

# LEP Wand

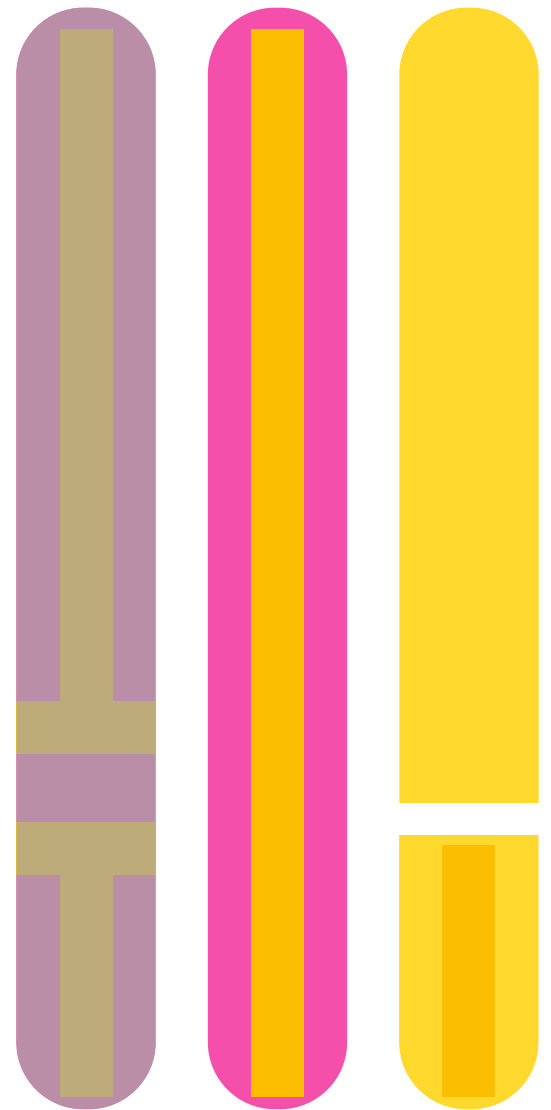
make a bright magic wand with  
electrical engineering skills

- 1) Wrap a strip of copper tape all the way around one of the popsicle sticks horizontally approximately 1/3 of the way up the stick.
- 2) Wrap another strip of copper tape all the way around the same popsicle stick horizontally about 1cm below the first strip of copper tape.
- 3) On the same popsicle stick, run a piece of copper tape from each loop of copper tape to the end of the popsicle stick, making sure the copper tape touches the loops. This will leave a gap with no copper tape between both loops.



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- 4) On another popsicle stick, run a piece of copper tape along the whole length of one side of the popsicle stick.
- 5) Cut approximately 1 inch off the third popsicle stick.
- 6) On the 1 inch piece of the popsicle stick, run a piece of copper tape along the whole length of one side of the piece.



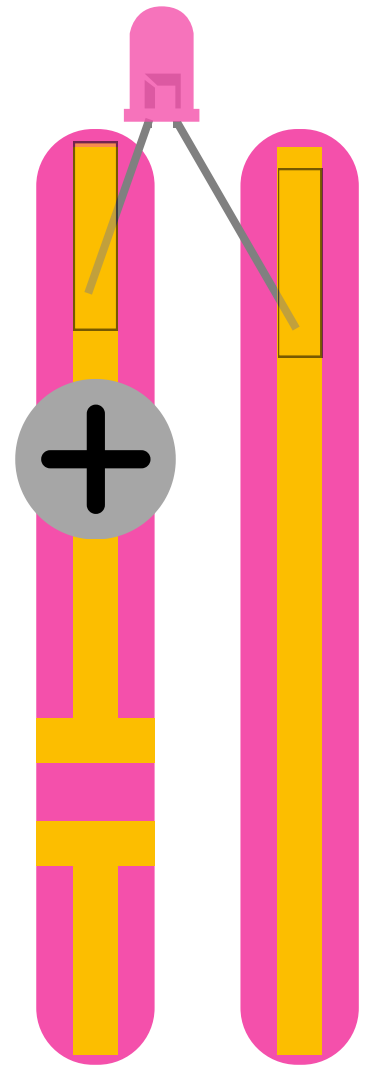
# LED Wand

7) Use copper tape to attach one side of the LED leads to the top of each of the long popsicle sticks.

8) Test the battery and LED by placing it between the two popsicle sticks right below the LED and squeezing. If it doesn't work, try flipping the battery upside down, a different battery, or a different LED.

9) Place the cut popsicle stick between the two popsicle sticks, with the copper tape on the inside.

10) Place the battery in between the two popsicle sticks where the 1-inch segment was cut out.



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- 11) Use electrical tape to wrap the popsicle sticks together. Make sure to put extra tape around where the battery is attached to keep it secure!
- 12) Cut a small piece of electrical tape and use it to attach the small 1-inch piece of popsicle stick where the two loops of copper tape are on the outside of the wand. Make sure the copper tape of the small piece is facing the wand!
- 13) Press the 1-inch piece of popsicle stick – this is now your on switch – and watch your wand light up!

*What spells are you going to cast?*

