Circuits Coding Instructions

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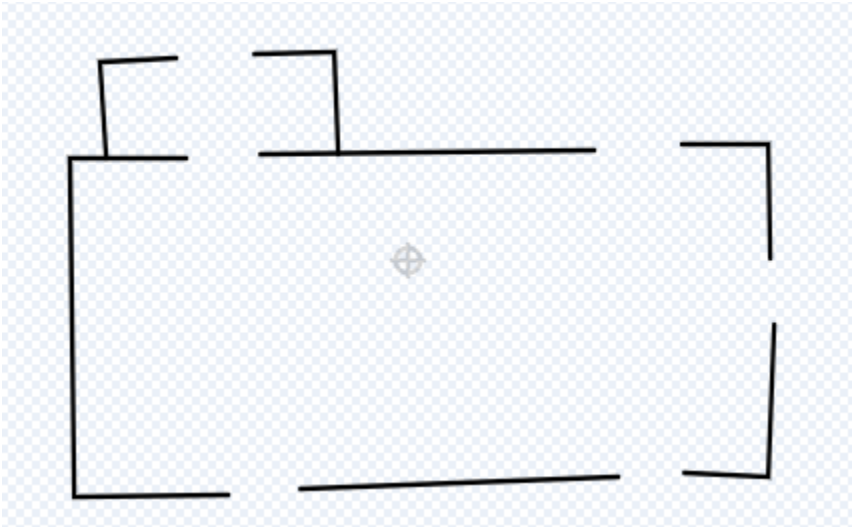
1. Circuit

Create a sprite labeled “circuit”!

Using the draw circuit tool create the outline of what you want your circuit to look like, and ensure you include gaps for your circuit components.

Establish variables “Ammeter”, “Battery”, “Bulb”, ”Resistor”, “Switch”, “Switch on/off”, and “Voltmeter”

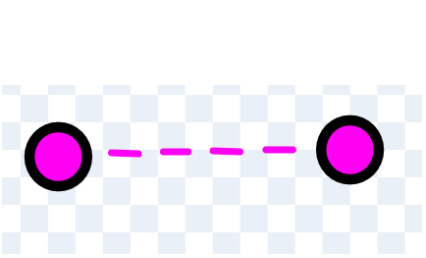


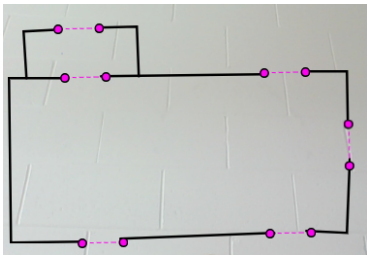
2. Connectors

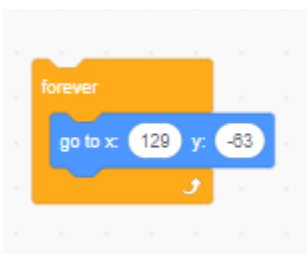
Create a new sprite for your connectors. Draw two small circles with a unique colour. I selected magenta.

Duplicate this sprite for each gap of your circuit and place them at each gap.

Code, forever go to selected coordinates.







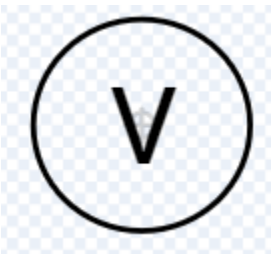
3. Voltmeter

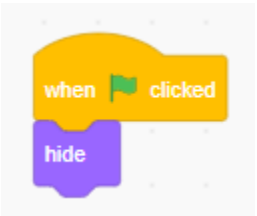
Create a sprite for your voltmeter. Draw it so it is a circle with a V inside (the symbol for a voltmeter)

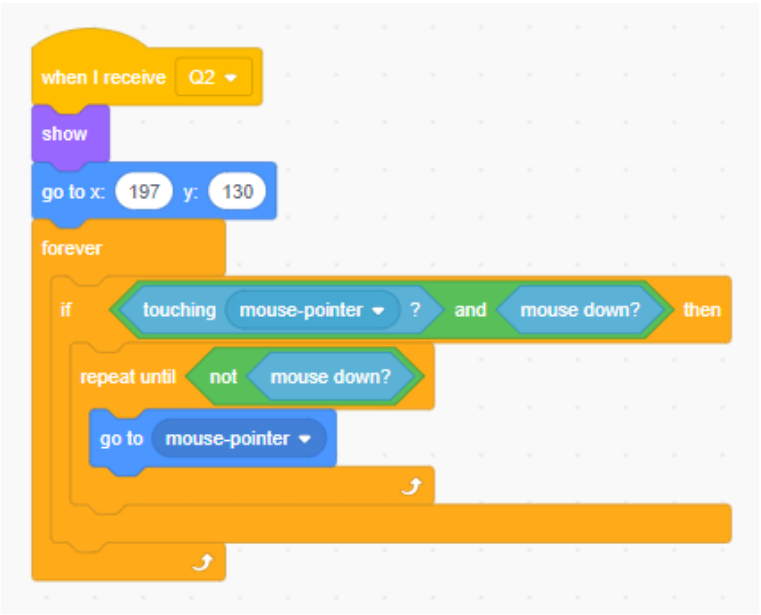
Program when the green flag is clicked the voltmeter will hide.

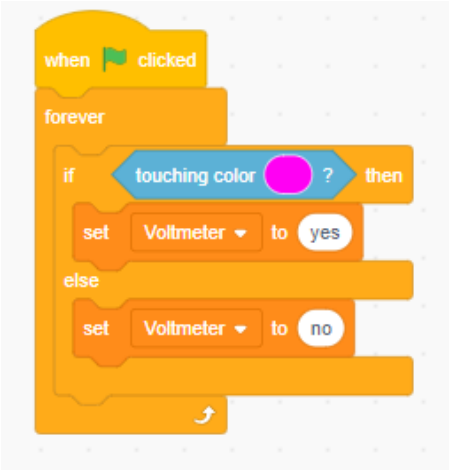
When the green flag is clicked, forever, if it is touching your unique colour (magenta) set “Voltmeter” variable to “yes”, else set “Voltmeter” to “no”.

When I receive Q2, show, go to the chosen coordinates (off to the side). Forever if touching “mouse-pointer” and “mouse down” repeat until not “mouse down” go to “mouse-pointer.”









4. Ammeter

Create a sprite for your ammeter. Draw it so it is a circle with an “A” inside (the symbol for an ammeter)

Program when the green flag is clicked the ammeter will hide.

When the green flag is clicked, forever, if it is touching your unique colour (magenta) set “Ammeter” variable to “yes”, else set “Ammeter” to “no”.

When I receive Q3, show, go to the chosen coordinates (off to the side). Forever if touching “mouse-pointer” and “mouse down” repeat until not “mouse down” go to “mouse-pointer.”

5. Bulb

Create a sprite for your bulb. Draw it so it is a circle with a loop inside (the symbol for a bulb), label this costume “no light”.

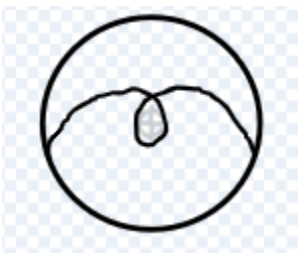
Create a second sprite costume labelled “light” where it is a bright colour (ex. Yellow)

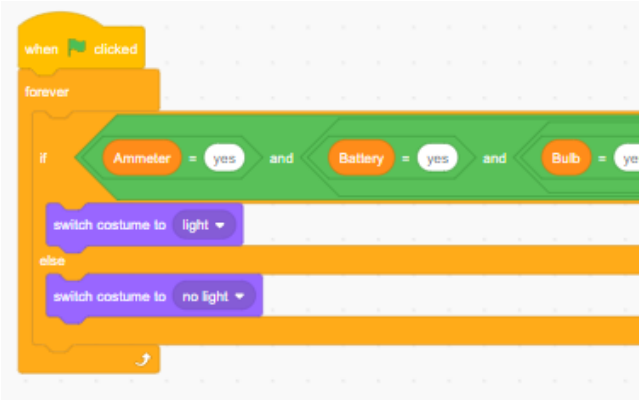
Program when the green flag is clicked the bulb will hide.

When the green flag is clicked, forever, if it is touching your unique colour (magenta) set “Bulb” variable to “yes”, else set “Bulb” to “no”.

When I receive Q7, show, go to the chosen coordinates (off to the side). Forever if touching “mouse-pointer” and “mouse down” repeat until not “mouse down” go to “mouse-pointer.”

Forever if “voltmeter” = yes, and “ammeter” = yes, and “Battery” = yes, and “resistor” = yes, and “Bulb” = yes, and “Switch” = yes, and “switch on/off” = 1 switch costume to “light” else switch costume to “no light”.





6. Resistor

Create a sprite for your resistor. Draw it so it is a zigzag line (the symbol for a resistor)

Program when the green flag is clicked the resistor will hide.

When the green flag is clicked, forever, if it is touching your unique colour (magenta) set “Resistor” variable to “yes”, else set “Resistor” to “no”.

When I receive Q5, show, go to the chosen coordinates (off to the side). Forever if touching “mouse-pointer” and “mouse down” repeat until not “mouse down” go to “mouse-pointer”.

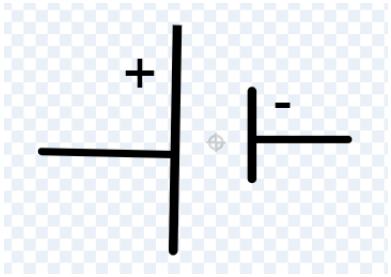
7. Battery

Create a sprite for your battery. Draw it so it is two lines with a positive and negative side (the symbol for a Battery)

Program when the green flag is clicked the battery will hide.

When the green flag is clicked, forever, if it is touching your unique colour (magenta) set “Battery” variable to “yes”, else set “Battery” to “no”.

When I receive Q6, show, go to the chosen coordinates (off to the side). Forever if touching “mouse-pointer” and “mouse down” repeat until not “mouse down” go to “mouse-pointer.”



8. Switch

Create a sprite for your switch. Draw it so it is an open switch (the symbol for an off switch)

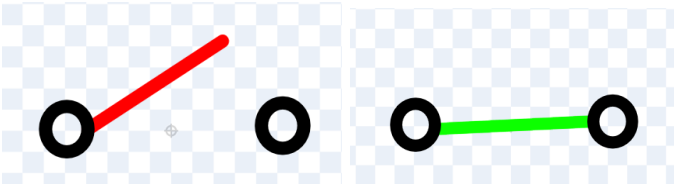
Create a second costume where the switch is closed (the symbol for an on switch).

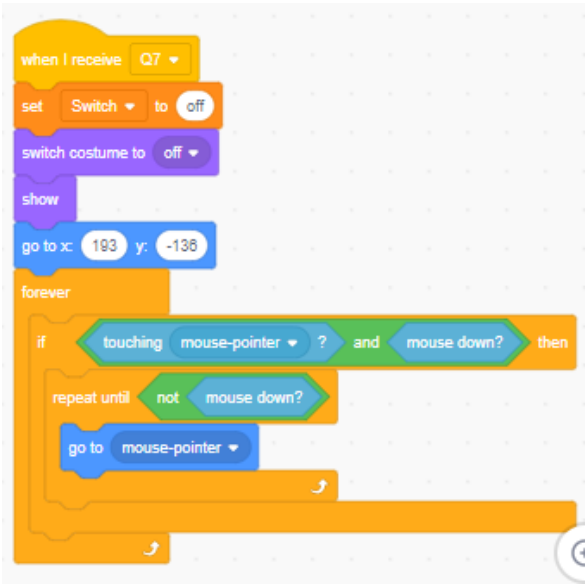
Program when the green flag is clicked the switch will hide.

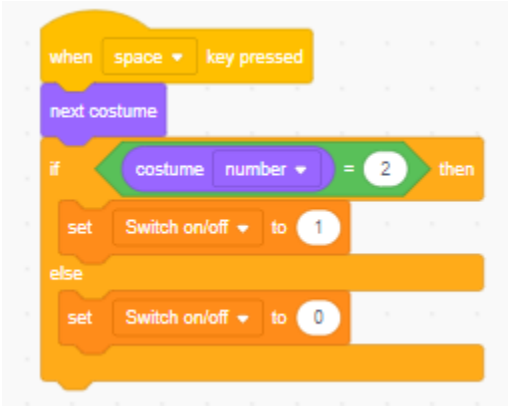
When the green flag is clicked, forever, if it is touching your unique colour (magenta) set “Switch” variable to “yes”, else set “Switch” to “no”.

When I receive Q7, show, go to the chosen coordinates (off to the side). Forever if touching “mouse-pointer” and “mouse down” repeat until not “mouse down” go to “mouse-pointer.”

When space key pressed, next costume. If costume number = 2 then set “Switch on/off” variable to 1 else set “Switch on/off” to 0

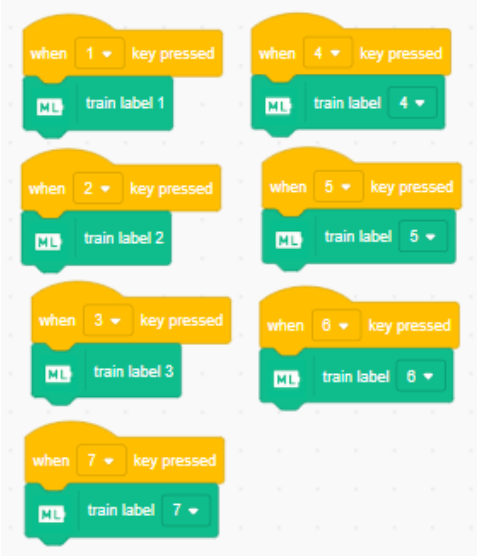






9. AI training

On the background place the keys to train your AI.



When 1 key pressed train AI label 1 (voltmeter)

When 2 key pressed train AI label 2 (ammeter)

When 3 key pressed train AI label 3 (Bulb)

When 4 key pressed train AI label 4 (Resistor)

When 5 key pressed train AI label 5 (Battery)

When 6 key pressed train AI label 6 (Switch)

When 7 key pressed train AI label 7 (Blank)

Using your paper labels train each label to recognize the symbol.

Train label 7 to recognize no labels to ensure your AI does not get confused.

10. Questions

When Green flag is clicked broadcast Q1

When I receive Q1 say Question about Voltmeter wait until label = 1, say correct, broadcast Q2

When I receive Q2, wait 1 second say Question about Ammeter wait until label = 2, say correct, broadcast Q3

When I receive Q3, wait 1 second say Question about Bulb wait until label = 3, say correct, broadcast Q4

When I receive Q4, wait 1 second say Question about Resistor wait until label = 4, say correct, broadcast Q5

When I receive Q5, wait 1 second say Question about Battery wait until label = 5, say correct, broadcast Q6

When I receive Q6, wait 1 second say Question about Switch wait until label = 6, say correct, broadcast Q7

When I receive Q7, wait 1 second say “Now build your circuit! (use the mouse to drag the components and press space to flip the switch!)”