Introduction to SketchUp for Schools: Beginner Level

Contents

these are the tools we will be working with

SketchUp for Schools

1.

SketchUp for Schools

Browser-based SketchUp for Primary and Secondary schools signed up with G Suite for Education or Microsoft Education.

[Get Started]

Follow the prompts to enter SketchUp for Schools.

2.

① ————————————— ②

I am a...

| ✓ Student | Educator | Administrator |

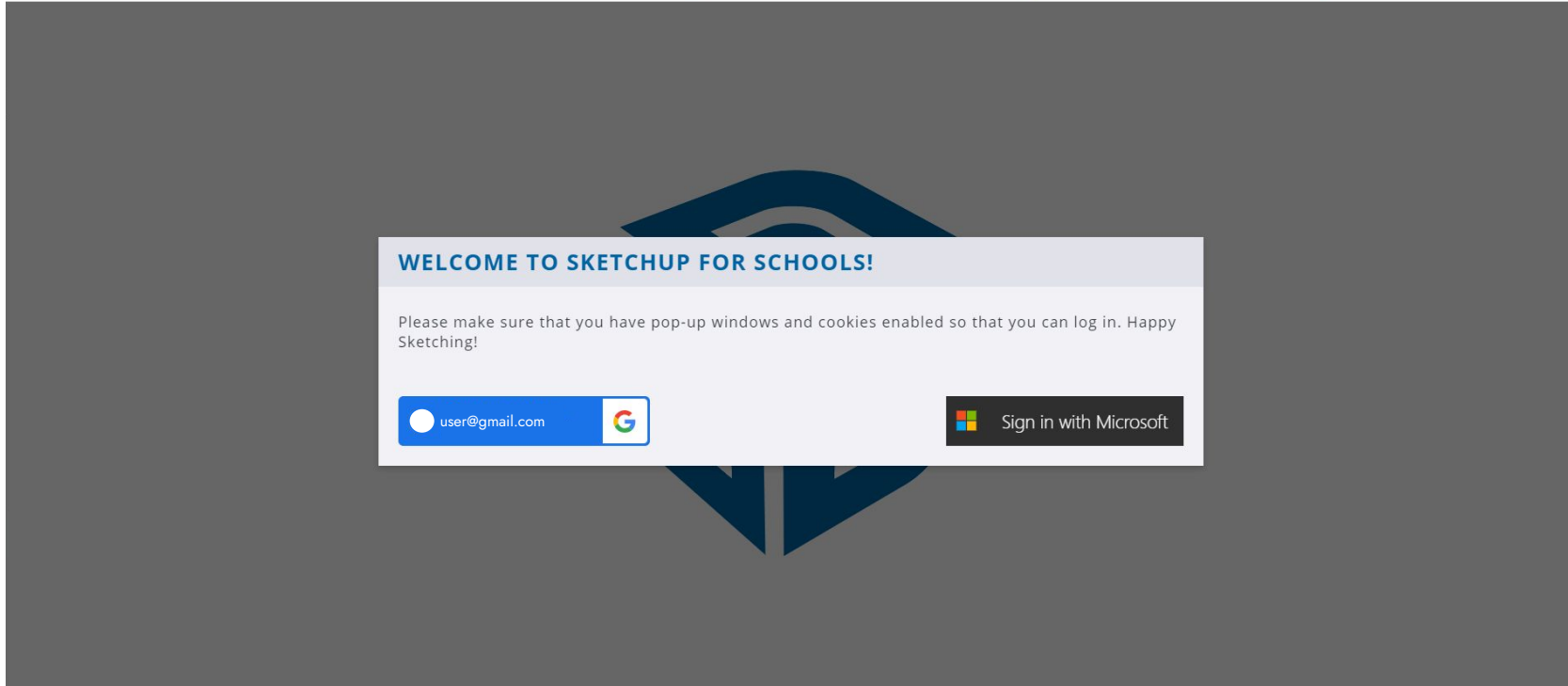[Continue]

3.

① ————————————— ②

Welcome to SketchUp for Schools!

Remember: SketchUp for Schools requires G-Suite or Microsoft Education
Need help? We got you covered.

[Launch]

SketchUp for Schools

WELCOME TO SKETCHUP FOR SCHOOLS!

Please make sure that you have pop-up windows and cookies enabled so that you can log in. Happy Sketching!
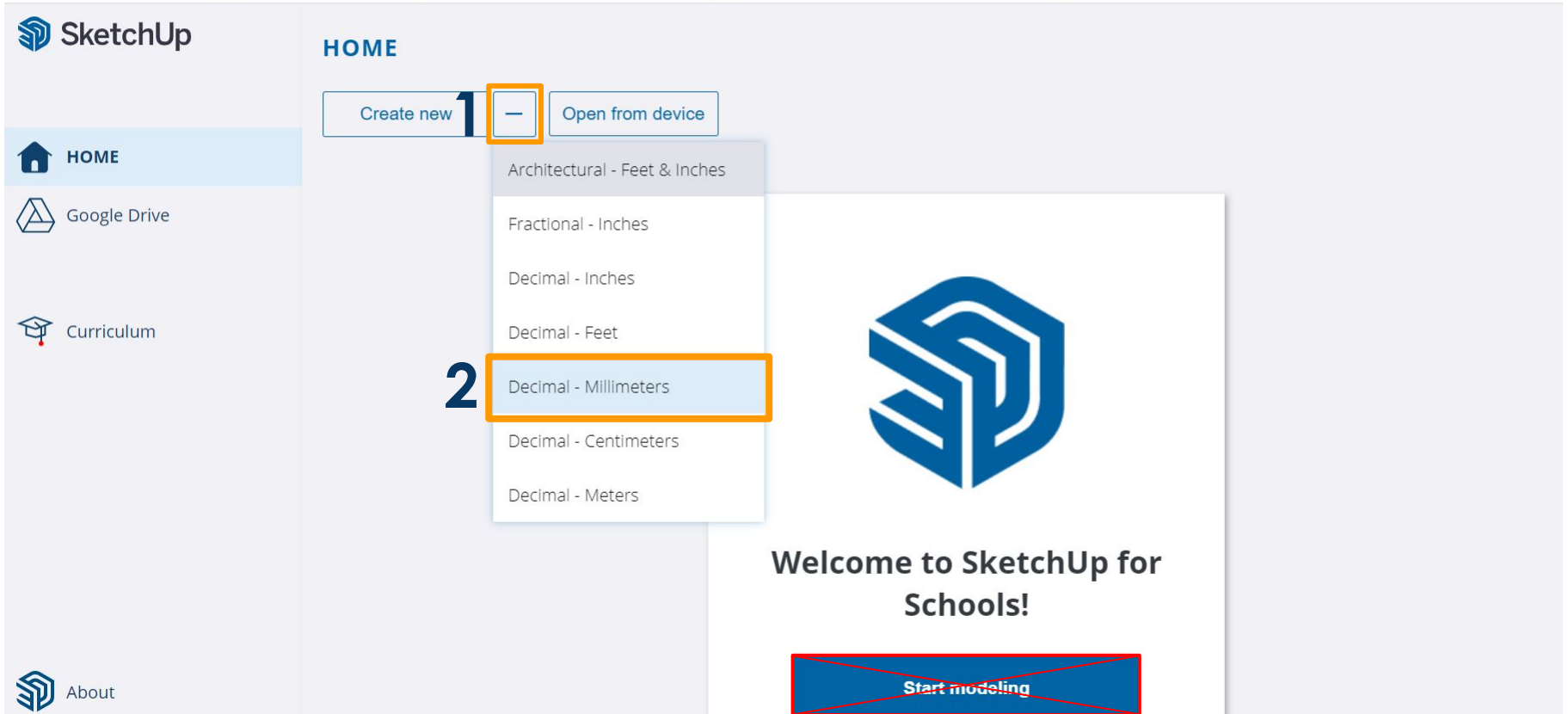
user@gmail.com | G

Sign in with Microsoft

Note: If it is your first time using SketchUp for Schools, you may need to allow pop-ups on your browser in order to access the 3D modelling program.

1. Getting Started
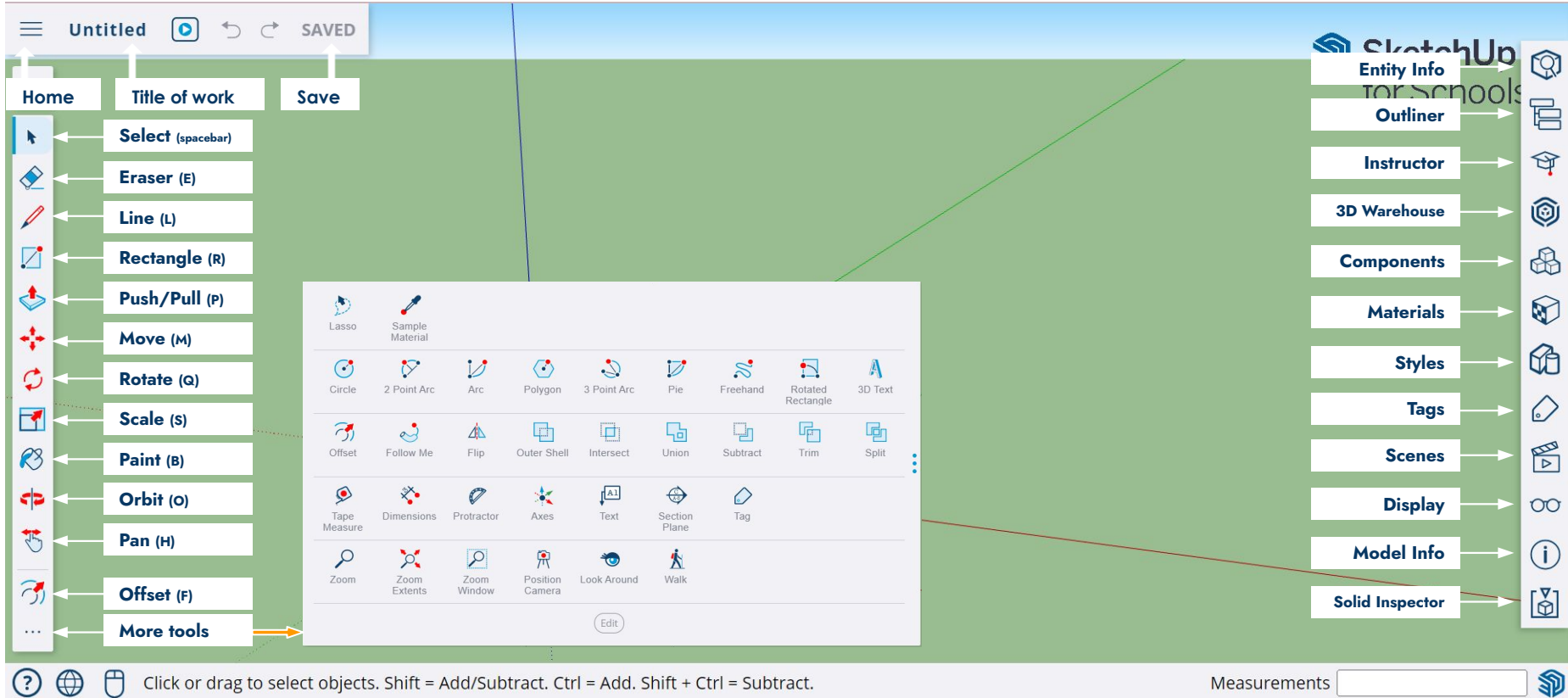## a. Creating a new SketchUp file

DO NOT click "Start Modelling" - this automatically uses feet & inches as a form of measurement. This tutorial will use **millimeters**.

1. Getting Started
b. Tool list

Home

Title of work

Save

Select (spacebar)

Eraser (E)

Line (L)

Rectangle (R)

Push/Pull (P)

Move (M)

Rotate (Q)

Scale (S)

Paint (B)

Orbit (O)

Pan (H)

Offset (F)

More tools

Untitled   SAVED

SketchUp for Schools

Entity Info

Outliner

Instructor

3D Warehouse

Components

Materials

Styles

Tags

Scenes

Display

Model Info

Solid Inspector

Lasso   Sample Material

Circle   2 Point Arc   Arc   Polygon   3 Point Arc   Pie   Freehand   Rotated Rectangle   3D Text

Offset   Follow Me   Flip   Outer Shell   Intersect   Union   Subtract   Trim   Split

Tape Measure   Dimensions   Protractor   Axes   Text   Section Plane   Tag

Zoom   Zoom Extents   Zoom Window   Position Camera   Look Around   Walk

Edit

Click or drag to select objects. Shift = Add/Subtract. Ctrl = Add. Shift + Ctrl = Subtract.

Measurements

1. Getting Started
c. Changing units in Model Info

If needed, you can change your measurement units under model info. **Select your preferred format and precision.**
For this tutorial, we are using '**mm**' with **no decimal places**.

1. Getting Started

d. Choosing your input device - to help you move around the 3D world
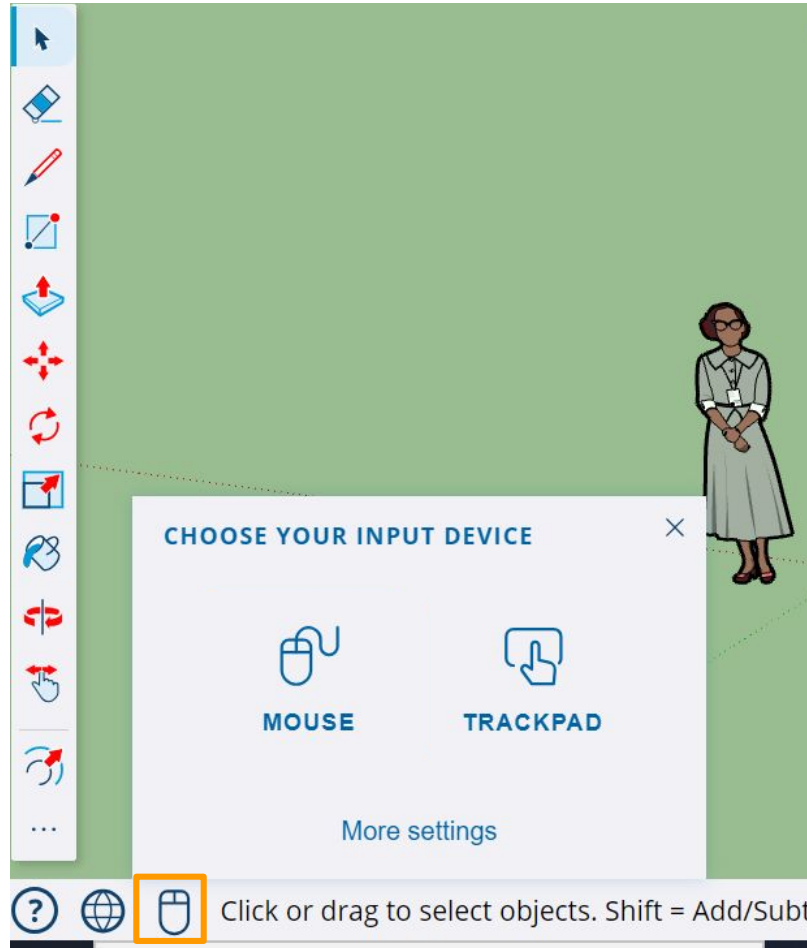
Select **MOUSE** if you are using a mouse with SketchUp. This is a personal preference.
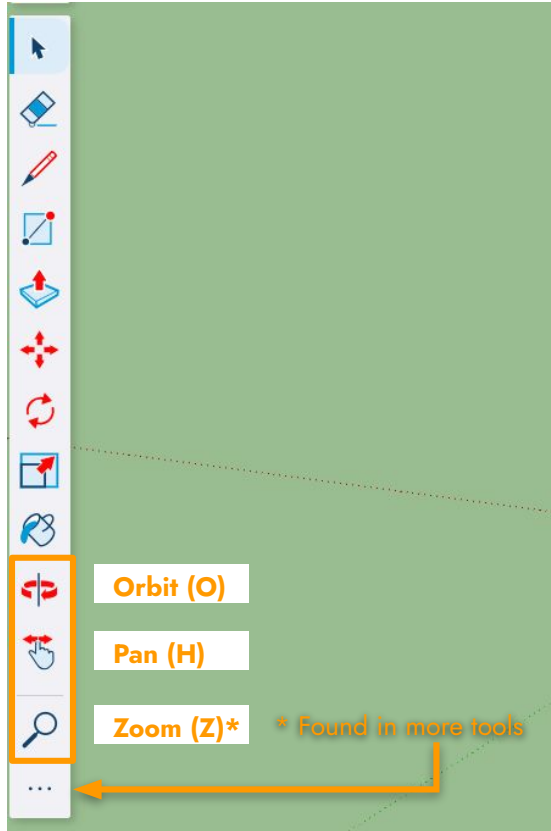
Select **TRACKPAD** if you are using the trackpad of a laptop with SketchUp. This is a personal preference.

Note: Selecting either of these options completely changes the programs response to mouse or trackpad commands, so it is best to make sure the correct one is selected for your use.

CHOOSE YOUR INPUT DEVICE

MOUSE   TRACKPAD

More settings

Click or drag to select objects. Shift = Add/Subt

1. Getting Started
e. Moving around the 3D world

Orbit (O)

Pan (H)

Zoom (Z)* * Found in more tools

Orbit Tool: The orbit tool is used to rotate your view within the 3D world.
Mouse use - Orbit can be achieved by clicking and holding in the scroll wheel and moving your mouse.
Trackpad use - Orbit can be achieved by dragging two fingers across your trackpad.

Pan Tool: The pan tool is used to drag your view around the 3D world.
Mouse use - Pan can be achieved by holding shift, clicking and holding in the scroll wheel and moving your mouse.
Trackpad use - Pan can be achieved by holding shift and dragging two fingers across your trackpad.

Zoom Tool: The zoom tool is used to zoom in and out in the 3D world.
Mouse use - Zoom can be achieved by scrolling in and out with the scroll wheel.
Trackpad use - Zoom can be achieved by pinching in and out on the trackpad.
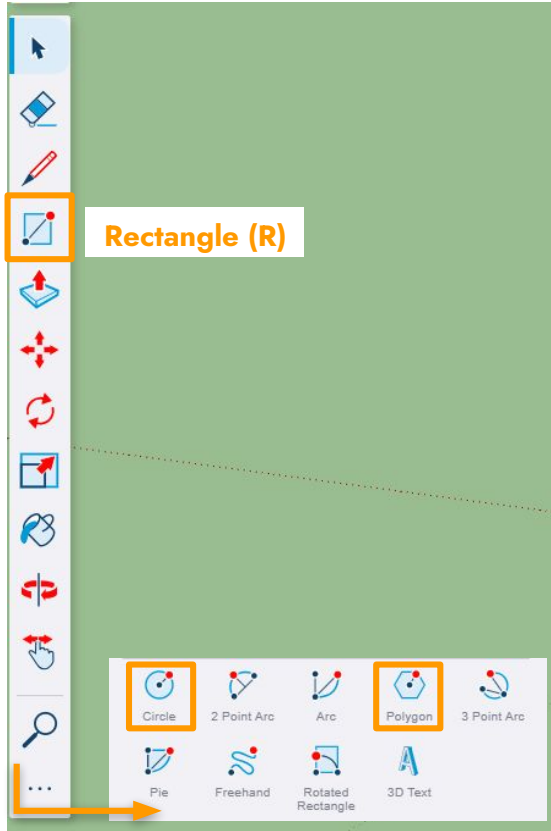
Note: The SketchUp world is infinite. This means, if you zoom too far in or out, you can lose sight of your objects.

If this happens, click on the zoom extents tool (found in more tools) - this will re-centre your frame to your object.

Zoom Extents

2. Shape Tool

1. Select the **rectangle tool** or press **(R)** for the keyboard shortcut.

2. Draw a rectangle and start to type "**1000,1000**" then press **enter**.
   (It will automatically begin typing into the dimensions box - you do not need to click on the box to start typing.)

Note: It is best practice to always build your models at the origin site. (The point where the three axes meet.)

Rectangle (R)

Circle | 2 Point Arc | Arc | Polygon | 3 Point Arc
Pie | Freehand | Rotated Rectangle | 3D Text

Basic Tools | SAVE

SketchUp for Schools

Origin site

Click to set first corner. | Ctrl = Toggle Select Center. | Arrow Keys = Toggle Lock Drawing Plane.

Dimensions | 1000,1000

Dimensions | 1000,1000

More Tools:
Here you can also find other shape tools such as the **circle tool** and the **polygon tool**.
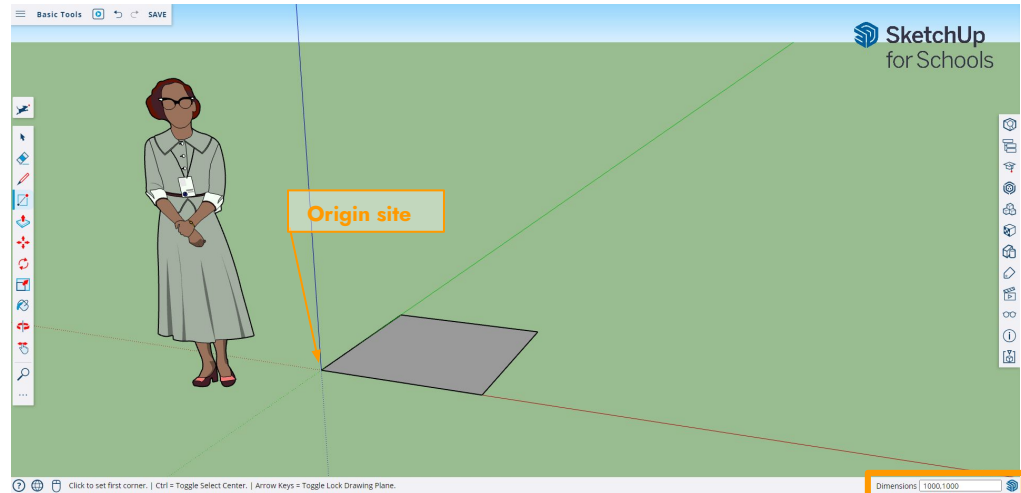
To know: You can type in any dimension to create a rectangle of any size by giving the **length** and **width** measurements.
(eg. "2000,500" will create a rectangle that is 2000mm by 500mm).

3. Push/Pull Tool

1. Select the **push/pull tool** or press **(P)** for the keyboard shortcut.

2. Select the face of the square and pull upwards to create a 3D form.

3. Start to type "**1000**" and it will automatically begin typing into the dimensions box.
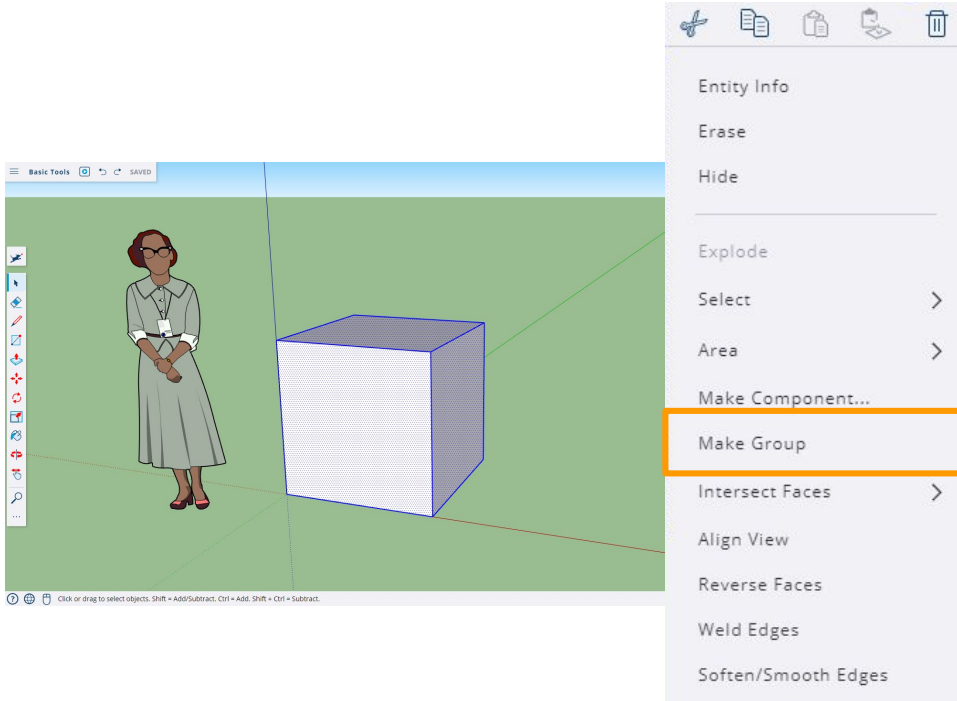
4. Press **enter**.

Push/pull (P)
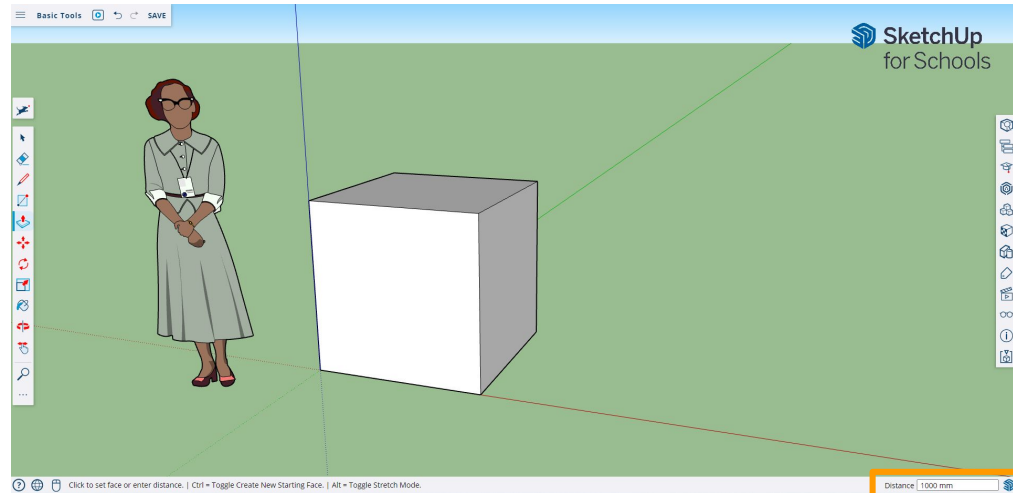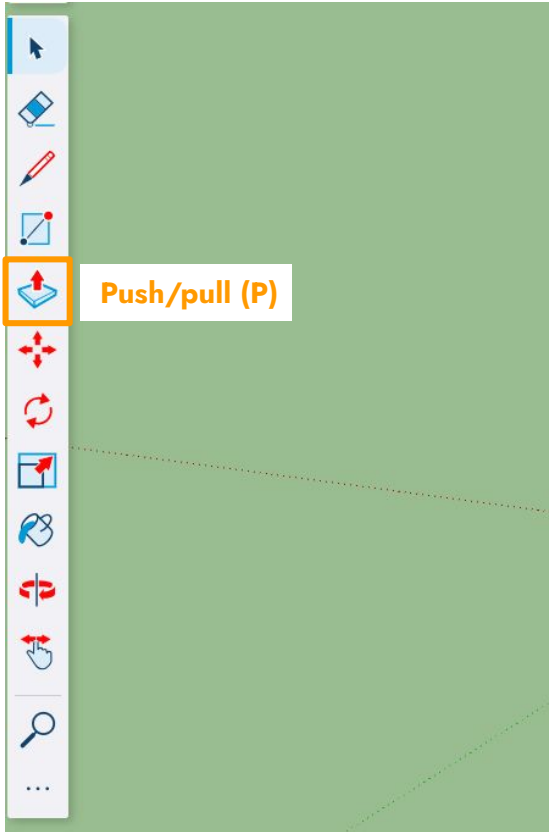
To know: You only need Sketchup to know the **height** of the 3D form. This is why you only need to command one dimension.

Distance 1000 mm

4. Grouping an Object

1. Select the **select tool** or press **(spacebar)** for the keyboard shortcut.

2. **Triple click** on the 3D form - this will select the entire object.

3. **Right click** on the selected 3D form and select **Make Group**.

Entity Info
Erase
Hide

Explode
Select >
Area >
Make Component...
Make Group
Intersect Faces >
Align View
Reverse Faces
Weld Edges
Soften/Smooth Edges

Note: It is incredibly important to make a group of any 3D form you create. The reasons for this are:
- It will allow you to manipulate the form as one. You can move/rotate/scale the form as one object.
- It will stop your object merging with other faces/lines/forms as you build.

To know:
- A **single click** will select only the face or edge.

- A **double click** will select the face and any surrounding edges.

- A **triple click** will select all face and edges connected to the object.

TO EDIT A GROUP: Double click on the grouped object to be able to edit elements within the group.

TO UNGROUP AN OBJECT: Right click on the grouped object and select **Explode.**
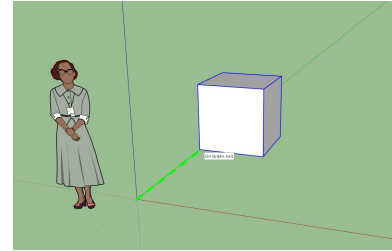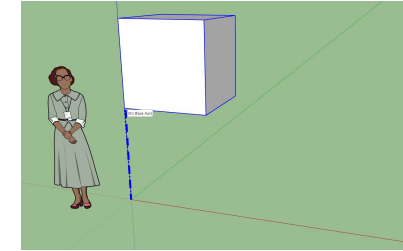
5. Move Tool

Move (M)

→ **Right arrow key**

Tap the **right arrow key**
- the movement of your object will lock onto the **red axis.**
Tap the key again to unlock the movement from the axis.


← **Left arrow key**

Tap the **left arrow key**
- the movement of your object will lock onto the **green axis.**
Tap the key again to unlock the movement from the axis.

↑ **Up arrow key**

Tap the **up arrow key**
- the movement of your object will lock onto the **blue axis.**
Tap the key again to unlock the movement from the axis.

To know: The best method for moving an object is to grab it by a corner point.
You can "snap" objects to other elements in your model when using this method. Rotating your camera angles can be helpful if your object does not automatically snap to a point.)
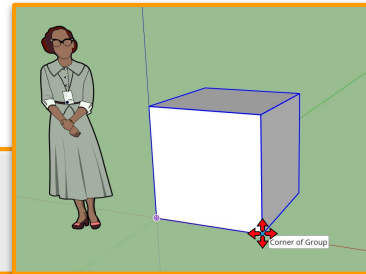
6. Rotate Tool
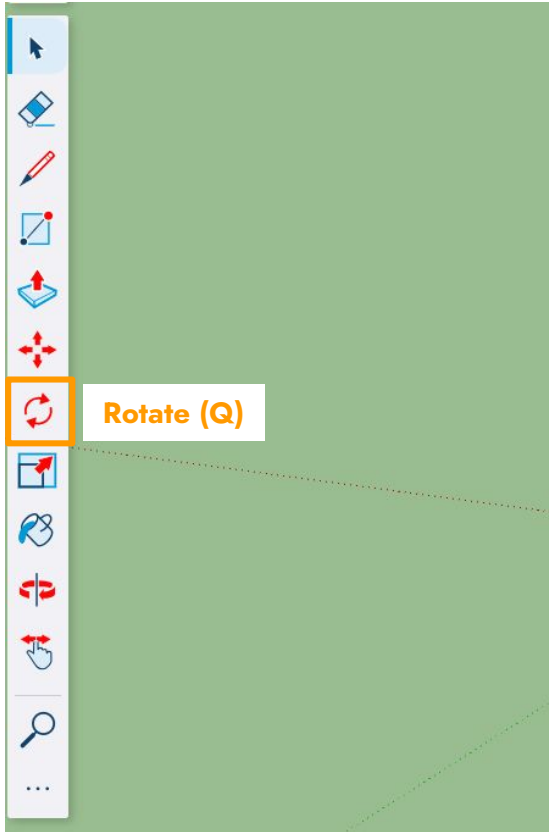
Rotate (Q)

1. Using the **select tool (spacebar),** click on the cube.

2. Select the **rotate tool** or press **(Q)** for the keyboard shortcut.

   You need to provide **two points** of rotation.
   a. Place the **first point** on a corner of your object as the <u>axis point.</u> This is the fixed point your object will rotate around.
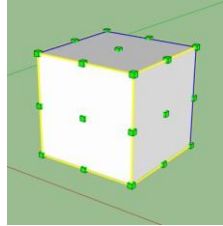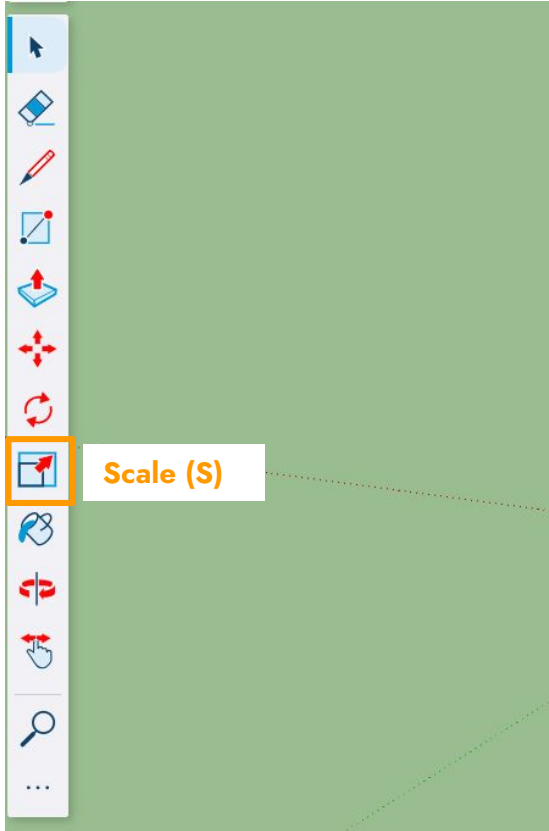   b. Place the **second point** anywhere along the edge of your grouped object to then be able to rotate.

3. Rotate your object.
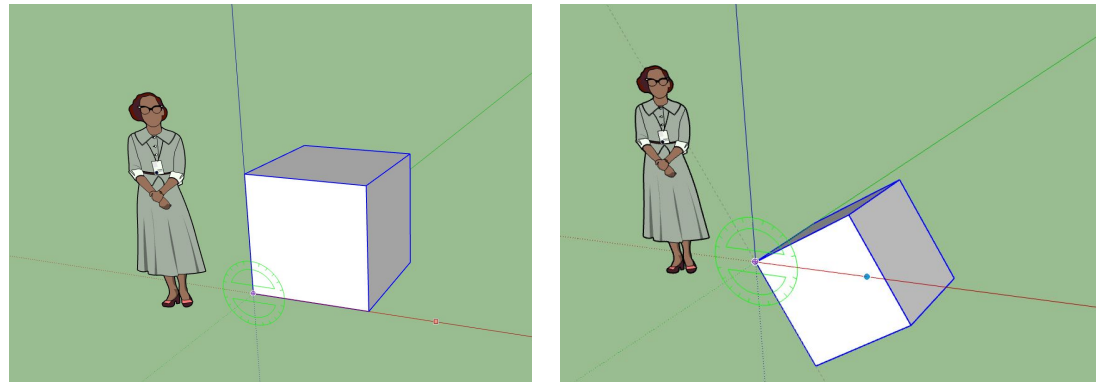
To know: Use the arrow keys to change the orientation of the rotation tool before you place your first point of rotation.

Play: Trial various placements of the two rotation points to see how they can affect the rotation of your object.

7. Scale Tool

Scale (S)

When you select the **scale tool**, your object will have a grid of small green cubes or "points" around it. Each point scales your object in a different way. It could be a uniform scale or squash/stretch.
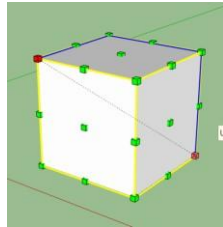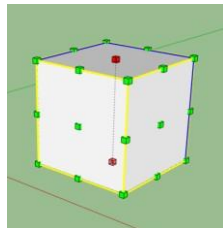

Uniform Scale:

By selecting a corner point you can scale your object whilst maintaining its original proportions. You can scale your object up or down using any corner point.
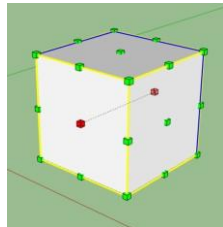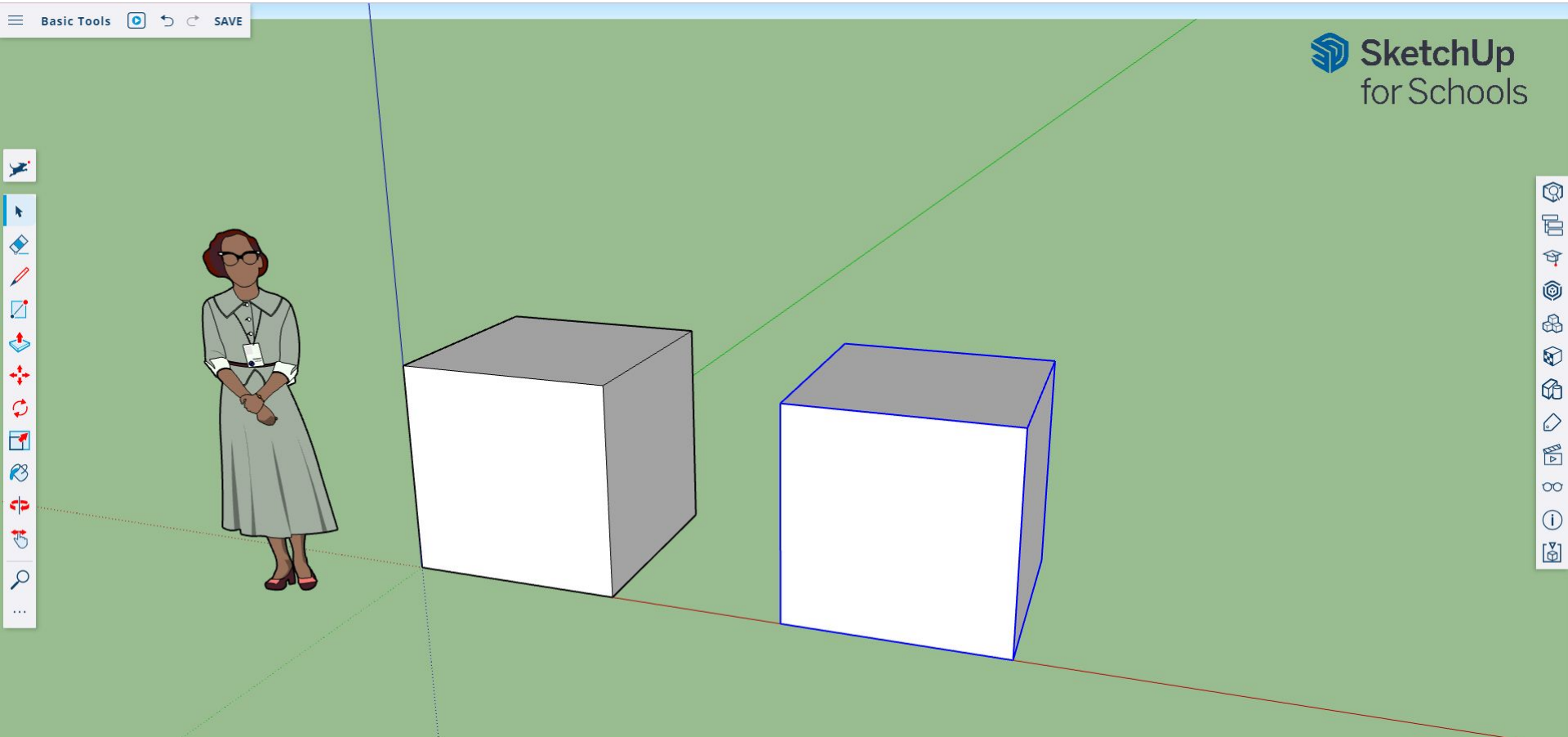

Squash/stretch:

By selecting a point in the center of your object you can squash or stretch it which will change its original proportions.
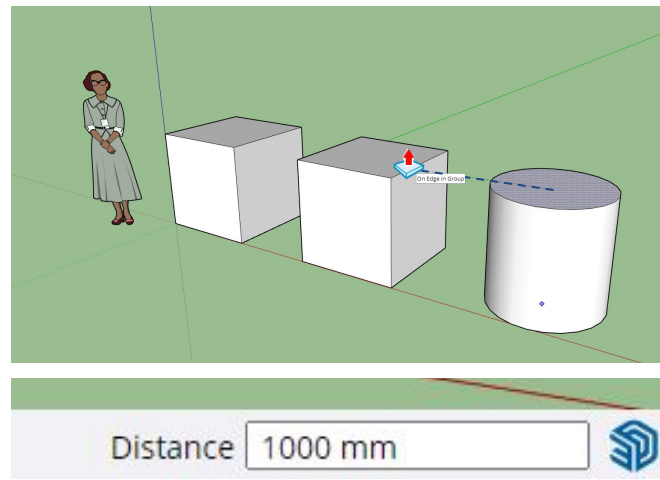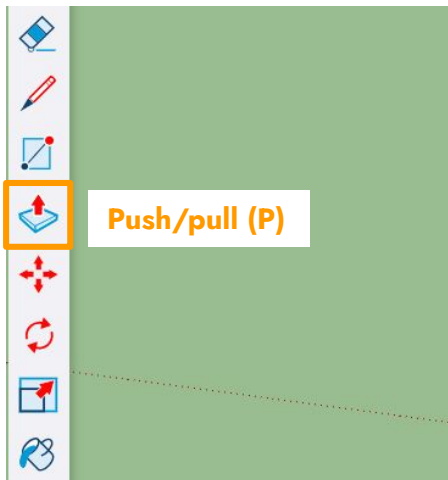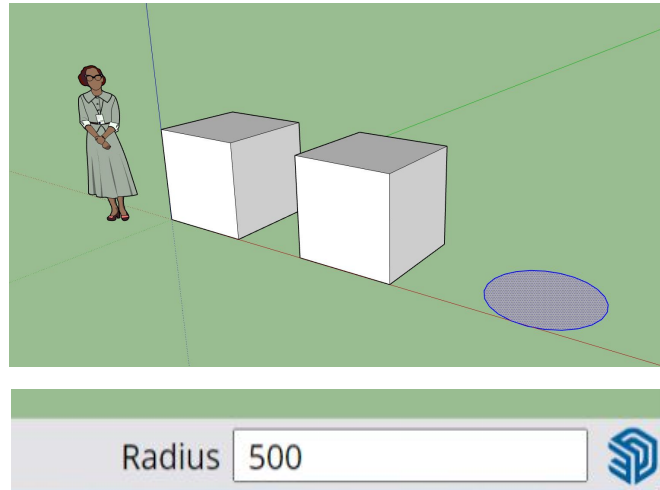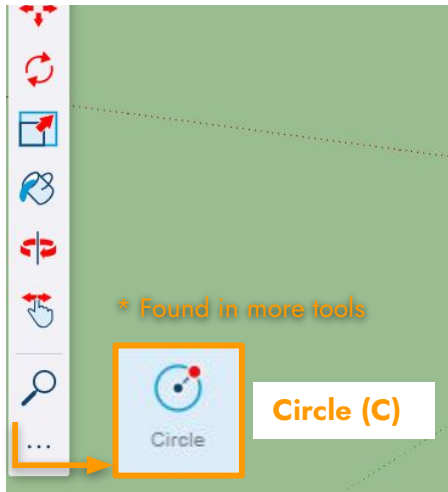

Play: Trial various ways of scaling your object by selecting different points to see how they can affect the way in which your object is manipulated by scale.

8. Copy and Paste

You can make duplicates of your object by selecting it with the **select tool (spacebar)** and pressing **ctrl/cmd+C** (copy) and then **ctrl/cmd+V** (paste) on the keyboard.

9. Creating a Cylinder

* Found in more tools

Circle (C)

Circle

Radius | 500

Push/pull (P)

On Edge in Group

Distance | 1000 mm

1. Select the **circle tool** or press **(C)** for the keyboard shortcut.

2. Draw a circle and start to type "**500**" for the radius dimension.

3. Press **enter**.

4. Select the **push/pull tool (P)**.

5. Select the face of the circle and pull upwards to create a 3D form.

6. Type the dimension "**1000**". Otherwise you can snap your cursor to the height of one of the existing objects.
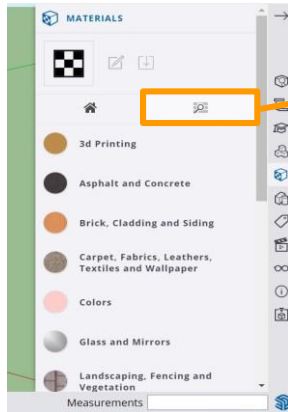
10. Materials

Paint (B)

Sample Material
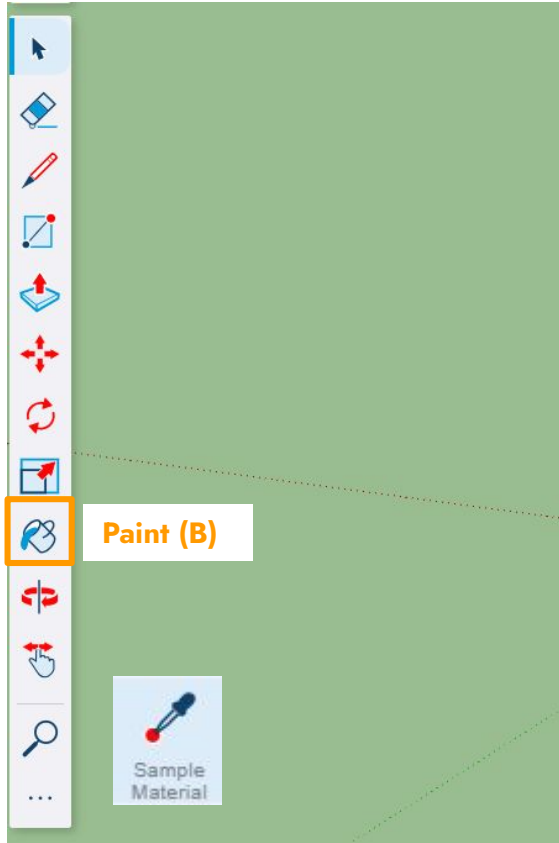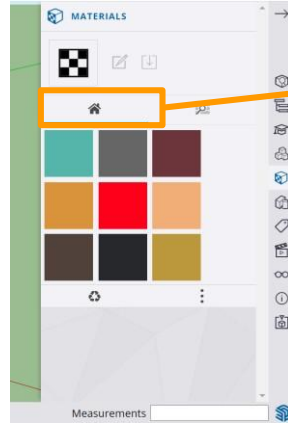
In Model:
In Model shows all the materials that already exist/have been used within the 3D world. You can select any of these materials to use. This is also where you can edit your selected material

Browse:
Browse has a range of material categories to search through. You can select any of these materials to use.

SAMPLE MATERIAL TOOL: The Sample Material tool lets you select a material from an existing object.

10. Materials

Basic Tools   SAVE

SketchUp
for Schools

Click or drag to select objects. Shift = Add/Subtract. Ctrl = Add. Shift + Ctrl = Subtract.

Measurements