



CHSA Summer School - Physics and Engineering

Agenda for today

Plan (Select the material for the solar charger)

Use TinkerCad to design the outer casing.

Imagine

Different types of solar chargers



Different types of solar charger



Role Assignments - Activity 1

Activity 1 - Role assignment

Assign different roles within your group. The responsibilities of different roles are listed below.

<p>Designer: The designer is responsible for developing the initial sketch/design of the solar charger.</p> <p>The designers for my group are:</p> <p>_____ and _____.</p>	<p>Prototype developer: The prototype developer is responsible for building the solar charger prototype.</p> <p>The prototype developers for my group are:</p> <p>_____ and _____.</p>
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Complete Activity 1 on your worksheet

Decision Matrix: Choosing the right materials

Type of solar panels	
No. of solar panels	
Current and voltage rating of solar panels	
Connection between solar panels (series/parallel)	
Type of solar charger (box/foldable)	
Materials used for casing	

Complete Activity 2-5 on your worksheet

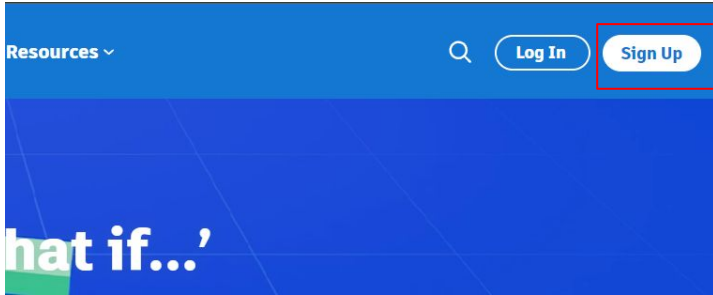


Introduction: TinkerCAD

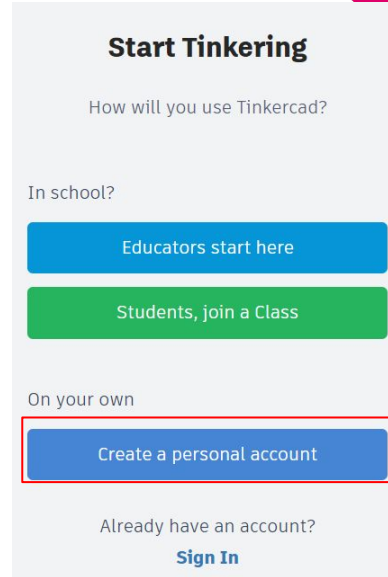
TinkerCAD is a free, browser-based 3D online tool that helps you to create 3D designs and models.

You will use TinkerCAD to design and create a simple 3D model for the casing of your charger.

Login Instructions

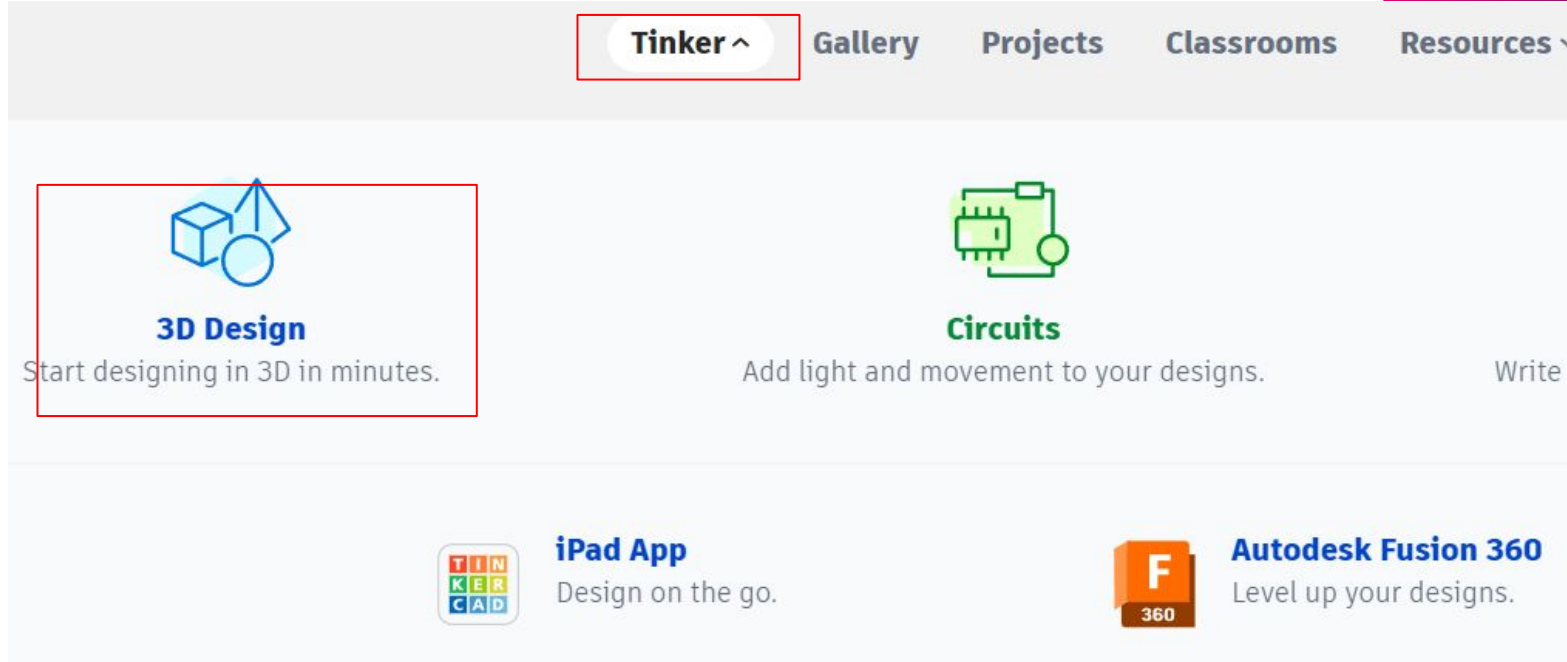


If you don't have an account, you must set one up first. Go to www.tinkercad.com
Click on sign up.



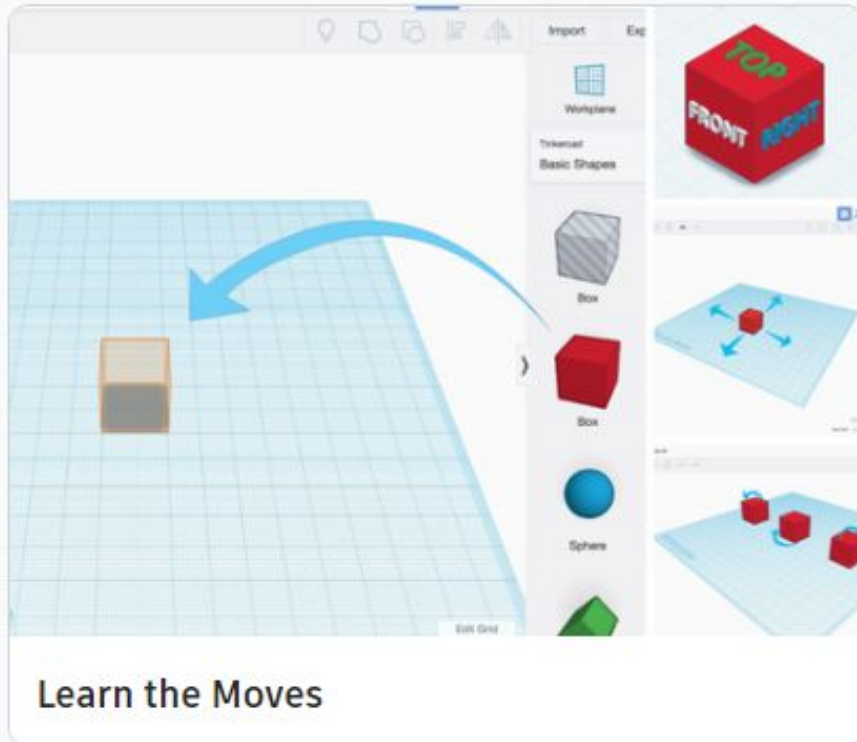
Create a personal account.
Complete the account registration process.

Learning the Basics



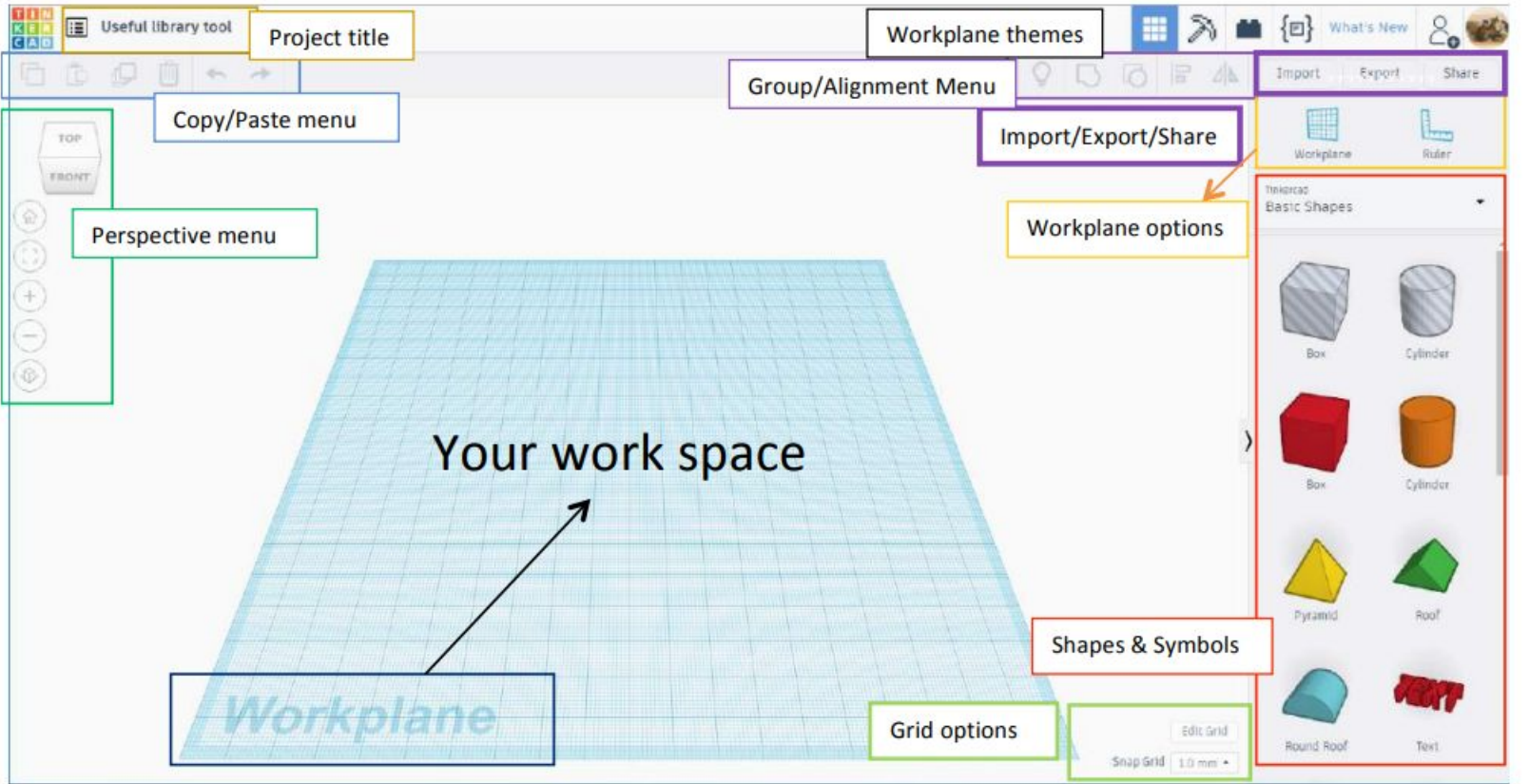
1. Click on tinker
2. Click on 3D design

Learning the Basics



3. Scroll down to the bottom
4. Click on learn the moves

Tinkercad: User Interface



Learning the Basics

Complete these seven basic tutorials.

Learn the basics of the 3D design editor with these guided step-by-step tutorials.

10 lessons

1. Place It!

Start

2. View It!

Start

3. Move It!

Start

4. Rotate It!

Start

5. Size It Up!

Start

7. Copy It!

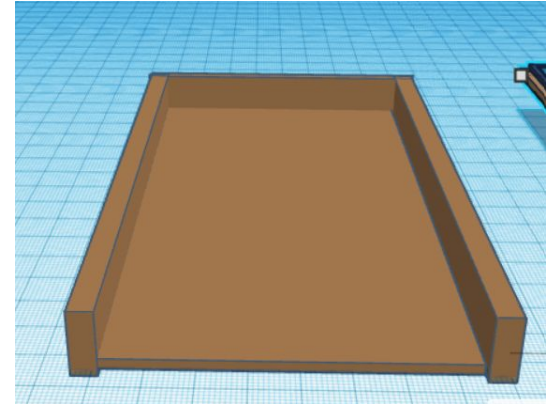
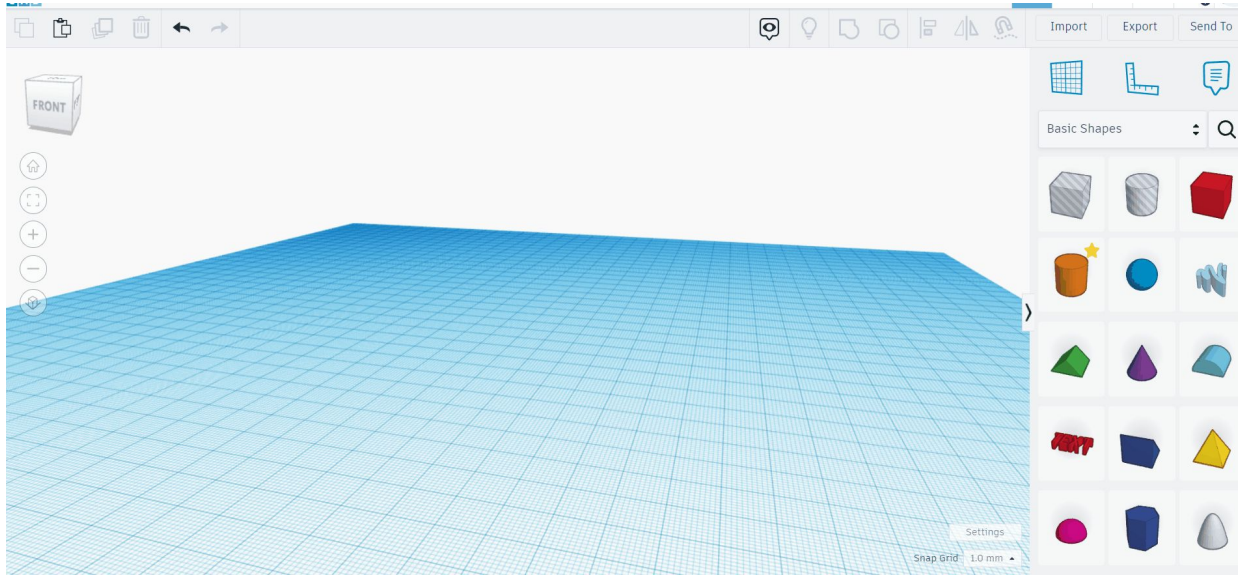
Start

8. Duplicate It!

Start

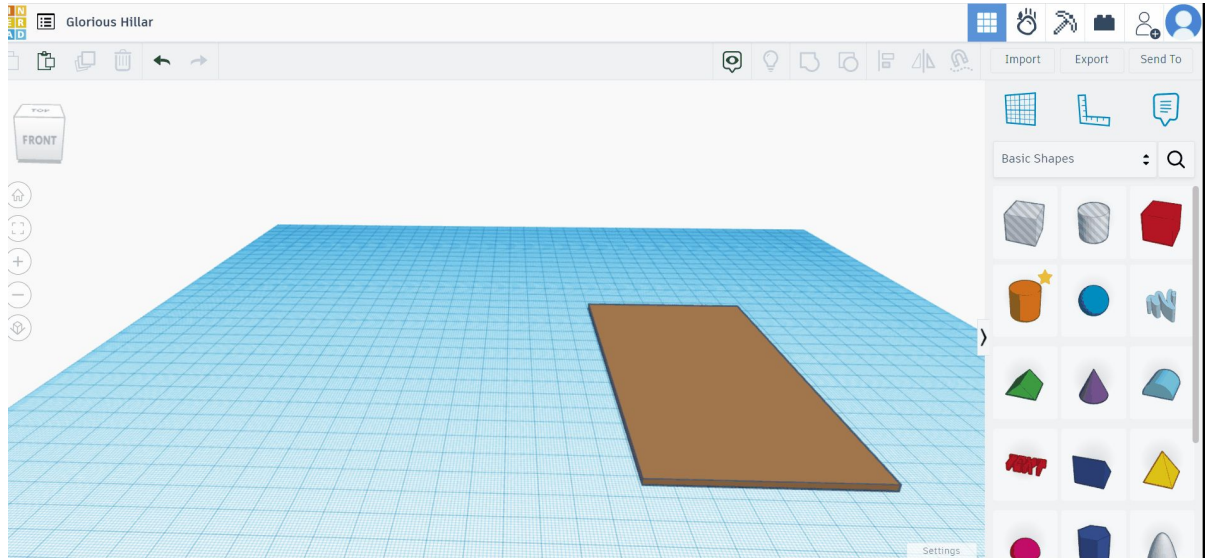
Let's look at an example to see how you can go about designing your 3D model.

Step 1: Make the base



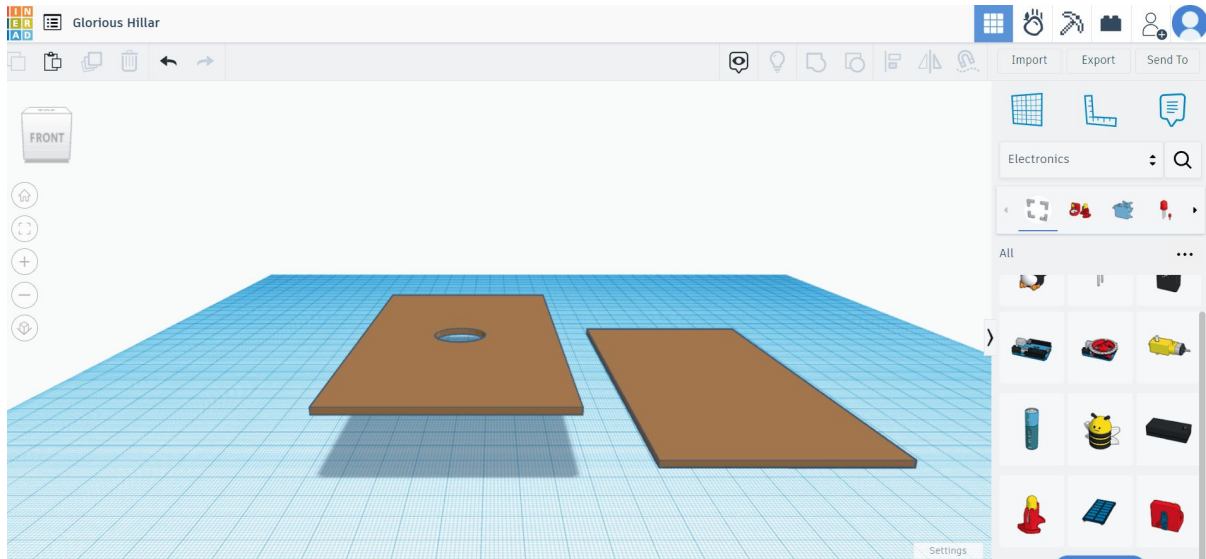
Think about how large your base should be depending on the no. and size of the solar panels.

Step 2: Construct the top



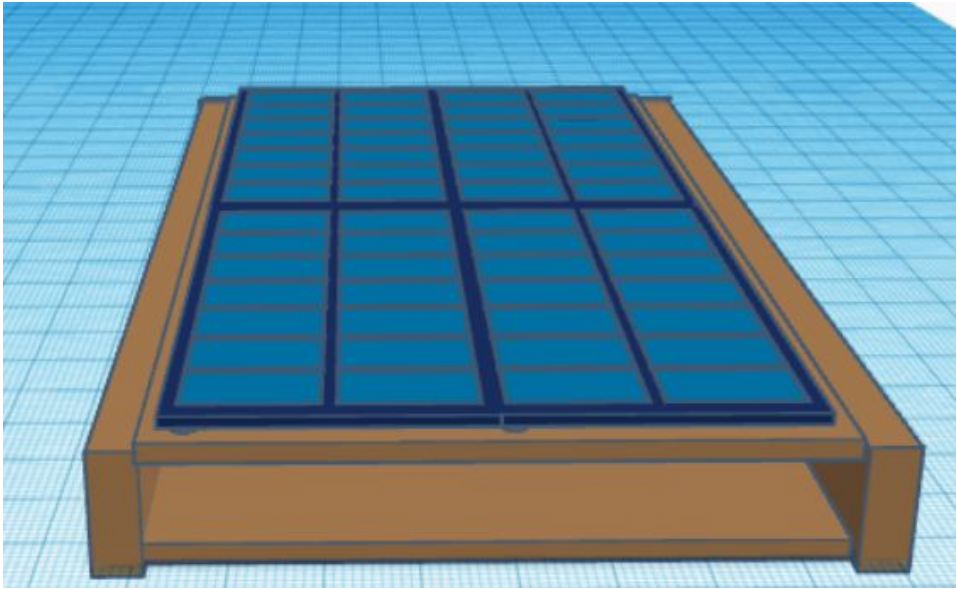
What is the purpose of the hole? How large should it be?

Step 2: Placing the electrical components



How would you secure the components in your actual design?

Step 2: Final design



Why is the front face open?



Create the prototype!

Create the 3D model on
Tinkercad.

What's next?

See you tomorrow!! We will be and building our solar chargers.

Thank You

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