

# **2026 Merit Badge Challenge Model Design and Building**

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## **Schedule**

**Week 1  
Jan. 17**

**Overview types of models  
Discuss scale  
Discuss materials  
Discuss tools  
Discuss fasteners and adhesives  
Materials  
Finishes**

**Week 2  
Feb. 21**

**Turn in safety worksheet  
Turn in types of models essay  
Show finished model and project sheet  
Show space/sci-fi model and project sheet  
Turn in model building career worksheet  
Fun with simple machines**

**Requirement 1  
Requirement 2  
Requirements 3 & 4  
Requirement 5  
Requirement 6  
Time permitting**

**Please e-mail 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 Project Sheets.  
In keeping with Scouting America Youth Protection policies please copy a parent or guardian on your e-mails.**

# **2026 Merit Badge Challenge**

## **Model Design and Building Requirements**

- 1. Understand personal safety using model building tools, precautions using flammable and hazardous materials , use of personal protective equipment and safety and best practices using digital design software.**
- 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. Research one career using model making and discuss training, education and career opportunities in this field**