STEM Showdown

An Adelaide University, School of Education
STEMpire program

Bag-Tag-Arama

Name:_____

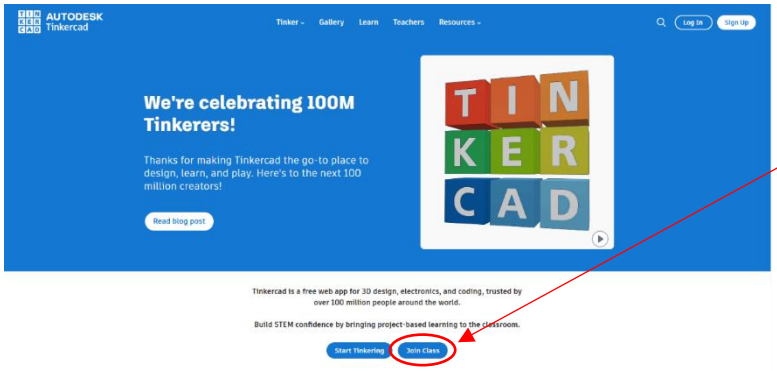
The STEM Showdown is a series of STEM challenges to solve by the end of the season. You can complete the tasks individually or in small groups (up to 3 people). Make sure you write all the names of the people in your group above. The student with the most tasks completed over the season will be crowned the Adelaide University STEM Showdown Champion. Good Luck.

Bag-Tag-Arama

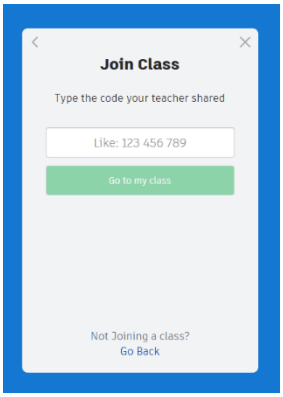
There was a special at the shops on backpacks and everyone in your class has purchased the same one. To make yours unique, you need to design 3D printed bag tag with your name on it using Computer Aided Design (CAD)

Your Task

Using either Chrome or Firefox browser go to tinkercad.com



Click on the **Join Class** icon on the homepage



Enter the **class code** provided by the teacher, write a copy of the code here so you can access it again:

_____

Join with the **nickname** provided by the teacher, write a copy of the name here so you can access it again later:

_____

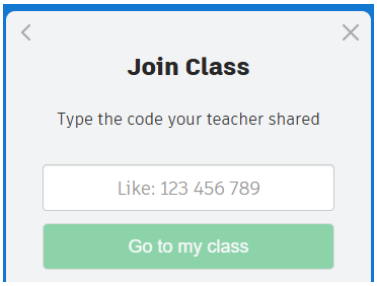
Design your key-tag

1. **Go to tinkercad.com and scroll down until you see these buttons:**

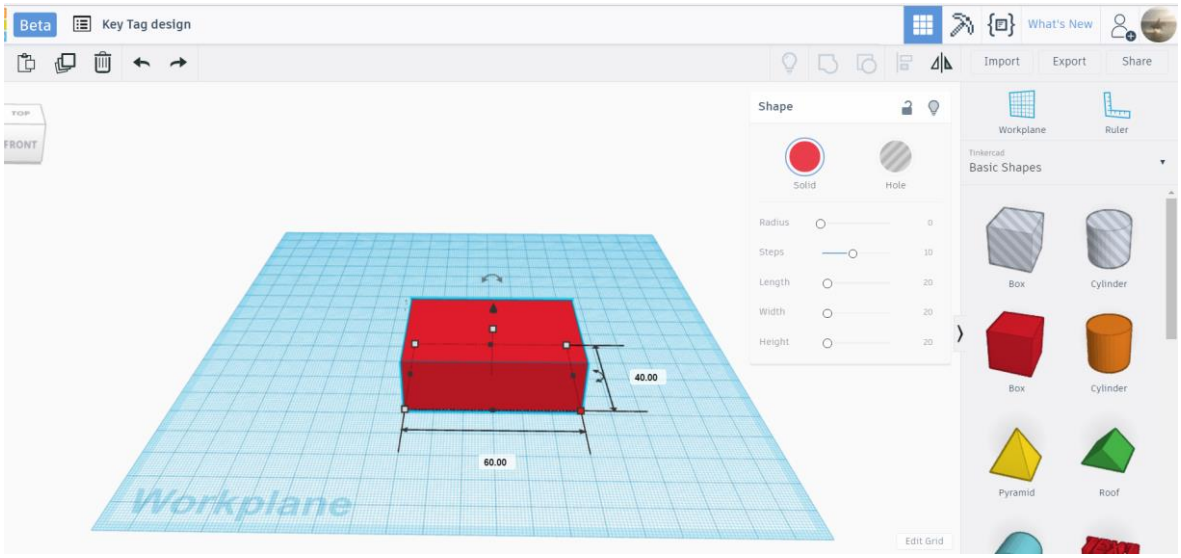
   Click on 'Join Class'

2. **It will take you to this screen and it will ask you to type a code. Type in the code that is shared with your class, then click on the green button that says 'Go to my class'**

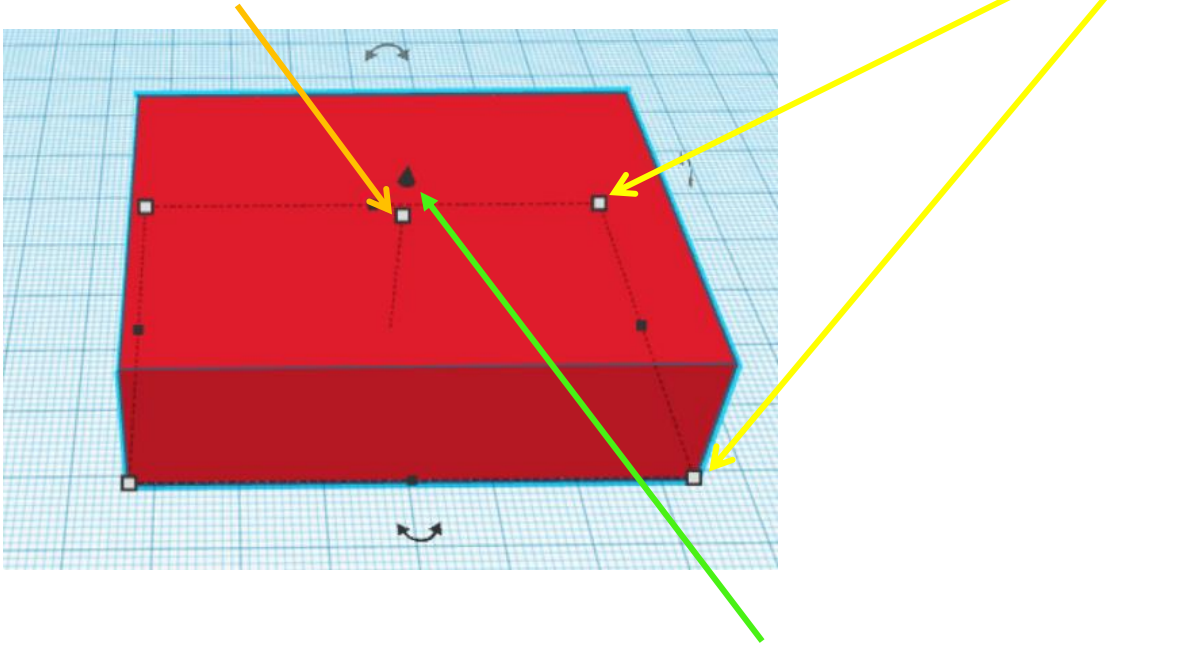


Start your project by clicking - create new design

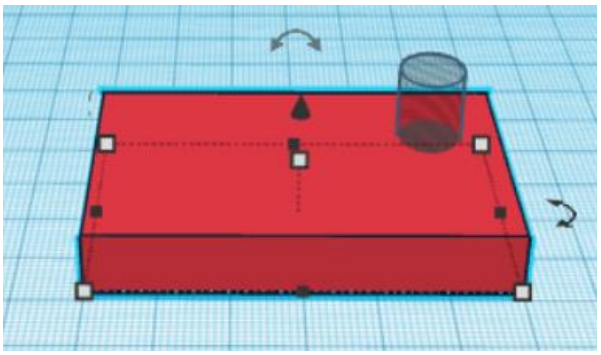
3. **Work plane**
   - Adjust the view of the work plane by holding the right mouse button and moving the mouse around
   - Zoom in and out by moving the scroll wheel on the mouse

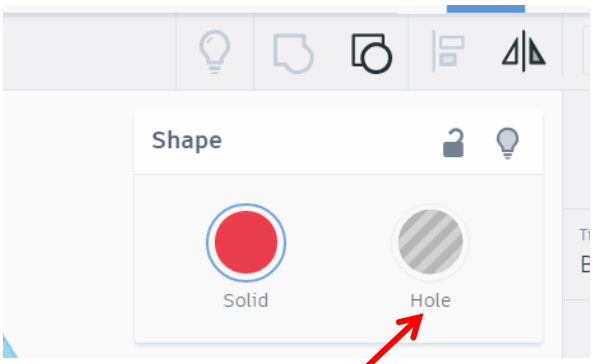


4. **Drag and Drop**
    - Choose an object, then drag and drop it onto the work plane
    - Adjust the dimensions using the corner squares to get a 60 x 40 mm square
    - Adjust the height using the central square to get 9mm

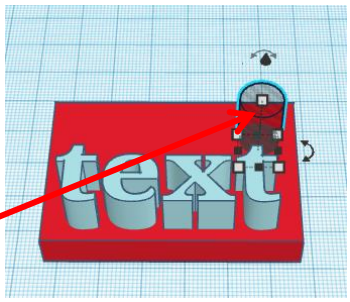


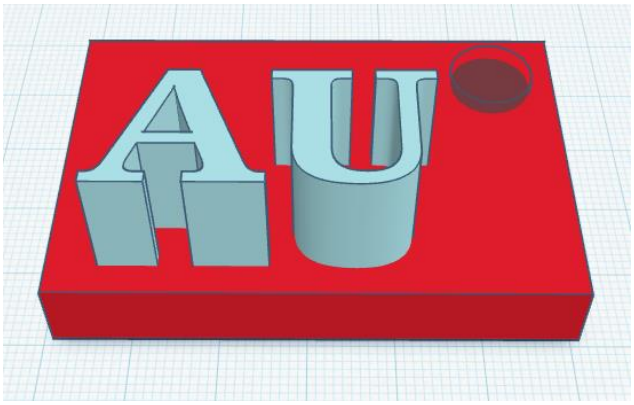
- **Until you have practised with this program <u>avoid using the central black cone</u> shape as this lifts and lowers the object and can leave it floating in mid-air.**





5. **Making a hole and adding text**
    - Drag and drop a new shape onto the Workplane
    - Select the new object and change it into a **hole**
    - Adjust the size of the hole (approx. 10 x 10mm) and place it inside your object making sure it goes right through. To do this click on the **black cone shape** above the cylinder and drag it down so the hole is all the way through your shape.





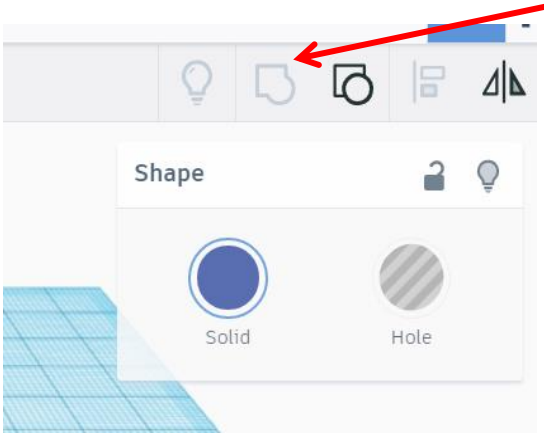
* Add text and other features to your design.

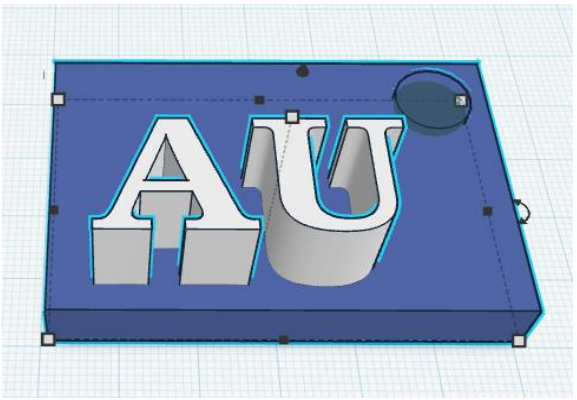
Adjust text to 12mm or it will not be visible when printed.

To add text, drag and drop the text icon onto the workplane and then adjust the text, font and height.

6. **Grouping the object**

- Highlight both objects (by making dragging the mouse to create a red rectangular perimeter) you then click **Group or press Control + G**





The colour in Tinkercad is irrelevant, it is the printer plastic that determines the colour.

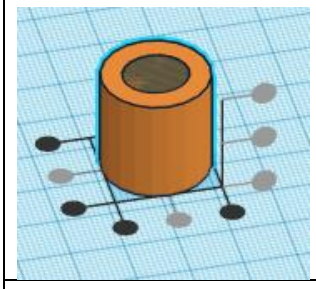
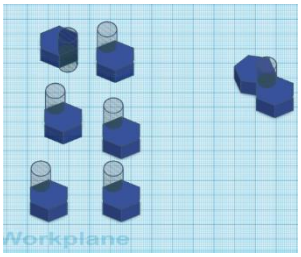
7. **The design will automatically save to the classroom account**

STEM Showdown Umpire Comments	Completed (STEM Showdown Umpire to sign)

Make sure you hand up your signed sheet to the umpire at the end of the session to have your points allocated to the leader board.

Extension Task

Click “create design” to open a new platform and try to make the following:

Extension Task	STEM Showdown Umpire Comments	Completed (STEM Showdown Umpire to sign)
Make a new shape with rounded edges		
Make a shape with indented writing		
Make a tube with a centralised hole using the align feature 		
Design 3D jigsaw puzzle pieces that interlock  		

Make sure you hand up your signed sheet to the umpire at the end of the session to have your points allocated to the leaderboard.