

Flashlight Design

7th Grade Design Technology

Goal:

With a partner, use the tools, materials and techniques you've learned in Design Lab to create a custom flashlight prototype for a teacher. You will need to learn about the teacher by asking them questions and using their answers to help you make design decisions for how your flashlight should look and work.

Steps:

1. **Research:** Learn about your user by asking them 5-7 questions and collecting their answers by email or in person.
2. **Sketch:** Make two sketches of your flashlight idea from two different angles (front/back and side) to show different features and shapes.
3. **Rough prototype:** Use paper and cardboard to make a first quick prototype of the form of the flashlight. This prototype should be a very rough draft of your flashlight that you can show your teacher and get their feedback.
4. **Refined prototype:** Use the tools and materials in Design Lab to make a second prototype that represents how your flashlight looks and works. This prototype should have a working circuit.
5. **Presentation:** Complete and share a two-page Google doc that includes a summary of your design process (research questions, insights, sketches) and photos of your flashlight. Use the template document provided to you in class.

Requirements:

The flashlight needs to have the following:

1. A working light the teacher can easily turn on and off
2. The teacher should be able to replace the battery when necessary
3. Your prototype CANNOT use any of the black plastic from the original flashlight

Consider:

How will you use the different machines and tools in Design Lab?

Which piece(s) can be cut with the laser? Which parts can be 3D printed? Which parts can just be fabricated with cardboard and hand tools?

How will you design your circuit for your working light?

How many volts does your light bulb need? Will you use a button? A switch? Another way to control the light on and off?

How can your refined prototype show craftsmanship?

How will your pieces fit together? How will you hide the circuit? How will the teacher change the battery in the flashlight? How can you show people your prototype is quality?

Project Part	Points
Looking Closely at Flashlight (Parts, Purposes, Complexities)	10
Interview questions draft (HW)	2
Interview questions to teacher	8
Prototype sketches	10
Rough prototype	10
Refined prototype	20
Presentation document (HW)	15
Total	75

Refined prototype due Wednesday, May 18th