

# How Do We Know Something Is Alive?

**Daily Do** 



## 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

One of the big ideas in life science young students need opportunities to make sense of is animals and plants use their external (outside) and internal (inside) parts to get what they need to grow and survive. (They also use those parts to avoid what they don't need – like being eaten by someone else!)

Today's task, *How do we know if something is alive?*, utilizes children's books and family reading time to create a space for students to share and build on their ideas (and each other's) about things that are alive and things that are not. Wonderings about living things and what they might have in common leads students to engage in science and engineering practices to figure out that living things grow and move. This task is modified from the elementary lesson, "Do You Know Which Ones Will Grow?", published in *Even More Picture-Perfect Science Lessons: Using Children's Books to Guide Inquiry, K-5*. The *Picture Perfect* book series was developed to help K-5 teachers integrate science learning and reading in an engaging, kid-friendly way. The strategies for reading aloud to support students' sense-making in science can be used at multiple grade levels with any scientific concept.

## Reading a Story Together

Choose a story that is grade-appropriate for your students and includes examples of living things in pictures and/or text. These are just some of the many books, for students ages 6-12, that you might choose for your read aloud:

- *Do you know which ones will grow?* by Susan A. Shea
- *What's Alive?* by Kathleen Weidner Zoehfeld
- *Is it a living thing?* by Bobbie Kalman
- *Living and nonliving* by Carol K. Lindeen
- *Is it living or nonliving?* by Rebecca Rissman
- *Living and nonliving* by Angela Royston
- *One small square: Backyard* by Donald Silver

As you read the book together, prompt your students to think about what makes something alive (see examples below) and be sure to ask them to share their thinking.

- What kinds of things grow?
- What do things that grow have in common?
- What do you notice about things that are alive in the story or pictures?
- How can you tell if something is alive?
- What are some things that are not alive (nonliving) in the story or pictures? What makes you think they are not alive?
- What do you wonder about the living things in the story or pictures?
- What do you think living things need to survive?
- How does this living thing get food (eat, protect itself, move from place to place, etc.)? *Focus on how animals and plants use external parts to accomplish these tasks.*
- What other ideas do you have about what we are reading?

If your students are old enough they might record what they notice, think, and wonder on a sheet of paper or you may help document their thoughts for them.

## Connecting Science and Literacy

Ask your students figure out more about living and nonliving things.

Common Ideas:

- Look them up on the internet
- Explore things around the house
- Go outside and explore

Exploring with your students outside is the best option but is not always feasible. If going outside is not an option for you, consider exploring things you have around your house, like plants, pets, and other people. You might also consider using some live action cameras from zoos, nature preserves or state parks to allow students to make their observations.

## What is Your Evidence?



Before we make our observations we need to decide what we are going to look for, and what evidence we need to collect to answer our question, 'Is it living or nonliving?'

Together, discuss their ideas about what they think they should look for to decide if something is living or not. What should they look for outside? What evidence should they collect?

Using the ["Looking for Living and Nonliving Things" handout](#) or a sheet of paper, have your student go exploring. Have them draw what they see and record it, using drawings and/or words, what they think is living or nonliving.

After your student has collected evidence have a discussion about the items they documented. Prompt students to talk about why they chose the items they did and why they put them in the living/nonliving categories.

Suggested Prompts:

- Tell me about (and pick an item)
- Do you think (X) grows over time?

## Making Connections

After you have discussed some of the evidence you gathered, read the book **It's Alive** by Nadine Bernard Westcott or listen to the book [here](#).

When the book is over, think about the questions from the book:

- Does it eat?
- Does it use air?
- Does it move or grow on its own?



As students think about these questions, have them revisit their evidence sheet. Do they still agree with how they categorized their items, or do they want to revise them based on their new evidence.

Guidance: The goal here is to allow kids to change their mind based on new information. This is how science works, scientist make predictions, claims and design models based on the evidence they have at the time and we should do the same. Since we are also scientists, we too can change our predictions, claims, and models based on new evidence. This also helps students understand it is OK to change their minds based on the new things we learn.

## Reading Together: Goals and Take-Aways



- Partner or group read alouds engages students in the practices of scientists and engineers by providing them opportunities to ask questions, investigate, and obtain information through a shared experience.
- We can use both words and pictures from fiction and nonfiction books to get students excited and curious about a phenomenon.
- Reading aloud is appropriate for all grade level and all subjects
- Being read to invites all students in, even those who might still be developing their reading skills, to experience and enjoy a whole story while also having their curiosity encouraged.

## Tips for Reading Aloud

Obtaining, evaluating and communicating information is a practice that gets more sophisticated as students work through the science grade bands. Anchoring science ideas through read alouds along with hands-on activities help students build concrete connections to science understanding by building on ideas they already have. Reading allows students to explore ideas and formulate questions based on the story and the background knowledge they come in knowing.

Being read to is the most influential element in building the knowledge required for eventual success in reading (Anderson et al. 1985). It improves reading skills, increases interest in reading and literature, and can even improve overall academic achievement.

### Ten Tips -

1. Preview the Book
2. Set the Stage
3. Celebrate the Author and Illustrator
4. Read with Expression
5. Share the Pictures
6. Encourage Interaction
7. Keep the Flow
8. Model Reading Strategies
9. Don't Put it Away
10. Have Fun

### Reading Comprehension Strategies (that are also essential for sense-making in science) -

- Making Connections
- Questioning
- Visualizing
- Inferring
- Determining Importance
- Synthesizing

### Tools to Enhance Comprehension -

- Anticipation Guides - sets of questions that serve as a pre- or postreading activity for the text.
- Card Sorts and Sequencing - help learners understand the relationships among key concepts and help teach classification.
- Chunking - dividing the text into manageable sections and reading only a section at any one time.
- Cloze Strategy - refers to an activity that helps readers infer the meanings of unfamiliar words.
- Rereading - because nonfiction text is often full of unfamiliar ideas and difficult vocabulary, rereading content for clarification is an essential skill.
- Picture Walk - showing students the cover of a book and browsing through the pages in order, without reading the text.
- Stop and Try It - a read-aloud format in which the teacher stops reading the text periodically



to allow students to observe a demonstration or take part in a hands-on activity to better understand the content being presented.

- Turn and Talk - learners pair up with a partner to share their ideas, explain concepts in their own words, or talk about a connection they have to the book.
- Using Features of Nonfiction - modeling how to interpret the information of the features of a nonfiction book: table of contents, index, glossary, bold-print words, pictures, captions, diagrams and charts.

The strategies identified above come from *Even More Picture Perfect Science* Chapter 2 - Reading Aloud.

## **NSTA Collection of Resources for Today's Daily Do**

NSTA has created a [How do we know something is alive? 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](#).

## **Acknowledgments**

This task is modified from the elementary lesson, "Do You Know Which Ones Will Grow?", published in *Even More Picture-Perfect Science Lessons: Using Children's Books to Guide Inquiry* by Emily Morgan and Karen Ansberry.