

Lights Out!

Uh-oh, the zombie apocalypse has begun, and whoever was working at the power station has become lunch for the undead. We need light, and it's not coming from plugging in a lamp, so what can you do? All you've got are some basic materials like batteries, tinfoil, plastic, an LED light, and some other stuff you'd find lying around the house. (Home Depot has been overrun by C.H.U.D.'s so you can't get any fancy stuff). It's up to you to create a functioning flashlight from these items.

Engineering Design Process:

Define the problem
Generate solutions
Choose a solution
Build prototype(s)
Analyze performance
Tweak and rebuild
... Present results

Day 1:

Brainstorm, design, and start building

Day 2:

Continue to build, test and refine the device, and begin documentation.

Day 3:

Refine the flashlight and complete the documentation.

Deliverables:

- A. Documentation: In order to save others from becoming a midnight snack, you need to create some documents that will give others the information they need to create their own flashlights! The only way to accomplish that is by clearly and thoroughly documenting your solutions.
- B. Working flashlight that is able to be turned off and on, and can stay lit with one hand.
- C. Poster that includes:
 - Blueprint – to scale, showing how the light was designed.
 - Circuit diagram
 - Paragraphs describing the thought and design process... (How did you end up with your final design?)
 - "First we wanted to ..."
 - "We thought the switch should be like x so we..."
 - Be sure to elaborate on *at least 3* specific design decisions
 - Identify and describe at least 2 obstacles you encountered and how you worked around them or fixed them. (When we tried x it didn't work because..., so we tried y instead)
 - Consider and discuss how engineering is an *iterative* process, and not just trial and error. What do you think is the difference between iteration and trial and error?