

Squishy Circuits - Tutor Instructions & Answers

Students will create circuits using play-doh & LED's to solve logic problems.

The Game

This game has up to 3 sections, the computerless lead manage which sections are being run

1. Squishy Circuit basic questions - check answers & reward students for completing
2. Squishy Circuit bonus questions [OPTIONAL]
3. Free Design competition [OPTIONAL]

Tutor Responsibilities

- As a tutor your main responsibility will be to float around the space and help groups out as needed.
- Some tutors will be stationed at the front of the room to assist in handing out resources to groups (particularly the batteries, connectors, and LED's) and rewarding students.
- There is an answer sheet to use to help groups and checking answers, try to avoid giving the students the answer and point them in the correct direction instead.

Tips and notes

- Make sure students are using the batteries responsibly - no metal-to-metal connections!
- Groups should have just 1 colour of play-doh to avoid muddying of colours
- It's okay if not every student is engaged with the worksheets! Try encouraging them to experiment with creative ways to light up the LED's, but it's not school and sometimes play-doh is just fun! (as long as they are using the play-doh responsibly its okay)

Troubleshooting

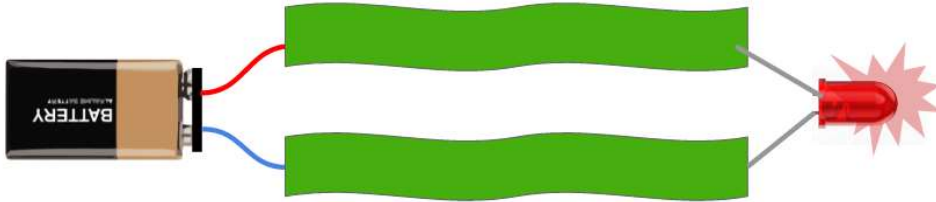
If the LED's are not lighting up

- Try making the playdough 'wires' thinner
- Try switching the direction of the LED
- Try the circuit with an LED or battery that is confirmed to work

Squishy answers

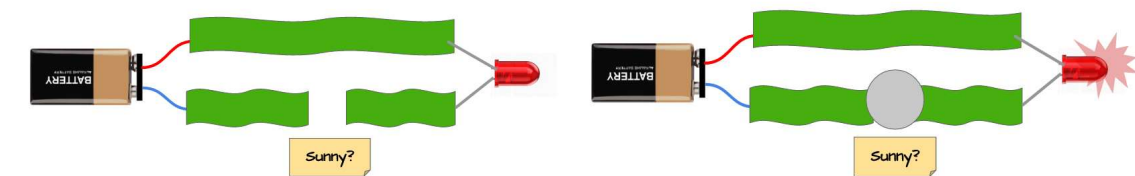
Squishy Basic Logic

Part 1: Make a basic circuit (Make sure they have their LED the right way around)



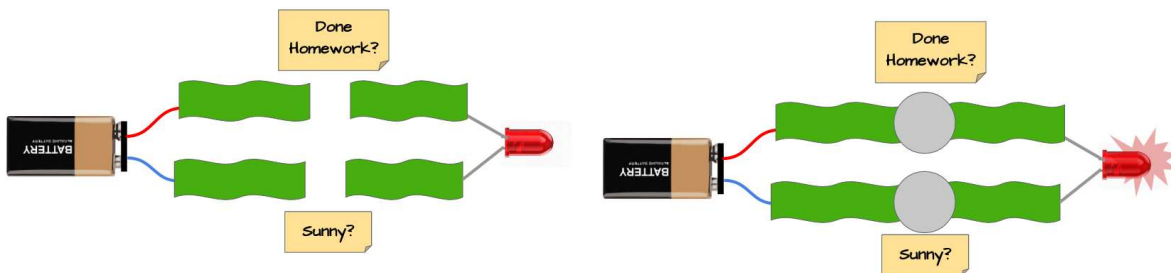
Part 2: Make an “If circuit”, has one switch, when token (tokens can/should just be more playdough that can be taken off like a token - depicted in different colour for visibility) is removed light turns off.

One arrangement:

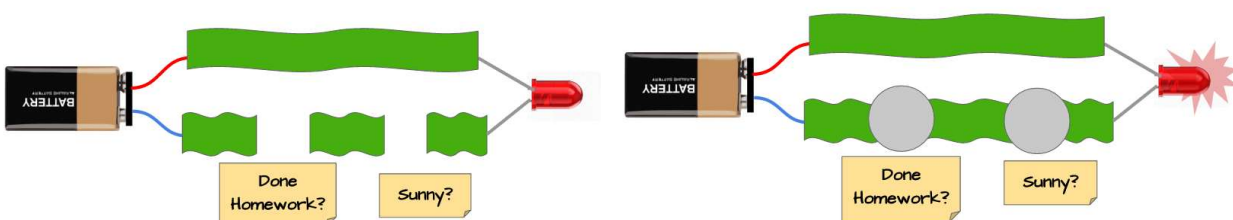


Part 3: “Make an “And Circuit”. Has 2 switches (these can be put literally any on the basic circuit. When both tokens are placed down the light turns on, if either or both tokens are removed the light turns off.

One arrangement:



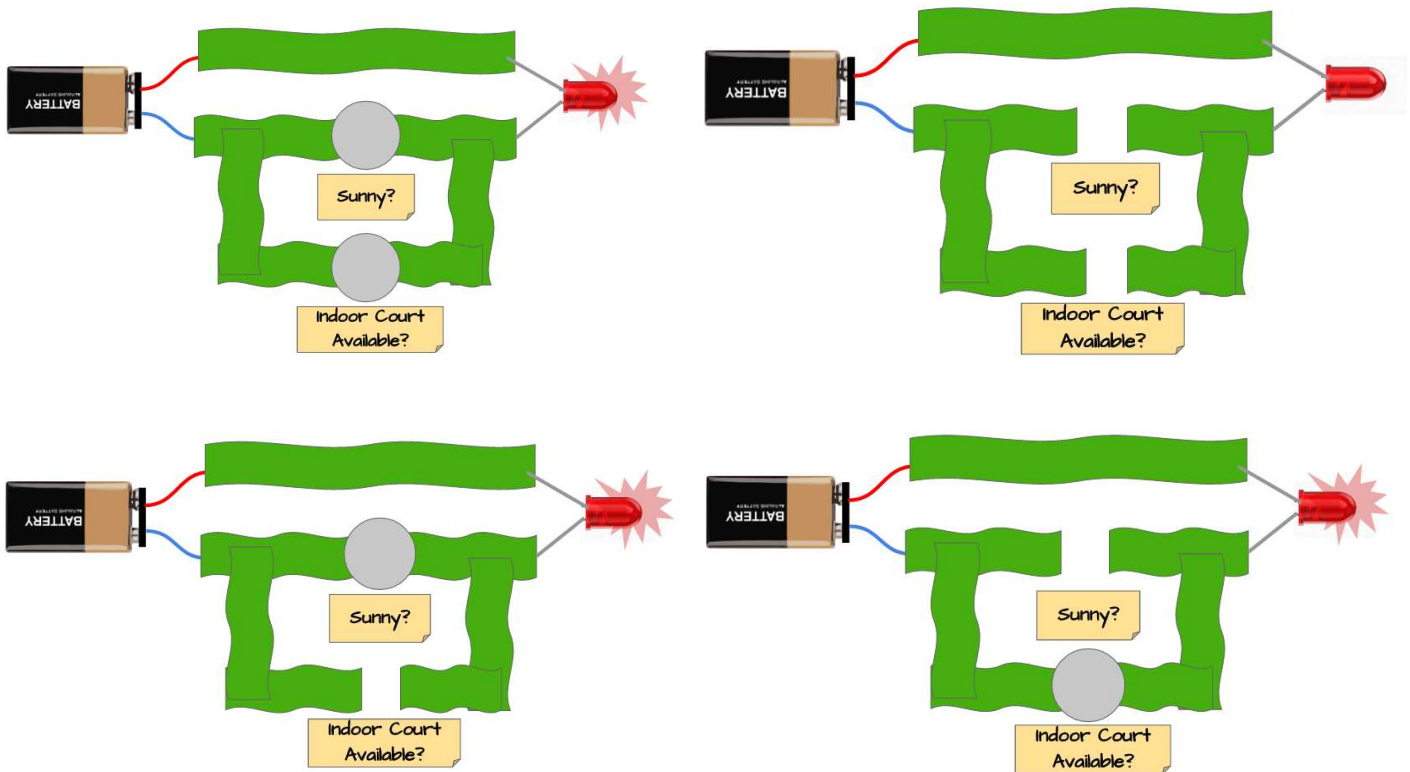
Another arrangement:



Part 4: Make an “Or Circuit”, needs 2 switches in parallel. Light is on if either or both tokens are placed down.

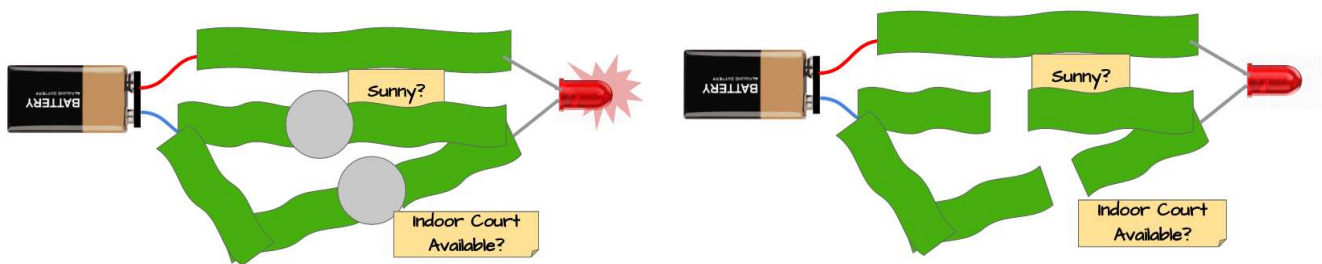
The second and fourth hints on the sheet are both suitable starting patterns

One arrangement:



Will work for any arrangement with 2 parallel paths that include the light.

Such as:



Part 5: Make a “Not Circuit”. Light should be on, UNLESS a token is placed down.

This activity involved creating a short circuit, only when the token is placed down.

