Embedding LEGO Compatibility into Objects to 3D Print

Teacher Guide

VIDEO

Link: https://www.youtube.com/watch?v=D4ZWXevxDMQ&t=41s

ABOUT

As shown in our first 3D printing LEGO attachments video, you added LEGO technic compatible holes to the "outside" of 3D printed design. It was sort of like CAD glueing a LEGO beam to your own custom piece.

In this 5 minute classroom, you will embed the hole geometry on the "inside" of your 3D designed object. We show you how to do this for a generic cylinder and then show you an example where we used the technique to add LEGO holes to the bottom of an smartphone camera holder.

It's next level CAD and LEGO hacking!

WHAT YOU WILL NEED

- Access to TinkerCAD. While other CAD software may work, we took advantage of an easy to use feature in TinkerCAD called "hole".
- Access to Thingiverse – search LEGO beams
- An idea for something to attach to LEGO!

WHAT YOU CAN DO

- Your students are taking their CAD to the next level while still at the introductory stage. Now give them the chance to identify even more challenging LEGO attachment problems. With the two techniques shown in 5 minute classroom, they can embed or add LEGO holes to almost any design.
- Your students will also take their 3D printing to the next level. As they print, they will need to figure out what orientation to use. Bottom side down? Left side down? They are working on figuring out the printing orientation to help them print the LEGO holes correctly and print their design correctly!

PREPARATION

- Read through the Teacher Guide
- Print placemat

TIPS

- If your hole geometry does not work out, try again. In the video, we show you the technique of making a hole "twice". When you first make a TinkerCAD "hole" or "negative" out of your LEGO beam, you make the actual LEGO holes into solids! The negative of a hole is a solid! But, we need the holes to be a hole. So, after you embed into your 3D design, you make that a TinkerCAD hole. It turns the solid back into a LEGO hole. Confused? Watch the video and comment!