

## Lesson 5: Communicating a design

### Objectives:

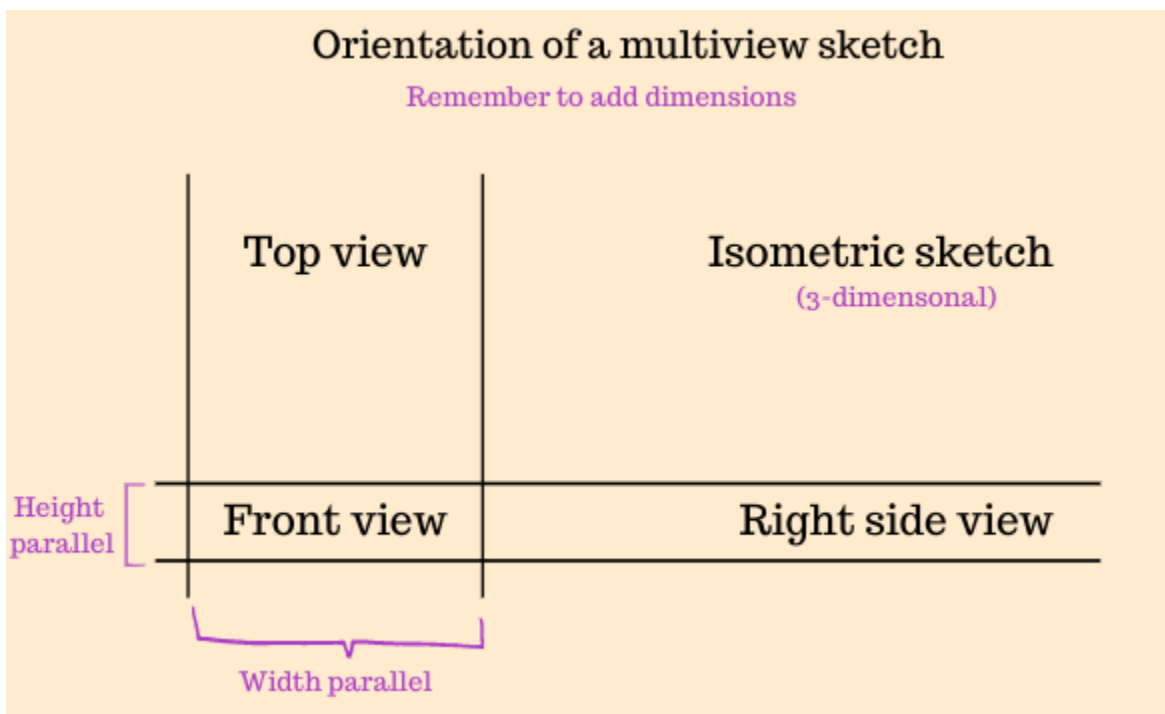
1. Multiview sketches
2. Dimensioning a technical sketch
3. Create document drawing on Fusion 360.

### Introduction:

Multiview sketches are technical drawings that contain specific information about an object's design. If you look at a multiview sketch of a part, you should get a good idea of its dimensions (length, width, height), as well as how all planes of it look and have been designed. You should be able to replicate a design using a multiview sketch as guidance. These are important so that the designer can communicate the exact ideas for manufacturing. The two-dimensional sketches in a multiview drawing are known as 'orthographic projections'. Orthographic projections are viewed and drawn looking at one plane only.

### Observe:

What do you notice about the multiview drawing below? List as many observations as you can.



### Rules for multiview sketches:

1. A multiview sketch includes the top, front and right side views. As seen in the diagram above, these exist in particular locations of the drawing. The 3-dimensional isometric sketch will go in the top right section.
2. Top view and front view width dimensions should be drawn parallel, with lines to mark this.
3. Front view and right side view dimensions should be parallel, with lines to mark this.
4. Multiview sketches should contain dimensioning of the design.

5. All three views in a multiview sketch should be two-dimensional.

### Example multiview sketches

Figure A

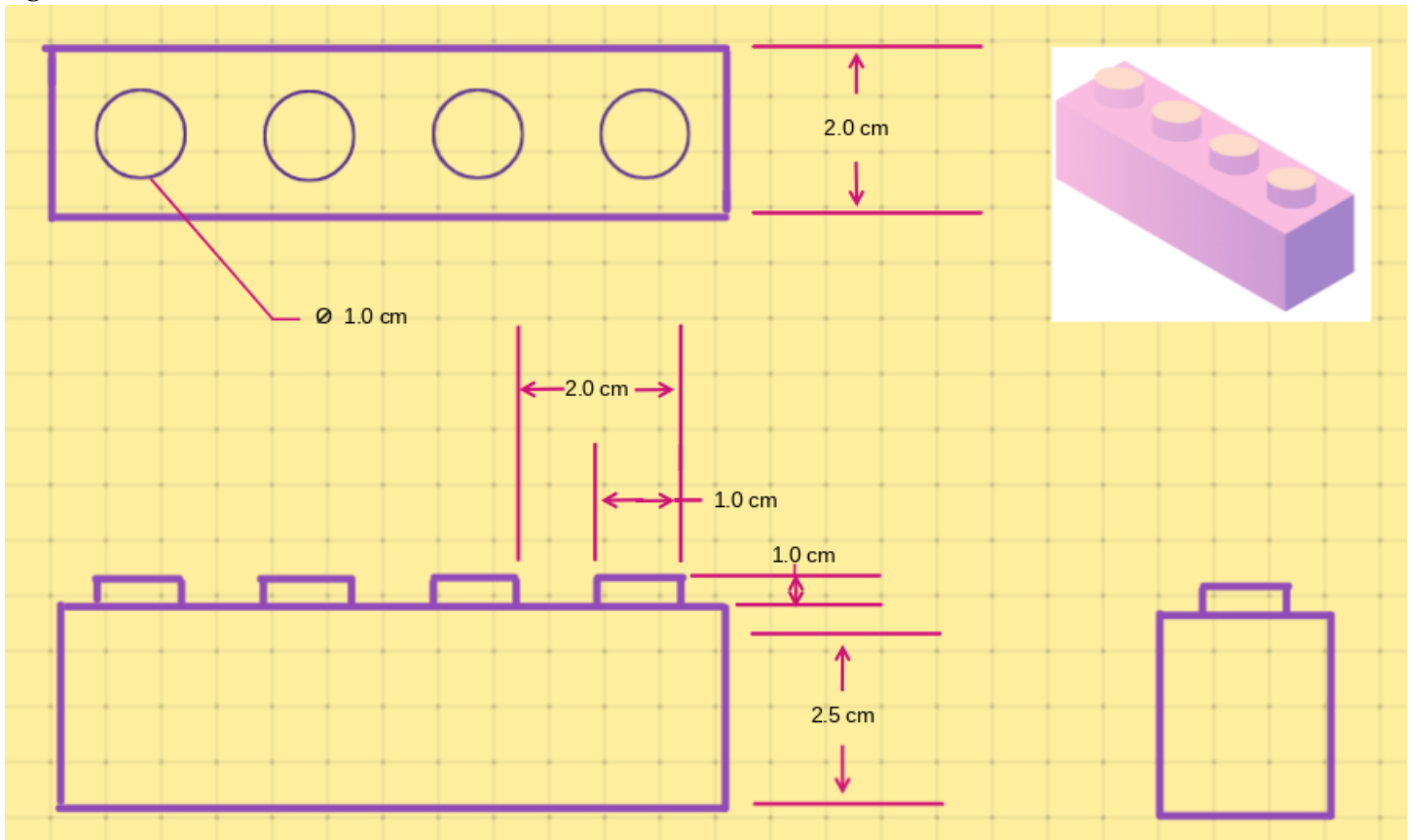
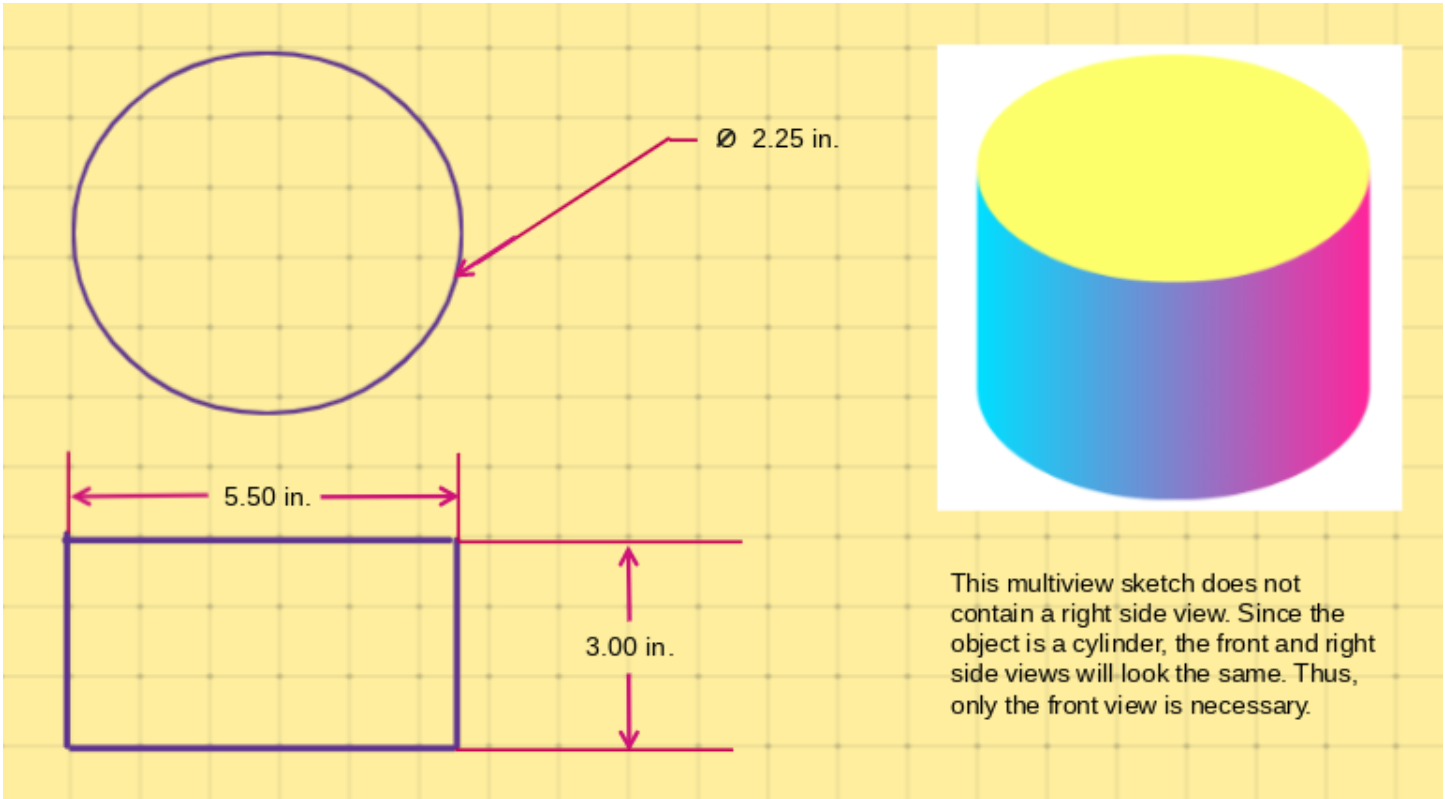
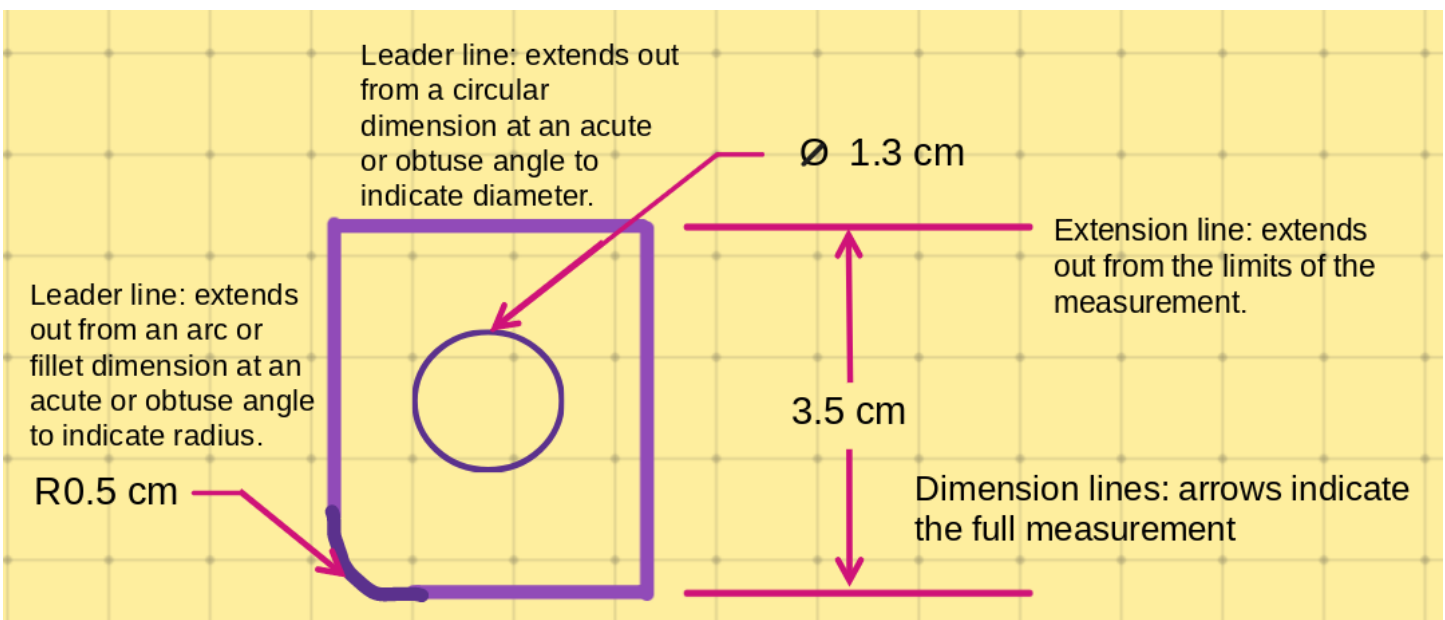


Figure A



### Dimensioning:

Dimensions are measurements that accompany a design in a multiview sketch. This allows you to quantify every detail of the object so that it is replicable by somebody else. In order to standardize technical sketches so they are easier to understand in a wide variety of settings, there are dimensioning standards to follow. Dimensions include particular types of lines that serve to clarify measurements and their locations. Dimension lines appear with arrows and will contain the value of the measurement within it. Extension lines are extended outwards from a measurement to make clear where the beginning and end of the measurement lie. Leader lines are diagonal lines to indicate the measurement of a diameter or radius of a rounded feature.



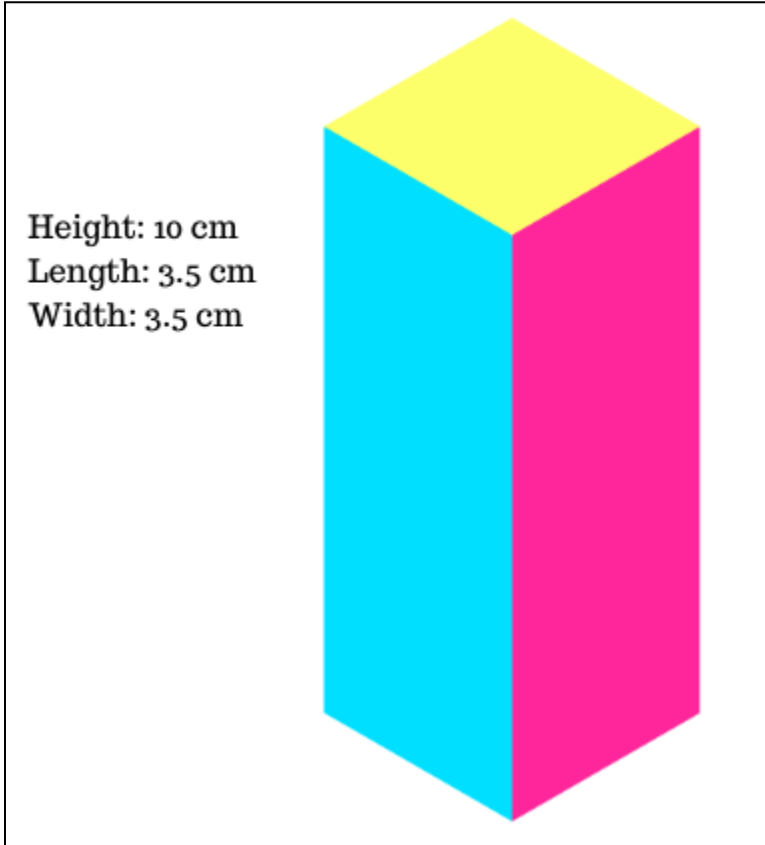
**Simple dimensioning rules:**

1. Measurements drawn should reflect the actual size of the object in real life. (not the scaled size on paper).
2. Try to include as many measurements as possible on the front view first. The measurements that are not possible to show on the front view can then go either on the top view or right side view.
3. Smaller measurements should be dimensioned closer to the object, while larger measurements should be placed farther away.
4. Dimension lines should not cross over one another as this creates confusion.
5. Circles should be dimensioned using a diameter measurement.
6. Arcs or fillets should be dimensioned using a radius measurement.

**Practice:**

Using the following isometric object, create a multiview sketch with dimensions. Hint: It is easier to make multiview sketches with grid paper.

a)



b)

