



TEACHER DIRECTED ADAPTATIONS FOR VIRTUAL CONSIDERATION

LESSON 4: Documentation and Journaling

LESSON OVERVIEW

In this lesson, students will explore their new YIP Inventor's Journal. They will understand how to document and record their invention process and learn the importance of keeping accurate details. Students will be introduced to the concept of a patent and how it protects ideas from theft. Finally, they will understand how to use their YIP Inventor Journal as a record keeping tool as they design their invention.

OBJECTIVE

Students will be able to understand how a patent protects an inventor and her/his invention and research patents to determine if an invention already exists. Students will understand the organized steps in logging ideas and research in the design process. Students will understand how to utilize the YIP Inventor Journal.

MATERIALS

Resources Provided by Teacher:

- Slide Deck: Documentation and Journaling
- Video: USPTO *Science of Innovation*: https://www.youtube.com/watch?v=3T-NBDGovno&feature=emb_logo (6:56)
- PDF: YIP Inventor's Journal **OR** Virtual YIP Inventor's Journal
- PDF: Who Invented the Telephone?
- Optional: PDF: Teach Me S'more

Materials from Home:

- Pens/pencils
- Notebook or other paper for writing and drawing
- YIP Inventor Journal (hardcopy, downloadable copy or virtual version provided by teacher)
- Optional: Ingredients for making a s'more (2 graham crackers, marshmallow, piece of chocolate)
- Optional: Glue or tape if using PDF: Teach Me S'more worksheet

VIRTUAL CONSIDERATIONS

Teacher may lead the following lesson plan with flexibility to adapt as needed to fit technology and class format:

*Note: Teacher may choose to use the Virtual YIP Inventor's Log in place of or along with the hardcopy of the YIP Inventor's Journal **OR** use another logbook of their own. Logbooks of some kind are required for submission to the Northern New England Invention Convention and the Invention Convention US Nationals.*

Instruction: Documentation and Journaling

1. Teacher will explain why documenting the invention process is important and that students will need to record their work throughout the invention process. Teacher may choose to distribute the YIP Inventor's Journal (hardcopies will be provided to all participants) and/or share the Virtual YIP Inventor's Journal to be used during the YIP program.
2. Teacher will explain that a patent protects and inventor from having his or her idea stolen or used by someone else. A patent is a document issued by the Patent and Trademark Office. It gives the inventor rights to his or her invention. The patent gives the inventor the right to prevent anyone else from making, using, or selling the invention without his or her permission. A patent lasts for 20 years and when it expires, anyone can produce the product without paying the inventor.
3. Teacher will show the video: USPTO *Science of Innovation*: https://www.youtube.com/watch?v=3T-NBDGovno&feature=emb_logo (6:56), to explain more about the patent and the patent process. Teacher may choose to lead a short discussion or prompt questions following the video.
4. Teacher will read PDF: Who Invented the Telephone?, the story of Alexander Graham Bell, or ask students to read the story on their own. Teacher will lead a short class discussion and ask students the following:
 - Why did Bell's patent hold up through time?
 - What other items do you associate with famous inventors? Are they the "real" inventors?
5. Share Slide Deck: Documentation and Journaling
Teacher will explain the essential elements of documentation in an invention journal and instruct students on how to record their process in their own journals. Teacher will ask students to take turns reading through the suggested guidelines for keeping a good YIP Inventor's Journal. (Teacher may share screen of slides so that students can read directly from it.) Or teacher may choose to read the guidelines. (Teacher may alter the list as needed)
6. Teacher will guide students through the YIP Inventor's Log. Teacher may choose to highlight specific pages that students must complete, show students where to add their signature and date each day, where and how to draw design sketches and how to label them, etc... (Include examples on slides)

Note: Throughout the course of completing YIP and working on their own invention projects, the students should complete the YIP Inventor's Log. Train your inventors that, whenever they are working on or even thinking about their inventions, they should be writing in their YIP Inventor's Journals (or virtual logbooks). They can also write on lined paper/scrap paper and staple it to the journal at the end.

Ideas for Virtual Instruction:

1. Teachers may create a Class Journal using a blog, or other sharing platform. This journal can be a place where students can share how their projects are progressing. We recommend that teacher set guidelines for how this blog should be used appropriately by the class.
2. In response to the story about Alexander Graham Bell, teachers may ask students to create individual short presentations on the Bell story, in which they address the question: How did Bell's patent hold up through time?
3. In response to the story about Alexander Graham Bell, teachers may ask students to respond to question: How did Bell's patent hold up through time in a writing assignment.

Activity: Teach Me S'more

1. Teacher will ask students to explain to a friend how to make a s'more (omit the step of toasting the marshmallow to avoid the need to use fire or other heat source). The student explaining should consider what steps they go through to build the treat. They should imagine that the friend doesn't have any idea what a s'more is or how to make it.
2. If the activity is completed as a group activity in a virtual classroom, teacher should follow-up with a reflection. What were the students' experiences giving instructions and building the s'more. What was challenging in this exercise? Did the partner build the s'more correctly? Ask students to think about steps such as breaking the chocolate or the graham cracker into smaller pieces? And how many chocolate pieces or grahams are to be used? Is the marshmallow squished before adding it? Were the students detailed in their instructions or were steps assumed and left out?

Ideas for Virtual Instruction:

1. Teacher may replace the s'more with another example (such as drawing a house) so that only a pencil and paper are required materials from home.
2. Teacher may choose to set up pairs to work virtually by Zoom Breakout room, or other virtual platform, so that one student gives s'more instruction and one student is the s'more maker. Teacher may prepare students to be able to make real s'mores at home by asking them to have ingredients available.
3. Ask students to write down their instructions for making a s'more step by step. Collect the instructions and then redistribute them so that each student gets a set of instructions written by a classmate. Ask the students to build a s'more at home using those instructions or to draw what the s'more would look like based on the instructions given. Students making or drawing the s'more should label the components when they are finished.
4. Provide the PDF: Teach me S'more, with pictures of s'more ingredients that students can cut out at home. Then students can build their s'more with the cut out components as they follow instructions, either verbal or written, by a peer. Students making or drawing the s'more should label the components when they are finished.
5. Ask students to complete the activity at with someone at home. The student will give the instructions for how to make a s'more and the person at home must build it based on these instructions.

CHECK FOR UNDERSTANDING

Teacher may wish to do one of the following to check for understanding:

1. In the format of the teacher's choice, ask students to share their experience writing instructions and watching their partner make the s'more. What was challenging in this exercise? Did the partner build the s'more correctly? Were the students detailed in their instructions or were steps assumed and left out?
2. In the format of the teacher's choice, ask students to name one guideline they remember about documenting their invention process in their YIP Inventor's Journal.
3. In the format of the teacher's choice, ask students to write down one question they have about how they should use their YIP Inventor Journal.