

2024 Merit Badge Challenge

Model Design and Building

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Schedule

Week 1 Jan. 6	Overview types of models Discuss scale Discuss materials Discuss tools Discuss fasteners and adhesives Materials Finishes	Req. 2 & 3
Week 2 Feb. 3	Tool safety Types of models Simple machines Occupations using model building Discuss problems encountered	Req. 1 & 6
Week 3 Feb. 17	Administer test Review finished models Photograph finished models Submit summary sheet	Req. 4, 5 & 6

Please call one of the counselors if you need help with your model building project, need to discuss plans, need advice on materials, tools and techniques and guidance in preparation of the Summary Sheet. We will help you over the phone or we can make an appointment for in person consultation. Please call between 7 and 9 PM on Tuesday, Wednesday or Thursday.

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Model Design and Building Requirements

- 1. Understand personal safety using model building tools, precautions using flammable and hazardous materials and use of personal protective equipment**
- 2. Explain use of the following types of models and research materials that could be used to make these models:**
 - a. Architectural**
 - b. Structural**
 - c. Process**
 - d. Mechanical**
 - e. Industrial**
- 3. Select a modeling subject, prepare plans, list required materials and required tools.**
- 4. Build a model in one of these categories:**
 - a. Architectural** (House or similar size building; $1/4" = 1'$ scale or $1/50$ metric)
 - b. Structural** (Corner construction of wood frame building ; $1\ 1/2" = 1'$ scale or $1/8$ metric)
 - c. Process** (Plumbing system of a house; $3/4" = 1'$ scale or $1/15$ metric)
 - d. Mechanical** (Mechanical device using as least 2 of 6 simple machines)
 - e. Industrial** (Passenger carrying vehicle; $1" = 1'$ or $1/2" = 1'$ scale, $1/12$ to $1/25$ metric)
- 5. Build a special effects model of a fantasy spacecraft or a hand-held prop that might appear in a science fiction movie. Determine the scale of the model and include (in a spacecraft) a cockpit or control area, living space, storage space, engineering space and propulsion system. The model does not have to show all of these areas (cut-away not required) but a sketch plan should be made to show these spaces.**
- 6. List 6 occupations using model making and discuss career opportunities in this field**