

Why Is Sketching Important

The process of engineering begins with an idea. The ability to communicate many technical ideas requires a translation from thoughts into pictures. A quick way to share an idea is through a technical sketch. Technical sketching is a tool used by engineers and inventors. If the idea turns out to be a good one, these first sketches are turned into detailed CAD drawings, or solid models, which include measurements and other critical details. From the initial sketches, the first prototypes can be developed. The freehand sketch is the first step taken to turn an idea into reality.

Developing Proper Sketching Technique

All two dimensional pictures can be broken into straight lines and curved lines. The next couple of exercises will help the novice to develop good sketching technique. We will start by practicing straight, parallel lines.

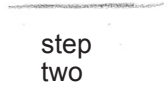
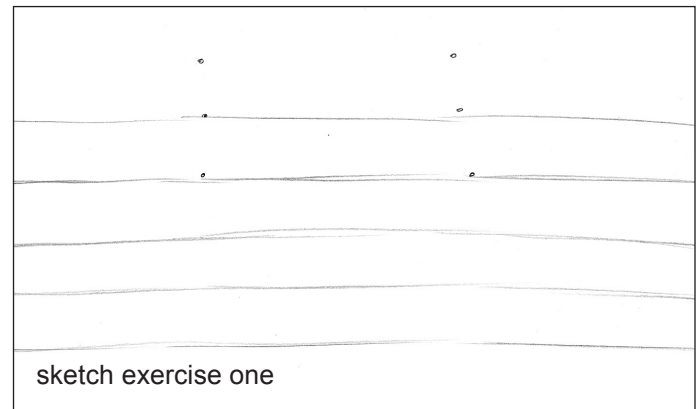
Things to remember:

1. Hold your pencil loosely.
2. Lock your wrist and move your whole arm as you sketch your straight lines.
3. Guide the pencil with your eye by continually looking toward where you would like the pencil to go
4. Keep your lines light and consistent.

Straight lines

Sketch exercise one

Begin by selecting a sharp pencil and a blank piece of paper. In this sketching exercise you will sketch straight light lines. Keep your lines evenly spaced all the way down the paper. Initially, you may want to place a couple of light points that you can use as guides. Soon you will be sketching straight light lines easily. Remember to look toward where you would like the pencil to move. Keep all lines light. Hold the pencil loosely.

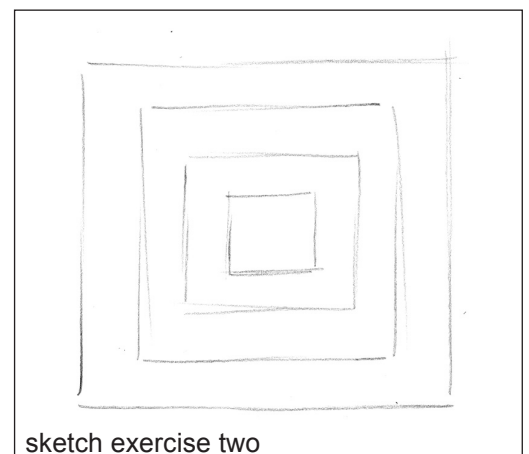


Sketching a Square

1. Sketch the top of the square, keep the line parallel with the top of the paper.
2. Sketch the bottom of the square. Keep the line parallel with the first line.
3. Sketch the side. Keep the line perpendicular to the first two lines.
4. Sketch the last line. Make sure that the last line is sketched in a position that makes both sides of the square equal.

Sketch exercise two

Begin with a scrap, blank sheet of paper. Sketch a small square in the middle of the paper. Sketch another square around the first square. Maintain an equal distance between squares.



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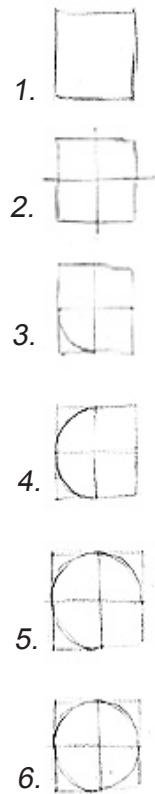
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Sketching Proportionally Correct Curves and Circles

You do not have to be an artist to accurately and neatly layout your ideas using technical sketching methods. A good example of layout is demonstrated at the right - laying out a circle. A circle fits perfectly into a square. In order to draw proportionally correct circles use the following sequence:

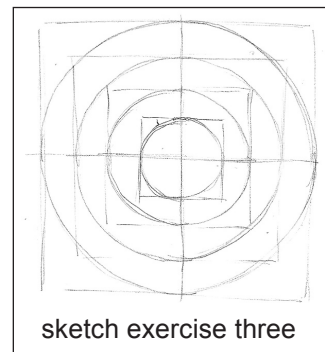
1. Begin by sketching a square.
2. Divide the square into four even areas.
- 3.- 6. Complete the four semi-circles.

Note: Remember to keep all of your lines light. Darken your lines when the sketch is correct.



Sketch exercise three

This sketching exercise is designed to give the beginner practice sketching straight and curved lines while keeping lines evenly spaced. Start by sketching a square in the middle of your paper, then continue to add squares and circles until the paper is filled.

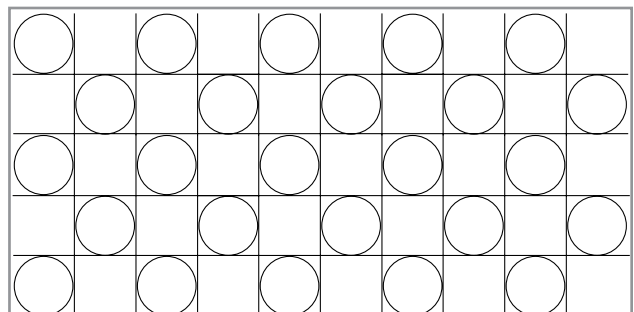
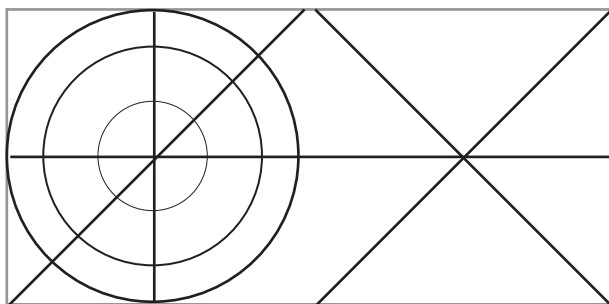
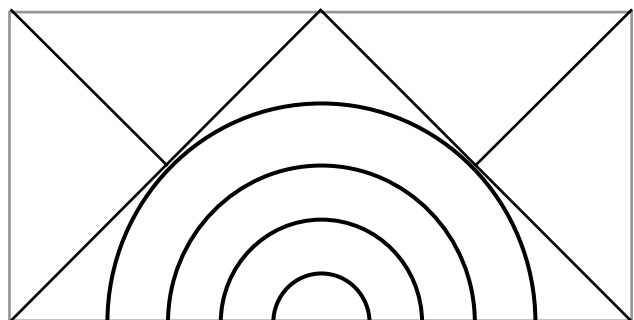
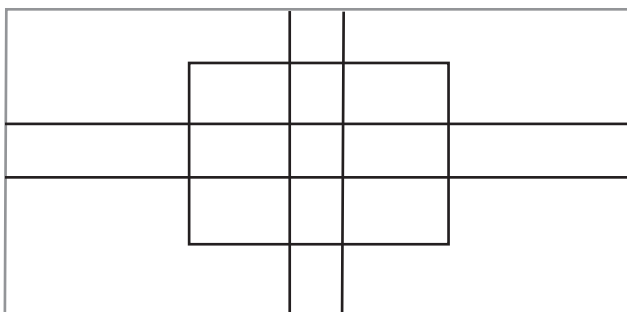


Additional Sketching Exercises

Use blank sheets of paper to sketch the shapes shown in the boxes below. You will need a sharp pencil. For extra independent practice sketching simple objects in the room.

Things to remember:

1. Don't grip the pencil too tightly.
2. Keep developmental lines light.
3. Darken object lines when your drawing is complete.
4. Maintain proper proportion.
5. Keep your drawings neat.



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