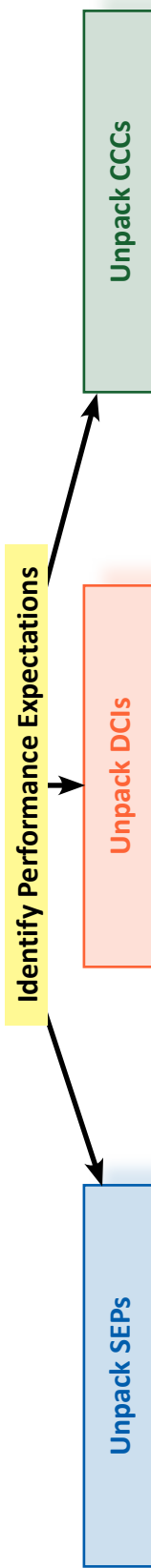


Guiding Questions for Unpacking the Standards



Guiding Questions for Unpacking the Science and Engineering Practices	Guiding Questions for Unpacking the Disciplinary Core Ideas	Guiding Questions for Unpacking the Crosscutting Concepts
<p>1. Describe the practice and its features.</p> <ul style="list-style-type: none"> • What does it mean to “do” the practice? • What are the essential aspects of this practice? • What possible intersections might there be with other practices? <p>2. Identify the requisite knowledge and skills.</p> <ul style="list-style-type: none"> • What knowledge and skills do students need to use in order to show that they can perform the practice? <p>3. Specify evidence of high-level performance.</p> <ul style="list-style-type: none"> • What evidence would you expect to see for each aspect of this practice? • What are the different levels of performance for each aspect of this practice? 	<p>1. Elaborate major ideas.</p> <ul style="list-style-type: none"> • What is the intended meaning of the element of the core idea? • Is there one idea or several separate ideas in the statement? • What terminology is explicitly used in the core idea? <p>2. Define boundary conditions.</p> <ul style="list-style-type: none"> • What peripheral ideas or terms are not essential for understanding the core idea? <p>3. Describe prior knowledge.</p> <ul style="list-style-type: none"> • What other knowledge and skills (both from this topic and from other topics) do students need in order to understand this core idea? <p>4. Identify student challenges.</p> <ul style="list-style-type: none"> • Are there any commonly held ideas that differ in important ways from the scientifically accepted understanding? • What methods can be used to determine students’ current understandings? • In what ways can instruction directly address or leverage students’ current understandings? <p>5. Brainstorm phenomena.</p> <ul style="list-style-type: none"> • What phenomena would provide examples of this core idea? 	<p>1. Describe essential features.</p> <ul style="list-style-type: none"> • What are the key aspects of this crosscutting concept? • What explanatory value does this crosscutting concept have? • How might students’ understanding of this crosscutting concept grow over time? <p>2. Identify substantive intersections with science practices and disciplinary core ideas.</p> <ul style="list-style-type: none"> • Which practices provide unforced and meaningful connections with this crosscutting concept? • What are some concepts or contexts in life, Earth, and physical science that would provide good opportunities for students to explore this crosscutting concept?

From: *The NSTA Atlas of the Three Dimensions* (Willard, 2020) based on procedures described in *Creating and Using Instructionally Supportive Assessments in NGSS Classrooms* (Harris, Krajcik, and Pellegrino, forthcoming).