TEACHER DIRECTED
ADAPTATIONS FOR VIRTUAL CONSIDERATION

LESSON 6: Intent to Invent

LESSON OVERVIEW
In this lesson, students will begin to plan for their inventions. Students will collect their ideas about their inventions and record them on the Intent to Invent Worksheet. Students will also draw the initial model of their invention, thinking about materials and parts as well as problems they may encounter along the way. Inventors will then share their plans with others and evaluate the feedback they receive and decide how it will impact their design or decide to disregard the feedback.
OBJECTIVE
Students will be able to outline a plan for their own inventions and then compile their ideas into a drawing of an initial model. Students will be able to view the invention ideas of their peers and will learn how to provide feedback, as well as how to receive feedback from others. Students will understand how to evaluate feedback and make decisions about if and how to use this feedback to make changes to their invention designs and plans.
MATERIALS
Resources Provided by Teacher: • Slide Deck: Intent to Invent • PDF: Intent to Invent (students may need 2 copies, one for example activity and one to complete for their own invention; *copy also found in YIP Inventor's Journal)* • Optional: PDF: Partner Sharing **Materials from Home:** • Pens/pencils • Notebook or other paper for writing and drawing • YIP Inventor's Journal (or other logbook)

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 a Virtual Invention Log in place of or along with the YIP Inventor Journal. Logbooks of some kind are required for submission to the Northern New England Invention Convention and the Invention Convention US Nationals.*

Instruction: Intent to Invent

1. Share Slide Deck: Intent to Invent
   Teacher will explain to students how to plan to execute their invention project to turn their idea into a model/prototype.

   Note: Slides include effective models for giving constructive feedback to help students provide useful, positive comments during a peer sharing session. Teacher may discuss these now or as they lead the Partner Sharing activity later in the lesson.

Activity: Intent to Invent Example

1. Teacher will lead students through an example for the PDF: Intent to Invent. This worksheet will help students organize their ideas and their plans for completing their invention project. Teachers may use the pencil as an example of the invention idea (as shown in the slides). After each prompt in the slide deck, ask students how they may approach responding to the prompt in a class discussion.

Ideas for Virtual Instruction:

1. *Teacher may use a screen sharing tool or smart board tool to complete an example Intent to Invent worksheet together as a class.*
2. *Teacher may divide class into smaller groups to go through the Intent to Invent worksheet using the pencil as their invention example using Zoom breakout rooms, Google Classroom, or other format.*
3. *Ask students to submit their responses in a virtual sharing platform so that they may see the ideas submitted by their peers and provide comments.*
4. *Ask students to complete and submit the example worksheet using the pencil as their invention idea as a practice before completing their own Intent to Invent Worksheet with their own invention idea.*

Activity: Partner Sharing

Teacher may choose to do this activity as a whole class or divide the class into pairs or small groups.

1. Teacher will ask students to spend time as a class, with a partner, or in a small group, to talk about their inventions and to give each other feedback on their invention ideas and plans.
2. Each student in the group will have 3 minutes (uninterrupted) to share their invention ideas and plans. Then, their peers will have 2 minutes (uninterrupted) to give constructive feedback and suggestions for improvement or consideration. Teacher may choose to use the PDF: Partner Sharing worksheet as a guide.
3. Teacher may discuss effective models for giving constructive feedback to help students provide useful, positive comments during a peer sharing session. Models include the TAG model: **T**ell something you like about it, **A**sk a question about it, **G**ive a suggestion to improve it; or the Hamburger Model: Top bun is a positive comment about it, Meat is the feedback that will be useful to help improve it, Bottom bun is another positive comment about it.

Ideas for Virtual Instruction:

1. *Ask students to share their invention idea and plans with someone at home and then ask for feedback.*

2. *Teacher may hold individual meetings with students to review invention ideas and plans and to provide feedback.*
3. *Teacher may host an "Office Hours" to allow students to check-in, share their invention plans and ideas with peers and with the teacher and to receive feedback.*
4. *Ask students to post their invention ideas and plans to a class blog, or other virtual sharing platform to allow classmates to view ideas and write comments and suggestions to each other.*

Assignment: Intent to Invent

4. Following the activity, the teacher will ask the students to complete the Intent to Invent Worksheet at home for their own original invention idea. Teacher should require students to submit the completed worksheet for their YIP Inventor Journal (hardcopy or virtual). Students can find a copy of this worksheet in the YIP Inventor's Journal and write their ideas directly onto this page, or use the worksheet as a draft and re-copy into the journal later.

   Note: The Intent to Invent worksheet is an important component of the inventor journal required for both the Northern New England Regional Invention Convention and Invention Convention US National competitions.

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 write about why it is important to talk to people about their inventions. How did the peer review process help/affect them?
2. In the format of the teacher's choice, ask students to draw a sketch of their invention idea and to label one feature of the design that came from a suggestion or consideration offered in feedback from another person (teacher, peer, someone at home).