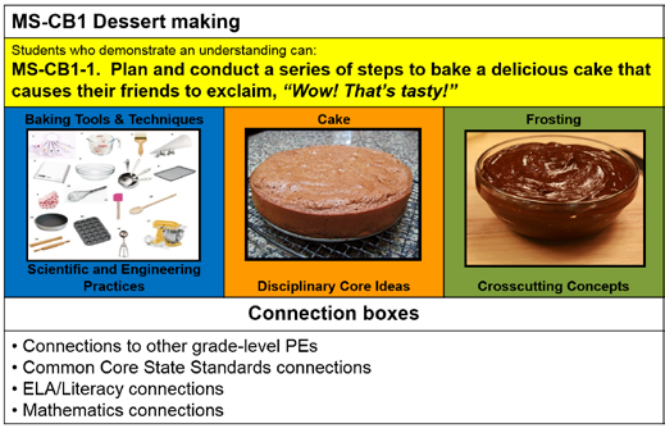
Performance Expectations and Reading the NGSS Tables

Approximate time: 25 - 30 minutes
Part 1: Performance Expectations (5 – 10 minutes - presentation)
Part 2: Reading the NGSS Tables (15 minutes - presentation)
Part 3: Discussion (5 minutes)



Learning Goals

Participants in this activity will

- know that the Performance Expectations (PEs) are statements of what students should be able to do at the end of instruction
- know that PEs incorporate the Science and Engineering Practices, the Disciplinary Core Ideas, and the Crosscutting Concepts
- understand that the PEs do not describe a lesson or instructional strategy
- be comfortable reading the NGSS tables

Materials

- PEs & Tables PowerPoint
- MS-CB1 Dessert Making handout
- Projector/computer set-up
- NGSS tables for applicable grades (optional – see *Next Steps*)

Background for Facilitators

What are Performance Expectations?

Performance Expectations (PEs) are the culmination of everything that participants have presumably seen so far in their introduction to the NGSS. The PEs combine the three dimensions of the NGSS into a statement of what students should be able to do at the end of instruction. The way the PEs are phrased **can sound like** descriptions of a single activity, and some people may misinterpret them for this reason, thinking that they just need to do that one classroom activity and they are done. **This is NOT the case**. Rather, students should **have many learning experiences** that **lead up** to this performance expectation, helping them build the skills and knowledge that they need to do the task described.

Reading the NGSS Tables

The point where participants can put together the pieces they have learned in order to understand the text and structure of the NGSS tables can be an extremely satisfying moment! If you haven't yet introduced the cake analogy that is used in *Introduction to the NGSS* , you may want to take some time to introduce it during this activity. At this point the analogy serves a truly useful purpose of simplifying the way that three dimensions intertwine to support the PEs and illustrating how that is reflected in the organization of the tables. Using a fictitious PE (MS-CB1-1, from the imaginary discipline "Cake Baking") allows participants to see the main structures and parts of the NGSS tables that are consistent across grades, and how they display information that has by now become familiar (i.e. the Science and Engineering Practices, the Crosscutting Concepts, and the Disciplinary Core Ideas).

The final part of this activity is taking a long-awaited look at some real NGSS tables at various levels. Give participants time to notice and wonder as a whole group. One common observation is about the increase in the size of, and amount of content in, the tables for middle and high school as compared to elementary. Remind participants that the high school and middle school tables include PEs for all grades in that band, whereas the elementary tables are for a single grade. Depending on time and your group, you may want to take advantage of this satisfying moment and newfound comfort with the NGSS tables to allow educators to dive into the tables for their own grade level. Further suggestions for this are included in the *Next Steps* section at the end of this lesson.

Prepare

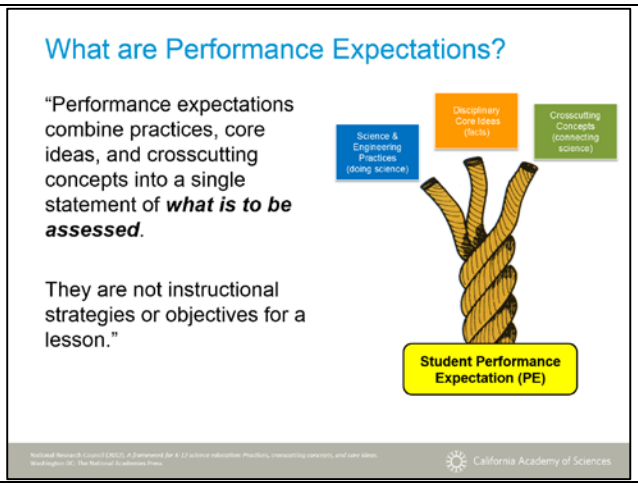
- We highly recommend that teachers taking part in this discussion have already had an introduction to the why and how of the NGSS and exposure to the three dimensions of the NGSS (SEPs, CCCs, and DCIs). Recommended activities can be found at *NGSS Demystified: A Toolkit for Training Teachers.*
- Review the presentation notes in this lesson and the accompanying slides.
- (Optional) print NGSS tables for applicable grade bands, or ask participants to bring their own (digital or hardcopy) NGSS tables.

Procedure

This activity consists mainly of a PowerPoint presentation. Try to make this an interactive presentation by drawing questions, comments, and input from your participants. The notes below describe our talking points for the slides in the presentation. Please do not view this as a script; rather, adapt the notes below to your own presentation style.

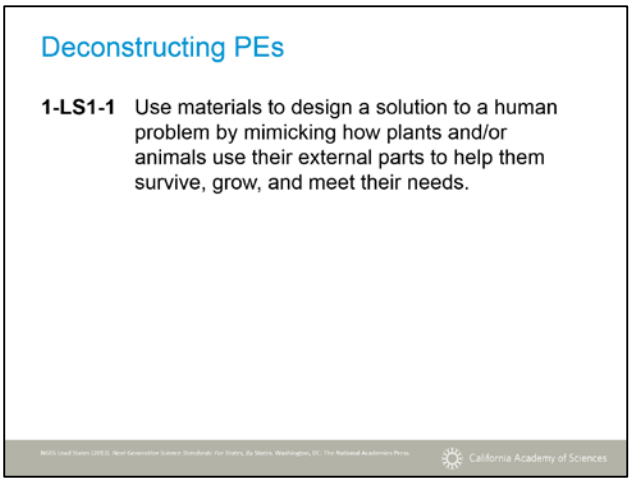
Part 1: Performance Expectations (5 - 10 minutes)

Performance Expectations and Reading the NGSS Tables



SLIDE 2: Define Performance Expectations (PEs)

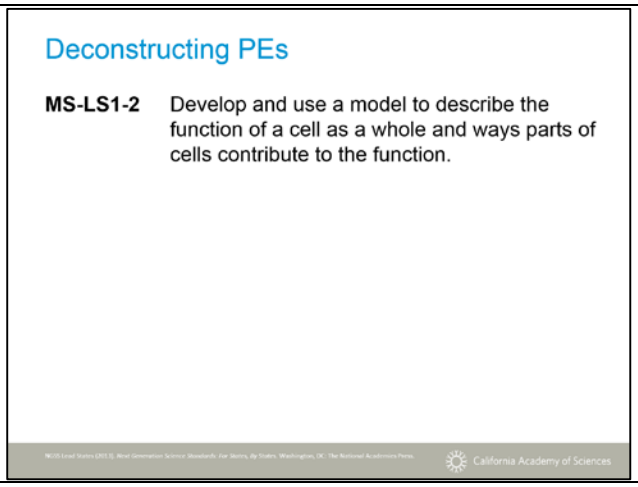
- PEs combine **all three dimensions** into a statement of what students should be able to **do** at the end of instruction.
- Emphasize from the very beginning that PEs are **not** describing instructional strategies or lessons.
- Students should have many learning experiences that **lead up** to this performance expectation, helping them build the skills and knowledge that they need.



SLIDE 3: Ask participants about this 1st grade PE.

- **What are the skills and knowledge that students would need to build up to be able to meet this expectation?** Have participants brainstorm ideas. Response may include:
  - *the external parts of plants and animals, how they use those parts,*
  - *what plants and animals need to survive and grow,*
  - *what mimic means,*
  - *what a human problem might be,*
  - *how to design a solution,*
  - *how to use materials appropriately.*

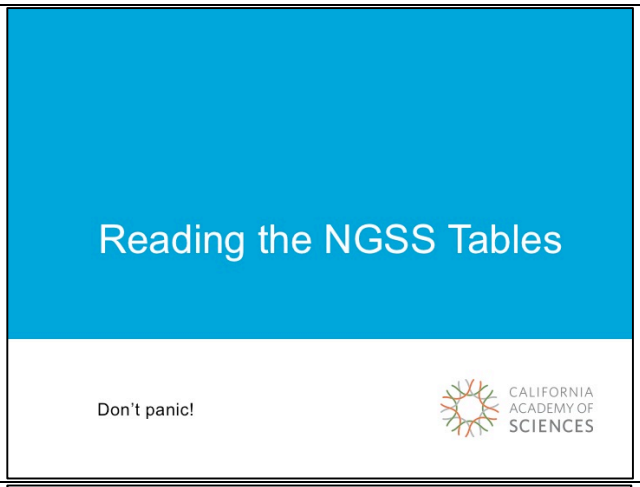
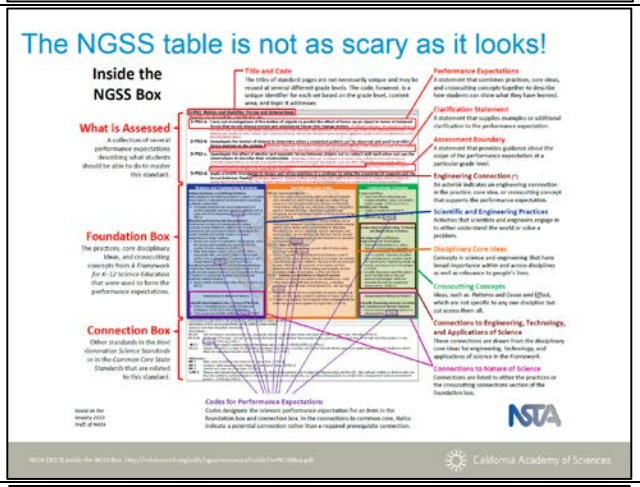
[**Note:** Reading and interpreting the "code" (1-LS1-1) will be discussed in Part 2.]



SLIDE 4: Ask participants about this Middle School PE.

- **What skills or knowledge might students need in order to meet this performance expectation?**
  - *parts of a cell,*
  - *how those parts function,*
  - *how the cell functions as a whole,*
  - *what a model is,*
  - *how to develop a model,*
  - *how to use a model*

Part 2: Reading the NGSS Tables (15 minutes)

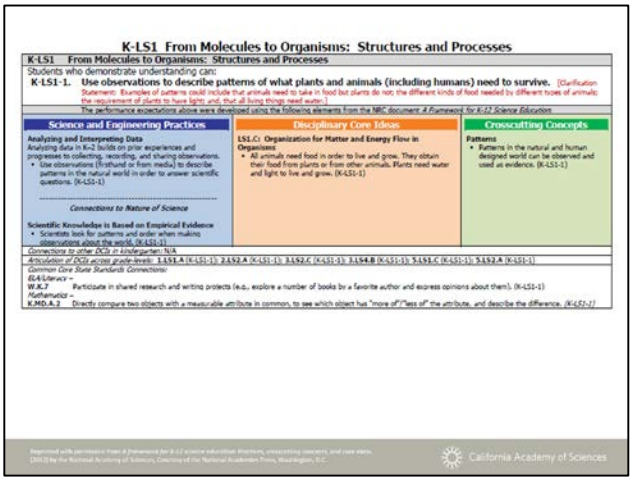
	SLIDE 5: Introduce the Tables - It's not necessary to be able to pull this information (discussed above) out of the PE just by reading it. - The NGSS are written in a format that lays out clearly what students *need to learn and experience* in order to meet the performance expectations. - Let's take a look at how to read these tables.
	SLIDE 6: The Scary Slide - This is an early attempt to explain the anatomy of the NGSS tables - You might compare this to labeling an image of the human body with information about **every single system and organ all at once.** - This is overwhelming, and not particularly useful. But don't worry…
	SLIDE 7: …it's actually a piece of cake. [If you have not previously introduced the cake analogy, pause here to explain it. You can find information about this analogy in the *Introduction to the NGSS* activity.]

Performance Expectations and Reading the NGSS Tables

SLIDE 8: Use the cake analogy to explore the parts of the table.

[**Note:** the slide is animated so that the pieces of the table will be revealed one by one as you advance. This sample table shows an IMAGINARY Performance Expectation!]

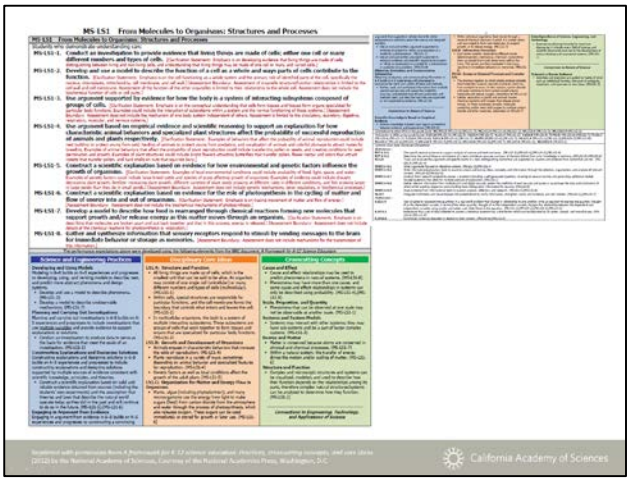
- Included in every table, large or small:
  - Blue box: Science and Engineering Practices (SEPs)
  - Orange box: Disciplinary Core Ideas (DCIs)
  - Green box: Crosscutting concepts (CCCs)
- These three boxes (blue, orange, green) are called the **foundation boxes**.
- Resting on top of this foundation are the **PEs**.
- The foundation boxes describe the skills and knowledge students need to build in order to achieve these PEs**.**
- At the bottom are the **connection boxes**, which describe links to other areas
- At the top is the title.



SLIDES 9-10: Look at some real examples.

- Go over the **code**, for example: **K-LS1-1**
  - *K = Kindergarten*
  - *LS1 = Life Sciences 1 (a DCI)*
  - *1 = first in a list of PEs* (although in this case it is a list of only 1 item)
- To check for understanding, have your participants explain back to you what's in each box (described above).
- Advise that it's important to read the red writing in brackets, which contain **assessment boundaries** and **clarification statements**. Read these out loud as an example.
- Ask participants for any other observations or questions about the table.

Performance Expectations and Reading the NGSS Tables



SLIDE 11: Look at some middle and high school tables

- Review the code: MS-LS1-1, MS-LS1-2, etc
  - *Middle School*
  - *Life Sciences 1*
  - *1st, 2nd, etc in a list of PEs*
- No matter how big the table, you can still find the same pieces in the same places!
- The middle school and high school tables look bigger since they include content for **multiple grade levels** within the same table
- Elementary school tables cover one grade level at a time.

[**Note:** If your audience includes middle school teachers, this may be a good place to talk about California's integrated versus discipline-specific models for organizing the middle school content.]

Part 3: Discussion (5 minutes)

1. Be sure to give participants an opportunity to ask questions after the last slide, and before the *Next Steps* if you choose to continue exploring the tables.
2. As in the *Introduction to the NGSS* presentation, some questions may not yet have answers. Remind educators that learning about and implementing the NGSS is a process, and that they are now better equipped to understand the anatomy of the standards.

Key Messages

Make sure participants leave with:

- A clear understanding of how to read the NGSS tables
- A clear understanding of what the PEs are in relation to the other three dimensions (and what they are NOT)

Next steps

- If you have more time available, give your participants access to the tables for their grade levels and give them time to explore. Discuss with them what they notice and wonder as they look at the tables.