

# Unit 2 Energy and Engineering Webinar

## Agenda

Eyes on the Prize	Time	Goal	Activities
Introductions	4:00	Welcome	<div>1. Introduction</div> <div>2. Goals of Webinar</div> <div>3. Overview of Agenda</div>
Overview of Unit	4:10	Understand the Aims of the Learning Progression	<div>4. Situating Unit 2 within the Course (<a href="#">0NGSS</a>)</div> <div>5. <a href="#">Unit 2 Learning Plan for Energy &amp; Engineering</a></div> <div>6. <a href="#">Storyline for Unit 2 Planner for Energy &amp; Engineering</a></div>
<div>Energy &amp; Engineering</div> <div>Maybe the Most Important Thing</div> <div>Nothing Builds Success like Success</div>	4:30	Hear about the Flow of the Unit and get Helpful Insights.	<div>7. Introduction to how we Contextualize Engineering and Energy through Eggstreme Bungee Jump Project*</div> <div><div>a. Let’s clarify what we aim to do with our Engineering Problem Statement in the packet.*</div><div>b. This leads to the Essential Question: How can we use STEM to make thrilling experiences safe?</div></div> <div>8. Using Driving Question Boards to build student ownership and anticipate the big ideas of the unit*</div> <div><div>a. Check in our Learning Progression*</div></div> <div>9. Using Scientific Tools (Energy Bar Charts) to Make Sense of Phenomenon and Enhance Student Writing</div> <div><div>a. Building background and common experiences with energy transfer and energy transformations* *</div><div>b. Model and guide: Energy bar chart practice* *</div><div>c. Then Step Aside: Using the Big Ideas of Science to Explain Phenomenon*</div></div> <div>10. Creating the map: let’s build competency and ramp up the complexity with our second System Analysis guided by the Engineering Portfolio and the template on Page 7 of the packet* *</div> <div><div>a. Spiral System Analysis - Students are getting better at it.</div><div>b. Let’s lock it in and SWIRL with Stronger, Clearer*</div><div>c. Fill out Learning Progression (on page 1 of packet)*</div></div> <div>11. Reflect in Breakout Rooms: <i>Choose one of the following to reflect on: driving question board, using the tools of science as a pre-write strategy, or system analysis.</i></div> <div>12. Spiral back to System Analysis to determine our Next Steps*</div> <div>13. Overview students using their new toolbox to mathematical model <math>E_g</math> and <math>E_k</math>. <i>Note: we leave stuff on the table here*</i></div> <div>14. A light touch with going deeper with thermal energy and critical thinking about claims of published materials* *</div> <div><div>a. What should you ask yourself when watching a viral video or consuming any content?</div><div>b. Pause for reflection in the chat: <i>What motivates or goals do you have for helping students be critical consumers of published materials?</i></div></div> <div>15. Spiral back to System Analysis so students predict what comes next.</div> <div><div>a. Taking data on important parameters - Desmos Graph for Spring Constant*</div></div> <div>16. Using the tools of science to learn science: small scale system analysis, energy bar charts, coding data tables, and a new take on video analysis to determine the Mathematical Model for <math>E_{\text{elastic}}</math> *</div> <div><div>a. Modeling elastic energy</div><div>b. Card sort for data discussion*</div><div>c. A look at resource slides for why it makes sense that our mathematical model is quadratic*</div></div>

			<div>d. Apply our learning to our System Analysis*</div> <div>17. Before we try to finish the Job: Let’s get clear on the criteria and the constraints from the Request for Proposal.</div> <div>18. Coding for learning - Using the big ideas of science to solve problems</div> <div>a. Leveled Support*</div> <div>19. Iterate to Success - Prototype and Jump on Low Height</div> <div>a. Set them up for success to meaningfully prototype and iterate*</div> <div>b. Low height jump and play with buffer</div> <div>i. Troubleshooting (creative problem-solving)</div> <div>c. The thrill of the jump (with jump day tips)</div> <div>20. Finishing the Job: App Expo and Jump Day</div> <div>a. Supports*</div> <div>b. Parent/Admin/Community Members Involvement*</div> <div>c. Teaching positive/constructive Peer Feedback*</div> <div>21. Reach Goal if time allows: Think, Pair, Share in Breakout rooms: <i>What leverage points do you see in this unit to further develop students' STEM identity?</i></div>
Reflections + Questions	5:50	Address Questions	<div>22. What questions do you have?</div> <div>a. Use the parking lot in the Idea Capture Tool to write your question.</div>
Adjourn	6:00	We welcome any feedback	23. Exit Ticket