You will produce...

- A lesson sequence covering 2-3 weeks of instruction

That...

- Addresses standards for your grade level.
- Focuses on an environmental problem.
- Likely culminates with students developing a solution to that problem.
- Is produced collaboratively in a group of 2-3 teachers.

Rubric

Concept	3 - Excelling	2 - Understands	1- Developing
NGSS Shifts	Content is presented as an iterative, dynamic, creative, and collaborative process similar to how real scientists and engineers do their work.	Content is presented as an iterative, dynamic, creative, and/or collaborative process.	Content presented as a collection of facts or uses a linear "scientific method;" Disconnected from how real scientists and engineers do their work.
5E Components **Description below**	All 5E components are present and activities listed in those categories fit the description. Lesson is complex and not linear.	All 5E components are present and activities listed in those categories fit the description. Lesson is treated as a linear process.	Most 5E components are present but not all OR All components are present but some activities are clearly miscategorized.
Data Analysis	Students devote a significant amount of time to *analyze* data -- examples include creating and discussing graphs.	Students spend a lot of their time collecting data but don't try to analyze it.	The lesson lacks authentic data.
Phenomena	Phenomena are presented that engage student interest and lead to the	A phenomenon is presented that engages student interest and leads	Phenomena/Phenomenon do not directly or indirectly fit the instructional segment

	development of questions. Phenomena used relate directly to the lesson and help students understand the instructional segment.	to the development of questions. May fit directly or indirectly into the instructional segment.	OR Phenomena/Phenomenon are easily understood and don't lead to the development of questions.
Engineering components (optional)	One or more engineering activities are present in the sequence. Engineering activity is integral to student understanding of the instructional segment and students are solving real world problems.	At least one engineering activity is present in the sequence. Engineering activity helps student understanding of the instructional segment.	Engineering activity is present but doesn't fit the instructional segment. OR Engineering is presented as a conceptual idea and/or not present at all.
Science Practices	Sequence uses ALL SEPs, and creates engaging experiences for students.	Sequence uses MOST SEPs, and creates some engaging experiences for students.	Some SEPs are present in the instructional segment.
CCCs	Crosscutting concepts clearly apply to the segment and are used to build deeper and connected understanding of science as a whole.	Crosscutting concepts are a part of the segment and are used in instructional practices.	Crosscutting concepts are not clearly identified or used to develop student understanding.
EP&C Inclusion	Segment has a clear environmental component. The EP&C(s) used is/are identified and instructional segment directly connects to it.	Segment has an environmental component. The EP&Cs are used to inform instructional planning but may not be clearly identified in the instructional activities.	Segment connection to the EP&Cs is unclear. Instruction may or may not have an environmental component.
Cultural Relevance	Clear use of the cultural relevancy questions. No apparent bias in sequence and/or diverse representation in curricula.	Possible use of the cultural relevancy questions. Some apparent bias in sequence and/or lack of diverse representation in curricula.	Little to no evidence of use of cultural relevancy questions. Bias overly apparent.
Activities/ Lab Work	Reasoning and argumentation play a central role in labs/ activities; lab components are relevant to the real-world and require critical thinking.	Reasoning and argumentation may be present in labs/activities; lab components has little relevance to the real-world and may/may not require critical thinking.	Reasoning and argumentation not present in labs/activities; lab components has no relevance to the real-world and may/may not require critical thinking.

Reading/ Writing Activities	Connects SEPs to literacy with purposeful reading and writing instruction. Where possible primary research and data is used.	Literacy activities with purposeful reading and writing instruction are included in sequence. Primary research and data may/may not be present.	Literacy activities not apparent or not connected to instructional segment.
Progressions	Lesson targets the correct level of complexity in all three dimensions, according to the "Progressions"		
Equity	Provides access points for all students regardless of their technology access.		

5E components

From: http://enhancinged.wgbh.org/research/eeeee.html
Engage: This phase of the 5 E's starts the process. An "engage" activity should do the following:

1. Make connections between past and present learning experiences
2. Anticipate activities and focus students' thinking on the learning outcomes of current activities. Students should become mentally engaged in the concept, process, or skill to be learned.

Explore: This phase of the 5 E's provides students with a common base of experiences. They identify and develop concepts, processes, and skills. During this phase, students actively explore their environment or manipulate materials.
Explain: This phase of the 5 E's helps students explain the concepts they have been exploring. They have opportunities to verbalize their conceptual understanding or to demonstrate new skills or behaviors. This phase also provides opportunities for teachers to introduce formal terms, definitions, and explanations for concepts, processes, skills, or behaviors.
Elaborate: This phase of the 5 E's extends students' conceptual understanding and allows them to practice skills and behaviors. Through new experiences, the learners develop deeper and broader understanding of major concepts, obtain more information about areas of interest, and refine their skills.
Evaluate: This phase of the 5 E's encourages learners to assess their understanding and abilities and lets teachers evaluate students' understanding of key concepts and skill development.

First slide: Engage/Explore
Next Slides: walk through of 5 E’s
Present: Elaborate-Evaluate

After 20 min lesson:
Next slide: Picture of “post-it poster”

Next slides: Where are you going from here? Lesson sequence for the rest of the 5E