds (point to a pile of seeds)?
- Why did you put this seed and this seed (point to two seeds in the same pile that are a little different) in the same pile?
- What questions do you have about these seeds?

Once students have sorted all of the seeds, you might ask students to share their ideas about how the seeds are different from each other. You might ask the students to tell the class what they told you when you were walking around the room. Students have likely noticed the size, shapes, and colors are different.

Next ask students, "Can you think of one thing that is the same about all the seeds? Tell your idea to someone near you." Students might say all the seeds are hard. Some might say you can eat them. Some others might say all seeds grow plants.

**EXPLORING SPROUTED SEEDS**

Share a few of the seeds (seeds should be all of the same type) you sprouted. (Blot them dry first.) You might say, "Look! Some of the seeds in my bag sprouted!" Share the sprouted seeds with students. Ask them to be gentle holding and sharing them with others.

Let the students look at the sprouted seeds. If you have magnifying lenses, consider helping students use them to observe the seeds. (Families at home can take a picture and enlarge it for students.) As you walk around the room, listen for students’ questions and observations about the sprouted seeds. Students might say

- It’s sprouted!
- These are roots.
- I see a leaf.
- It’s so small.
• Why did it sprout?
• Is this a plant?
• Will it get big?
• Will all these beans sprout?! 
• Can we make all the beans sprout?

Say to your students, "We have a lot of questions about these sprouts! Why do you think these seeds sprouted?" Accept all ideas. Listen for students to say the seeds need to be wet and/or need sunlight. You might say, "Nia thinks the seeds need water to sprout. Who agrees with Nia?"

Note: Plants do not need sunlight to germinate, but do need sunlight to grow. It's OK if students don't make the distinction in this task.

Ask, "Do you think we can make these other kinds of seeds sprout? Why do you think so?" Accept all ideas. Some students may not have experience gardening to share, so you might ask them to share experience eating fruits or vegetables with seeds.

Say to students, "Many of us think plants need water to sprout. Should we find out?"

**SPROUTING OUR OWN SEEDS**

*This next part describes students setting up the investigation. You may choose to do some of the set-up ahead of time or assist students in the set-up.*

Give each student 3 or 4 of the same type of seeds (this is important because it's likely that not all the seeds will sprout). Vary the type of beans from student to student.

Consider asking students to draw a picture of their seeds either in their student notebook or on a blank paper using crayons or pencils. Gently guide students to only draw what they see. Help students write the day and date on the picture.

Give students a damp paper towel (should not drip when you hand it to students) and a baggie. Show students how to fold the paper towel to fit inside the baggie.

Show the students how to place their beans between the paper towel and side of bag (so beans are visible). Help students seal their bags and write their initials (use a permanent marker). Place the baggies in a common area in the room.

You might create a poster with one column for each type of seed students are sprouting. At the top of each column, paste a picture of a seed. Point to the first seed picture. Say, "If you think this seed will sprout, please come up and put a sticker (or sticky note) in this column." Hand students sticker/sticky note to add to chart. Help them post one under the other. This will help students notice patterns in predictions (data). Continue until students have made a prediction about all of the seeds. You might ask students to share why they think a particular kind of seed won't sprout.
INVESTIGATING OUR SPROUTED SEEDS

Allow students to observe their seeds every day; you might ask them to choose one seed to draw each day or every couple of days. As students observe their seeds, ask them what they think is happening. When they share their ideas (claim), ask them to point to the place on the seed that makes them think that (evidence).

When the sprouted seeds develop their first real leaves, ask students to draw the sprouted seed. Gently guide them to draw what they observe (for example, if their sprout has only one leaf, they should only draw one leaf in their picture).

Assign students partners; each pair of students should represent two different kinds of seeds. Ask students to compare their sprouted seeds. As you walk around the room, you might ask
- What is growing from this seed?
- Can you find something that is the same/almost the same between this plant (point to one student's sprout) and this plant (point to the other student's sprout)?
- Can you find something that is different between this plant (point to one student's sprout) and this plant (point to the other student's sprout)?

You might assign students different partners and ask them to compare their sprouts. Can they still find something that is the same and something that is different?

If you and your students made predictions about which kinds of seeds would sprout, you might bring their attention back to the class poster. You can ask students which types of seeds sprouted and mark their response on the chart (write the word "sprouted" next to the picture, for example).

Ask students, "What are some things we noticed are the same about our plants?" Record students' observations on a poster - you might label the poster "Plants". Observations might include the plants came out of the seeds, have roots, leaves, and stems, and the leaves are green.

Next, ask, "What are some things we noticed that are different about our plants?" Differences might include the plants came out of different seeds, the plants are different sizes, the leaves are different shapes.

Consider showing students pictures of different plants, bringing different plants into the classroom or taking the students on a walk outside (bring the plant poster with you). Ask students, "Do you think this plant grew from a seed? Why do you think so?" or "Is this a plant? Why do you think so?" Help students use their own experience with their seeds, sprouts, and young plants to support their ideas. You might choose to share the formative assessment probe *Is It a Plant?* to find out what characteristics students are using to decide if something is a plant.

If you have potting soil available, you might ask students to plant their seeds and continue to observe the plants over time.
NSTA Collection of Resources for Today's Daily Do

NSTA has created a *Where did the plant come from? collection of resources* to support teachers and families using this task. If you're an NSTA member, you can add this collection to your library by clicking ADD TO MY LIBRARY located near the top of the page (at right in the blue box).

Check Out Previous Daily Dos from NSTA

The NSTA Daily Do is an open educational resource (OER) and can be used by educators and families providing students distance and home science learning. Access the *entire collection of NSTA Daily Dos.*