

Illustrator

The Robot

- Build a robot from simple shapes (you can also do a plant, or a cityscape)
- Use simple fills and strokes to present the illusion of 3 dimensional space.

STEP ONE: Open Illustrator and choose File>New

STEP TWO: Choose size: letter

Units: inches

width: 8.5 inches

height: 11 inches

Orientation: Portrait

Click OK.

STEP THREE: press the **D key** on your keyboard. The D key tells illustrator that you want the tools to work with their default color settings. Every object that you draw in illustrator has a default white fill, and a black, one point thick stroke. You can think of fill and stroke as a lake with a fence around the shore of the lake. Both the lake, and the fence (fill and stroke) can have different colors. Additionally, the fence can be thick or thin, dotted or dashed, and the lake(fill) can have a pattern or gradient fill, so an object can get pretty fancy.

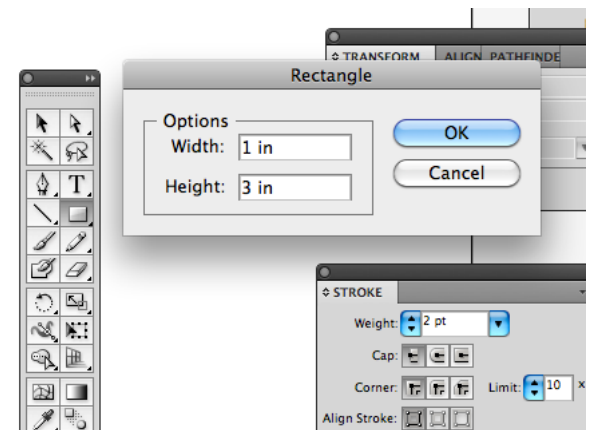
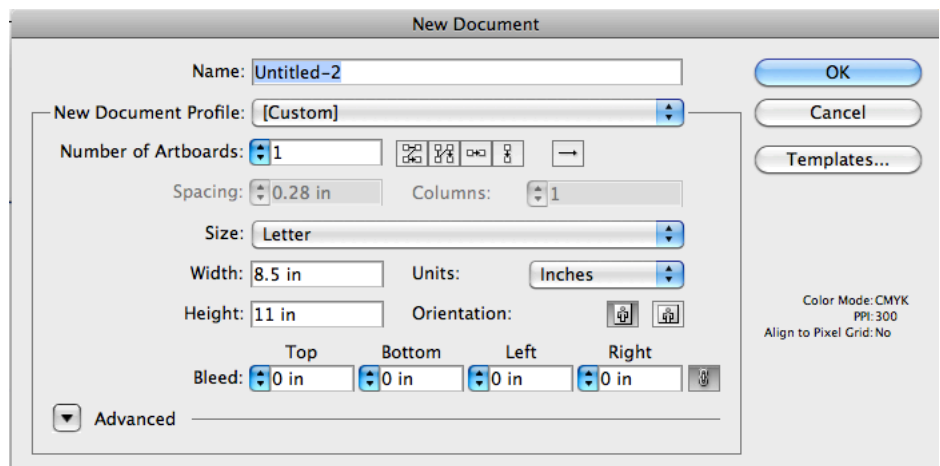
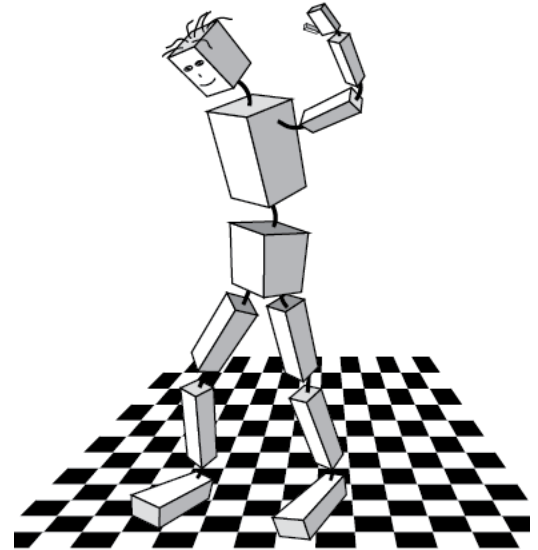
For example, you could have a lake filled with ducks, and a fence made from rabbits. You can also have a shape that has just the stroke (a fence, with no lake inside) and vice versa. You can even have a shape that has no fill or stroke. This means it would be invisible, but Illustrator considers it to still be there, even though it can't be seen.

STEP FOUR: close all your palettes except your tool bar and your layers palette.

STEP FIVE: After you press the D key, choose the rectangle tool and tap with your mouse on the middle of the artboard. (the artboard is the sheet of 8 1/2 x 11 paper delineated by the black border). Tapping, or clicking once and releasing, tells Illustrator that you want it to draw the rectangle for you, to the precise dimensions you enter in the resulting dialog box, shown to the right.

STEP SIX: enter a width of 1 inches and a height of 3 inches. If Illustrator is using some other unit of measure, close the file and re-read step 1 & 2 (**you have to set the units to inches**). You can also force Illustrator to think in inches by manually entering "in" after the numbers. In other words, even if Illustrator insists on using pts, or millimeters, by typing "3 in" in the box, it will get it right.

NOTE: You can also drag with the rounded rectangle tool to make your oval-shape and control the roundness of the corners by pressing the up and down arrow keys on your keyboard as you drag out the oval.



Start with simple rectangles

STEP ONE: Bring the stroke swatch to the front in the toolbar by clicking on it. For any selected object on the artboard, you can edit the stroke, or the fill, but not both simultaneously. Open the stroke palette (window>stroke) and tell the stroke to be **2 pts** thick.

NOTE: A point is 1/72 of an inch.

STEP TWO: Turn on Smart Guides: **view>smart guides**. Smart Guides allows illustrator to assist you with tool tips and snapping as you drag and position objects on the artboard.

STEP THREE: Create a duplicate of the rectangle and set it directly above the first rectangle, so they are stacked. Here are some tips for doing this efficiently: Choose the move tool (v) and position the tool over the bottom of your rectangle. Press and hold the alt key down. Begin dragging upward while continuing to hold the alt key down. Use another finger to hold down the shift key. Holding down alt and dragging on an object creates a duplicate, adding shift forces the duplicate to drag in a straight line. Smart Guides will tell you when the edges of your rectangles intersect precisely.

STEP FOUR: Drag another duplicate rectangle to the right as shown.

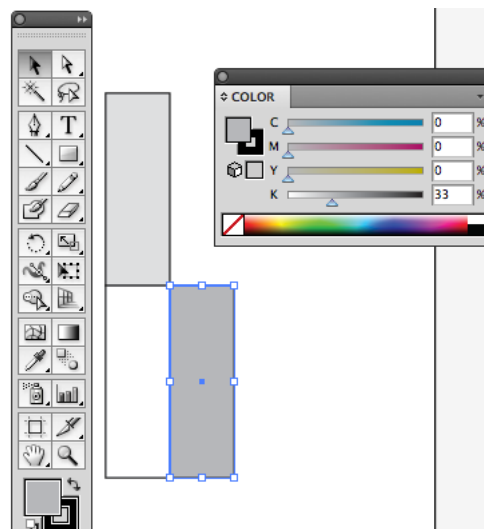
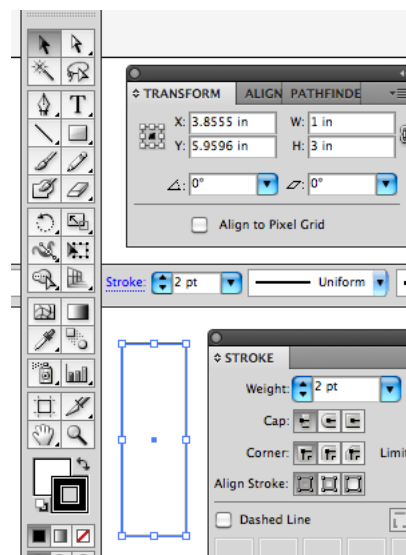
STEP FIVE: Using the black arrow, touch the top rectangle. We need to change the fill color, so make sure that fill is the active swatch on the toolbar. Open the color palette: window>color. The color palette should be showing CMYK sliders (Cyan, Magenta, Yellow, Black). If it isn't, use the flyout menu in the top of the color palette to select CMYK color mode. Finally, slide the black slider over to **14 percent black**.

STEP SIX: Select the right hand rectangle. Adjust it's fill color to be 33% black as shown.

STEP SEVEN: select the right rectangle. Drag

STEP EIGHT: Click on the top shape and shrink it down by grabbing it's top edge. If you can't resize it, turn on bounding box by going to view>bounding box. Occasionally Illustrator goes into auto hide mode, and you may think it has frozen up. Try pressing Ctrl + H, which is the keyboard shortcut for view>hide edges.

STEP NINE: zz



Convert rectangles to a 3D column

STEP ONE: Choose the lasso tool and lasso the intersection of the three rectangles. Choose the white arrow and pull the intersection down and slightly to the left as shown.

STEP TWO: With the white arrow, grab the top right hand corner of the top box and drag it down and right until it intersects the top right hand corner of the right hand box, as shown. It should snap into place assuming you still have smart guides active.

STEP THREE: Continue lassoing the corners of the boxes and dragging until you have your shape looking like this 3d column. Note, by lassoing the intersection of the three boxes, you are actually selecting 3 different points at the same time. The points lay exactly on top of each other, so it appears you are selecting just one point, but it is actually 3 points from three separate rectangles that are moving together.

STEP FOUR: drag a marquee around the entire shape with the black arrow and choose object>group.

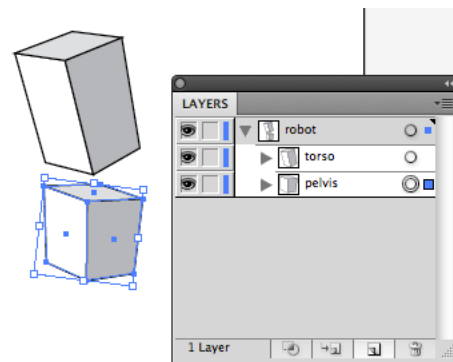
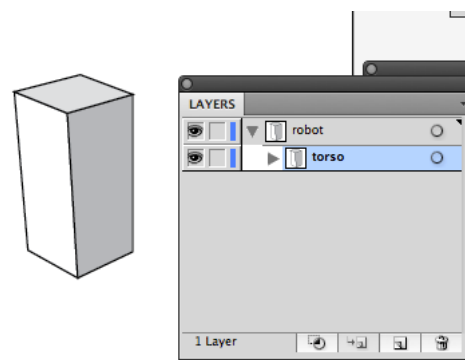
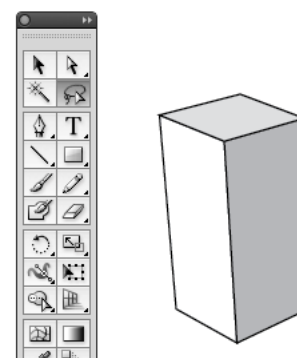
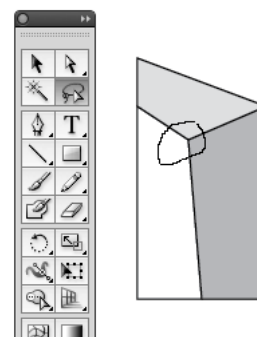
STEP FIVE: Unfold your layers palette if you haven't already and examine what is in there. You should have a top level layer, also called a master layer named layer 1. Inside that is a layer named group. The "group" layer was created and named in the previous step. Change the name of the top layer, layer 1, to read **robot**. Change the layer named group to read **torso** as shown.

STEP SIX: Take your black arrow and drag out a duplicate of the torso artwork. Look at your layers palette and note how illustrator has created two torso layers.

STEP SEVEN: touch the lower shape on the artboard. Note how Illustrator puts a double circle in the layers palette to indicate which layer is selected on the artboard. Name the lower layer pelvis.

STEP EIGHT: Click on the pelvis artwork with the black arrow and shrink it down by grabbing the resize handles on the bounding box. You can also rotate either the pelvis or the torso by moving the black arrow to the corner of the bounding box and rotating when you see the rotate cursor.

STEP NINE: I see now that the top of the pelvis should be darker, since it is being shaded now by the torso above it. Take the white arrow and click the top of the pelvis. Make sure that the fill swatch is forward on the tool bar. Go to the color palette and choose a darker gray: 50% black.



Duplicate the column to make a torso

STEP ONE: Deselect everything (select>deselect). Choose the pencil tool. Put a red slash in the fill, and tell the stroke to be 5 pts thick black. Draw out a little arc that connects the pelvis to the torso. Name the layer "spine above pelvis" and drag it in the layer palette so it is between the torso and pelvis layers. Be careful as you drag. Don't drag it into either of those layers, it needs to be on it's own distinct layer as shown.

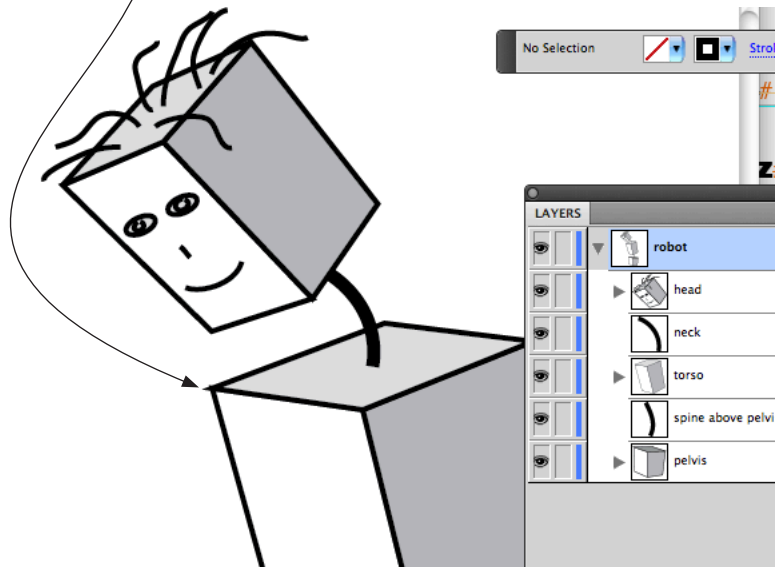
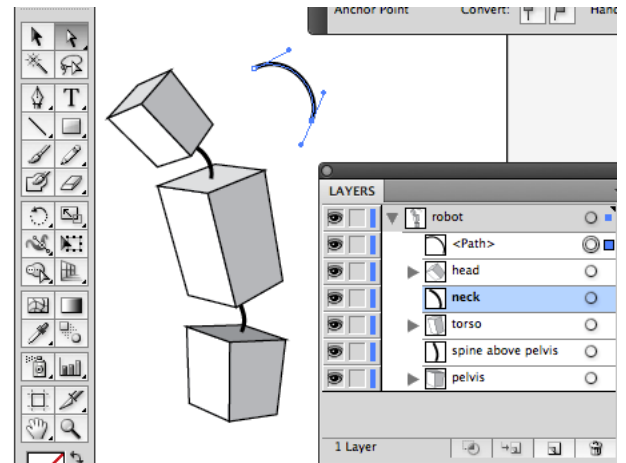
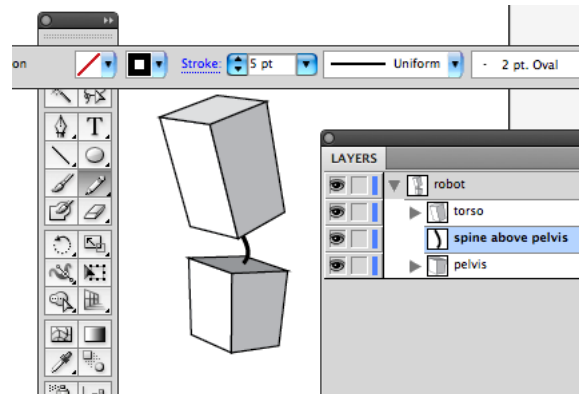
STEP TWO: drag out a duplicate of the torso. Shrink and rotate until it looks like a head.

STEP THREE: creating and adjusting the curvature of the neck can be tricky. You can probably get it by drawing repeatedly with the pencil until you get lucky, but the easiest way is to use the pen tool. Click and drag to place a point with two smooth bezier curve handles. Then click and drag again to place another smooth point a short distance away. Switch to the white arrow and pull on the bezier curve handles until you have the curve shape you want. Then switch to the black arrow and drag the "neck" into place. I will cover this in more detail during the lecture.

STEP FOUR: Zoom in on the head and add some eyes and a mouth. If you notice the corners of the strokes sticking out of the "boxes", or "planes" that form the shapes, you can fix it by lowering the "limit" value in the stroke palette. Note, you have to use the white arrow to select the plane (side of the box) in question.

STEP FIVE: Carry all the layers that make up the head decorations into the head layer. You should be able to hide visibility for the head and see the entire head disappear, eyes, hair and all.

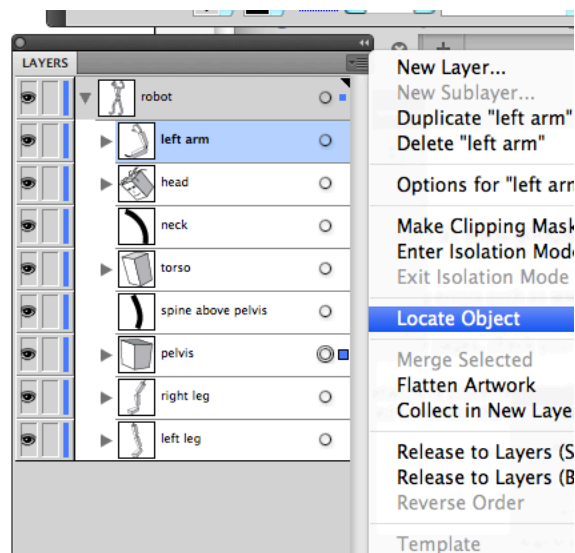
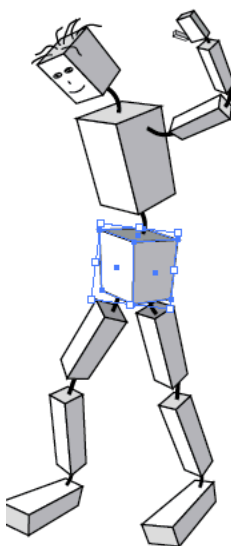
NOTE: I have intentionally avoided trying for ultra realism in this illustration. Illustrator excels at cartoon style illustrations, they are not supposed to look entirely real. If you need total realism, use Photoshop, or 3D Studio Max.



Add body parts

STEP ONE: Continue duplicating your body parts. Each time you dupe a part, resize and rotate into place, then name the layer. For the hand, I started from scratch with three boxes, though the thumb is made from a dupe of the torso, shrunk down. I made the feet by duping a leg, then flipping it over and rotating it 180, then stretching out the toe box by lassoing the related points.

STEP TWO: When you finish a limb, like a leg, use the black arrow to marquee drag select all the parts, then choose **object>group** (Ctrl+g). To make the other leg, simply drag out a dupe of the leg group. Don't forget to rename the parts of the leg inside the dupe leg group for right or left thigh and calf, etc.



STEP THREE: If you touch something on the robot, and need to quickly find that layer in the layers palette, click the flyout menu in the top right corner of the layers palette and choose: **locate object**. Illustrator will jump to that layer and turn it blue.

STEP FOUR: fold up, hide and lock the robot layer. Make a new top level (master) layer named floor.

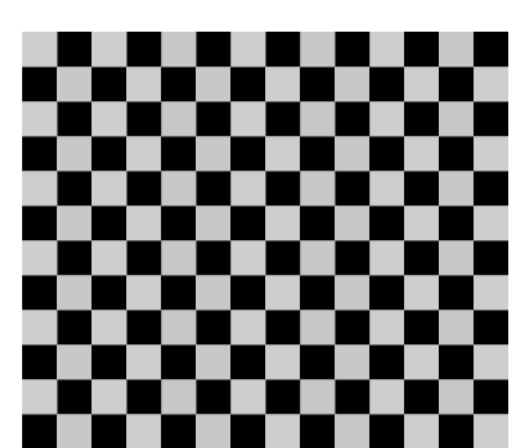
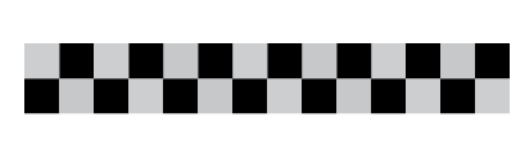
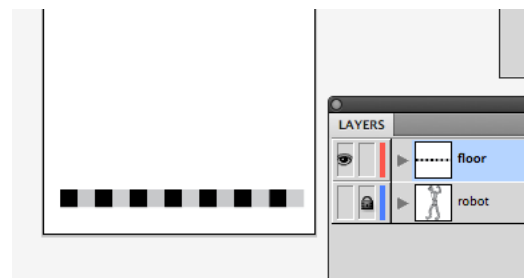
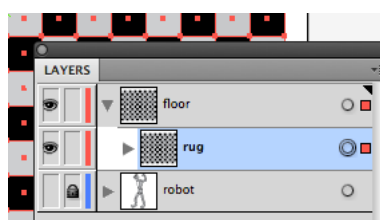
STEP FIVE: draw a black one half inch square with no stroke. Turn on smart guides, and, as we've done before, alt+shift drag out a duplicate black square and use smart guides to snap it right beside the first one. Color the new square light gray.

STEP SIX: select both squares together with the black arrow, and alt+shift drag out a duplicate of the two squares, setting them down right next to the first two squares. Continue dupeing out your squares until you have a row going all the way across the page as shown.

STEP SEVEN: Use the black arrow to select the entire row and alt+shift drag up a dupe row. Select the dupe row, and then rotate the entire dupe row 180 degrees. As you come around the rotation, hold shift and illustrator will snap the rotation to exactly 180 degrees. It should fit perfectly as shown.

STEP EIGHT: dupe the double row of squares until you have about 12 rows as shown.

STEP NINE: select all the rows, and choose **object>group**. In the layers palette, name the group: **rug**.



Make a 3D floor with free distort

STEP ONE: Select the squares (you did group them right?). Choose effect>distort and transform>free distort. Grab the corners of the free distort box and pull them down and inward as shown. You can do it again if it doesn't work. Click ok.

STEP TWO: Fold up the floor layer and drag it under the robot layer. Turn on the robot layer visibility.

STEP THREE: if you need to get back into the free distort to adjust the "rug", touch the rug on the stage, open the appearance palette (window>appearance) and double click the "fx" on the free distort layer of the appearance palette.

STEP FOUR: I didn't really mean for the non black squares to be gray, I meant for them to be white. Touch one of the gray squares with the white arrow. It's ok that they don't appear where they really are. It's the live, editable free distort effect that is making the weirdness. Just watch the fill swatch in the tool bar to see what is selected. When you have a gray square selected, choose: select>same>fill color. That should light up most of the white gray squares. Eyedrop the white swatch in the color palette to turn them all white. You may have to do this twice.

STEP FIVE: Speaking of swatches, choose: window>swatch libraries>color books>pantone solid coated.

STEP SIX: That is where all the cool colors are hidden in Illustrator. You can drag them onto your artwork or select paths, and then click the swatch, just remember to pay attention to whether you are changing the color of the fill, or the stroke of the path you are changing.

