

Pre-Engineering- Week 7 offline activities

*Take photos for evidence

Activity #1 (Please use adult supervision)

Step 1- Locate an old small electronic device that NO LONGER functions (Radio, computer, game system, cell phone etc)

Step 2- Make sure the device is NOT hooked to a power supply. Then, using small screwdrivers, pliers, etc. take apart the device as far as you can in as many pieces as you can without damaging any parts.

Step 3- Try and identify at least 5 parts inside (Motors, Resistors, Capacitors, LED light bulbs, Speakers, etc) Think back to our Electronics unit!

Step 4- Reassembly! Using your memory, put back all the parts, screws, bolts, nuts, etc in their proper place without damaging any component so that it looks identical to how it looked prior to disassembly.

Activity #2

Knot Tying

*Being able to tie different knots can really benefit an Engineer or anyone in many different life situations.

Step 1- Locate a couple ropes, shoe strings, paracord, or something that can be tied in knots

Step 2- Practice the knots below. These are just a few, MANY knots are not listed. If you enjoy learning these please research additional knots.

Knot #1



Clove Hitch

The Clove Hitch is an easy knot to tie, and it secures a line to a tree or post quickly, but it does slip when used alone, without any other knots as a backup.

How to Tie a Clove Hitch:

To create a Clove Hitch on a tree, make a loop of rope around the tree. Then make another loop and pass the free end of the rope under the second loop before tightening. To tie this one over a post or stake, just create a loop in the free end of the rope and slide it over the post. Then make another loop the same as the first. Put the second loop over the post (just above the first loop) and tighten the hitch.

Knot #2

Fisherman's Knot



True to its name, the Fisherman's Knot, is pretty much only good for using with fishing line.

How to Tie a Fisherman's Knot:

Pass the free end of the line through or around the object to be secured, for example, through the eye of a fishhook. Then, wrap the free end of the line around the other side of the line about five or six times. Pass the free end of the line through the triangular opening next to the object being secured, and then pass the free end of the line through the large loop you just created by going through the small triangle. If you are tying this one with a fishing line, spit on the line before tightening to lubricate it so that the friction does not cause heat damage to the line. Tighten the knot, trim off any extra line and enjoy your day fishing.

Knot #3

Square Knot



Use a square knot to join a cut rope back together, or to create a loop of rope around something (like a bundle of sticks). The square knot is a classic for connecting lines and tying knots. Whether you are tying two ropes together to make a longer rope, or you are tying up a bundle of firewood to carry, the square knot is a winner. It's much more secure and stable than its cousin the granny knot, which everyone is probably familiar with as part of tying their shoes.

How to Tie a Square Knot:

You can tie a solid square knot by lapping one rope right over left, then underneath the other, and then tying the same again in the reverse direction—left over right and then underneath. You'll know you did it right when the working end and standing end of each rope is side by side (not making a "cross" like a granny knot).