Activity 15: Building a Roadside Emergency Light

How can I design and build a roadside emergency light?

Resources

• Electricity Kit Items: switch, connecting wires, lamp holder and lamp, battery holder
• paper and pencil

• PhET Simulation
https://phet.colorado.edu/sims/html/circuit-construction-kit-dc-virtual-lab/latest/circuit-construction-kit-dc-virtual-lab_en.html

• Optional: Yenka software https://www.yenka.com/
  Click Yenka Help-download Yenka
  Download to your computer
  Open Yenka and click Activate Yenka
  Type in the school activation key: 2204-8552-4399

• Optional: thick rubber band
• Optional: AA or D-cell battery

Instructions

1. You have been asked to design and build a Roadside Emergency Flashlight (REF). The REF will have a light. Your REF needs a power source, and at least one switch to turn it on and off.
You will do this in three steps:

A. design on paper
B. design with simulation
C. construct your light

Part A: Design on Paper

2. Draw a circuit diagram for your REF. Use the following circuit symbols.

wire switch lamp battery

Instructions - Part B: Design Circuit with Simulation

4. Build your circuit for your REF in the PhET Simulation or you may use Yenka software.

If you use Yenka software, choose *Electricity & Magnetism*. In the *Circuit Diagrams* folder, choose Pictorial. Drag and drop the items you need to the work area, and then connect them to complete building your circuit.

Instructions - Part C: Construct Your Circuit

5. Use the items in the electricity kit and power source to build a circuit model of your REF. You can use whatever items you wish, but recommended items are switch, motor, connecting wires, lamp holder and lamp, and battery holder or thick rubber band.