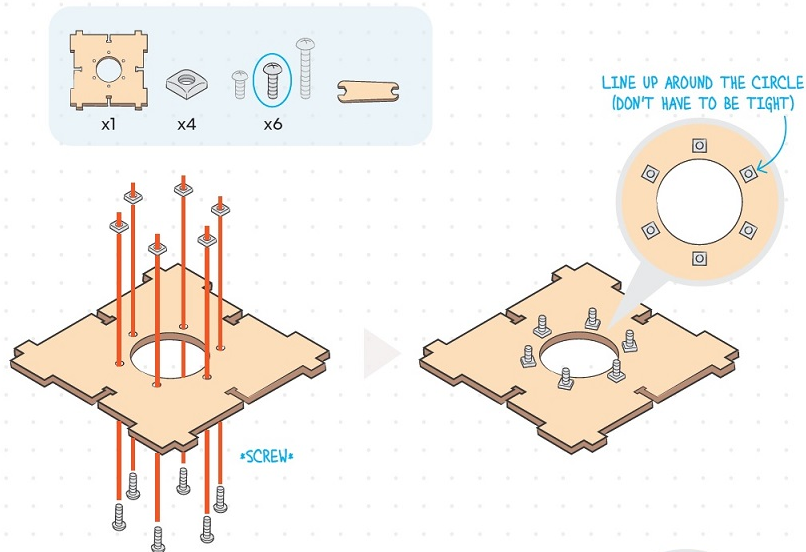


# PART A

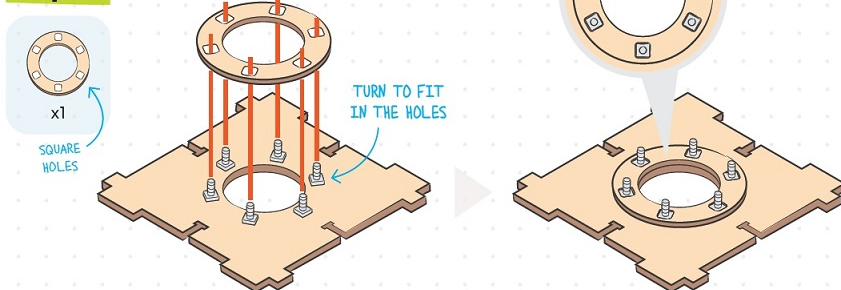
## Start the Speaker Box

THIS IS THE SPEAKER'S BODY, AND A VIBRATING MEMBRANE!

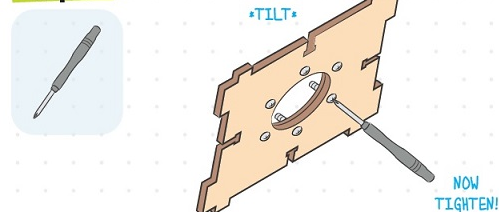
### Step 1



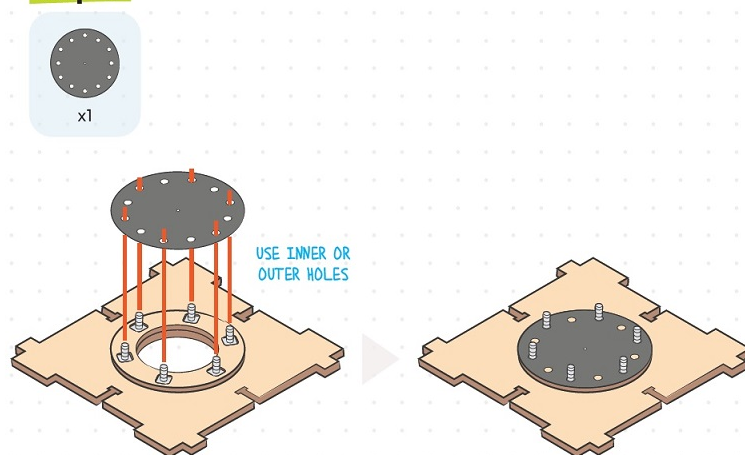
### Step 2



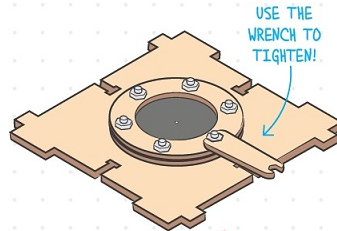
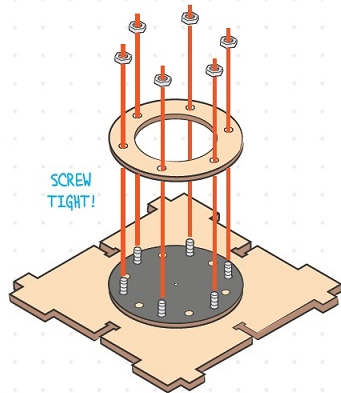
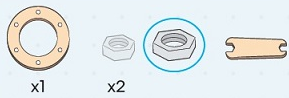
### Step 3



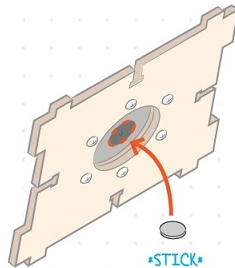
### Step 4



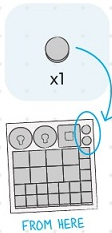
## Step 5



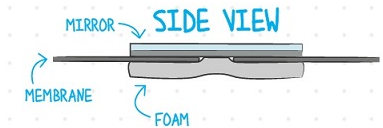
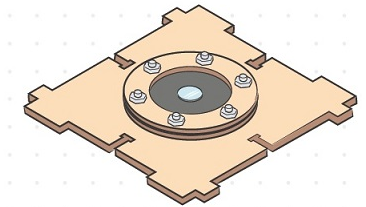
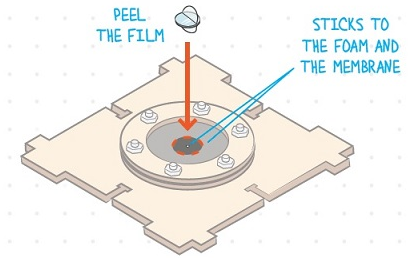
FLIP



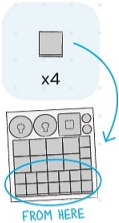
## Step 6



## Step 7



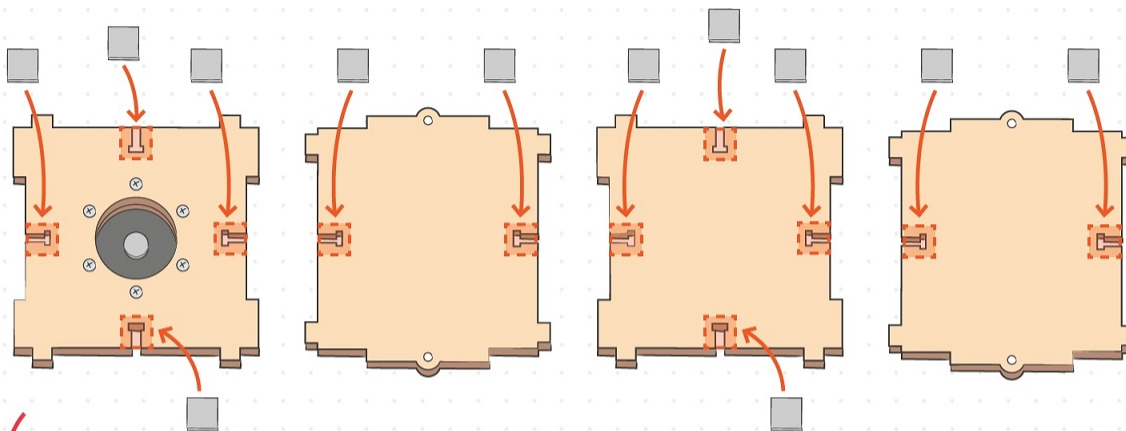
## Step 8



\*STICK\*

COVER THE  
T-HOLES

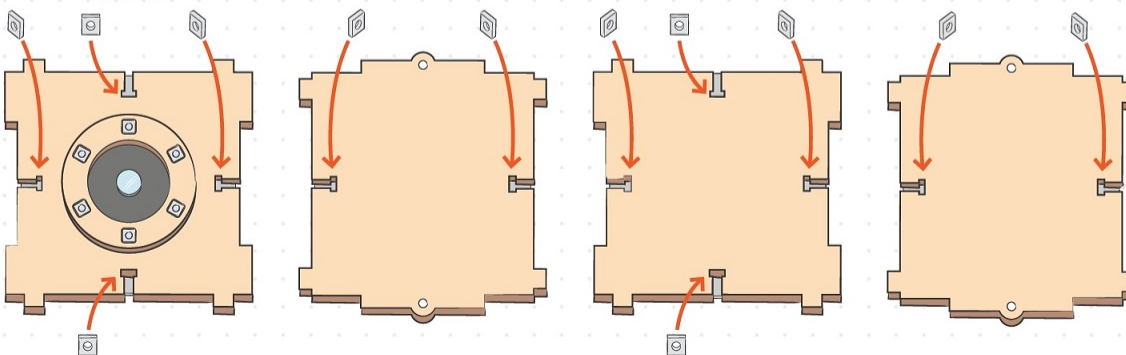
FLIP 'EM



## Step 9

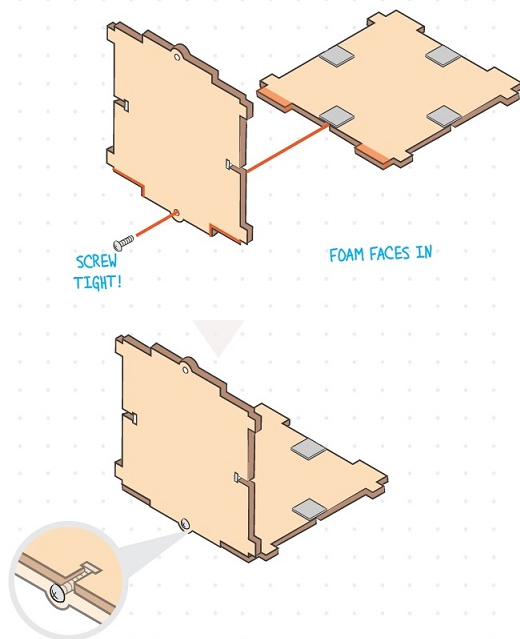
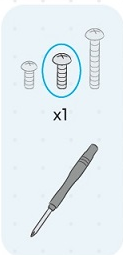


\*STICK\*



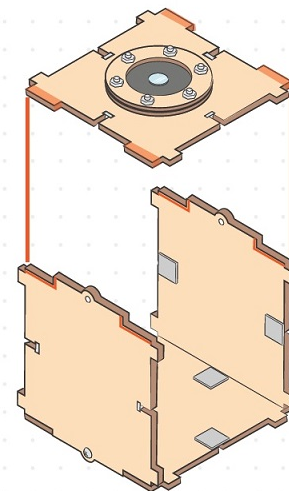
THE STICKY FOAM HOLDS  
THE NUTS IN PLACE!  
(IF THE NUTS FALL OUT,  
JUST POP 'EM BACK IN.)

## Step 10



## Step 12

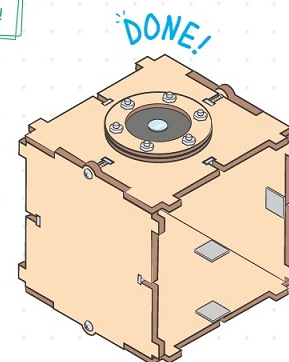
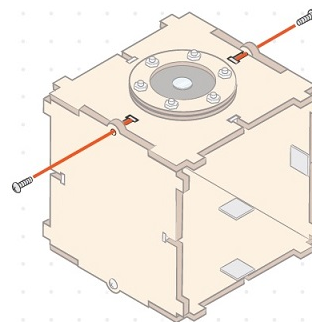
BIGGER TABS  
ON THE SIDES



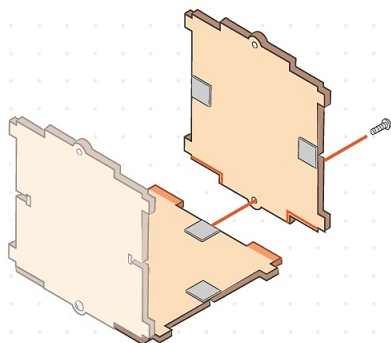
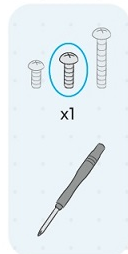
## Step 13



THESE DON'T HAVE  
TO BE TOO TIGHT.  
YOU'LL REPLACE  
THEM IN PART C!



## Step 11



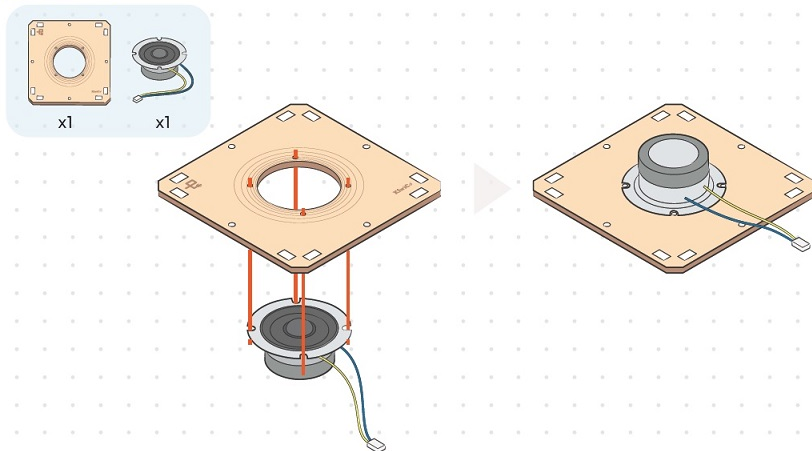


## PART B

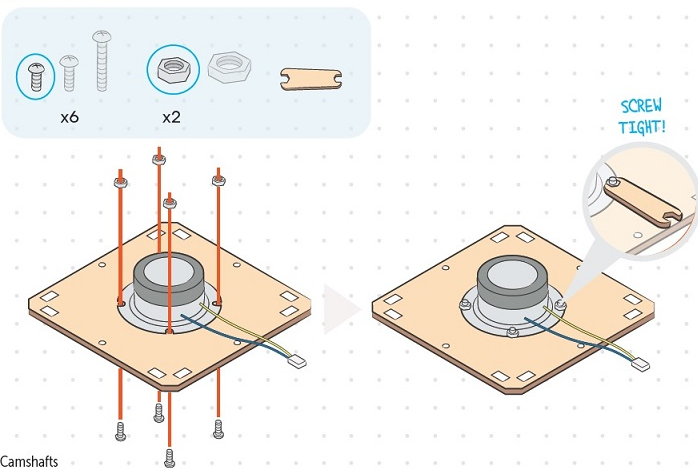
# Add the Electronics

THESE ARE HOW YOU CONNECT TO THE SPEAKER AND PLAY MUSIC.

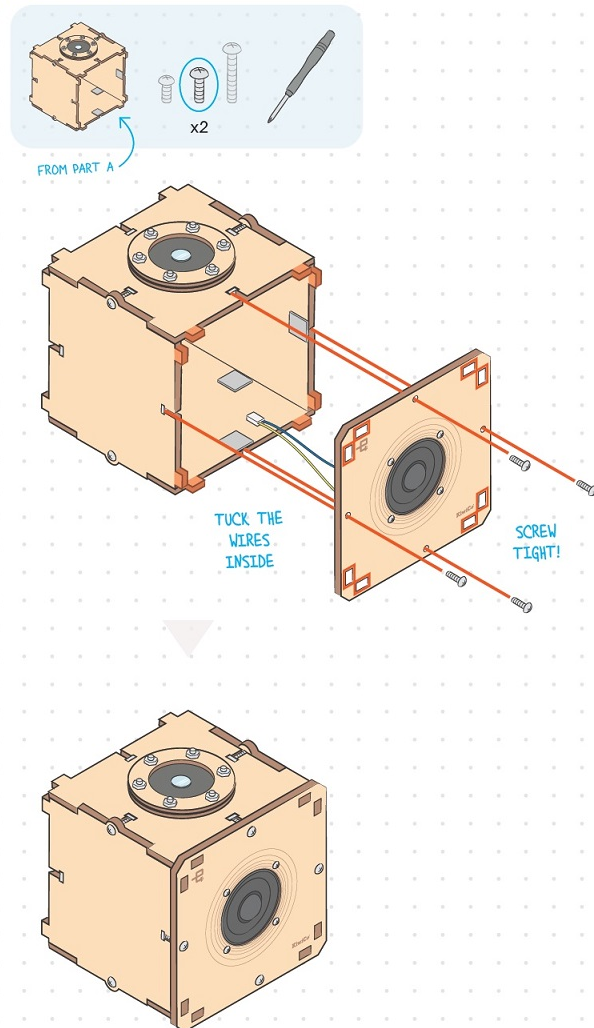
### Step 1



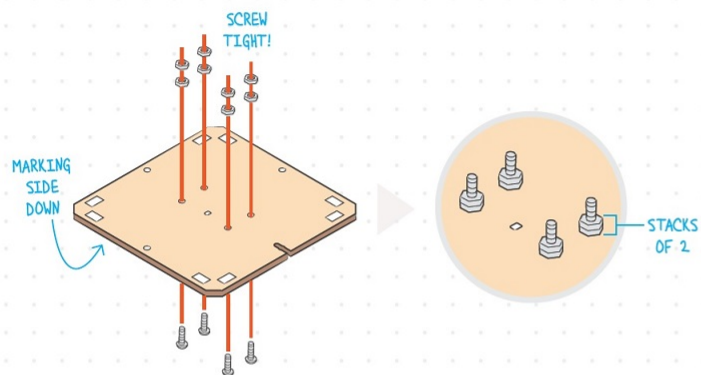
### Step 2



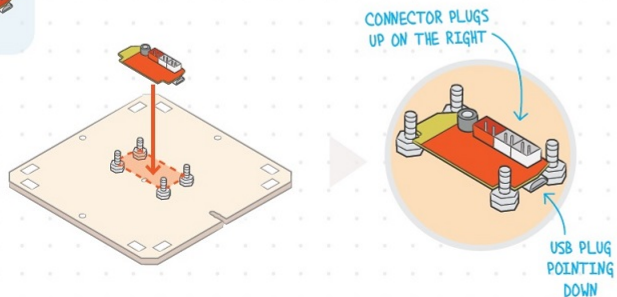
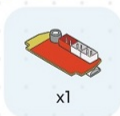
### Step 3



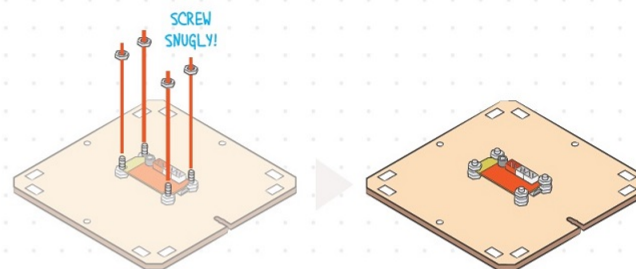
## Step 4



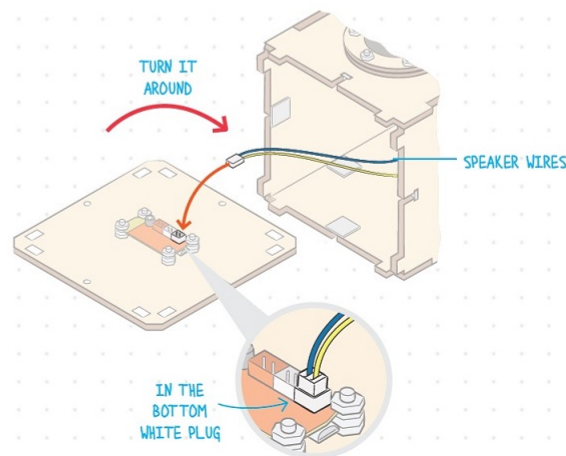
## Step 5



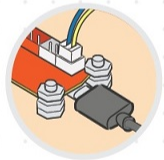
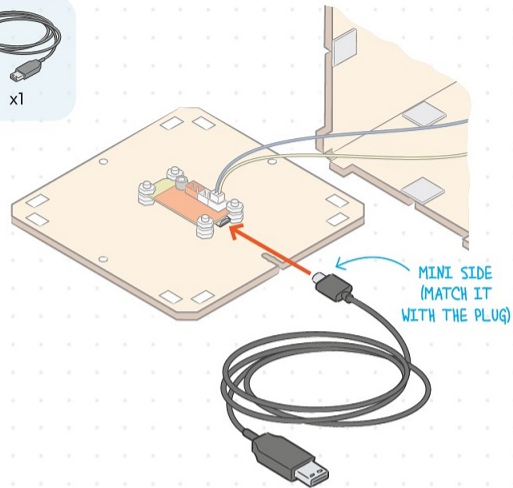
## Step 6



## Step 7



## Step 8



## Stop & Check

Plug the USB cable into a power source. The speaker will beep, and the blue light on the wireless board will start to blink!

### If the board doesn't power up,

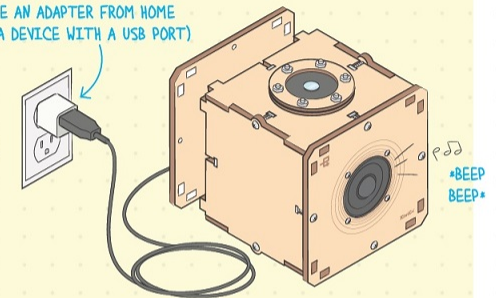
make sure the USB cable is plugged all the way into the board and the power source.

USE AN ADAPTER FROM HOME  
(OR A DEVICE WITH A USB PORT)

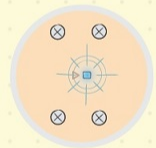
### If the speaker doesn't beep,

make sure the connector is plugged all the way into the board.

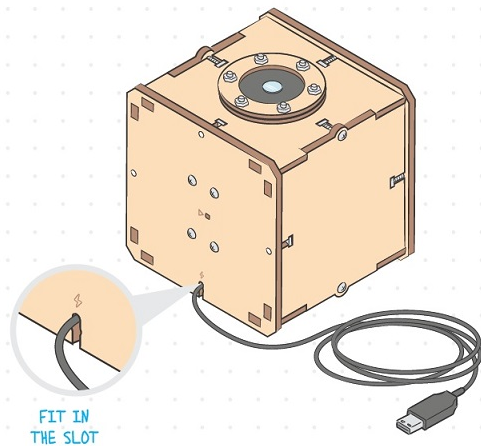
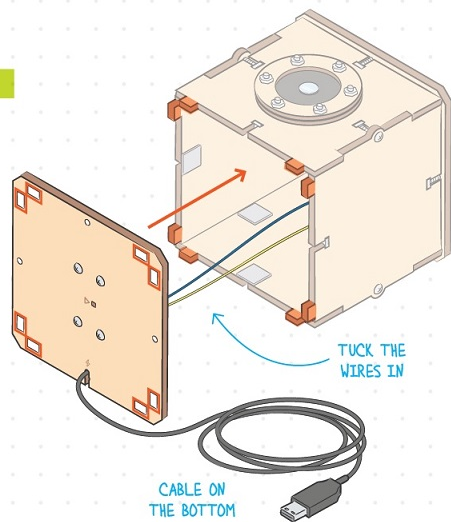
Unplug from the power source when you're done checking!



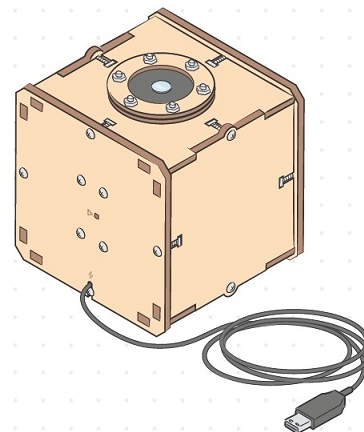
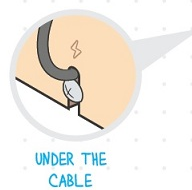
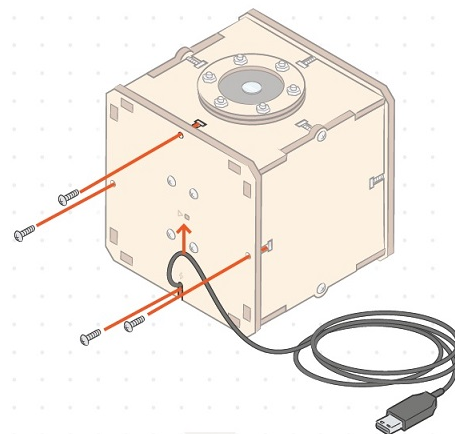
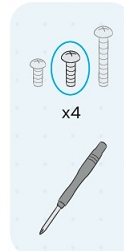
BACK OF THE BOARD PANEL  
BLINKING!



## Step 9

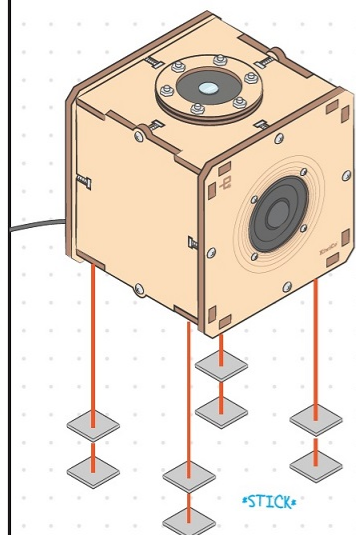
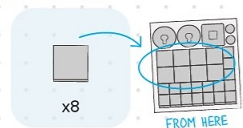


## Step 10

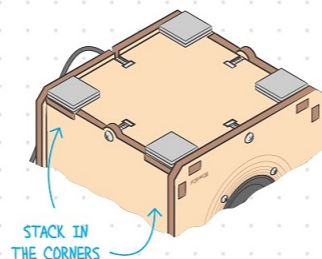




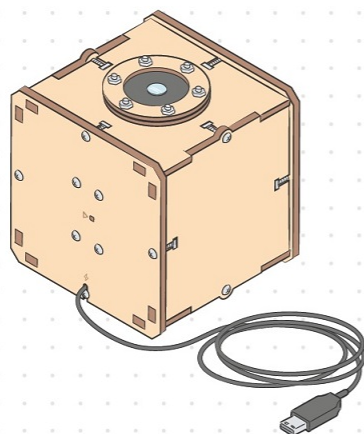
# Step 9



## BOTTOM VIEW



DONE!



## MAKING IT

# Speakers

A card shuffling machine isn't much use without a deck of cards. How do those card decks get made?

Playing cards start out as one more sheet of any thin white paper, which get stretched out a little in the dry paper called cardstock. The only difference is that you can't see through the cards.

## speaker article

The cardstock passes between two giant rollers that have been laser etched with card designs and coated in ink. As the cardstock rolls through, ink is deposited on the back and the color of the image flows. This roller print can create decks with a record.

Then the cardstock passes through another set of rollers that add a plastic coating. That keeps the ink from smudging or fading and also helps the cards glide past each other smoothly.

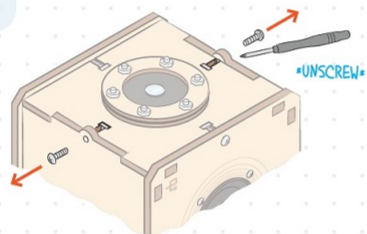
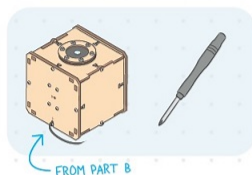
Finally, the cards are cut apart from each other with a punch machine. The cards are stacked in order by suit and number to be packaged. So when you play with a new deck, make sure to put them through your card shuffler first.

# PART C

## Add the Arms

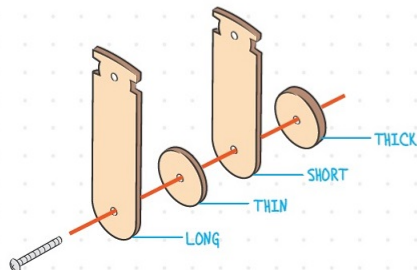
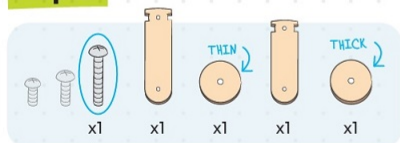
THESE HOLD THE LASER AND DIFFRACTION GRATING SO YOU CAN PUT ON A SHOW.

### Step 1



YOU CAN SET THESE SCREWS ASIDE. YOU WON'T NEED THEM.

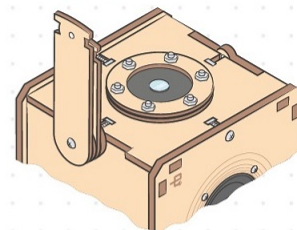
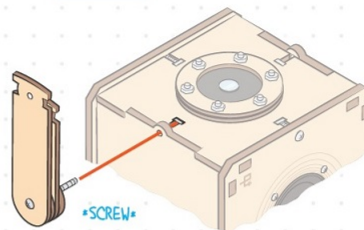
### Step 2



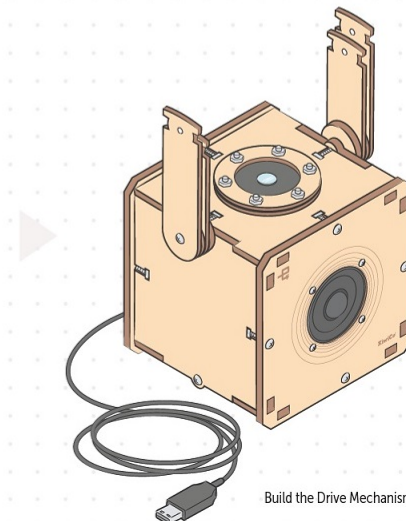
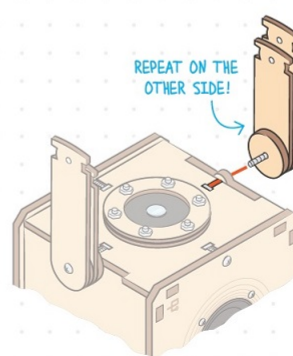
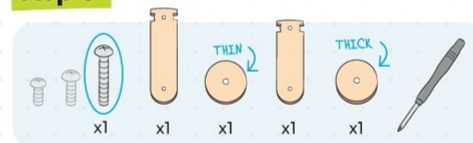
### Step 3



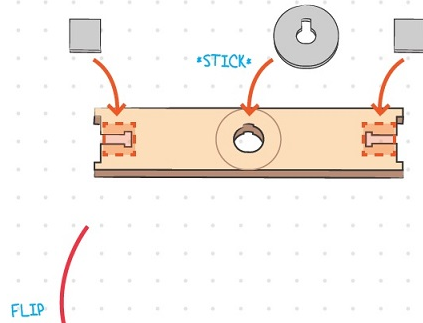
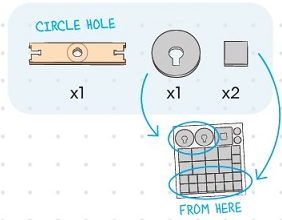
THE ARMS SHOULD BE LOOSE ENOUGH TO TURN BUT TIGHT ENOUGH TO STAY IN PLACE.



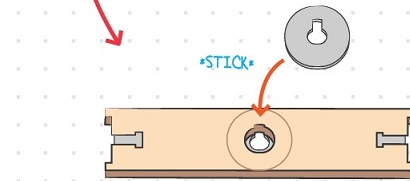
### Step 4



## Step 5



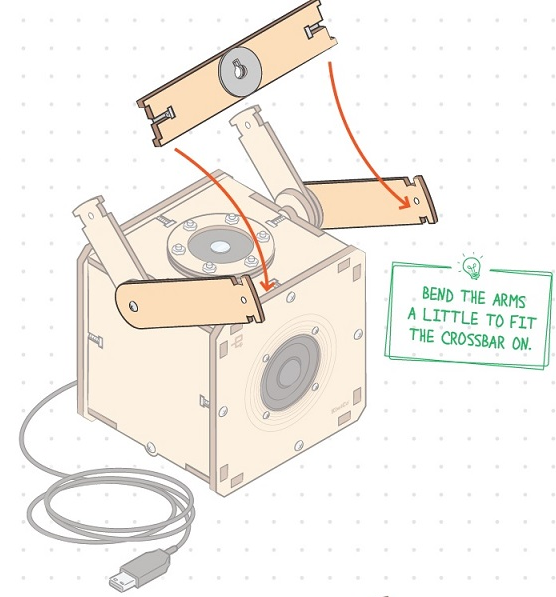
## Step 6



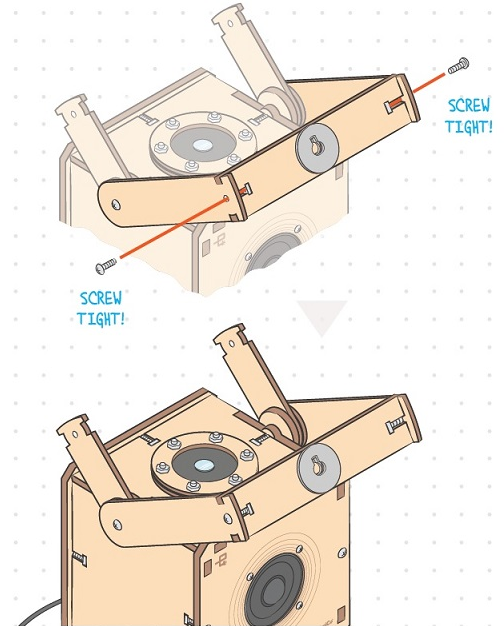
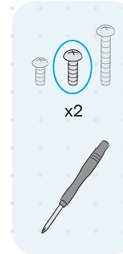
## Step 7



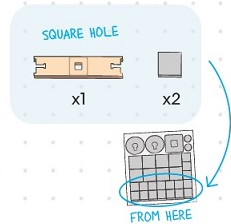
## Step 8



## Step 9

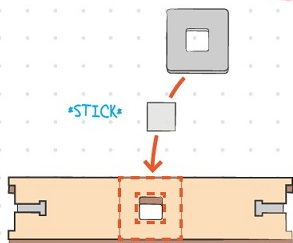
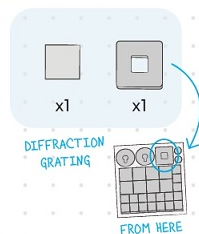


## Step 10

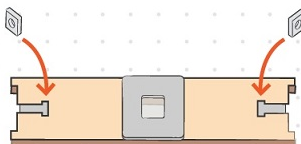


FLIP

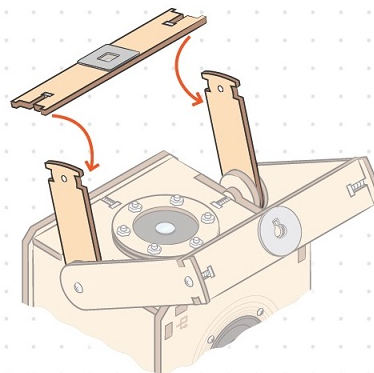
## Step 11



## Step 12



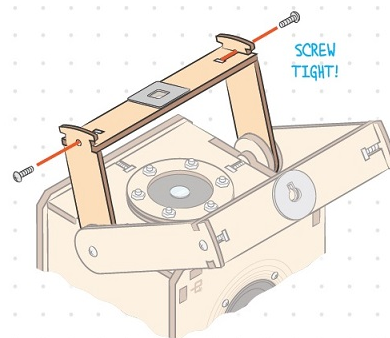
## Step 13



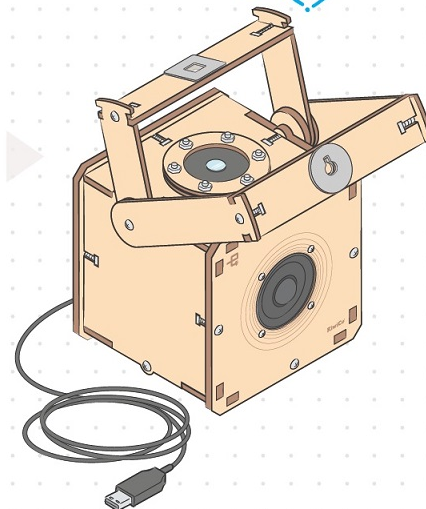
## Step 14



SCREW  
TIGHT!



DONE!

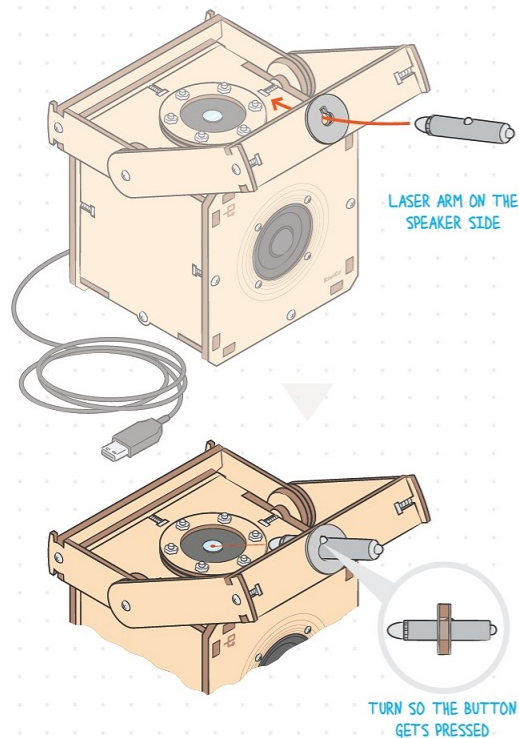




# HOW TO LINE UP THE LASER

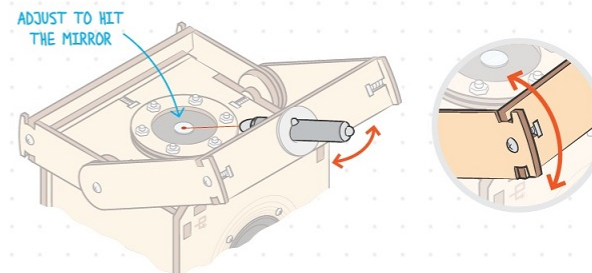
Your **laser speaker** works best in low light. Go someplace dark to try it out!

- 1 Place the **speaker** on a flat surface, facing away from a wall. Stick the **laser pointer** through the hole in the laser arm and turn it so the button gets pressed down.



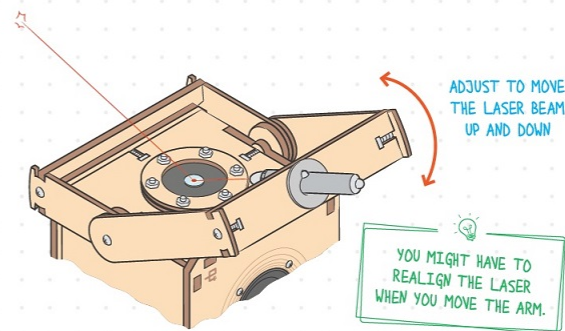
TO TURN OFF THE LASER, TURN IT AGAIN OR PULL IT OUT!

- 2 Tilt the laser and the crossbar piece so the beam hits the mirror.



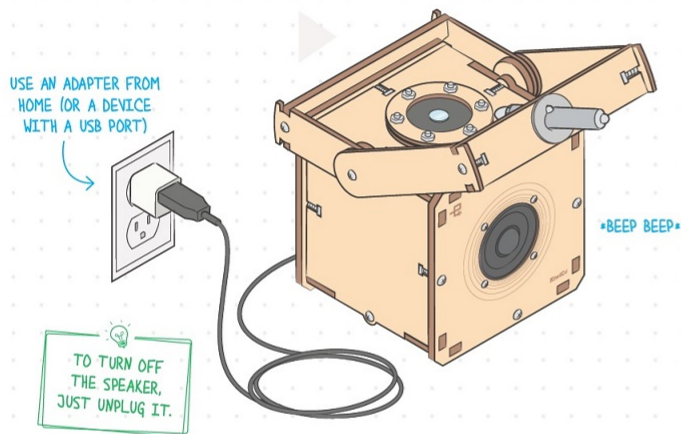
- 3 When the laser hits the mirror, the beam will bounce onto the wall behind the speaker!

To adjust the beam's position on the wall, move the arm up or down.



# HOW TO CONNECT THE SPEAKER

- 1 Plug the **USB cable** into a **power source**. The speaker will beep!

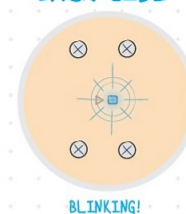


design in progress

- 2 Check the back of the speaker. The blue light should be blinking! That means the speaker is ready to connect.

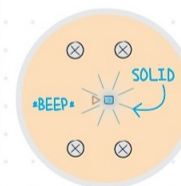
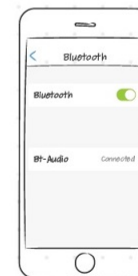
If the blue light is solid, your speaker is already connected to a device and you can skip Step 3.

BACK SIDE



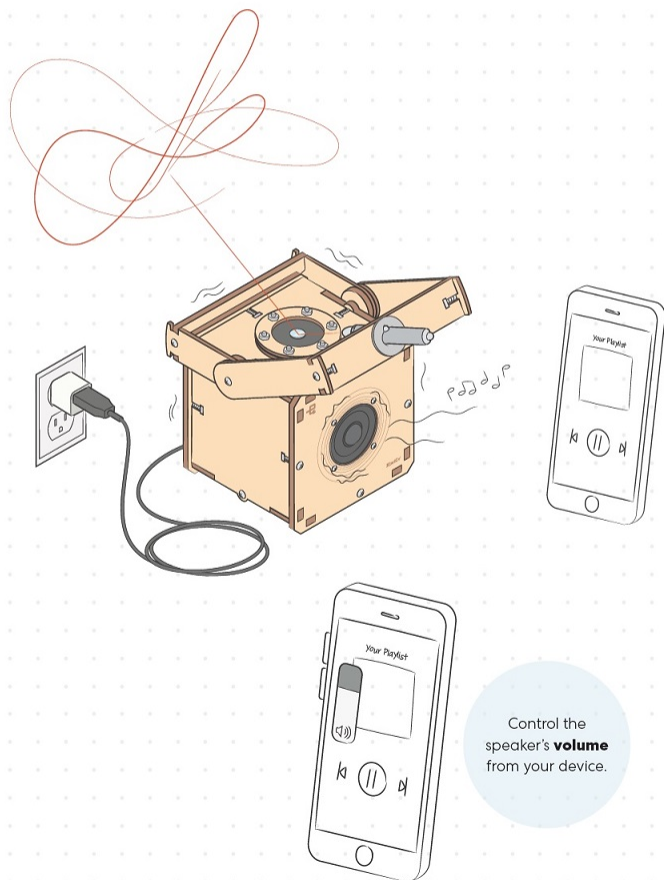
- 3 Grab a **Bluetooth enabled device**, go to the Bluetooth settings, and enter pairing mode. Select **BT-Audio** to connect.

When paired, the speaker will beep again and the blue light will turn solid.



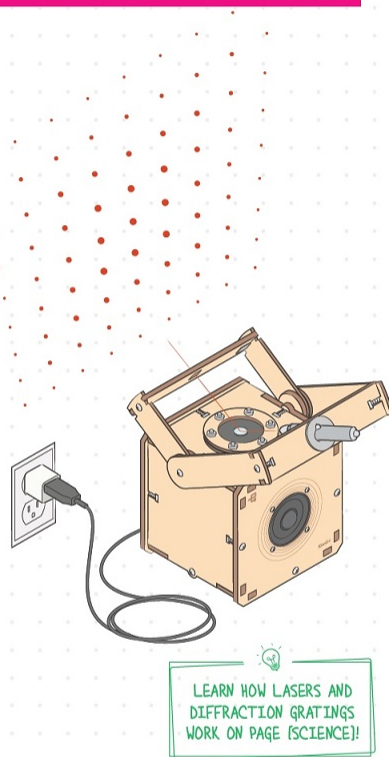
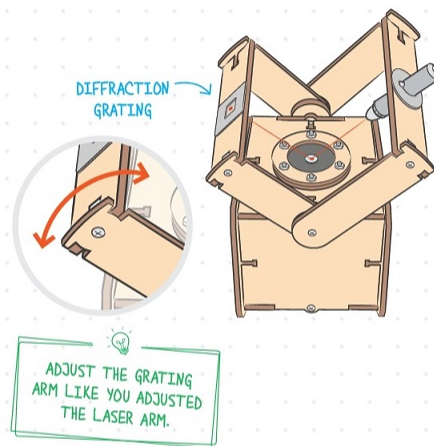
# HOW TO VISUALIZE MUSIC

Pick out a favorite song on your device and hit play. As the speaker plays, the laser beam will dance to the beat and trace wild patterns on the wall!

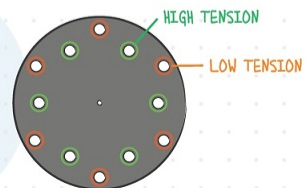


Control the speaker's **volume** from your device.

Ready to pump up the party? Move the **diffraction grating** into the path of the laser beam to split it into lots of patterns!



The **membrane** has two settings: low tension and high tension. Try them out and see how the different tensions change the visualizer!



design in progress



This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) the device may not cause harmful interference, and (2) the device must accept any interference received, including that may cause undesired operation.

Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular situation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20cm must be maintained between the antenna of this device and all persons.

---

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s).  
Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

L'appareil ne doit pas produire de brouillage;  
L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Cet équipement est conforme aux limites d'exposition aux radiations IC CNR-102 établies pour un environnement non contrôlé.