

## **Women in Engineering badge For Junior Girl Scouts**

Requirements: Complete 6 of the 9 activities below.

- 1) Find the definition of engineer, then create a list of at least 3 kinds of engineers. Select one and find out the primary things those engineers build or design.
- 2) Visit a laboratory, manufacturing plant, or factory and study machine design, robot uses, or other appropriate features.
- 3) Have a practicing engineer show and explain about the tools she uses. Look at a blueprint of something she is working on. Learn about projects or products engineers are working on to make a better future.
- 4) Put together a puzzle upside-down. This is similar to the trial and error method of engineering.
- 5) Make a scale drawing of a three-dimensional object. Show a side view, a top view, and a front view on the same piece of paper.
- 6) Construct a simple beam or truss support. Suggestion: Use a piece of cardboard about 12 inches long and one inch wide to make a beam. Fasten it down and test it's strength. Then construct a beam support 2 strips of cardboard, one 10 inches by one inch and one six inches long by one inch wide to make a beam support. Tape these two strips to the beam to form a triangle. Now retest the load strength of the beam with its new support.
- 7) Create an artistic and sturdy structure from construction materials of your choice. Tell how you used your knowledge of art and science to build your structure.
- 8) Make a model of a 3-dimensional object, a kit may be used. Then try building a 3-dimensional object of your own design.
- 9) Have a "construction materials hunt" in your neighborhood. Locate something made out of each of the following materials: brick, paper, cement, plastic, wood, metal, stone, cinder block, sheetrock, concrete, stone, marble. For each thing you found, discuss why that particular material was probably chosen for the constructed item.

