**Lesson Number 8: Presentations**

**Problem statement:** In this unit lesson, students will compile all findings from previous unit lessons, and present the final designs of the space junk removal product to their peers.

**Learning objectives:** Students will present their optimized final space junk removal device to the class. Students will explain how their device works to remove space junk.

**Lesson standards (NGSS, CCSS, CTE):**

CCSS.ELA-LITERACY.SL.5.4

Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

CCSS.ELA-LITERACY.SL.5.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.5.1.A

Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.

CCSS.ELA-LITERACY.SL.5.1.B

Follow agreed-upon rules for discussions and carry out assigned roles.

**Soft skills:**

* *Collaboration*
* *Public Speaking*
* *Formal reporting*

**Locally and/or personally relevant for students:**

Similar to Unit Lesson 6, this lesson delves into a career that isn’t necessarily 100% math or science related. Rather, this unit lesson involves one being able to present findings and key takeaways from a project in a standard reporting format. This lesson will connect with a variety of students: students that display leadership and public speaking skills qualities, students that possess strong technical writing skills and even those that don’t necessarily possess strong skills in math or science but are still articulate in their communication skills.

**Connections to career and educational pathways:**

This unit lesson provides a snapshot into being able to present something formal in front of an audience. Whether an individual is collaborating with classmates in an academic environment or teaming with peers in the professional workplace, it is typical that one will have to provide a formal presentation on something that they have worked on. This unit lesson connects with careers delving in project management in that students will experience compiling takeaways from the all previous unit lessons and creating a comprehensive summary of what their project entailed. Various careers in which giving presentations is a fundamental component are listed in the Guidebook, our examples are an owner of a company and a college professor.

**Materials:**

* Summary Table from previous lessons
* Space Cadet Academy Guidebook from previous lessons
* PBS Design Squad Video
* Final SJRS proposal from previous lessons
* Presentation Plan doc
* Presentation Feedback Form

**Lesson preparation:**

In this lesson, it would be ideal to invite guests (parents, older students, staff members, community members etc.) to come serve as an audience when teams are ready to present, and to provide feedback to teams.

**Time required:** 1-3 days depending on class size and length of presentations

**Grouping of students for instruction:**

Student groups that have been collaborating on the spaceship design and build project will present their spaceship design to NASA (the classroom) and explain in detail how their spaceship will carry out the specified task laid out in the problem statement.

**What is the instruction? Consider the PBL Procedure that is being addressed here:** This lesson is the culmination of efforts by students to design a spacecraft that will address the issues in the problem statement around the collection of space junk. Student groups will present their designs and explain in detail how their design will work within the constraints of the initial project design instructions.

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| **Teacher** | **Student** |
| “Today our hard work in both creating our SJRS models, and in preparing our final product documents comes together.  Before we begin work on our presentation plans we will revisit our Summary table. Let’s quickly take a look at how we completed the “Optimizer” badge.”  (5+ mins) | Students will complete the Optimizer row of the summary table. Students will raise their hands with answers to how they observed, learned, and made connections in this previous lesson. |
| “First off, we will watch a quick video on how to give an effective presentation.”  PBS Design Squad  (3+ mins) | Students will watch, possibly take a few notes, and use this information to plan their presentation. |
| “What are some of the presentation tips we just learned about?”  Host a quick popcorn discussion about these tips.  (5 mins) | Students will share out the suggestions they heard about in the video, for example:  ~ Show the audience HOW your design works  ~ Talk about how your product is new, creative, and different  ~ Be confident (your team knows the most about your product)  ~ Engage your audience  ~ Be loud and speak clearly  ~ Practice  ~ Make eye contact  ~ Be prepared to answer audience ?’s  And more! |
| “Now with your teammates you will work on making a quick presentation plan, and practicing your plan. You can use the Presentation Plan Doc to help make the plan. The “reporter” on your team is responsible for documentation on this form and for making sure all team members have a chance to present some part.”  (10-30 mins) | Students will work with their teammates to create a presentation plan. When ready they can use this time to practice their plan too. |
| \*\* This is a good time to end this part of the lesson |  |
| “Now that we have teams ready to present we will welcome our guests, and prepare for today’s presentations. Here are your Presentation Feedback Forms. You will be filling out one for every team you watch today.”  (1 min) | Students will get their presentation feedback forms and get ready to give feedback! |
| If needed:  “Welcome to our class to our guests. The students have been working on this space junk problem for a few weeks now (or note time you’ve spent until now on the unit). We have conducted research about this problem and about real aerospace materials, and as teams we’ve come up with designs for our Space Junk Removal Systems (SJRS) within a limited budget. Teams will now be presenting their models to you, and will expect you to think of questions or comments you have regarding their product.”  (2 mins) | Students will listen as teacher welcomes any guests. |
| “We will now welcome our first team to present.”  Subsequent teams will also present as time permits.  (each team will need approximately 5-8 mins) | Students will present their products in their teams. The rest of the class, teacher, and any additional audience members will use the feedback form to gather notes. |
| “Thank you to our guests and to all of you for presenting and giving each other feedback on your presentations today.  “Now we will spend just a few quick moments to reflect on our presentations in our Guidebooks to get our “Presenter” badges. Please respond to one of the following questions for your exit ticket today:”   1. Did seeing everyone else's designs give you more ideas on how to further optimize your design? 2. What is one thing you learned from your classmates? 3. How did your presentation go? 4. What part of the presentation did you cover?   (5+ mins) | Students will say goodbye to guests, and get out their guidebooks for this end of lesson routine. Students will answer the reflective guidebook questions to demonstrate learning for their Presenter badge. |

**Accommodations:** In this lesson students will be presenting in front of the class, if needed some students who are less comfortable doing so may need to have more minor roles with support from their teammates. ELLor SPED students may be given specific points to speak to for instance, written with support to read from if needed.

Highly capable students may choose to add a video or “commercial” or skit to their presentation.

**Extensions:** If time allow allow all students to collect video evidence of their product in action, create a more detailed presentation, or a video presentation.

**Assessment:**

Formative Assessment in the Lesson: this lesson will be assessed both by the teacher and students. Students will be using a “presentation feedback form” to give each other written feedback on classmate’s presentations.

Summative Assessment for the Unit: the Space Academy Guidebook will serve as a formative and summative data piece for the teacher. As the teacher reviews each team’s feedback forms, as well as their individual guidebooks, participation quizzes as needed, and anecdotal notes from lesson observations, the teacher should have a good sense of the student’s overall summative unit assessment.

**References/Resources:**

**For Class:**

* ***Youtube:*** [Design Presentation](https://www.youtube.com/watch?v=3wRWN3_u17k)

**For Guidebook**

* ***Youtube:*** [Physics Woman](https://www.youtube.com/user/physicswoman/featured)
* ***Youtube:*** [Design Presentation](https://www.youtube.com/watch?v=3wRWN3_u17k)
* ***Ted Talk:*** [9 talks by Impressive Kids](https://blog.ted.com/9-talks-by-impressive-kids/)