

# 12 Rhino Demo and Sketching

Saturday, February 20, 2016 10:51 PM

## Today

Rhino software demo by Andres Gruber

Some sketching

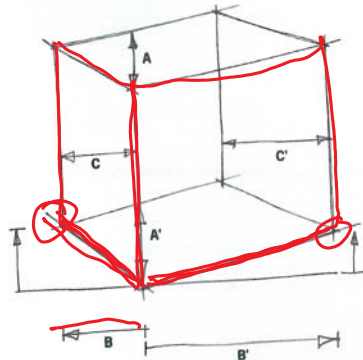
Team Time: discuss your main project ideas

Monday start 20th Century Timeline

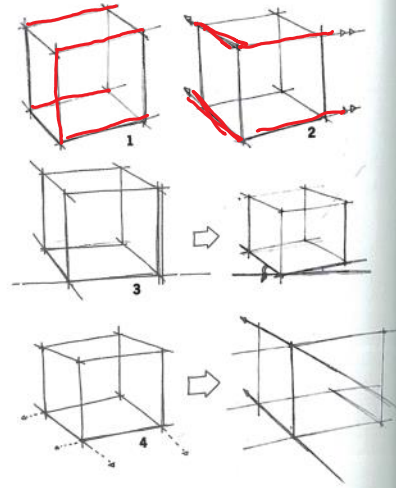
Weds: Guest speaker Adam Agee, industrial designer, on role of sketching

To verify whether the cube you have drawn is in correct perspective or not, several quick checks can be made:

- Compare the shortening of the top surface with that of the ground surface; the top surface should be 'flatter', as it is closer to the horizon (see A, A').
- Check the two angles of the ground line with the horizontal line; they should differ, as should the width of the two vertical sides (see B, B').
- The most foreshortened vertical side (here on the left) should be much smaller than its opposite side (see C, C').
- Only in the case of a cube, the corner on the most foreshortened side should be 'higher' than that of the less foreshortened side.

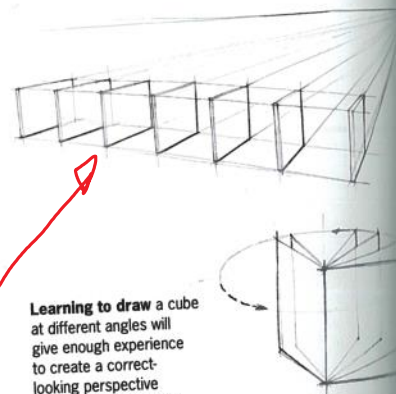


When the block you have drawn is incorrect, it is important to find out why, and try to avoid making the same mistake again. Here are some common beginners' mistakes. Starting at the top left, there is a block shape (1) using parallel lines instead of perspective convergence, an axonometric image. Next to it is a shape (2) where the amount of convergence is estimated incorrectly. The vanishing point on the left is closer, so lines in that direction should converge more than those in the right direction, not the other way around. Block (3) shows a one-side frontal view, so it should actually be a central perspective, and not show the left side. It can easily be avoided using a horizontal guide line as you see next to it. The last block (4) shows an incorrect perspective of the ground surface. It may help to extend and use the lines already there as a guide when you draw the ground surface.



As horizontal surfaces of a column get closer to your horizon, the more foreshortened they become.

As vertical surfaces get closer to the vanishing point, the more foreshortened they become.



Learning to draw a cube at different angles will give enough experience to create a correct-looking perspective drawing. Keep this rule in mind: never exceed the measurement of the closest vertical. The width of the book's pages appears much smaller and foreshortened as the pages turn.

In this picture you see perspective distortion due to the fact that the third vanishing point is above the horizon, but also used incorrectly for every vertical below the horizon (see 3-point perspective rule). It is, however, subordinate to the spatial effect due to the effective use of perspective colouring and contrast.



Exercise 3: Draw a stack of horizontal and vertical surfaces. Note the foreshortening, how a surface narrows as the surface normal moves away from the central perspective.

Exercise 4: Draw a rotating cube in flip book format, maybe at the corner of your sketchbook. Have

something come out of the cube at the end for fun.