



**ENGINEER YOUR  
OWN DREIDEL!**

# YOU WILL NEED...

- Pencils of different sizes
- Cardboard (any type)
- Tape
- Scissors
- Coins or paperclips for weights
- Markers

## Optional:

- Ruler
- Paper
- Aluminum Foil or Clay
- Glitter, Paint, and other decorating materials

# STEP 1: CUT OUT YOUR SHAPE

- What shape do you want your dreidel to be? A square? A circle? Something else?
- Draw your shape on the cardboard and use scissors to cut it out.



# STEP 2: FIND YOUR CENTER OF BALANCE

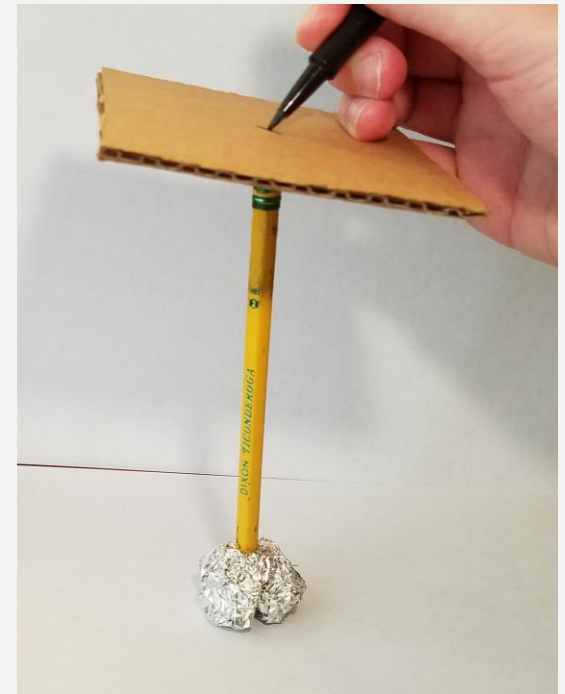
1. Hold a pencil straight up (or prop it up with aluminum foil or clay)



2. Put your cardboard shape on top and move it around until it is balanced on the pencil

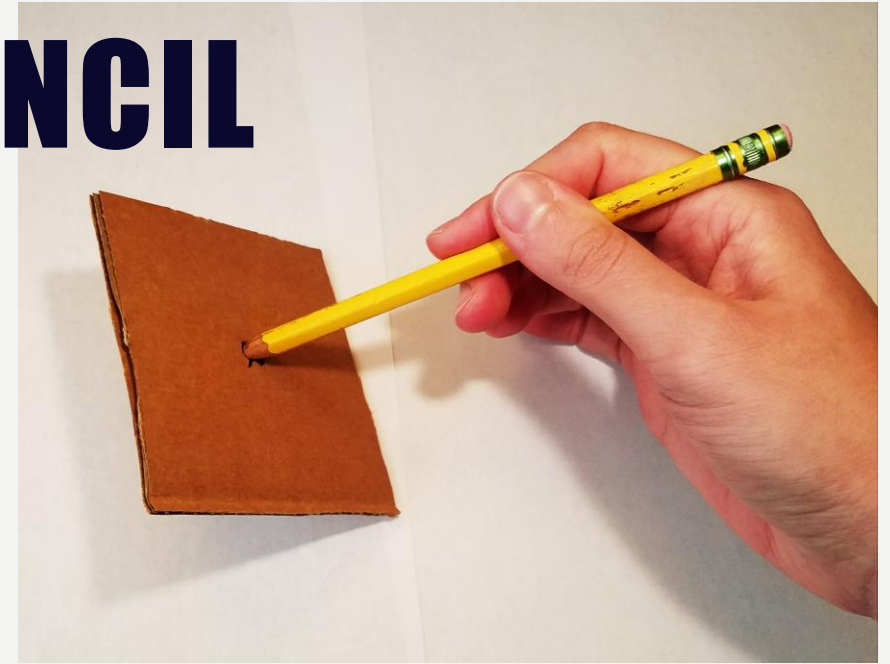


3. Use a pencil to mark where the pencil touches the cardboard



# STEP 3: ATTACH THE PENCIL

1. *Carefully* use the tip of a sharp pencil to poke a hole through where you marked the **center of balance**.
2. Push the pencil all the way through the cardboard.



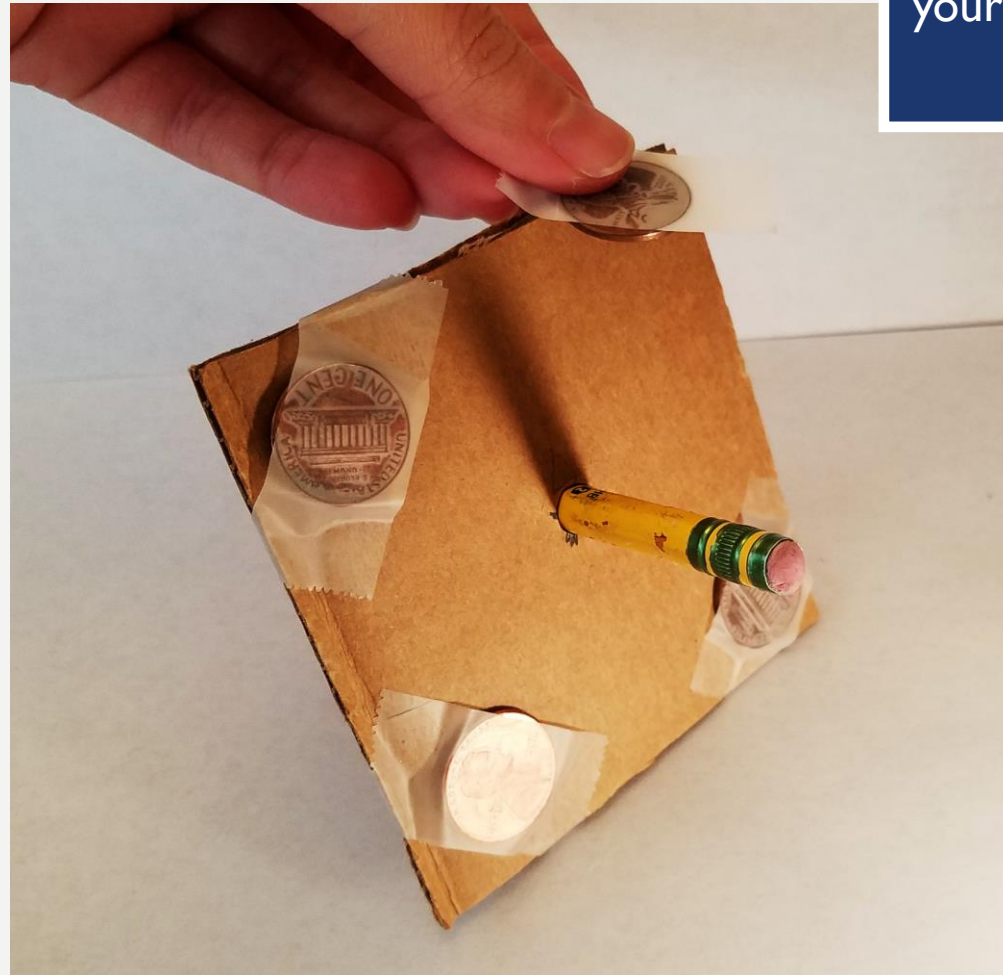
**TIP:**

Get an adult to help you  
poke the hole!



# STEP 4: ADD WEIGHT

- Tape down pennies, paperclips, or other small objects to the underside of your dreidel.

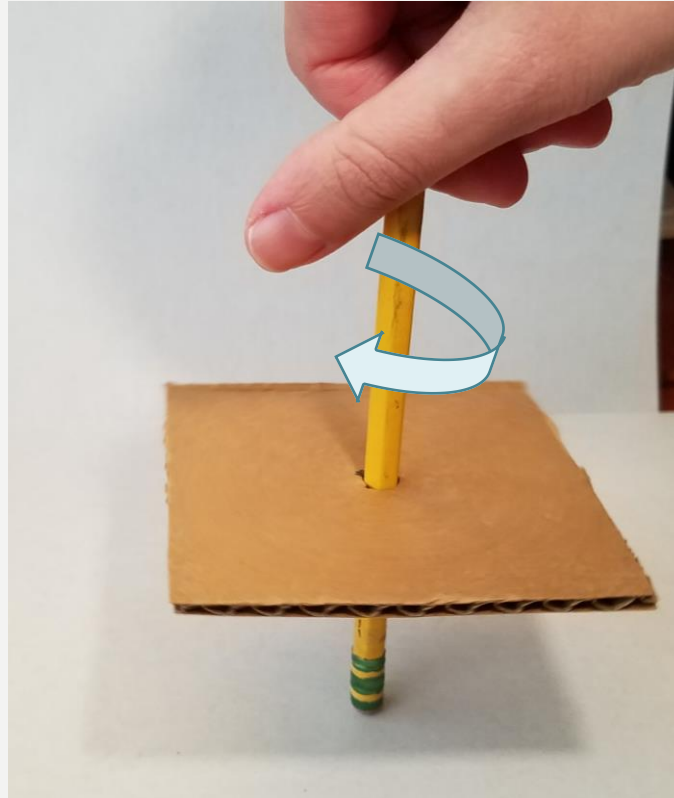


## TIP:

You may want to also tape your pencil to the cardboard so it doesn't slip!

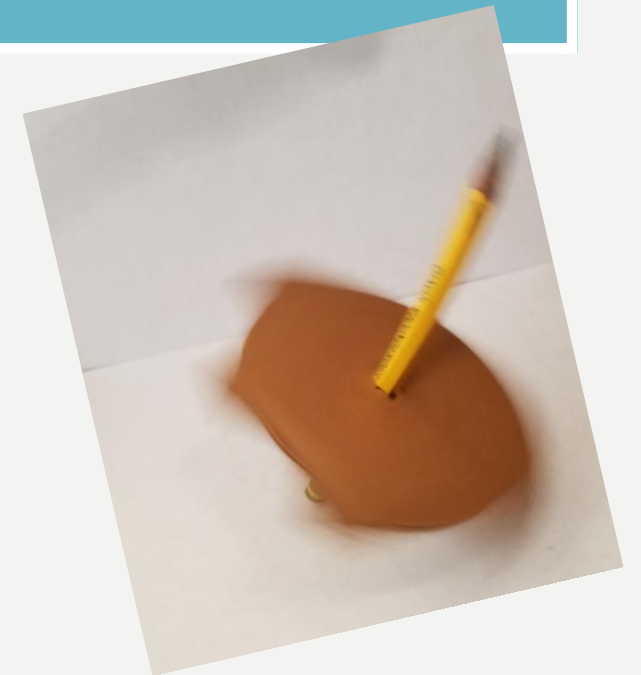
# STEP 5: TEST IT OUT!

- Spin your dreidel!
- Change some of the **variables** until your dreidel spins the way you want it to. Make sure to test it out each time you change something.



## VARIABLES

Length of the pencil  
Position of the pencil  
Size of cardboard  
Shape of cardboard  
Amount of weights  
Position of weights  
Anything else you can think of!



# STEP 6: ADD LETTERS AND DECORATE!

- Add the four Hebrew letters to the top side of your dreidel

נ	nun
ג	gimel
ה	hey
ש	shin

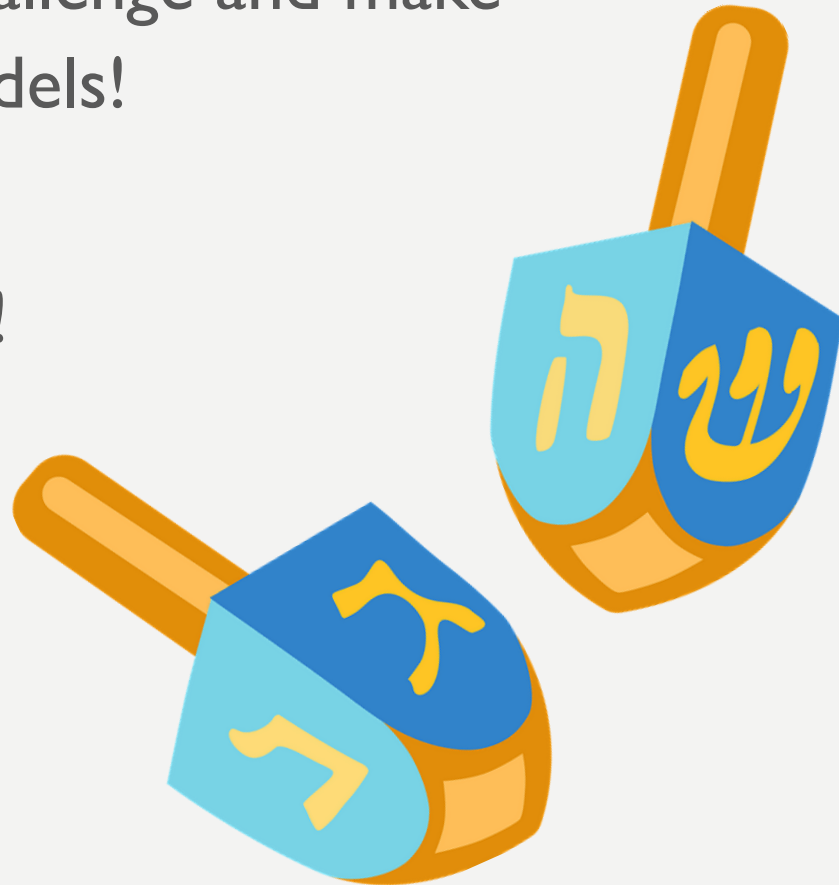
- Now decorate your dreidel any way you want!





# STEP 7: ITERATE!

- Make changes to your dreidel, pick a challenge and make new dreidels!
- Have fun!



## CHALLENGES:

- Make a "rigged" dreidel: can you make a dreidel that always lands on the same letter?
- How long can you make your dreidel spin before it falls over?
- How fast can you make your dreidel spin?
- Can you make a dreidel that makes sound when it spins?