**[6 Steps to Coming Up With an Engaging Phenomenon to Anchor Your Next NGSS Unit](https://www.teachingchannel.org/blog/ausl/2015/04/15/6-steps-to-coming-up-with-an-engaging-phenomenon-to-anchor-your-next-ngss-unit/%22%20%5Co%20%22Permalink%20to%206%20Steps%20to%20Coming%20Up%20With%20an%20Engaging%20Phenomenon%20to%20Anchor%20Your%20Next%20NGSS%20Unit)**



By [Alissa Berg](https://www.teachingchannel.org/blog/ausl/author/aberg/) April 15, 2015 5:47 pm 

Transitioning to the Next Generation Science Standards’ way of constructivist teaching may seem a daunting task initially, but it is highly worthwhile! In this blog, we’ll share with you some easy ways to get started.

NGSS shifts the focus from science classrooms as environments where students learn about science ideas to places where students explore, examine, and use science ideas to explain how and why phenomena occur (Reiser, 2013). If you pique student curiosity they will be driven to want to learn more (Krajcik &  Mamlok-Naaman, 2006). It follows that one of the most important components in making this transition to NGSS is planning your units around a big question tied to a puzzling phenomenon.



Though the transition to NGSS and phenomenon-driven instruction may be challenging, there are small initial changes you can make that will provide large positive outcomes with regard to student motivation and depth of thinking. As you go through this blog, keep in mind how everything is geared toward introducing a real life context before throwing in the underlying scientific content.

Note:

* You can access the Next Generation Science Standards [here](http://www.nextgenscience.org/next-generation-science-standards).
* Performance Expectations (PE) = the standards (in the white box)
* Disciplinary Core Ideas (DCI) = the content (in the orange box)
* Science and Engineering Practices (SEP) = what students should be doing in order to learn the content (in the blue box)
* Crosscutting concepts = big ideas that apply to all branches of science (in the green box)

**6 Steps to Launching an NGSS Unit Around a Puzzling Phenomenon:**

**1. Identify a general topic:**

* Beginner – Use your current scope and sequence to guide your curriculum.
* Advanced – Use the NGSS standards, including the DCIs and PEs.
* Example: Genetics

**2. Identify the standards:**

* Select the DCIs or parts of the DCIs that you will be addressing (note: using the DCI’s is the easiest way to begin working within NGSS).
* Example:
	+ *– HS.LS1.A – All cells contain genetic information in the form of DNA. Genes are regions in the DNA…*
	+ *– HS.LS3.A – Each chromosome consists of a single DNA molecule, each gene is a segment of DNA. The instructions for forming species’ characteristics are carried in DNA. All cells in an organism have the same genetic content, but the genes are expressed and regulated in different ways.*
	+ *– HS.LS3.B-1 – Chromosomes can sometimes swap sections during meiosis.*

**3. Determine the content you want your students to know:**

* Jot down a list of key ideas related to the DCI you chose.
* Example:
	+ *– DNA exists in cells*
	+ *– Mother & Father each give one set of 23 chromosomes*
	+ – These chromosomes come together in egg and sometimes swap sections
	+ – The DNA codes for a unique individual.
	+ – Every single cell has the DNA because every cell came from the fertilized egg.
	+ – Expression occurs based on dominant and recessive traits.
	+ – Traits such as: height, skin color, hair color, eye color, etc. are all determined based on what DNA you get from mom & dad.

**4. Come up with a puzzling phenomenon:**

* Choosing an event or situation that is specific and relatable for the students.
* Example: *“Why can’t I be Michael Jordan?”*



**5. Write the underlying story:**

* This storyline is a sequential, ideal explanation for how and why the phenomenon occurred/occurs (hitting on all key content).
* The purpose for writing this out ahead of time is to have a general trajectory for your unit (even if you make modifications based on student needs that arise along the way).
* Example: [Storyline – Why can’t I be Michael Jordan](https://www.teachingchannel.org/resources/527104)

**6. Anchoring Activity Day:**

* Decide how you will introduce your phenomenon and hook students to want to learn more.
* Have students create an initial model in order to elicit their prior knowledge, understandings, and/or misconceptions.
* Have students write out and submit their own questions about the phenomenon.
* Example: [Anchoring Activity – Why can’t I be Michael Jordan](https://www.teachingchannel.org/resources/527164)

