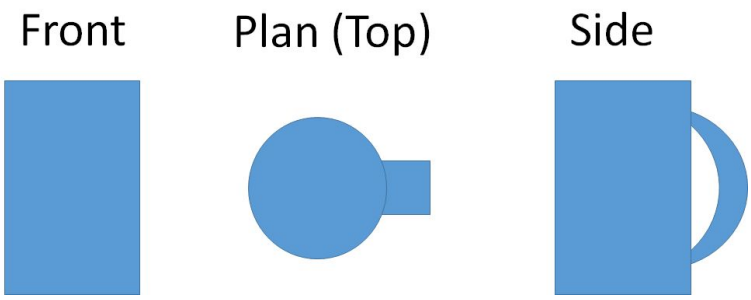
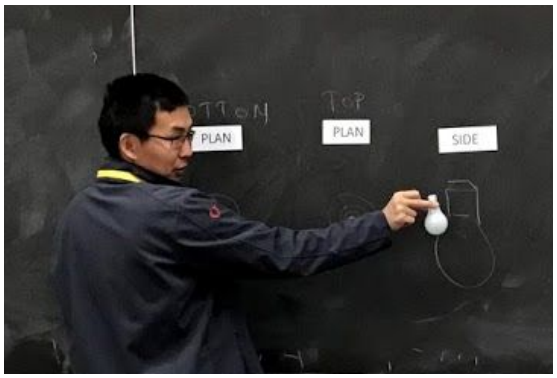
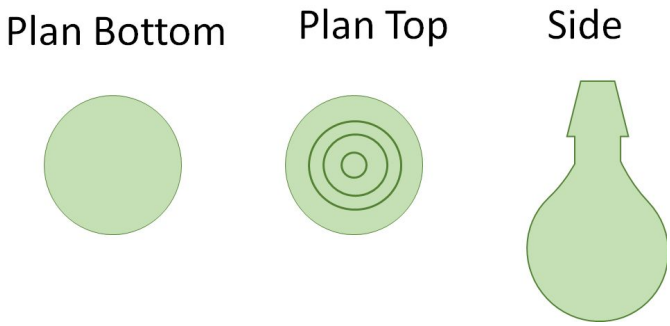
What object is this?

If we knew only one of the views of an object, can we tell which object it is? Let us try: the front view of our 1st object is a rectangle. What do you think it is? A doorway? A house? A notebook standing upright? What if we added in the top view (plan view) of this object, any more guesses? Maybe it is a small tank? Now the final view: the side view. Can you guys tell exactly what this object is? A MUG!



How about our next object? The plan view from bottom, looks like a simple disk. Can this also be a mug, but without the handle? How about a bowl or a plate, or even a frisbee? If we now add the plan view from top, does it any clearer? It really could be a frisbee with many rings after all. Now the final, side view of the object makes it very clear what exactly it was, correct? We had a LIGHTBULB!

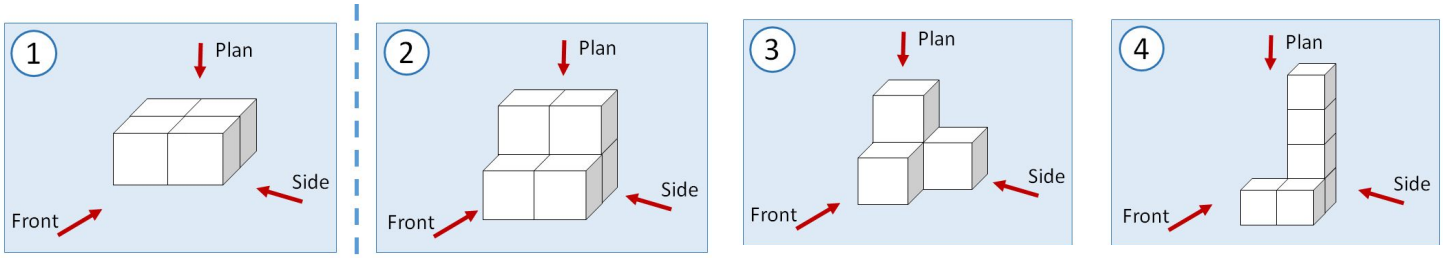


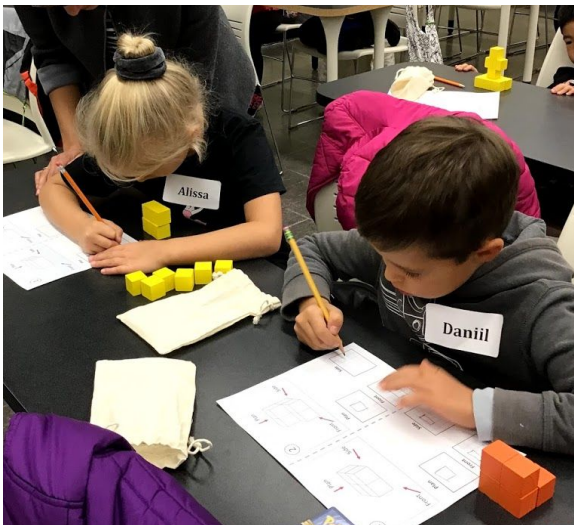


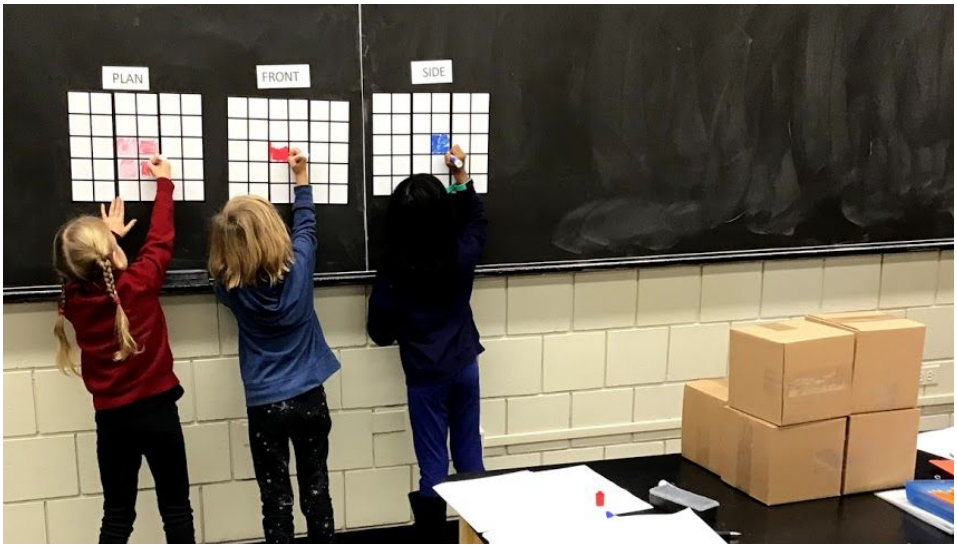
We will now learn to do the opposite: we will take a 3-dimensional object, build it from our cubes, and draw the projections: front, plan and side views! We will star with just 3 cubes.

Than we will make an object out of 4 small cubes arranged into a 2-by-2 square.

- If we look at it from the top (the plan view) how many squares do we see? We see 4 squares arranged into a larger square.
- What if we look at it from the front? Do we all see only 2 squares connected side by side?
- Now let us look at it from the right side. We do see also 2 squares arranged side by side, don't we?







What if our object is not made out of cubes? Can we still draw the front, plan and side views of this object?

Let us try: we have a blue ball (a sphere) sitting on top of a green cylinder.

- What would the plan view look like? A small circle inside a larger circle. Correct?
- How about the front view? An upright rectangle with a circle on top of it.
- And the side view? Exactly the same as the front view! We know this because a sphere look exactly the same from all 3 sides, and an upright cylinder looks exactly the same in 2 of its projections: front and side views.

Let us now draw the 3 projections (plan, front and side views) of various collection of objects we have on our sheets. They are in different shapes and colors, but we do not worry about the colors. We only need to draw the shapes from 3 different sides with a black pencil.