

**Knowledge Domain: Electrical Simple**  
**Unit: Connections**  
**Skill: Heat Shrink Tubing**

**Tools and Parts Required:**

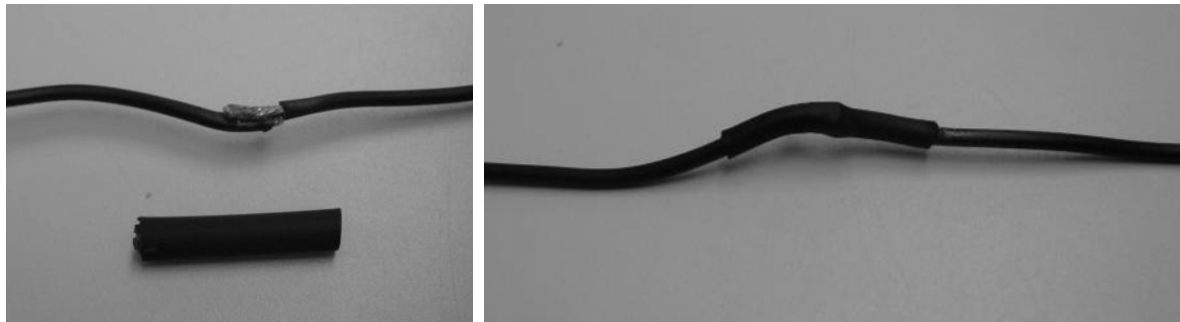
- 1) Heat shrink tubing
  - 2) Lighter (or soldering iron)
  - 3) Soldered joint or wires
- (you may use the soldered wires from 'Soldering')*

**Introduction**

Heat shrink tubing provides electrical insulation without using electrical tape. Heat shrink tubing can provide a way to cover components neatly.

**Example**

Below is a picture of a soldered joint before and after application of heat shrink tubing.



**Identification and Diagnosis**

Use heat shrink tubing to insulate exposed wires. Use large tubing to cover groups of wires or small components. Heat shrink tubing protects against abrasion or other environmental influences. Heat shrink tubing may be used for strain reduction at a joint or connection. Heat shrink tubing easily covers bulky or unusually shaped objects.

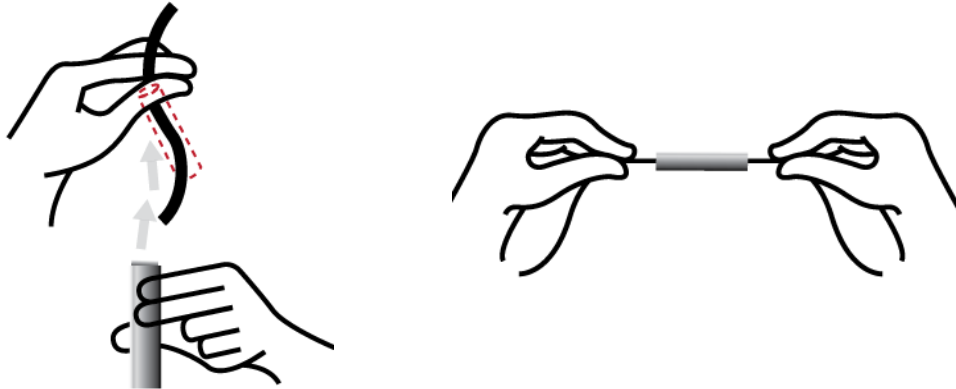


Heat shrink tubing is manufactured in a variety of sizes.

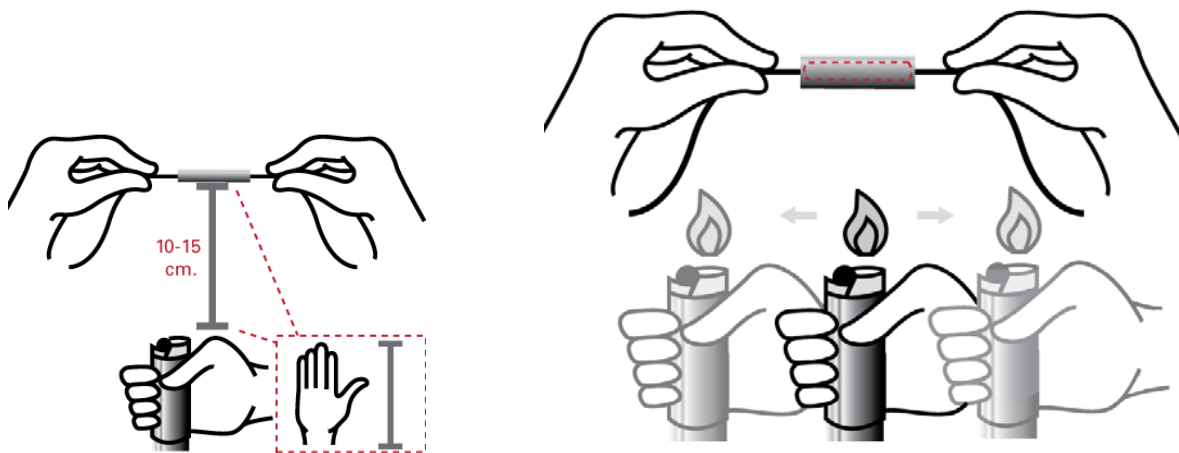
## Procedure

First, you must select the correct heat shrink tubing. Use the smallest diameter heat shrink tubing that will slide easily over the joint. Cut the tubing to the correct length. Heat shrink tubing should cover all the exposed areas with at least half a centimeter of excess tubing on each side.

Slide the tubing over the area to be covered. Position the tubing carefully. You will not be able to move the tubing after the tubing has been heated.



Use a lighter to heat the tubing evenly. Do not place the tubing directly in the flame.



You may use the wide part of a soldering iron to heat the tubing if you do not have a lighter. Do not touch the tubing to the soldering iron. Heat the tubing until the tubing shrinks and forms to the shape of the components underneath. Do not overheat the tubing.

## **Exercise**

Select the correct heat shrink tubing and insulate a soldered joint. You may choose to use the soldered ring from the exercise in 'Soldering.' The ring will have to be broken and re-soldered after placing the heat shrink tubing.

Your instructor must verify your work before you continue.

## **Preventative Maintenance and Calibration**

- Do not touch the heat shrink tubing directly to the heat source. Heat shrink tubing may catch fire if heated too much.
- Do not overheat the tubing. The plastic tubing may melt or fuse into the components.
- Regularly verify tubing for cracks or deformities. Replace old or damaged heat shrink tubing. Verify that covered wires and components are not damaged before recovering.
- Always calibrate every medical device before returning it to use.