

Unpacking aspects of the Three Dimensions:

Unpacking these aspects may aid in creating / documenting instruction that is rooted in the three dimensions, giving teachers much more clarity about their work, show the interconnections between science concepts, and how students will be expected to both learn and demonstrate learning.

Note that the Performance Expectations represent bundled statements that include all three dimensions. Please refer to any clarifications or assessment boundaries that are explained within the Performance Expectation.

Unpacking the three dimensions can help teachers understand what students must know and be able to do as a result of experiencing Science Instruction. These templates are meant to be conversational, rather than an opportunity to document every nuanced facet of each dimension.

Choose DCI(s) and related Science & Engineering Practices and Cross-Cutting Concepts.

Use this document to unpack the dimensions by thinking about aspects of each. This is not necessarily a linear or structured process and some thought should be given to what dimensions naturally fit together and support student learning.

Citations:

- Fisher, M., & Fisher, E. (2018). Hacking instructional design: 33 extraordinary ways to create a contemporary curriculum. Highland Heights, OH: Times 10 Publications.
- Harris, C. J., Krajcik, J. S., Pellegrino, J. W., & DeBarger, A. H. (2019). Designing Knowledge-In-Use Assessments to Promote Deeper Learning. *Educational Measurement: Issues and Practice*, 38(2), 53-67.
- Willard, T. (2020). *The NSTA Atlas of the Three Dimensions*. Arlington, VA: NSTA Press.

**Unpacking aspects of
*Science and Engineering
Practices:***

Organize thoughts around each of the three dimensions.

PRACTICE:

Aspects of the practice **01**

Intersections with other practices **02**

Evidence required to demonstrate practice **03**

Prerequisite knowledge **04**

Student Challenges **05**

Unpacking aspects of a *Disciplinary Core Idea*:

CORE IDEA:

Aspects of Disciplinary
Core Idea

01

Elaborating the Meaning of
Key Sub-Ideas

02

Identifying assessment
boundaries

04

Prerequisite knowledge

05

Defining expectations for
understanding

03

Student Challenges

06

Relevant Phenomena

07

Unpacking aspects of *Cross Cutting Concepts*:

Organize thoughts around each of the three dimensions.

CONCEPT:

Aspects of the concept

01

Intersections with practices

02

Evidence required to demonstrate practice

03

Prerequisite knowledge

04