

Pi Day 2025 Merit Badge Prerequisites

Animation

Katie Grassel (katie.grassel@gmail.com)

- Prerequisites: None
- Workbook Link: <http://usscouts.org/mb/worksheets/Animation.pdf>

Architecture

Andrew Risch (andrewrisch@att.net)

- Prerequisites:
 - Requirement 1a
 - Tour your community and list the different building types you see. (Share With Class)
 - Try to identify building that can be associated with a specific period of history or style of architecture (Share with Class)
 - Make a sketch of the building you most admire.
 - Requirement 1b
 - Select a historical architectural achievement that has had a major impact on society.
 - Using resources such as the Internet (with your parent or guardian's permission), books, and magazines, find out how this achievement has influenced the world today. Tell your counselor what you learned. (Share with Class)
 - Requirement 4
 - Measure a room such as one where you live or where your troop meets. Make an accurately scaled drawing of the room's floor plan showing walls, doors, closets, windows, and any built-in furniture or cabinets. Neatly label your drawing with the following: your name, the date, what room you drew, and the scale of the drawing. (Drawing scale: 1/4 inch = 1 foot)
- Workbook Link: <http://usscouts.org/mb/worksheets/Architecture.pdf>

Art

Erich Whittier (elwhittier@gmail.com)

- Prerequisites: None
- Workbook Link: <http://usscouts.org/mb/worksheets/Art.pdf>

Chess

Paul Walheim (pwalheim86@gmail.com)

- Prerequisites: None
- Workbook Link: <http://www.usscouts.org/mb/worksheets/Chess.pdf>

Coin Collecting

Terry Sherman (trsherman@uwalumni.com)

- Prerequisites:
 - If possible, read a numismatic magazine or newspaper or bring a coin reference guide.
 - Collect and show your counselor five (5) different quarters from circulation from either the State Quarter program or America the Beautiful Program.

- If possible, bring in coins from different countries OR 15 tokens or medals that have been collected OR since the year of your birth, collect a single type of coin.
- Workbook Link: <http://usscouts.org/usscouts/mb/worksheets/OLD/Coin-Collecting-17.pdf>

Digital Technology

Sean Massey (sean.massey@thevirtualhorizon.com)

- Prerequisites:
 - Requirement 1
 - View the Personal Safety Awareness "[Digital Safety](#)" video (with your parent or guardian's permission).
 - Requirement 6
 - Do THREE of the following. For each project you complete, copy the files to a backup device and share the finished projects with your counselor:
 - a. Using a spreadsheet or database program, develop a food budget for a patrol weekend campout OR create a troop roster that includes the name, rank, patrol, and telephone number of each Scout. Show your counselor that you can sort the roster by each of the following categories: rank, patrol, and alphabetically by name.
 - b. Using a word processor, write a draft letter to the parents of your troop's Scouts, inviting them to a troop event.
 - d. Using a presentation software program, develop a report about a topic approved by your counselor. For your presentation, create at least five slides, with each one incorporating text and some type of visual such as a photograph or an illustration.
 - e. Using a digital device, take a picture of a troop activity. Send or transfer this image to a device where the picture can be shared with your counselor.
 - f. Make a digital recording of your voice, transfer the file to a different device, and have your counselor play back the recording.
- Workbook Link: <http://www.usscouts.org/usscouts/mb/worksheets/Digital-Technology.pdf>

Disabilities Awareness

Dennis LaGrave (luxcubmaster@gmail.com)

- Prerequisites: Requirement 2
- Workbook Link: <http://www.usscouts.org/mb/worksheets/Disabilities-Awareness.pdf>

Electricity

David Schott (schott.david@dol.gov)

- Prerequisites: Show up with the workbook [Microsoft Word - Electricity.docx](#)

Electronics

Kevin Stanelle (kb9sne@yahoo.com)

- Prerequisites: Requirements 2 (a and b), 4 (a and c), 5 (a), and 6
- Workbook Link: <http://usscouts.org/mb/worksheets/Electronics.pdf>

Engineering

Brian Rose (brose@kcc.com)

Thank you for your interest in learning more about the wonderful world of engineering. I am excited to share my knowledge with you. During this class, we will be interacting and discussing what we have learned in preparation for the class. Remember the Scout Motto "Be Prepared" to guide you in preparation for this class.

Class Preparation

All scouts must read the Engineering Merit Badge Pamphlet in preparation for the class. A lot of good information is included that will help you with your pre-requisites. Available at the scout shop, your local troop, or online.

Class Pre-Requisites

Requirement 1. Select a manufactured item in your home (such as a toy or an appliance), and under adult supervision, investigate how and why it works as it does. Find out what sort of engineering activities were needed to create it. Discuss with your counselor what you learned and how you got the information.

- Try to choose something smaller that you can bring with you to class.

Requirement 2. Select an engineering achievement that has had a major impact on society. Using resources such as the Internet (with your parent's permission), books, and magazines, find out about the engineers who made this engineering feat possible, the special obstacles they had to overcome, and how this achievement has influenced the world today.

- You will share with the class. Bring a photo to share with the class. I will have a laptop if you bring information on memory stick.

Requirement 3. Explain the work of six types of engineers. Pick two of the six and explain how their work is related. Bring you two types and share with the class.

- Be prepared to discuss with class.

Requirement 7. Explain what it means to be a registered Professional Engineer (PE). Name the types of engineering work for which registration is most important?

- Be prepared to discuss with class.

Requirement 9. Find out about three career opportunities in engineering. Pick one and research the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

- Be prepared to discuss with class.

Note: As this class will be open discussion, Scouts that have NOT read the Merit Badge pamphlet or completed the pre-requisites may be excused from the Merit Badge class.

Workbook Link: <http://www.usscouts.org/mb/worksheets/Engineering.pdf>

Entrepreneurship

Kent Pauli (krpauli70@gmail.com)

- Prerequisites:
 - Requirement 1
 - In your own words, define entrepreneurship.
 - Explain to your merit badge counselor how entrepreneurs impact the U.S.economy.
 - Requirement 2

- Explain to your counselor why having good skills in the following areas is important for an entrepreneur: communication, planning, organization, problem solving, decision making, basic math, adaptability, technical and social skills, teamwork, and leadership.
- Requirement 3
 - Identify and interview an individual who has started his or her own business.
 - Learn about this person's educational background, early work experiences, where the idea for the business came from, and what was involved in starting the business.
 - Find out how the entrepreneur raised the capital (money) to start the business, examples of successes and challenges faced, and how the business is currently doing (if applicable).
 - Discuss with your counselor what you have learned.
- Requirement 4
 - Think of as many ideas for a business as you can, and write them down.
 - From your list, select three ideas you believe represent the best opportunities.
 - Choose one of these and explain to your counselor why you selected it and why you feel it can be successful.
- Workbook Link: <http://usscouts.org/mb/worksheets/Entrepreneurship.pdf>

First Aid

Stephanie Foth (froggyrose1003@yahoo.com)

- Prerequisites: Requirements #2a and 2b
- Workbook Link: <http://www.usscouts.org/mb/worksheets/First-Aid.pdf>

Moviemaking

Ross Headly (nutheadpro@gmail.com)

- Prerequisites:
 - Requirements 2a and 2b
 - Scouts should bring a device capable of recording video (i.e., a phone, a camera, etc.)
- Workbook Link: <http://www.usscouts.org/mb/worksheets/Moviemaking.pdf>

Music

Karl Kessler (karl.kessler@alumni.lr.edu)

- Prerequisites: Requirements 3 and 4
- Workbook Link: <http://usscouts.org/mb/worksheets/Music.pdf>

Photography

Bill Moede (bmoedereplay@gmail.com)

- Prerequisites:
 - All participants must have watched the Scouts BSA "Digital Safety" video Personal Safety Awareness (<https://filestore.scouting.org/filestore/YPSAT/digitalsafety/story.html>) We will also review this in the workshop.
 - All participants must have a Merit Badge Blue card (or a printout from Scoutbook) signed by their units Scout Master

- All participants must have available a smartphone with a camera or a digital camera with a screen that they can bring to the workshop so photos can be shown to the Merit Badge Counselors. OR be able to bring printed photos from the requirements below.
- Requirement 4
 - Do TWO of the following, then share your work with your counselor. (A suggestion, some or all of the photo requirements could be done at Scout outings and events.)
 - (a) Photograph one subject from two different angles or perspectives.
 - (b) Photograph one subject from two different light sources - artificial and natural.
 - (c) Photograph one subject with two different depth of fields.
 - (d) Photograph one subject with two different compositional techniques.
- Requirement 5
 - Photograph THREE of the following, then share your work with your counselor. (A suggestion, some or all of the photo requirements could be done at Scout outings and events.)
 - (a) Close-up of a person
 - (b) Two to three people interacting
 - (c) Action shot
 - (d) Animal shot
 - (e) Nature shot
 - (f) Picture of a person - candid, posed, or camera aware.
- Requirement 6
 - Describe how software allows you to enhance your photograph after it is taken. Select a photo you have taken, then do ONE of the following, and share what you have done with your counselor. (NOTE: I will also cover this requirement in the workshop. So if a Scout does not have the software [editing software built in to smartphone, etc.] this requirement will still be covered in the workshop.)
 - (a) Crop your photograph
 - (b) Adjust the exposure or make a color correction
 - (c) Show another way you could improve your picture for impact.
- Requirement 7
 - Using images other than those created for requirements 4, 5, and 6, produce a visual story to document an event to photograph OR choose a topic that interests you to photograph. Do the following:
 - (a) Plan the images you need to photograph for your photo story.
 - (b) Share your plan with your counselor, and get your counselor's input and approval before you proceed.
 - (c) Select eight to 12 images that best tell your story. Arrange your images in order and mount the prints on a poster board, OR create an electronic presentation. Share your visual story with your counselor.
- Workbook Link: <http://usscouts.org/mb/worksheets/Photography.pdf>

Public Speaking

Matthew Schultz (mschultz@notredameacademy.com)

- Prerequisites:

- Practice your speech and be sure to stay within the time limits.
- Requirements 1: Prepare a 3-5 minute introduction of yourself.
- Requirement 2: Prepare a 3-5 minute talk of your choice that incorporates body language and visual aids. If you want to prepare a slide show, email it to the counselor before the event (mattschultz1776@gmail.com)
- Requirement 4: Select a topic of interest to your audience (STEM or Scout related, but it must be a different topic than what was done for requirement 2. Collect and organize the information into an outline. Bring the outline to the class for the counselor to review). Deliver the speech in a conversational way during the class.
 - Note cards can be used for speeches, but scouts should try to practice all speeches so they can make consistent eye contact with the audience and not just read a speech.
- Workbook Link: <http://usscouts.org/mb/worksheets/Public-Speaking.pdf>

Radio

Shawn Neiman (shawn.scouting@gmail.com)

- Prerequisites: Requirements 3 and 8
- Workbook Link: <http://www.usscouts.org/mb/worksheets/Radio.pdf>

Scholarship

Matthew Schultz (mschultz@notredameacademy.com)

- Prerequisites:
 - Requirement 1: Do one of the following: Show that your school grades have been an average of B (80%) or higher for one term or semester. If your school doesn't use grades and only uses standards-based grading, scores must indicate meeting or exceeding standard). The most recent official semester report card must be shown. OR Show that for one term or semester you have improved your grades over the previous period. Most recent report cards must be shown.
 - Requirement 3: Get a note from the principal of your school (or another school official named by the principal) that states that in the past year your behavior, leadership, and service have been satisfactory. If you are home schooled or your school environment does not include a principal, you may obtain a note from your counterpart such as your parent.
- Workbook Link: <http://usscouts.org/mb/worksheets/Scholarship.pdf>

Scouting Heritage

Dale Opgenorth (opgenorthdale@gmail.com)

- Prerequisites: Requirements 5, 6, and 8
- Workbook Link: <http://usscouts.org/mb/worksheets/Scouting-Heritage.pdf>

Space Exploration

Kelly Bergschultz (kenny@bergschultz.com)

- Prerequisites:
 - Requirements 2, 5 (a, b, and c), 6 (a and b), 7 (a, b, c, and d), and #8
 - Scouts must be First Class rank or higher.
 - Space Exploration MB will be launching the rockets twice as required unless winds start to exceed 20 mph as measured in the parking lot area at time of launch. Scouts must come prepared for the event weather in which we will be outside for probably 90 minutes, if you are not prepared you will not be launching and will not complete the merit badge during the session. As a reminder in the

prerequisites, they should be thoroughly completed and represent the work requested. In other words, stick figures and a few drawn lines do not constitute a site plan and research items should be fully completed and thought out. Each participant will be sitting with an adult to review their individual prerequisites and should be capable of explaining the ideas, concepts, and research. Safety and preparedness are key for this merit badge in all aspects.

- Workbook Link: <http://www.usscouts.org/mb/worksheets/Space-Exploration.pdf>

Sustainability

Tim Feldhausen (tfeldhausen@dkattorneys.com)

- Prerequisites: Requirements 1, 8a, and 9
- Workbook Link: <http://usscouts.org/mb/worksheets/Sustainability.pdf>

Textile

Jill Hiles (jill.hiles11@gmail.com)

- Prerequisites:
 - Read through the Textile Merit Badge Pamphlet
 - Requirements 4 and 6
- Workbook Link: <http://usscouts.org/mb/worksheets/Textile.pdf>

Truck Transportation

Bob Pankratz (pankrrob@gmail.com)

- Prerequisites: None
- Workbook Link: <http://usscouts.org/mb/worksheets/Truck-Transportation.pdf>

Welding

Pat Medd (pat.medd3566@fvtc.edu)

- Prerequisites: None
- Workbook Link: <http://usscouts.org/mb/worksheets/Welding.pdf>