INDEPENDENT STUDENT LEARNING AT HOME

LESSON 7: Design-Build-Test Cycle

TODAY I WILL LEARN…
Finally. After days of planning, it is time to design, build and test your invention prototype! But, most inventions are not completely successful on the first try. Inventors repeat the process many times, building, testing and re-designing their prototypes after each test to make changes and improvements. While this can be frustrating, inventors learn a lot from the process and the end results are well worth the effort. Today you will test your invention and gain an understanding of the value of testing on invention design and function in order to improve upon your invention. You will record all of your activities, data, and observations in your YIP Inventor Journal as you design, build, test, and then re-design, re-build and re-test your invention.

MATERIALS
Resources Provided by YIP: • Video: Design-Test-Build Cycle- Guided Instructions • Slide Deck" Design-Test-Build Cycle • YIP Inventor Journal **Materials from Home:** • Pens/pencils • Notebook or other paper for writing and drawing • Build materials (such as, but not limited to: recycled materials, tape, glue, scissors, clips, string, fabric, markers…) • Optional: Wisk or other kitchen utensil (for a review of brainstorming method)

INVENTOR PLAN
Note: We recommend that inventors spend 4-6 hours on designing, building and testing. All parts of this process should be documented in the YIP Invention Journal or an alternative invention log. Logbooks of some kind are required for submission to the Northern New England Invention Convention and the Invention Convention US Nationals. **Instruction: Design-Build-Test Cycle**

1. Watch Video: Design-Build-Test Cycle – Guided Instruction. Refer to Slide Deck if needed for review.
2. In your journal, write how you plan to test your original design once it is built. How will you know if the design is successful or if it needs modifications? How will you know what modifications you might want to make to your original design?
3. Begin to build your prototype. Use materials you find around the house. A recycling bin is a great place to find materials to use. Make a list of everything you use, and if you need to buy anything, be sure to record what you buy, where you buy it from, and how much it costs. You can use the Materials List in your YIP Inventor Journal to keep track of your materials.

Activity: SCAMPER Returns

This activity is optional but may be helpful to remind you how to design and re-design a solution to your proposed problem.

1. Review the Video: SCAMPER- Guided Instructions and the brainstorming process.
2. Brainstorm a new use for the wisk (or other kitchen utensil) using SCAMPER methods.

CHECK AND REFLECT

1. Think about your invention prototype. How will you test it? What data will you collect? Will your data include numbers, observations, or user feedback? What adults can help you?