

Lesson Planning Guide

Develop Lesson Plans for Instruction

Steps in developing [NGSS](#)-/standards-aligned, phenomenon-based lessons that are guided by the [5Es instructional model](#):

1. Complete the Lesson Plan Overview (Part A) to guide development of lesson plans.
2. Use the Lesson Plan Template (Part B) to create detailed lesson plans.



Lesson Overview Template (Part A)

1.a Select grade level NGSS [Performance Expectations \(PEs\)](#) or [Topics](#), or district/state standards that support lesson-based student learning goals.

For NGSS, PE color coding reflects its 3-dimensional learning components. Search the [Evidence Statements](#) for details on what students should know and do.

NGSS: 2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

Math: MP.2 Reason abstractly and quantitatively. (2-PS1-2)

Literacy/writing: W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).

Literacy/writing: W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.

1.b Identify a lesson-based [anchoring phenomenon](#) that builds towards understanding of the PEs/standards, and is engaging and relevant to students.

See more about [phenomena](#) and using [phenomena with NGSS](#).

1B: Students go public with what they noticed.

1.c Ask a Driving Question, which is authentic and student-focused, that relates to investigating the PEs/standards and phenomenon.

See more about [Driving Questions](#) and using [Driving Questions with NGSS](#).

How are sand samples from different areas similar and dissimilar?

1.d Unpack the 3-D learning components of the Performance Expectations/standards in the table below.

For NGSS guidance, see the [NGSS Topic Arrangements](#) and [NGSS DCI Arrangements](#). Use tools to [unpack](#) each PE separately.

Science and Engineering Practices (SEP) (skills)	Disciplinary Core Ideas (DCI) (content)	Crosscutting Concepts (CCC) (connections)
Students will ask questions based on observations to find more information about the natural and/or designed world(s).	ESS1.C The history of planet Earth: Some events on Earth occur very quickly; others can occur very slowly.	Students observe objects may break into smaller pieces, be put together into larger pieces, or change shapes.

1.e Determine students' prior knowledge about the lesson concepts. (e.g., pre-test, class discussion, exit ticket, 1-minute report, KWL chart, survey, etc.)

Students will complete a KWL chart to see what they already know and what they want to know about sand.

1.f Identify Lesson Topics and Learning Goals: List main lesson concepts related to grade level PEs/standards that support student learning goals in figuring out the anchoring phenomenon; revise as needed.

SWBAT identify different types of sediments within a sand sample.
SWBAT determine what basic processes helped shape the sediments.
SWBAT share their findings with their peers.

1.g Select Lesson Resources: Identify resources to develop lessons that address the PEs/standards and investigate the anchoring phenomenon through a variety of sequenced activities; revise as needed (include title and URL).

I took most of my material from <https://betterlesson.com/lesson/636742/not-all-sand-comes-from-the-sea>.
[Sand PowerPoint](#)



Lesson Plan Template (Part B)

Grade and Subject	2 nd Grade Science	Instructional Time (min.)	50 minutes
Lesson Title (Topic)	Not All Sand Comes From the Sea		
Anchoring Phenomenon (copy from 1.b)	1B: Students go public with what they noticed.		
Driving Question (copy from 1.c)	How are sand samples from different areas similar and dissimilar?		

Lesson Overview

Lesson Summary (description)	Lesson Topics and Student Learning Goals (copy from 1.f)
<p>Overview: This lesson focuses on observing sand from different environments. It does not directly teach to <u>ESS1-C</u>, however, it provides background information to teach this standard in future lessons. This standard is all about changes that happen to the Earth quickly or slowly. Understanding that all sand is not created the same way offers an example to students that not only does the process take a long time for erosion to happen, but the types of rocks that make the sand also have a distinct part in the make-up of that sand and that each grain of sand was once a large stone. It does connect to the Cross Cutting Concept of Stability and Change: Things on Earth may change rapidly or slowly....with sand it is clearly a slow process.</p> <p>Simply gather sand samples from your own playground or the closest river or lake. Teaching this lesson requires that the students are able to easily access sand samples from their local environments. They can even be from different</p>	<p>SWBAT identify different types of sediments within a sand sample. SWBAT determine what basic processes helped shape the sediments. SWBAT share their findings with their peers.</p>

areas on the school yard or your local park, river, stream, or ocean beach. As long as there are a variety of different samples, the students will be able to make comparisons.

Engage: Open up the [Sand PowerPoint](#) and begin on the first slide. Ask the students what they think the topic of today's lesson will be. Do not spend more than a minute on this part, as they should be able to see that sand is the topic. Next, move to slide 2 and ask the students if they have ever felt sand between their toes. Allow some time for the students to share their experiences with sand and show them the following video clip:

<https://youtu.be/7fDUC77V8f8> This will give the students a visual of what sand looks like when it falls from a certain distance and will be helpful for those students who have never experienced sand. After watching this clip, move to slide 3 and ask the class "Is all sand the same?". Most students will probably say "yes", because it should not be expected that they know that sand is different. The grains are so tiny and minute that unless you have the experience to know that it depends on its origins and where it is located in the world or the biome it is in. This part should take about 5-6 minutes.

Explore: At this point, pull up [The Science of Sand](#) website and explore some different sand samples as a class. As they are exploring different sand samples, have them talk with their groups about similarities and differences they notice. As they are exploring, have them write down where the sand samples are from. Give them about 10-15 minutes to complete this task.

Explain: Move to slide 8 in the PowerPoint and click on the hyperlink.

Remind the students that scientists do not always do their research out in the field. They sometimes have to do research by looking in other resources. The internet can certainly be one of those resources. This also helps in addressing [CCSS Writing standards 2.6 and 2.7](#). Read the information to the class and emphasize the words they need to pick up on like 'erosion' and 'weathering'. Use the information on the slide to explain to the class where the sand comes from, how it is created and why it is different. Use the Smart Board features to write on the board and underline important information the class should

focus on that will enhance their learning. Move to slide 9 and open the hyperlink. Again, read the information for the class. This is because websites are not typically written at a Grade 2 reading level. Demonstrate to the students that they are capable of using adult materials to help them learn even if they are only seven years old. After the investigation, bring up this [video clip](#). The clip explains so thoroughly and easily what sand is and how it is created. The clip really cements what we will read on the websites. It also really backs up the reason why I am teaching the class to notice the differences between all the sand types. Ultimately, sand begins from large rocks and has been moved by a force.

Evaluate: Prior to the start of this lesson, students completed KWL charts. Their overall grade for this lesson will be out of 15 points. If they participated, they will receive 7 points. The other 8 points will come from them completing the 'L' column in their charts to show what they learned. Students will not lose points if they need teacher prompts to help them figure out their responses.

Extension: As an extension activity when the lesson is done, students will be asked to conduct group research about one of the sediment types found in their samples. They will be asked to give a presentation about what the sediment is and how it formed.

Lesson Resources Aligned with Standards

Lesson Resource

(copy from 1.g, sequenced with titles and links)

Resource Standards Alignment

(copy from 1.d, standards notated, link optional)

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NGSS: 2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

Literacy/writing: W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).

Sand PowerPoint		Math: MP.2 Reason abstractly and quantitatively. (2-PS1-2)
Teacher Preparation		
Student Misconceptions (potential student ideas that are problematic when engaging in the lesson)		Scientific Terminology (vocabulary named once students “figure out” concepts of lesson)
Students may feel that all sand is the same. They may also not realize that changes to Earth take a long time to occur.		Sediments, igneous, shale, chert, granite, tectonics, weathering, erosion
Materials Preparation		
Student Needs (activity sheets, data packet, etc.)	Group Needs (lab equipment, group data packets, etc.)	Safety & Technology Needs (unsafe materials, websites cued, etc.)
Students will need lined paper and pencils.	Groups will need lined paper and pencils and access to electronics.	The teacher will present all online materials at the front of the classroom. For the Science of Sand website, the teacher will already have the website pulled up on the computers the students will use.
Supporting Information		
References (links to cite sources of data, images, websites, etc.)		Background Reading (for teachers and/or students)
https://betterlesson.com/lesson/636742/not-all-sand-comes-from-the-sea . Sand PowerPoint http://www.corestandards.org/ELA-Literacy/ www.nextgenscience.org		Students will already have prior knowledge about some of Earth’s processes, which will help prepare them for this lesson.