

# teen take & make

[maker kit]  
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## Pi Day Mug

Learn to decorate your mug and make a delicious and simple microwave apple mug pie for Pi Day. You might even learn some math, too!



## Ingredients (Included):

- 1 white mug
- 1 temporary sticker stencil
- 2 porcelain paint markers
- 2 packages of ingredients (mixes of flour, brown sugar, rolled oats, cinnamon)

## You Supply:

- Oven and oven mitts
- Microwave
- Mixing bowls
- Butter
- Apple

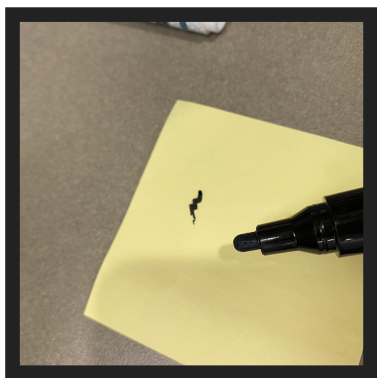
## Decorating the Pi Day Mug

**Step One:** Wash and dry the mug. The markers will adhere better to a clean mug.

**Step Two:** Decide on the placement of your Pi symbol and stick on your stencil.

**Step Three:** Choose one of the markers to be your first color. You must prime it before using it.

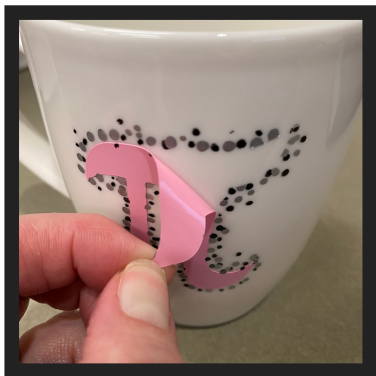
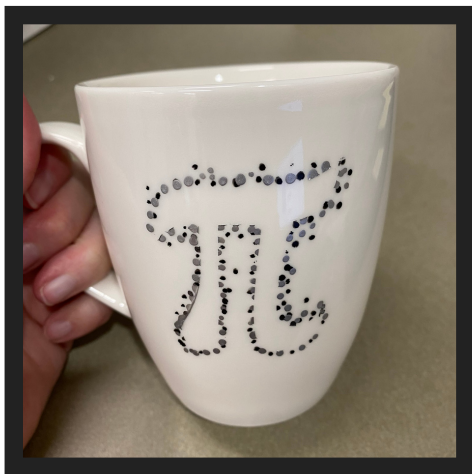
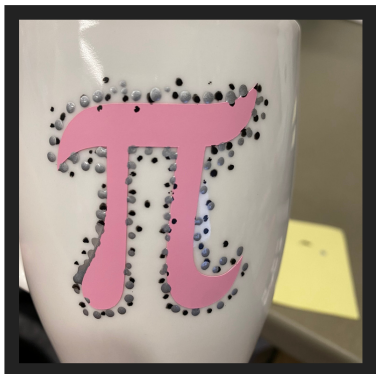
**Follow these instructions to prime your markers:** Shake the marker well. Then, hold the marker upright and remove the cap. The tip will be white to start. Press the tip up and down on a piece of paper until it fills with color.



**Step Four:** Using your first color, dot around the borders of your stencil. Leave spaces for your second color. Let dry for at least 10 minutes.

**Step Five:** Prime the second marker and dot along the borders of the stencil again, filling in spaces. Let dry.

**Step Six:** Once you're sure you won't smudge your ink, carefully peel off the stencil, leaving the outline of the Pi symbol behind, like the picture below.



**Step Seven:** Continue alternating colors of dots, spacing them wider the farther they are from the Pi symbol. Freehand it - it'll look great whatever you do!

Let this dry for 24 hours! Next you'll need to bake your mug to set the design.



**Step Eight:** Put your mug in a **cold oven**, standing upright. Then set the temperature to 425 degrees and bake for 30 minutes. Start the timer once the oven actually warms to 425 (my oven takes forever to get that hot!).

When the timer goes off after 30 minutes, turn off the oven, but don't take the mug out yet. Wait another 30 minutes for it to cool before carefully removing the mug, **using oven mitts**. It will still be hot.

Wait another 24 hours and then gently handwash your mug.\*



**\*Even though the ink is supposed to be dishwasher safe, I still find it's better to just handwash the mug.**

## Making the Apple Pie

This recipe is technically more of an apple crisp, but it's close enough, right?

### For the Filling:

**Step One:** Peel and thinly slice an apple.

**Step Two:** Open the package marked F (for filling) and shake carefully into a small bowl. This package contains: 1/4 tsp cinnamon, 1 tsp brown sugar, 1 tsp flour.\*

**Step Three:** Add 1/2 tbsp melted butter to this mixture, along with your apple slices. Mix well until the apples are full of flavor.

\*If it seems like too much of the dry ingredients got left behind in the package, you can always add a bit more. This recipe is very forgiving.



# Making the Apple Pie

## For the Crisp:

**Step One:** Open the other package of ingredients and shake carefully into a bowl. This one contains: 1 tbsp flour, 3 tbsp rolled oats, 1 tbsp brown sugar, 1/4 tsp cinnamon.\*

**Step Two:** Add 2 tbsp of softened butter (not melted) to the crisp ingredients and work in the butter with a fork until it's crumbly.

\*Again, If it seems like too much of the dry ingredients got left behind in the package, you can always add a bit more.



# Making the Apple Pie

## Putting it All Together:

**Step One:** Layer half the apples in a microwave-safe bowl or mug. (I didn't use my Pi Day mug when I took these pictures, because it was still curing after being baked.)



**Step Two:** Top with half the crisp mixture.



**Step Three:** Repeat with another layer of apples and another layer of the crisp mixture.

**Step Four:** Place in the microwave and cook for 3 minutes.

Use oven mitts to remove from the microwave, as it will be very hot. Let it cool a bit, then eat! You can serve it with whipped topping or ice cream if that's your thing.



# What is Pi Day?

It's more than just an excuse to eat PIE one day a year, right?

<https://www.piday.org/>

<https://www.piday.org/pi-facts/>

Pi (often represented by the lower-case Greek letter  $\pi$ ) is the ratio of a circle's circumference to its diameter. For any circle, the distance around the edge is a little more than three times the distance across.

Pi is an irrational number (a decimal with no end and no repeating pattern) that is most often approximated with the decimal 3.14 or the fraction  $22/7$ . Pi itself never ends!

Pi has interested people around the world for over 4,000 years. Many famous mathematicians have toiled over pi, calculated its digits, and applied it in numerous areas of mathematics. Some spent the better parts of their lives calculating just a few digits.

Even today, people are racing to calculate more digits of pi in a never ending competition. In the year 2010, a Japanese engineer and an American computer wizard broke the record for the most number of pi digits by calculating up to 5 trillion digits of pi. The amazing part is that they didn't use any supercomputers. They just used desktop computers, 20 external hard disks, and their brilliant minds.