



3D printable shoe charm

Design a shoe charm that can be 3D printed.



Step 1 What you will make

Design a shoe charm to 3D print.



You will need (optional)

- A 3D printer and filament. Solid colours work best. The charm doesn't use a lot of filament and is small and quick to 3D print.



Mentor information



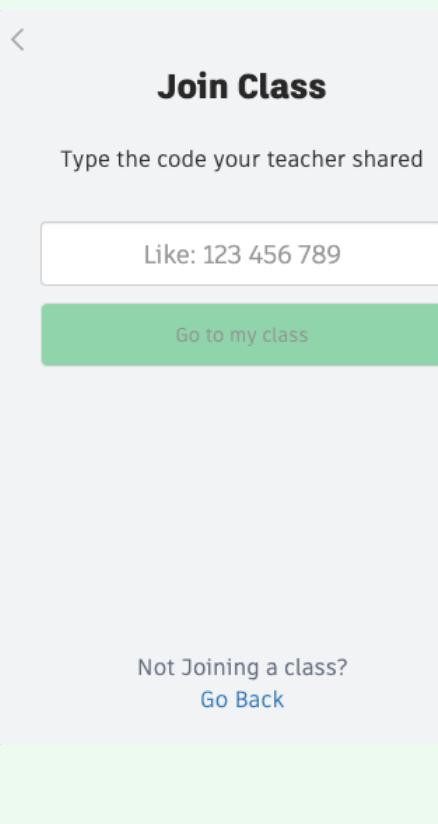
If you would like to set up a classroom in Tinkercad, you can find out more here (<https://www.tinkercad.com/classrooms-resources>).

Step 2 Create a new project

Tinkercad is a 3D model editor that you can use in a web browser on a computer or tablet.

If you have been given a code to join a class:

Join your class by clicking here (<https://www.tinkercad.com/joinclass>) and entering the code you have been given.



If you want to create your own account:

Sign up for a Tinkercad account here (<https://www.tinkercad.com/join>). 

Start Tinkering

How will you create your account?

[Sign up with Email](#)

 [Sign in with Google](#)

 [Sign in with Apple](#)

 [Sign in with Microsoft](#)

 [Sign in with Facebook](#)

Already have an account?

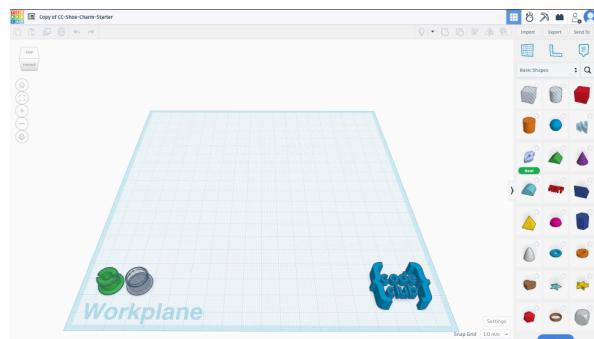
[Sign In](#)

Open the starter design (<https://www.tinkercad.com/things/17sUhbDWiRe-cc-shoe-charm-starter>). 

Click the blue ‘Copy and Tinker’ button. 

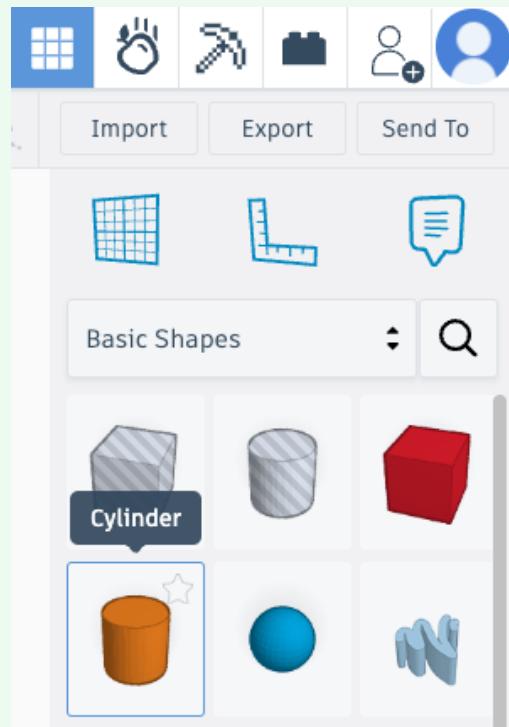
[Copy and Tinker](#)

The starter project looks like this:



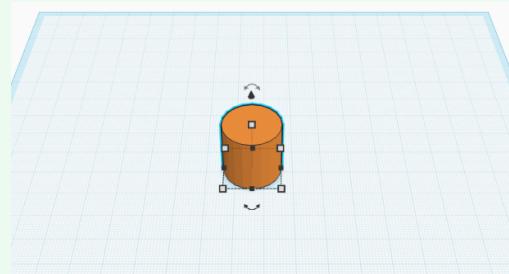
Step 3 Create a button

Left-click on the cylinder shape.

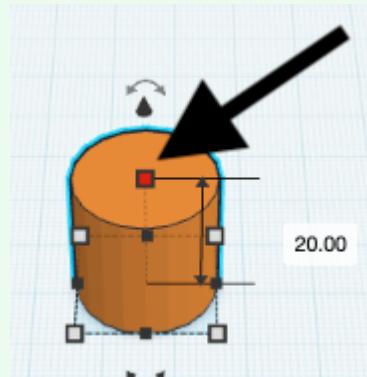


Move it to the workplane.

Left-click again to place it.



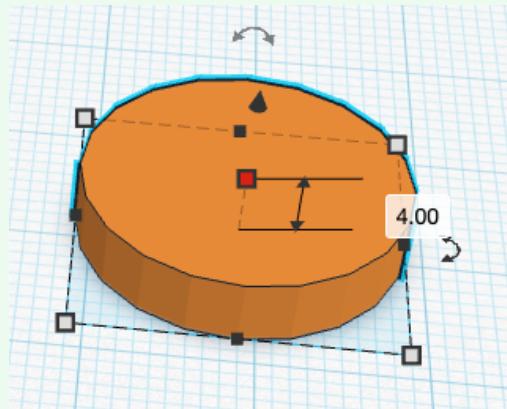
Left-click the height node.



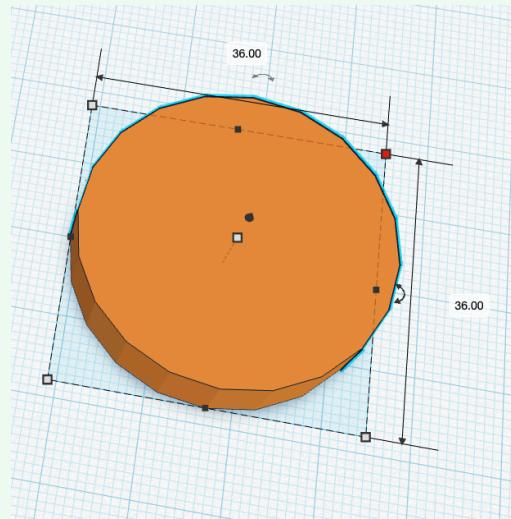
It will turn red and the height of the cylinder (in mm) will be shown.



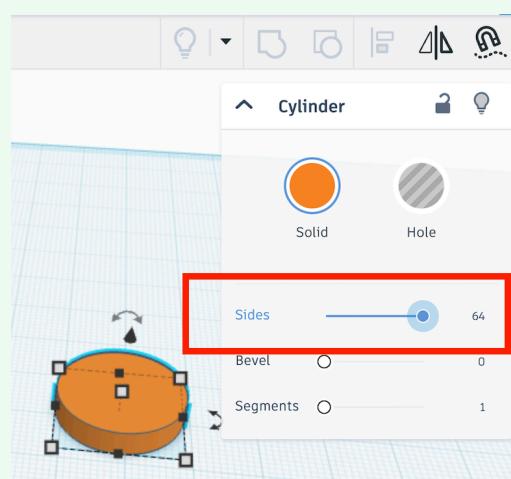
Drag the height node down (or type in the box) to change the height to 4.00.



Hold the SHIFT key and drag the corner node until both the width values are 36.00.

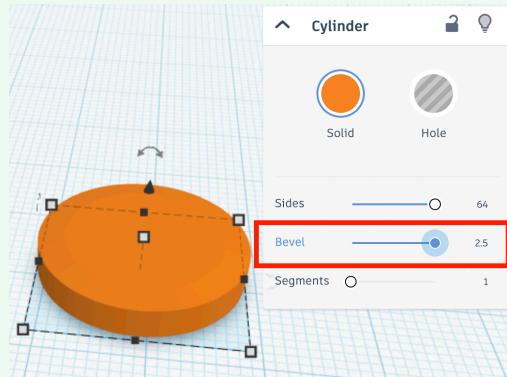


Change the sides value to 64.

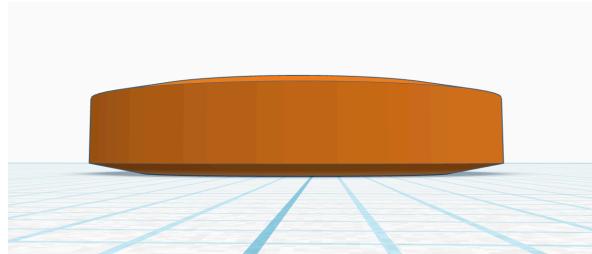


This creates a smoother outline for the cylinder.

Change the bevel value to 2 . 5.



Your button now has a curved top and bottom. Nice!



Step 4 Create a cutout

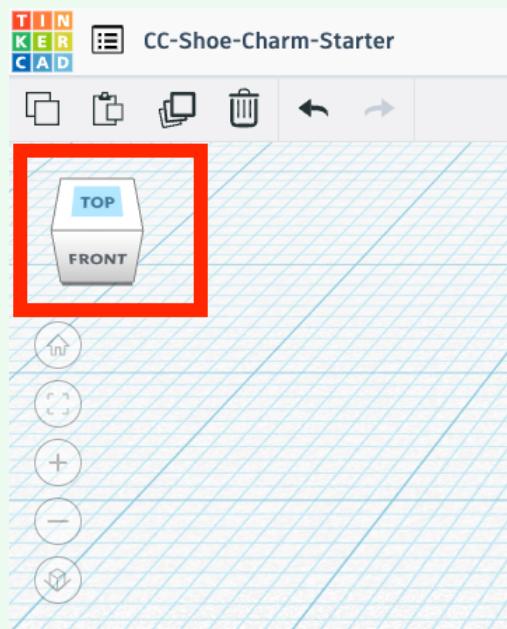
Drag the Code Club logo object on top of your cylinder object.



Press the F key to fit the view to the selected object.



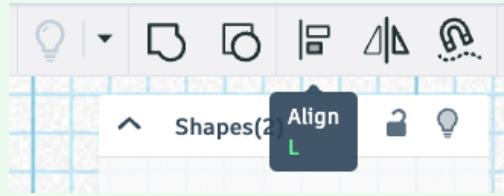
Select the Top view.



Hold down Ctrl and press A (Cmd ⌘ and A on a Mac) to select both objects.



Click Align to help you position the logo centrally.



Make sure ONLY the logo is selected.



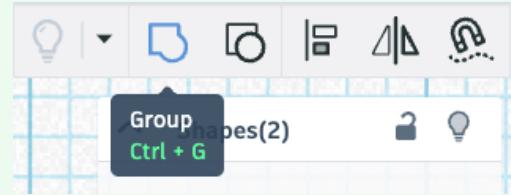
Change its shape to 'Hole'.

Select both objects again.





Group the objects.



The logo will be cut out of the button!



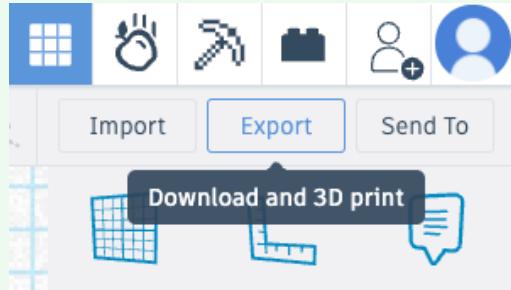
Step 5 3D print your charm

Tinkercad can print directly to supported 3D printers and can also export an .STL file for 3D printing.

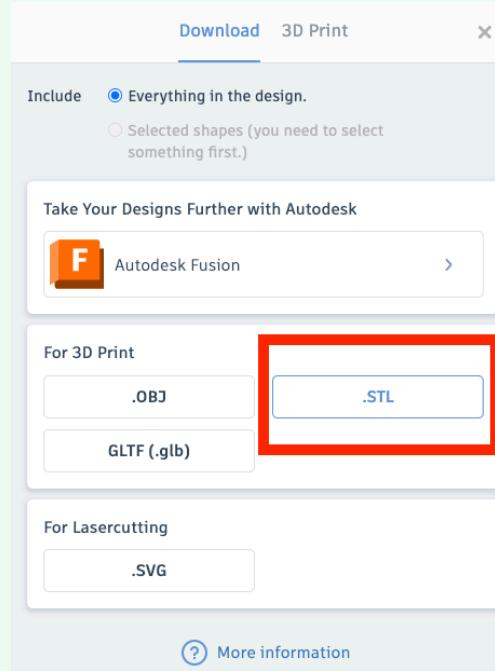
Note: The colour of your charm will be the colour of the filament you use.

Changing the colour of your objects in Tinkercad will not change the filament colour.

Click Export.



Choose .STL and remember where you save your file.



There are lots of tools that can read .STL files and send 3D models to a printer.



The one you choose will depend on the 3D printer that you are using.

Follow the steps in your chosen tool to print your design.

Carefully remove the 3D print from the print bed.



You might need to remove some small strands of filament to tidy up the print.



 Challenge!

Challenge

Change the logo to your name.



Add, edit, and group some shapes to create new cutouts, or change your button from a cylinder to a different shape.



- Add the snap fit hole.



- Group the snap fit hole with the charm to cut out the socket shape in the charm.

- Print the snap object to fit into the socket you have made in the charm, securing your charm on your shoe!



Published by

(<https://www.raspberrypi.org>) under a
(<https://creativecommons.org/licenses/by-sa/4.0/>).
(<https://github.com/RaspberryPiLearning/shoe-charm>)