

“One of the biggest ‘aha!’ moments I had was that everything comes back to the **phenomenon-based scenario**. The task isn’t motivating student thinking? We need to change the phenomenon to something students can connect to and wonder about more easily. Not grade appropriate? We need to give students different information about the phenomenon that requires them to use grade-appropriate standards to figure it out. **I don’t think we realized initially how incredibly important phenomena are to a good science assessment.**”

Aneesha Badrinarayan, Director, Special Projects, Achieve

One of the major shifts--and common buzzwords--for science assessments is "[phenomena](#)." When we asked teachers and researchers to dive into tasks and identify what characteristics in assessments set students up to demonstrate three-dimensional performances, we heard loud and clear that phenomena are one of the most critical features of three-dimensional assessments. What is the role of phenomena in assessments, and why does this matter?

Here's what our experts found:

1. If our goal for student learning is preparing students to make sense of the world around them and address problems, assessments have to **actually ask students to make sense of phenomena and address problems**.
2. The information about the phenomenon or problem--like the data, images, contextual language, etc.--**plays a direct role in which science ideas and practices, and at what grade-level, students are cued to bring to the table**.
3. Not all phenomena or problems are going to be inherently interesting to all students--but **phenomena in assessment should be presented in a way that students clearly know why this is important and relevant**.
4. Good phenomena-based scenarios **problematize the phenomenon**--in other words, scenarios present students with some kind of uncertainty and **help students understand what they are supposed to be addressing and why**.
5. If we want assessments to truly reveal what students know, students have to be motivated to engage in tasks--this means that to **support diverse students, we need to make sure that the phenomena and problems we're asking students to engage with are compelling to the students who are seeing the task**.

The [annotated tasks](#) highlight how task scenarios support student thinking and connect to the specific three-dimensional performances targeted in

assessments, based on a [complete list of features that are important for scenarios in assessments](#). These can help anyone interested in figuring out what to look for in high-quality science tasks.

Why Phenomena Matter in  
Science Tasks  
with Joe Krajcik Lappan-Phillips

**VIDEO**



In learning,  
The Achieve Team

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Is your district or state looking for support in the design, selection, and implementation of science tasks for instruction and assessment?

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