

How to make an OR Gate

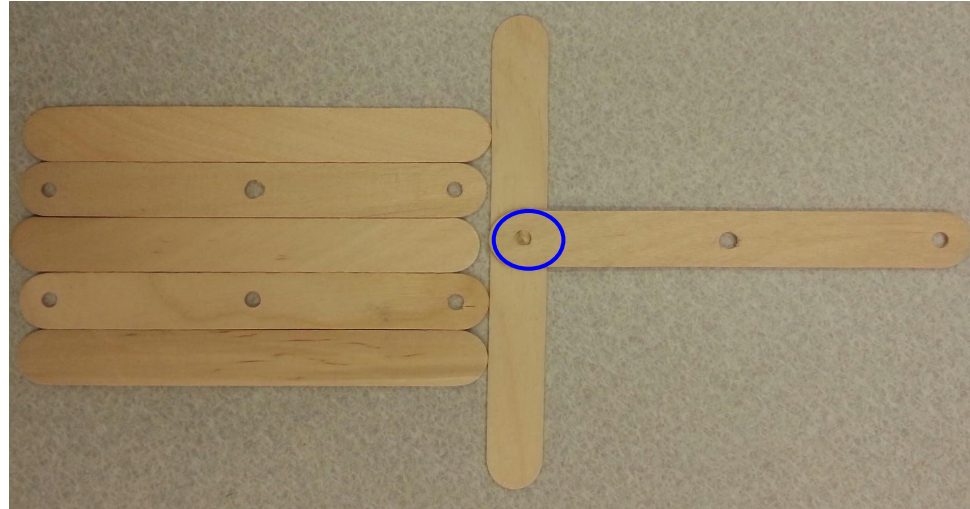
(Out of popsicle sticks and rubber-bands)

Some Advice

- If you are using hot glue to glue the sticks, plan each glue application and be swift but careful.
- Once you lay everything out, make sure there are not glue threads invisibly attached to your sticks. About half of the mistakes that were made were because of these devilish threads.
- Be careful and if you do mess up, consult the Tip and Tricks guide for help.
- Don't get frustrated if you mess up. Popsicle sticks are cheap, as is glue. That's why those materials were selected.

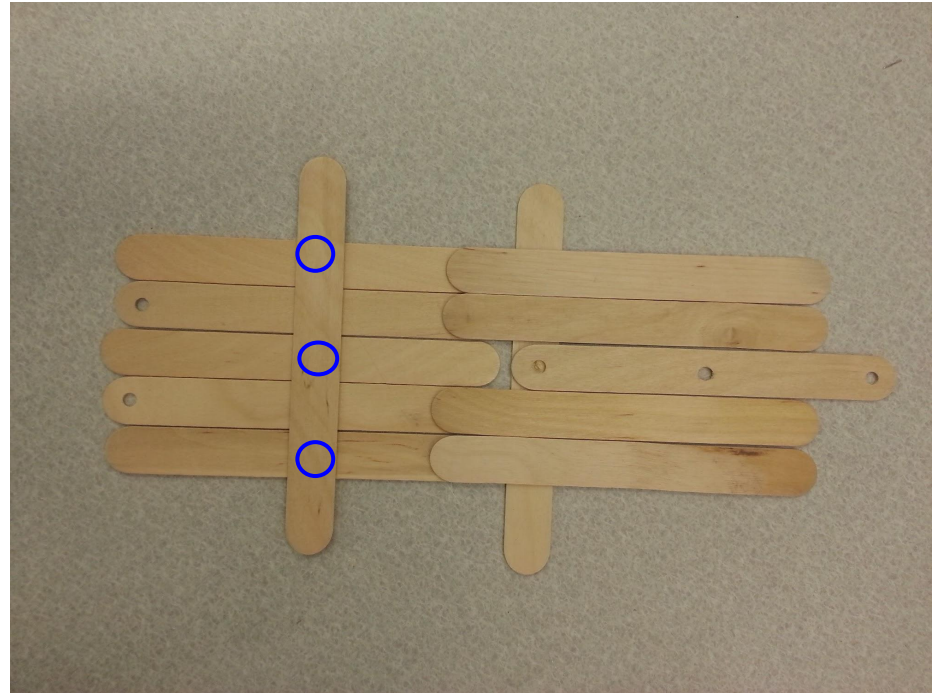
Beginning Layout

- Arrange the sticks as shown
- Glue the top two sticks together.
- If you want, you can use holed sticks like those in the diagram. This is purely for connection purposes and will not change the behavior of the gate.
- It might help to mark the input gates with a marker so you don't accidentally glue something to them.



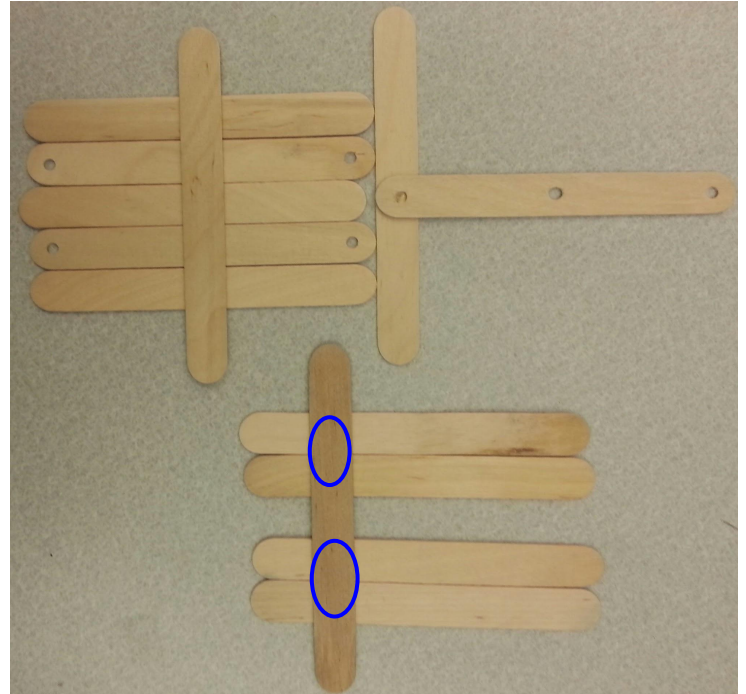
Making Frames

- Glue a cross beam that only is attached to the first, third and fifth sticks (as indicated)
- Arrange 4 additional sticks as shown.
- Take care to not glue or get glue onto the second or fourth. They are the input sticks and they need to slide!



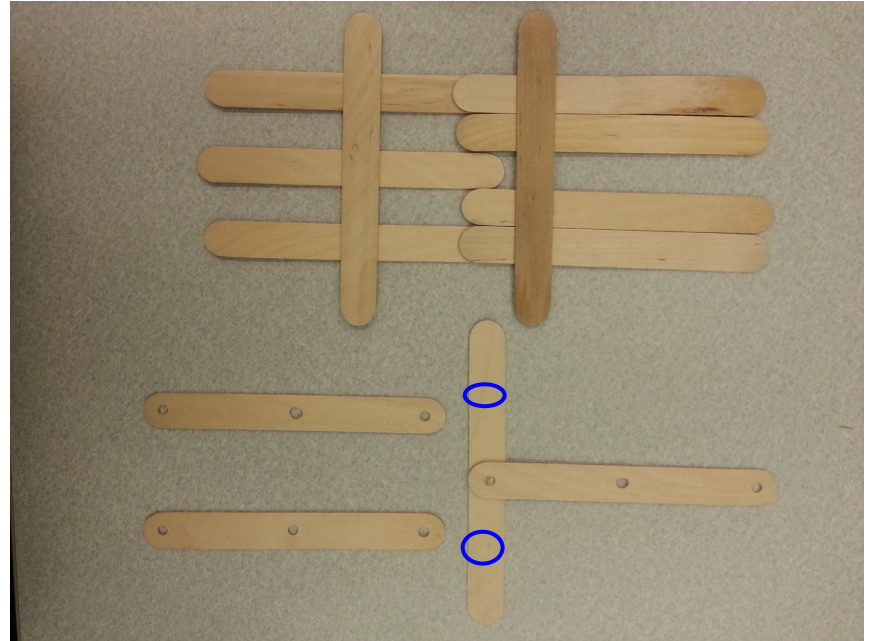
Making Frames Pt. 2

- Add another cross beam to the top 4 sticks and glue all but the center to it.
- Note, the center is also a sliding stick, don't get glue on it!
- Once the glue has dried you can remove the top to get three pieces (and two input sticks) like those shown.



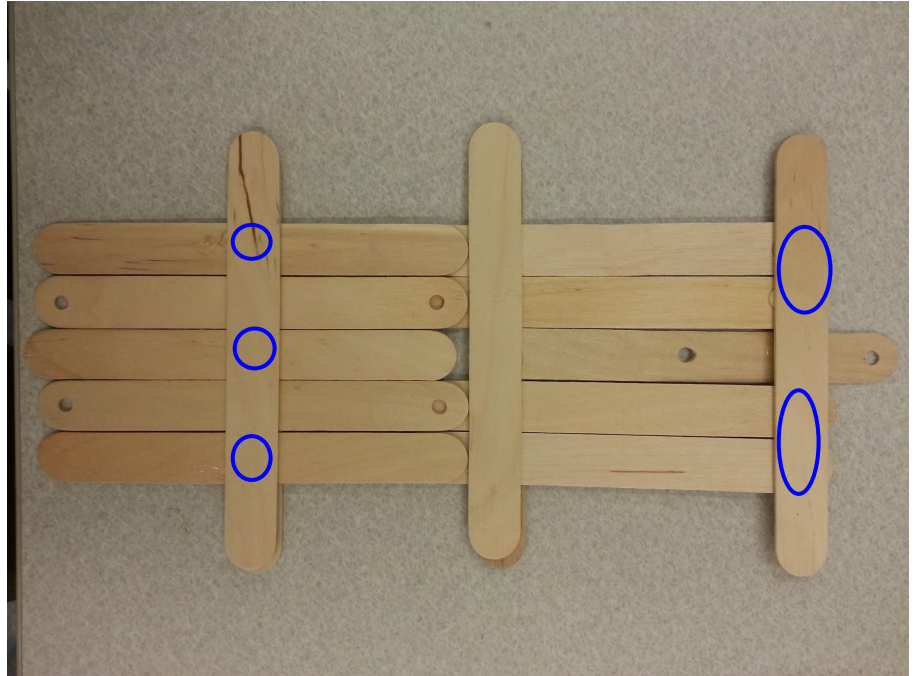
Connecting Frames

- Place the piece you just made on the original 5 sticks.
- Glue the first and fifth sticks to that piece.
- It will then be possible to remove that piece also to produce the picture shown.



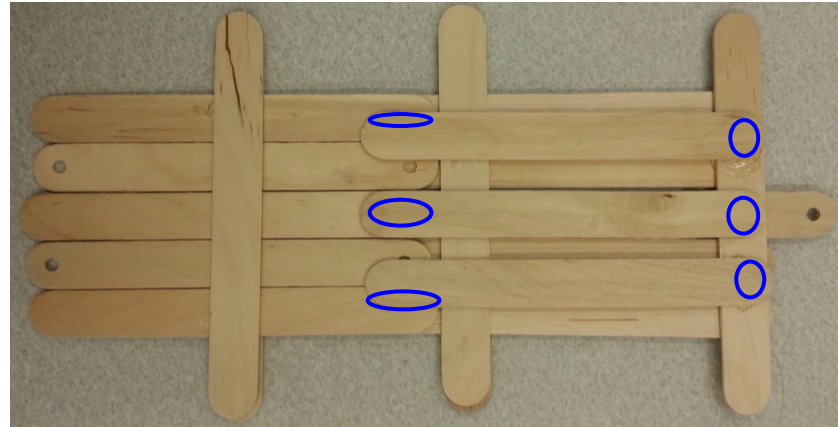
Some Cross Pieces

- Flip everything you have over.
- Fit the slides into the frame you have been making.
- Add two cross sticks like shown and glue to all sticks but the slides.



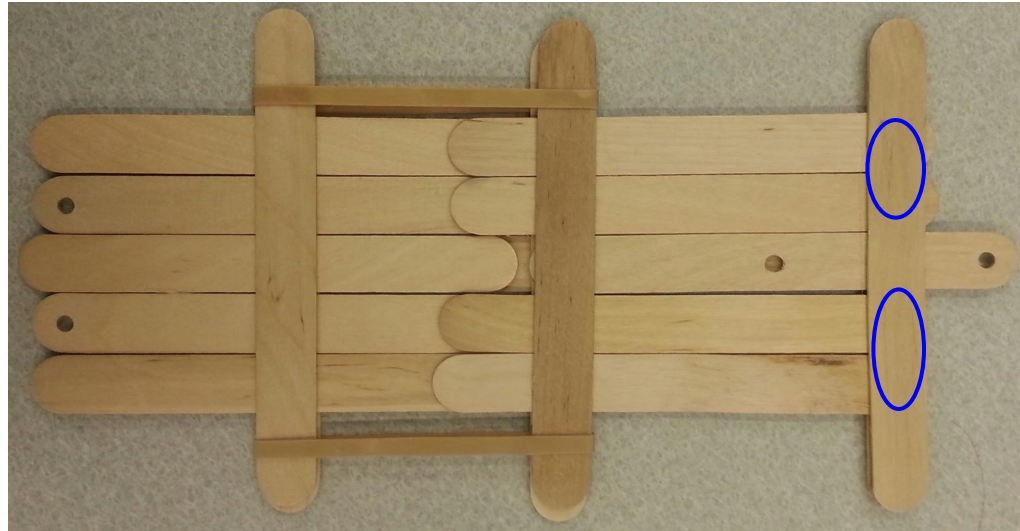
Top Cage

- Glue two sticks atop the cross stick you just glued. However, have only have of them on on and the other half on top of the input stick, like shown.
- Glue the other end of the two sticks onto the top cross stick.
- Finally glue a center stick onto the places shown.
- This is the hardest step, if glue gets anywhere, it will be very hard to get it off at this point.



Finishing Touches (back)

- Flip the gate over.
- Glue another cross stick on the top, again making sure not to glue the slide.
- Finally, add two rubber bands to the specified areas.



Finishing Touches (front)

- Flip the gate back to the front.
- Finally, glue two small stops onto the input. This is the only time you actually want to glue something to the slides
- If you want, you can draw symbols on the slide sticks.
- Remember, for the slides, a pushed stick is True, and one that is pulled out is False (or 1 and 0 respectively as is marked on the example.)

