



Saturday, March 2, 2024

James O'Neill HS

Highland Falls, NY



BOY SCOUTS OF AMERICA®
GREATER HUDSON VALLEY COUNCIL



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Merit Badge College 2024							
Check-in/Registration: 7:45AM – 8:30AM							
Opening Ceremony: 8:30AM							
Period 1 9-10AM	Period 2 10-11AM	Period 3 11-12PM	Period 4 12-1PM	Period 5 1-2PM	Period 6 2-3PM	Period 7 3-4PM	Period 8 4-5PM
Digital Technology (3 hr)				Citizenship in the Nation (4 hr)			
Citizenship in the Nation (4 hr)					Energy (3 hr)		
Engineering (4 hr)							
Signs, Signals, and Codes (4 hr)					Traffic Safety (3 hr)		
Stamp Collecting (4 hr)					Coin Collecting (3 hr)		
Entrepreneurship (4 hr)					American Culture (3 hr)		
Sustainability (4 hr)					American Labor (3 hr)		
Disability Awareness (4 hr)					Music (3 hr)		
Communications (3 hr)				Disability Awareness (4 hr)			
Chess (4 hr)					American Business (3 hr)		
Radio (4 hr)				Law (4 hr)			
Public Speaking (4 hr)				Public Speaking (4 hr)			
Animation (3 hr)				Game Design (4 hr)			
First Aid (3.5 hr)				First Aid (3.5 hr)			
Sports AND Athletics (3.5)				Public Health (3.5)			
Journalism (2 hr)		Textiles (2 hr)			Photography (3 hr)		
Scholarship (2 hr)		Safety (2 hr)			Communications (3 hr)		
Collections (2 hr)		Pets (2 hr)		Railroading (4 hr)			
Programming (2 hr)		Scouting Heritage (2)			Genealogy (3 hr)		
Salesmanship (2 hr)		Veterinary Medicine (2 hr)			Dentistry (3 hr)		
Citizenship in the World (3 hr)				Citizenship in the World (3 hr)			
Health Care Professions (3 hr)				Fire Safety (3 hr)			
Fire Safety (3 hr)				Chemistry (3 hr)			
Citizenship in the Comm. (3 hr)				Citizenship in the Comm. (3 hr)			
Art (3 hr)				American Heritage (3 hr)			
Aviation (4 hr)							

MERIT BADGE COLLEGE

The purpose of the Merit Badge College (MBC) is to offer Scouts an opportunity to meet with highly qualified professionals to learn and foster the development of lifelong interests. Particular emphasis is given to career and hobby-oriented Merit Badges (MB), especially those MB's with a limited availability of counselors, or requiring specialized equipment as in Chemistry.

Earning a MB is not guaranteed. No MB requirements will be excused; none will be "gifted". The unit leader must ensure that each Scout is capable of understanding the material of the MB he/she has chosen. Specific Merit Badges being offered are subject to change based on counselor availability. Prerequisites, projects or other outside work must be sent to MB counselor no later than February 26th. A note from the Scoutmaster or a signed prior partial MB Card may also be used as proof of prerequisite completion.

Scouts should secure and review the appropriate Merit Badge Pamphlets (Read the Book!!). Prerequisite information and course catalogs can be found on the Greater Hudson Valley Council website under Merit Badge College.

All Work and/or Worksheets for each Merit Badge prerequisite item must be completed before arrival at the Merit Badge College – Worksheets are available at <https://www.scouting.org/skills/merit-badges/all/> plus links to each WB is provided in each MB page. Scouts who do not complete the prerequisites prior to the MBC may not be permitted to attend, as this may delay other scouts in the session. The Merit Badge Counselor has the discretion to determine if the Scout has met the requirements.

Scoutbook is recommended for the Merit Badge College, but if using a Blue Card, Scouts must bring a signed blue card with them to the Merit Badge College. Blue cards will not be available at the Merit Badge College!

This is a CLASS A event. All Scouts and Scout Leaders should demonstrate their Scout Spirit in word and deed. Please wear your uniform.

Cell Phones - A Scout is Courteous - If you must have a cell phone, set it to silent/vibrate. Demonstrate respect for the instructors and other classmates and do NOT make or take calls or text messages during class time.

Registration:

Cost for registration: \$42 for Scouts in GHV Council; \$47 for Scouts from out of Council.
Late Fee: 2/19 – 2/26: \$47 for GHV Council Scouts, \$52 for Scouts from out of Council.
There is no walk-in registration.

This includes a patch, continental breakfast and lunch.

Registration for the event can be found at <https://mycouncil.ghvbsa.org/Event/7368>

T-shirts: Pre-Order ONLY – ORDER WHILE REGISTERING!

If you would like to purchase a Merit Badge College T-Shirt, ***the order must be placed while registering*** and will be available to pick up the morning of the event.

Shirts must be ordered by 2/14 to have in time for the event. (if you order after this date, there will be no refund and sizes cannot be guaranteed)

Adult sizes only: Small thru 3XL: \$20each



GUIDANCE FOR SCOUTS ATTENDING THE MBC

The Merit Badge College is an opportunity to learn from subject matter experts in career or lifelong hobby subjects.

1.) Pick a Merit Badge

From the Course Catalog, you can select from a number of Merit Badges that you may have an interest in taking. We expect that you will talk to your Scoutmaster and parents about which badge to take. But in the end, you should select a topic that you truly wish to learn about. Don't let rank advancement be the only consideration.

2.) Age Restrictions

Specific badges offered have age restrictions based on the complexity of the badges' requirements. In the short duration of a single day, the nature and amount of material covered in these classes will possibly make it difficult for a younger Scout to keep up. This can slow the pace of the course, and the class will not complete the intended material. This may also cause the younger scout to get frustrated or anxious. We want all of our scouts to enjoy what you do here, do it well, and have the best chance of leaving with your chosen Merit Badge. Please double-check the courses you are considering by referring to the Difficulty Level Document.

3.) Getting Ready for MBC Day / Complete the Worksheet and any assignments!

OK, so you have selected your badges and registered online. Congratulations! The next thing that you should do, is to get a copy of the Merit Badge pamphlet for yourself. You should **read through the pamphlet so that you are completely familiar with it.** In fact, you may want to read it through more than once. **(Read the book.)** We do not guarantee that you will complete any badge. Many MB classes will have published a list of pre-requisites, many which are not doable in the classroom. These are requirements that you must complete by February 26th. When you complete them, bring all material to class with you such as notes, pictures, writings, reports, letters. **(Email your counselor and read the book.)** It is up to you to make sure that you complete every requirement. If you can do this, then you will get the most out of the workshop.

Again, worksheets for each Merit Badge prerequisite item must be completed before arrival at the Merit Badge College – Worksheets are available at

<https://www.scouting.org/skills/merit-badges/all/>

4.) Merit Badge Blue Cards

Before attending MBC, you will need a Blue Card and counselors will advise if a paper or Scoutbook Blue Cards are preferred. If you do not hear from your counselor prior to MBC, bring a **Signed** paper Blue Card with you.

Scoutbook Blue Cards – Scouts need to advise either their scoutmaster, advancement chair or parent to initiate a link between the counselor and scout in Scoutbook to create a Blue Card. Here's a helpful video to assist and answer any questions.

<https://www.youtube.com/watch?v=2cr887YIFC4&t=33s>

Paper Blue Cards – scouts should fill out the blue card with your name, address, Merit Badge and Troop information. Your Scoutmaster should sign this card indicating that they approve you taking the class. Keep it safe since this card will be the ONLY record

of your achievement at the MBC. Counselors are not required to keep records. Most will, but some will not. You are responsible for your card. Keep it safe.

Instructions for scoutmaster, advancement chair or others with access the Merit Badge Counselor list in Scoutbook.

1. Go to <https://scoutbook.scouting.org/> and log in with your my.scouting.org credentials
2. Go to your Troop's home page, to the merit badge counselor list, select merit badge, click search.
3. Locate counselor, click and establish a link between the scout and counselor.

Instructions for Parents to link their scout with a merit badge counselor

1. Go to <https://scoutbook.scouting.org/> and log in with your my.scouting.org credentials
2. Click - My Dashboard
4. Click - Administration
3. Click on Name of scout in "My Family" section.
5. Click on Scouts "Advancement"
6. Click on "Start another Merit Badge"
7. Click "Start a Badge"
8. Click desired Merit Badge
9. Click "Invite Counselor"
10. Click "Add+"
11. Either search for existing counselor or input, first and last name, gender, relationship, email and adding a note is optional. Then click invite.

We recommend using Scoutbook blue cards whenever possible. Scoutbook is the BSA Internet Advancement system. Anyone with a BSA member ID automatically has access to a Scoutbook account through their my.scouting.org account.

5.) ON MBC Day, FILL YOUR LIFE WITH ADVENTURE!

6.) PROPER SCOUT BEHAVIOR IS EXPECTED. EACH SCOUT IS AN AMBASSADOR TO THE HOST SCHOOL AND A REPRESENTATIVE OF YOUR HOME TROOP. Scoutmasters and Parents will be advised if a scout's behavior is not "Scout-like", Scouts may be removed from Merit Badge sessions with no refund or partial credit given. In order not to disrupt classes, Scouts are to be in one of two places throughout the day – in your assigned class or in the cafeteria. Scouts are not permitted to roam the halls during free time.

CHOOSING THE RIGHT MERIT BADGES BASED ON DEGREE OF DIFFICULTY

We want all scouts to enjoy their time at Merit Badge College and have created the following to help you select the most appropriate courses. This is a guide, older scouts can feel free to take courses listed for younger scouts, but we recommend the badges based on a **minimum** age as shown.

Level 1 – New Scouts / no minimum age

Art	Digital Technology
Fire Safety	Pets

Level 2 – Second Class / Minimum Ages 11 – 13, & Up

Animation	Chess
Coin Collecting	Collections
Dentistry	Disabilities Awareness
Genealogy	Law
Music	Photography
Programming	Radio
Railroading	Safety
Salesmanship (12 yrs old & up)	Scholarship
Scouting Heritage	Stamp Collecting
Textiles	

Level 3 – First Class and Star / Minimum Ages 13 & Up

American Cultures	American Heritage
<i>Citizenship in the Community *</i>	<i>Citizenship in the Nation *</i>
Energy	Engineering
<i>First Aid *</i>	Game Design
Health Care Professions	Journalism
Public Health	Public Speaking
Signs, Signals, and Codes	Sports & Athletics
<i>Sustainability *</i>	Traffic Safety
Vet Medicine	

Level 4 – Star and Life / Ages 14 and Up / 8th Grade and Up

American Business	American Labor
Aviation	Chemistry
<i>Citizenship in the World *</i>	<i>Communication *</i>
Entrepreneurship	

****Eagle Required Merit Badge***

GUIDANCE FOR PARENTS

The Merit Badge College is an opportunity for your scout to explore various subject matters, working with experts in career or lifelong hobby subjects. We appreciate you bringing your scout to us for what we hope will be a great day!

We will be grateful to have you assist your scout (if needed) in the check-in process and then send them off to their class.

Parent Lounge!

We especially appreciate it if you have traveled a distance to get here and would prefer not to go home and come back. Due to space limitations, parents will not be permitted to stay in the café throughout the day and we would appreciate parental cooperation in not wandering the halls of the venue. We will offer a special adult only area for the parents to “hang out” in if you choose to stay on site while your scout is attending a class. Parents will also be able to purchase a meal voucher on the day of the event (parent lunch time will be noted on voucher).

No outside food or drink is allowed.

Parents will not be permitted to “sit in” on a Merit badge class, this will be distracting both to your scout and the counselor.

Please plan to drop off your scout and be prompt in picking them up at the end of their scheduled sessions.

SNOW/INCLEMENT WEATHER

Although we will hope for good weather conditions, in case of severe snowfall and/or inclement weather, please check the council website for information. We will utilize similar school closing guidelines in making the decision to cancel the Merit Badge College, or changing it to an online format.

PLEASE NOTE: Due to the number of counselors and staff, we will not be able to reschedule or refund the fees for the college if there is a weather-related cancellation. We will try our best to change to an online format.

American Business (Level 4)

[http://filestore.scouting.org/filestore/Merit_Badge_RegandRes/2023_Updates/35850\(23\)can%20Business_REQ.pdf](http://filestore.scouting.org/filestore/Merit_Badge_RegandRes/2023_Updates/35850(23)can%20Business_REQ.pdf)



Prerequisites:

- #4 Research All – be prepared to discuss two,
- #5 Research and be prepared to discuss,
- #6 Choose one, be prepared to discuss



Nova Award Merit Badge

Requirements:

1. Do the following:
 - a. Explain four features of the free enterprise system in the United States. Describe the difference between freedom and license. Tell how the Scout Oath and Scout Law apply to business and free enterprise.
 - b. Describe the Industrial Revolution and tell about the major developments that marked the start of the modern industrial era in the United States. Discuss three people who had a great influence on business or industry in the United States and describe what each did.
 - c. Identify and describe to your counselor the five primary areas of business.
 - d. Explain the history of labor unions in the United States and the importance of labor unions and employers working together. Identify two major labor unions currently in existence.
 - e. Discuss with your counselor how business impacts the local, national, and global economy.
2. Do the following:
 - a. Explain the three basic types of financial statements (income statement, balance sheet, and statement of cash flows). Discuss with your counselor how each statement can help business leaders make better decisions.
 - b. Explain how changes in interest rates, taxes, and government spending affect the flow of money into or out of business and industry.
 - c. Explain how a sole proprietorship, partnership, or limited liability company gets its capital. Discuss and explain four ways a corporation obtains capital.
 - d. Name five kinds of insurance useful to business. Describe their purposes.
3. Do the following:
 - a. Explain the place of profit in business.
 - b. Describe to your counselor green marketing and sustainable business practices.
 - c. Explain how ethics plays a role in business decision making.
 - d. Discuss the differences between operating a brick-and-mortar business versus an online business.
4. Describe the role of the U.S. Department of Labor. Discuss two of the following topics with your counselor:
 - a. Fair Labor Standards Act (FLSA)
 - b. Occupational Safety and Health Act (OSHA)
 - c. Family and Medical Leave Act (FMLA)
 - d. Employee Retirement Income Security Act (ERISA)
5. Choose a business and research how it applies each of the primary areas of business (accounting, finance, economics, marketing, and management). Share what you have learned with your counselor.

6. Do **ONE** of the following:
- a. Choose one of the primary areas of business and identify three career opportunities. Select one and research the education, training, and experience required for this career. Discuss this with your counselor and explain why this interests you.
 - b. Select a business leader and interview this individual to learn more about his or her company and career path. Discuss the role ethics plays in making business decisions. Share what you have learned with your counselor.

American Cultures (Level 3)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/American_Cultures.pdf



Prerequisites:

#1, #2, #5

Requirements:

Choose **THREE** groups that have different racial, cultural, national, or ethnic backgrounds, one of which comes from your own background. Use these groups to meet requirements 1, 2, and 3.

1. Do **TWO** of the following, choosing a different group for each:
 - a. Go to a festival, celebration, or other event identified with one of the groups. Report on what you see and learn.
 - b. Go to a place of worship, school, or other institution identified with one of the groups. Report on what you see and learn.
 - c. Talk with a person from one of the groups about the heritage and traditions of the group. Report on what you learn.
 - d. Learn a song, dance, poem, or story that is traditional to one group, and teach it to a group of your friends.
 - e. Go to a library or museum to see a program or exhibit featuring one group's traditions. Report on what you see and learn.
2. Imagine that one of the groups had always lived alone in a city or country to which no other groups ever came. Tell what you think the city or country might be like today. Now tell what you think it might be like if the three groups you chose lived there at the same time.
3. Tell about some differences between the religious and social customs of the three groups. Tell about some ideas or ways of doing things that are similar in the three groups.
4. Tell about a contribution made to our country by three different people, each from a different racial, ethnic, or religious background.
5. Give a talk to your Scout unit or class at school on how people from different groups have gotten along together. Lead a discussion on what can be done to help various groups understand one another better.

American Heritage (Level 3)

https://filestore.scouting.org/filestore/merit_badge_reqandres/american_heritage.pdf



Prerequisites:

#1, #2 (Two Choices), #3, #4 (Two Choices), #5 (One Choice)

Requirements:

1. Read the Declaration of Independence. Pay close attention to the section that begins with “We hold these truths to be self-evident” and ends with “to provide new Guards for their future security.” Rewrite that section in your own words, making it as easy to understand as possible. Then, share your writing with your merit badge counselor and discuss the importance of the Declaration to all Americans.
2. Do **TWO** of the following:
 - a. Select two individuals from American history, one a political leader (a president, senator, etc.) and the other a private citizen (a writer, religious leader, etc.). Find out about each person’s accomplishments and compare the contributions each has made to America’s heritage.
 - b. With your counselor’s approval, choose an organization that has promoted some type of positive change in American society. Find out why the organization believed this change was necessary and how it helped to accomplish the change. Discuss how this organization is related to events or situations from America’s past.
 - c. With your counselor’s approval, interview two veterans of the U.S. military. Find out what their experiences were like. Ask the veterans what they believe they accomplished.
 - d. With your counselor’s approval, interview three people in your community of different ages and occupations. Ask these people what America means to them, what they think is special about this country, and what American traditions they feel are important to preserve.
3. Do the following:
 - a. Select a topic related to the United States that is currently in the news. Describe to your counselor what is happening. Explain how today’s events are related to or affected by the events and values of America’s past.
 - b. For each of the following, describe its adoption, tell about any changes since its adoption, and explain how each one continues to influence Americans today: the flag, the Pledge of Allegiance, the Great Seal of the United States, the motto, and the national anthem.
 - c. Research your family’s history. Find out how various events and situations in American history affected your family. If your family immigrated to America, tell the reasons why. Share what you find with your counselor.
4. Do **TWO** of the following:
 - a. Explain the National Register of Historic Places and how a property becomes eligible for listing in the National Register of Historic Places. Make a map of your local area, marking the points of historical interest. Tell about any National Register properties in your area. Share the map with your counselor, and describe the historical points you have indicated.

- b. Research an event of historical importance that took place in or near your area. If possible, visit the place. Tell your counselor about the event and how it affected local history. Describe how the area looked then and what it now looks like.
 - c. Find out when, why, and how your town or neighborhood started, and what ethnic, national, or racial groups played a part. Find out how the area has changed over the past 50 years and try to explain why.
 - d. Take an active part in a program about an event or person in American history. Report to your counselor about the program, the part you took, and the subject.
 - e. Visit a historic trail or walk in your area. After your visit, share with your counselor what you have learned. Discuss the importance of this location and explain why you think it might qualify for National Register listing.
5. Do **ONE** of the following:
- a. Watch two motion pictures (with the approval and permission of your counselor and parent) that are set in some period of American history. Describe to your counselor how accurate each film is with regard to the historical events depicted and also with regard to the way the characters are portrayed.
 - b. Read a biography (with your counselor's approval) of someone who has made a contribution to America's heritage. Tell some things you admire about this individual and some things you do not admire. Explain why you think this person has made a positive or a negative contribution to America's heritage.
 - c. Listen to recordings of popular songs from various periods of American history. Share five of these songs with your counselor, and describe how each song reflects the way people felt about the period in which it was popular. If a recording is not available, have a copy of the lyrics available.
6. Discuss with your counselor the career opportunities in American heritage. Pick one that interests you and explain how to prepare for this career. Discuss what education and training are required for this career.

American Labor (Level 4)



https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/American_Labor.pdf

Prerequisites:

#1, #2, #5

Requirements:

1. Using resources available to you, learn about working people and work-related concerns. List and briefly describe or give examples of at least EIGHT concerns of American workers. These may include, but are not limited to, working conditions, workplace safety, hours, wages, seniority, job security, equal-opportunity employment and discrimination, guest workers, automation and technologies that replace workers, unemployment, layoffs, outsourcing, and employee benefits such as health care, child care, profit sharing, continuing education, and retirement benefits.
2. With your counselor's and parent's approval and permission, visit the office or attend a meeting of a local union, a central labor council, or an employee organization, or contact one of these organizations via the internet. Then do **EACH** of the following:
 - a. Find out what the organization does.
 - b. Share the list of issues and concerns you made for requirement 1. Ask the people you communicate with which issues are of greatest interest or concern to them and why.
 - c. Draw a diagram showing how the organization is structured, from the local to the national level, if applicable.
3. Explain to your counselor what labor unions are, what they do, and what services they provide to members. In your discussion, show that you understand the concepts of labor, management, collective bargaining, negotiation, union shops, open shops, grievance procedures, mediation, arbitration, work stoppages, strikes, and lockouts.
4. Explain what is meant by the adversarial model of labor-management relations, compared with a cooperative-bargaining style.
5. Do **ONE** of the following:
 - a. Develop a time line of significant events in the history of the American labor movement from the 1770s to the present.
 - b. Prepare an exhibit, a scrapbook, or a computer presentation, such as a slide show, illustrating three major achievements of the American labor movement and how those achievements affect American workers.
 - c. With your counselor's and parent's approval and permission, watch a movie that addresses organized labor in the United States. Afterward, discuss the movie with your counselor and explain what you learned.
 - d. Read a biography (with your counselor's approval) of someone who has made a contribution to the American labor movement. Explain what contribution this person has made to the American labor movement.
6. Explain the term globalization. Discuss with your counselor some effects of globalization on the workforce in the United States. Explain how this global workforce fits into the economic system of this country.
7. Choose a labor issue of widespread interest to American workers—an issue in the news currently or known to you from your work on this merit badge. Before your counselor, or in writing, argue both sides of the issue, first taking management's side, then presenting

labor's or the employee's point of view. In your presentation, summarize the basic rights and responsibilities of employers and employees, including union members and nonunion members.

8. Discuss with your counselor the different goals that may motivate the owners of a business, its stockholders, its customers, its employees, the employees' representatives, the community, and public officials. Explain why agreements and compromises are made and how they affect each group in achieving its goals.
9. Learn about opportunities in the field of labor relations. Choose one career in which you are interested and discuss with your counselor the major responsibilities of that position and the qualifications, education, and training such a position requires.

Animation (Level 2)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Animation.pdf



Prerequisites:

#2 (Choose Five and be prepared to discuss)

#3 Complete and be prepared to present and discuss



Nova Award Merit Badge

Requirements:

1. General knowledge. Do the following:
 - a. In your own words, describe to your counselor what animation is.
 - b. Discuss with your counselor a brief history of animation.
2. Principles of animation. Choose five of the following 12 principles of animation, and discuss how each one makes an animation appear more believable: squash and stretch, anticipation, staging, straight-ahead action and pose to pose, follow through and overlapping action, slow in and slow out, arcs, secondary action, timing, exaggeration, solid drawing, appeal.
3. Projects. With your counselor's approval, choose two animation techniques and do the following for each:
 - a. Plan your animation using thumbnail sketches and/or layout drawings.
 - b. Create the animations.
 - c. Share your animations with your counselor. Explain how you created each one, and discuss any improvements that could be made.
4. Animation in our world. Do the following:
 - a. Tour an animation studio or a business where animation is used, either in person, via video, or via the Internet. Share what you have learned with your counselor.
 - b. Discuss with your counselor how animation might be used in the future to make your life more enjoyable and productive.
5. Careers. Learn about three career opportunities in animation. Pick one and find out about the education, training, and experience required for this profession. Discuss your findings with your counselor. Explain why this profession might interest you.

Art (Level 1)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Art.pdf



Prerequisites:

#6, #7

Please bring your own materials to complete #4 & 5 in class. Drawing supplies will **NOT** be supplied!

Requirements:

1. Discuss the following with your counselor:
 - a. What art is and what some of the different forms of art are
 - b. The importance of art to humankind
 - c. What art means to you and how art can make you feel
2. Discuss with your counselor the following terms and elements of art: line, value, shape, form, space, color, and texture. Show examples of each element.
3. Discuss with your counselor the six principles of design: rhythm, balance, proportion, variety, emphasis, and unity.
4. Render a subject of your choice in FOUR of these ways:
 - a. Pen and ink
 - b. Watercolors
 - c. Pencil
 - d. Pastels
 - e. Oil paints
 - f. Tempera
 - g. Acrylics
 - h. Charcoal
 - i. Computer drawing or painting
5. Do **ONE** of the following:
 - a. Design something useful. Make a sketch or model of your design. With your counselor's approval, create a promotional piece for the item using a picture or pictures.
 - b. Tell a story with a picture or pictures or using a 3-D rendering.
 - c. Design a logo. Share your design with your counselor and explain the significance of your logo. Then, with your parent's permission and your counselor's approval, put your logo on Scout equipment, furniture, ceramics, or fabric.
6. With your parent's permission and your counselor's approval, visit a museum, art exhibit, art gallery, artists' co-op, or artist's workshop. Find out about the art displayed or created there. Discuss what you learn with your counselor.
7. Find out about three career opportunities in art. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

Aviation (Level 4)

https://filestore.scouting.org/filestore/merit_badge_reqandres/aviation.pdf



Prerequisites:

#4, #5



Nova Award Merit Badge

Requirements:

1. Do the following:
 - a. Define “aircraft.” Describe some kinds and uses of aircraft today. Explain the operation of piston, turboprop, and jet engines.
 - b. Point out on a model airplane the forces that act on an airplane in flight.
 - c. Explain how an airfoil generates lift, how the primary control surfaces (ailerons, elevators, and rudder) affect the airplane’s attitude, and how a propeller produces thrust.
 - d. Demonstrate how the control surfaces of an airplane are used for takeoff, straight climb, level turn, climbing turn, descending turn, straight descent, and landing.
 - e. Explain the following: the sport pilot, the recreational pilot, and the private pilot certificates; the instrument rating.
2. Do **TWO** of the following:
 - a. Take a flight in an aircraft, with your parent’s permission. Record the date, place, type of aircraft, and duration of flight, and report on your impressions of the flight.
 - b. Under supervision, perform a preflight inspection of a light airplane.
 - c. Obtain and learn how to read an aeronautical chart. Measure a true course on the chart. Correct it for magnetic variation, compass deviation, and wind drift to determine a compass heading.
 - d. Using one of many flight simulator software packages available for computers, “fly” the course and heading you established in requirement 2c or another course you have plotted.
 - e. Explain the purposes and functions of the various instruments found in a typical single-engine aircraft: attitude indicator, heading indicator, altimeter, airspeed indicator, turn and bank indicator, vertical speed indicator, compass, navigation (GPS and VOR) and communication radios, tachometer, oil pressure gauge, and oil temperature gauge.
 - f. Create an original poster of an aircraft instrument panel. Include and identify the instruments and radios discussed in requirement 2e.
3. Do **ONE** of the following:
 - a. Build and fly a fuel-driven or battery-powered electric model airplane. Describe safety rules for building and flying model airplanes. Tell safety rules for use of glue, paint, dope, plastics, fuel, and battery pack.
 - b. Build a model FPG-9. Get others in your troop or patrol to make their own model, then organize a competition to test the precision of flight and landing of the models.
4. Do **ONE** of the following:
 - a. Visit an airport. After the visit, report on how the facilities are used, how runways are numbered, and how runways are determined to be “active.”
 - b. Visit a Federal Aviation Administration facility—a control tower, terminal radar control facility, air route traffic control center, or Flight Standards District Office. (Phone directory listings are under U.S. Government Offices, Transportation

Department, Federal Aviation Administration. Call in advance.) Report on the operation and your impressions of the facility.

- c. Visit an aviation museum or attend an air show. Report on your impressions of the museum or show.
5. Find out about three career opportunities in aviation. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

Chemistry (Level 3)

<https://www.scouting.org/merit-badges/chemistry/>



Prerequisites:

#3, #7



Nova Award Merit Badge

Requirements:

- 1) Do **EACH** of the following:
 - a. Describe three examples of safety equipment used in a chemistry laboratory and the reason each one is used.
 - b. Describe what a safety data sheet (SDS) is and tell why it is used.
 - c. Obtain an SDS for both a paint and an insecticide. Compare and discuss the toxicity, disposal, and safe-handling sections for these two common household products.
 - d. Discuss the safe storage of chemicals. How does the safe storage of chemicals apply to your home, your school, your community, and the environment?
- 2) Do **EACH** of the following:
 - a. Predict what would happen if you placed an iron nail in a copper sulfate solution. Then, put an iron nail in a copper sulfate solution. Describe your observations and make a conclusion based on your observations. Compare your prediction and original conclusion with what actually happened. Write the formula for the reaction that you described.
 - b. Demonstrate how you would separate sand (or gravel) from water. Describe how you would separate table salt from water, oil from water, and gasoline from motor oil. Name the practical processes that require these kinds of separations and how the processes may differ.
 - c. Describe the difference between a chemical reaction and a physical change. Observe one of each and share your observations with your counselor.
- 3) Construct a Cartesian diver. Describe its function in terms of how gases in general behave under different pressures and different temperatures. Describe how the behavior of gases affects a backpacker at high altitudes and a scuba diver underwater.
- 4) Do **EACH** of the following:
 - a. Cut a round onion into small chunks. Separate the onion chunks into three equal portions. Leave the first portion raw. Cook the second portion of onion chunks until the pieces are translucent. Cook the third portion until the onions are caramelized, or brown in color. Taste each type of onion. Describe the taste of raw onion versus partially cooked onion versus caramelized onion. Explain what happens to molecules in the onion during the cooking process.
 - b. Describe the chemical similarities and differences between toothpaste and an abrasive household cleanser. Explain how the end use or purpose of a product affects its chemical formulation.
 - c. In a clear container, mix a half-cup of water with a tablespoon of oil. Explain why the oil and water do not mix. Find a substance that will help the two combine, and add it to the mixture. Describe what happened, and explain how that substance worked to combine the oil and water.
- 5) Discuss with your counselor the 5 classical areas of chemistry (organic, inorganic, physical, analytical and biological), and two others from the following list. Explain what they are, and how they impact your daily life.

- (a) Agricultural chemistry
- (b) Atmospheric chemistry
- (c) Computational chemistry
- (d) Electrochemistry
- (e) Environmental chemistry and green chemistry
- (f) Flavor chemistry, fragrance chemistry, and food chemistry
- (g) Medicinal and natural products chemistry
- (h) Photochemistry
- (i) Polymer chemistry
- (j) Or another area of chemistry of your choosing

6) Do **EACH** of the following:

- a. Name two government agencies that are responsible for tracking the use of chemicals for commercial or industrial use. Pick one agency and briefly describe its responsibilities.
- b. Define pollution. Explain the chemical impacts on the ozone layer and global climate change.
- c. Using reasons from chemistry, describe the effect on the environment of ONE of the following:
 - i. The production of aluminum cans
 - ii. Burning fossil fuels
 - iii. Single-use items, such as water bottles, bags, straws, or paper
- d. Briefly describe the purpose of phosphates in fertilizer and in laundry detergent. Explain how the use of phosphates in fertilizers affects the environment. Explain why phosphates have been removed from laundry detergents.

7) Do **ONE** of the following activities:

- a. Visit a laboratory and talk to a chemist. Ask what that chemist does and what training and education are needed to work as a chemist.
- b. Using resources found at the library and in periodicals, books, and the internet (with your parent's permission), learn about two different kinds of work done by chemists, chemical engineers, chemical technicians, or industrial chemists. For each of the four positions, find out the education and training requirements.
- c. Visit an industrial plant that makes chemical products or uses chemical processes and describe the processes used. What, if any, by-products are produced and how are they handled?
- d. Visit a county farm agency or similar governmental agency and learn how chemistry is used to meet the needs of agriculture in your country.

Chess (Level 2)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/chess.pdf



Prerequisites:

#1, #2, #5a-b

BRING YOUR OWN CHESS BOARD



Nova Award Merit Badge

Requirements:

1. Discuss with your merit badge counselor the history of the game of chess. Explain why it is considered a game of planning and strategy.
2. Discuss with your merit badge counselor the following:
 - a. The benefits of playing chess, including developing critical thinking skills, concentration skills, and decision-making skills, and how these skills can help you in other areas of your life
 - b. Sportsmanship and chess etiquette
3. Demonstrate to your counselor that you know each of the following. Then, using Scouting's Teaching EDGE*, teach someone (preferably another Scout) who does not know how to play chess:
 - a. The name of each chess piece
 - b. How to set up a chessboard
 - c. How each chess piece moves, including castling and en passant captures
4. Do the following:
 - a. Demonstrate scorekeeping using the algebraic system of chess notation.
 - b. Discuss the differences between the opening, the middle game, and the endgame.
 - c. Explain four opening principles.
 - d. Explain the four rules for castling.
 - e. On a chessboard, demonstrate a "scholar's mate" and a "fool's mate."
 - f. Demonstrate on a chessboard four ways a chess game can end in a draw.
5. Do the following:
 - a. Explain four of the following elements of chess strategy: exploiting weaknesses, force, king safety, pawn structure, space, tempo, time.
 - b. Explain any five of these chess tactics: clearance sacrifice, decoy, discovered attack, double attack, fork, interposing, overloading, overprotecting, pin, remove the defender, skewer, zwischenzug.
 - c. Set up a chessboard with the white king on e1, the white rooks on a1 and h1, and the black king on e5. With White to move first, demonstrate how to force checkmate on the black king.
 - d. Set up and solve five direct-mate problems provided by your merit badge counselor.
6. Do **ONE** of the following:
 - a. Play at least three games of chess with other Scouts and/or your merit badge counselor. Replay the games from your score sheets and discuss with your counselor how you might have played each game differently.
 - b. Play in a scholastic (youth) chess tournament and use your score sheets from that tournament to replay your games with your merit badge counselor. Discuss with your counselor how you might have played each game differently.

- c. Organize and run a chess tournament with at least four players, plus you. Have each competitor play at least two games.

*You may learn about Scouting's Teaching EDGE from your unit leader, another Scout, or by attending training.

Notes/Comments from MB Counselor

Print out the Chess Merit Badge Worksheet at
<http://usscouts.org/mb/worksheets/list.asp>

Start Practicing Chess!



Citizenship in the Community (Level 3)

https://filestore.scouting.org/filestore/merit_badge_reqandres/citizenship_in_the_community.pdf

Prerequisites:

#2, #3, #4, #5, #7, #8

Be prepared to discuss



Requirements:

1. Discuss with your counselor what citizenship in the community means and what it takes to be a good citizen in your community. Discuss the rights, duties, and obligations of citizenship, and explain how you can demonstrate good citizenship in your community, Scouting unit, place of worship, or school.
2. Do the following:
 - a. On a map of your community or using an electronic device, locate and point out the following:
 - i. Chief government buildings such as your city hall, county courthouse, and public works/services facilities
 - ii. Fire station, police station, and hospital nearest your home
 - iii. Parks, playgrounds, recreation areas, and trails
 - iv. Historical or other points of interest
 - b. Chart the organization of your local or state government. Show the top offices and tell whether they are elected or appointed.
3. Do the following:
 - a. Attend a meeting of your city, town, or county council or school board; OR attend a municipal, county, or state court session.
 - b. Choose one of the issues discussed at the meeting where a difference of opinions was expressed, and explain to your counselor why you agree with one opinion more than you do another one.
4. Choose an issue that is important to the citizens of your community; then do the following:
 - a. Find out which branch of local government is responsible for this issue.
 - b. With your counselor's and a parent's approval, interview one person from the branch of government you identified in requirement 4a. Ask what is being done about this issue and how young people can help.
 - c. Share what you have learned with your counselor.
5. With the approval of your counselor and a parent, watch a movie that shows how the actions of one individual or group of individuals can have a positive effect on a community. Discuss with your counselor what you learned from the movie about what it means to be a valuable and concerned member of the community.
6. List some of the services (such as the library, recreation center, public transportation, and public safety) your community provides that are funded by taxpayers. Tell your counselor why these services are important to your community.
7. Do the following:
 - a. Identify three charitable organizations outside of Scouting that interest you and bring people in your community together to work for the good of your community.
 - b. Pick ONE of the organizations you chose for requirement 7a. Using a variety of resources (including newspapers, fliers and other literature, the Internet,

volunteers, and employees of the organization), find out more about this organization.

- c. With your counselor's and your parent's approval, contact the organization you chose for requirement 7b, and find out what young people can do to help. While working on this merit badge, volunteer at least eight hours of your time for the organization. After your volunteer experience is over, discuss what you have learned with your counselor.
8. Develop a public presentation (such as a video, slide show, speech, digital presentation, or photo exhibit) about important and unique aspects of your community. Include information about the history, cultures, and ethnic groups of your community; its best features and popular places where people gather; and the challenges it faces. Stage your presentation in front of your merit badge counselor or a group, such as your patrol or a class at school.

Citizenship in the Nation (Level 3)

[https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/35871\(22\)_Citizenship_Nation_REQS.pdf](https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/35871(22)_Citizenship_Nation_REQS.pdf)

Prerequisites:

#5, #6, #7 (Two Choices), #8

See Specific Notes from MB Counselor Below



Requirements:

1. What is the Constitution of the United States? What does the Constitution do? What principles does it reflect? Why is it important to have a Constitution?
2. List the six purposes for creating the United States Constitution set forth in the Preamble to the Constitution. How do these purposes affect your family and community?
3. List the three branches of the United States government.
Explain:
 - a. The function of each branch of government
 - b. Why it is important to divide powers among different branches
 - c. How each branch "checks" and "balances" the others
 - d. How citizens can be involved in each branch of government
4. Discuss the importance of:
 - a. Declaration of Independence
 - b. The Bill of Rights (the first 10 Amendments to the Constitution) and the 14th Amendment
 - c. The traditional United States motto "E Pluribus Unum."
5. Watch the national evening news for five days in a row or read the main stories in a national media organization (e.g., a newspaper or news website) for five days in a row. Discuss the national issues that you learned about with your counselor. Choose one issue and explain how it affects you, your family, and community.
6. With your counselor's approval, choose a speech of national historical importance.
Explain:
 - a. Who the author was
 - b. What the historical context was
 - c. What difficulties the nation faced that the author wished to discuss
 - d. What the author said
 - e. Why the speech is important to the nation's history.
 - f. Choose a sentence or two from the speech that has significant meaning to you, and tell your counselor why.
7. Do **TWO** of the following:
 - a. Visit a place that is listed as a National Historic Landmark or that is on the National Register of Historic Places. Tell your counselor what you learned about the landmark or site and what you found interesting about it.
 - b. Tour your state capitol building or the U.S. Capitol. Tell your counselor what you learned about the capitol, its function, and the history.
 - c. Tour a federal facility. Explain to your counselor what you saw there and what you learned about its function in the local community and how it serves this nation.
 - d. Choose a national monument that interests you. Using books, brochures, the internet (with your parent's permission), and other resources, find out more about

the monument. Tell your counselor what you learned, and explain why the monument is important to this country's citizens.

8. Name your representatives in the United States Congress. Write a letter to your representative in Congress explaining your views on a national issue. Show your letter, along with any response you might receive, to your counselor

Notes/Comments from MB Counselor:

- I would like to have each scout e-mail a choice of Amendment to share when & why it was passed and whether all the states ratified it.
- I would like to have them e-mail what speech they choose and also what the names of their Congressman/woman and Senators are.
- I think they should bring their workbooks, pen or pencil, paper to write a letter and an envelope.
- Scout should be prepared to have active discussions for the amendments and other workbook area's and tell us their experiences and have them write a letter in the session.
- If they have pictures from a site they visited it would be great for them to e-mail those ahead of time so that we could put a few PowerPoint slides together while the scout is speaking about the area.

Citizenship in the World (Level 4)

https://filestore.scouting.org/filestore/merit_badge_reqandres/citizenship_in_the_world.pdf



Prerequisites:

#4 (Two Choices),

#7 (Two Choices)

Requirements:

1. Explain what citizenship in the world means to you and what you think it takes to be a good world citizen.
2. Explain how one becomes a citizen in the United States, and explain the rights, duties, and obligations of U.S. citizenship. Discuss the similarities and differences between the rights, duties, and obligations of U.S. citizens and the citizens of two other countries.
3. Do the following:
 - a. Pick a current world event. In relation to this current event, discuss with your counselor how a country's national interest, history, and its relationship with other countries might affect areas such as its security, its economy, its values, and the health of its citizens.
 - b. Select a foreign country and discuss with your counselor how its geography, natural resources, and climate influence its economy and its global partnerships with other countries.
4. Do **TWO** of the following:
 - a. Explain international law and how it differs from national law. Explain the role of international law and how international law can be used as a tool for conflict resolution.
 - b. Using resources such as major daily newspapers, the Internet (with your parent's permission), and news magazines, observe a current issue that involves international trade, foreign exchange, balance of payments, tariffs, and free trade. Explain what you have learned. Include in your discussion an explanation of why countries must cooperate in order for world trade and global competition to thrive.
 - c. Select **TWO** of the following organizations and describe their role in the world.
 - i. The United Nations and UNICEF
 - ii. The World Court
 - iii. Interpol
 - iv. World Organization of the Scout Movement
 - v. The World Health Organization
 - vi. Amnesty International
 - vii. The International Committee of the Red Cross
 - viii. CARE (Cooperative for American Relief Everywhere)
 - ix. European Union
5. Do the following:
 - a. Discuss the differences between constitutional and non-constitutional governments.
 - b. Name at least five different types of governments currently in power in the world.
 - c. Show on a world map countries that use each of these five different forms of government.
6. Do the following:

- a. Explain how a government is represented abroad and how the United States government is accredited to international organizations.
 - b. Describe the roles of the following in the conduct of foreign relations.
 - i. Ambassador
 - ii. Consul
 - iii. Bureau of International Information Programs
 - iv. Agency for International Development
 - v. United States and Foreign Commercial Service
 - c. Explain the purpose of a passport and visa for international travel.
7. Do **TWO** of the following (with your parent's permission) and share with your counselor what you have learned:
- a. Visit the website of the U.S. State Department. Learn more about an issue you find interesting that is discussed on this website.
 - b. Visit the website of an international news organization or foreign government, OR examine a foreign newspaper available at your local library, bookstore, or newsstand. Find a news story about a human right realized in the United States that is not recognized in another country.
 - c. Visit with a student or Scout from another country and discuss the typical values, holidays, ethnic foods, and traditions practiced or enjoyed there.
 - d. Attend a world Scout jamboree.
 - e. Participate in or attend an international event in your area, such as an ethnic festival, concert, or play

Notes/Comments from MB Counselor:

Complete the worksheet, bring it, and be ready to discuss it on the MB College meeting day with your counselors and fellow scouts.

Bring Merit Badge **BOOK** (Not just worksheet) Pen, Pencil



Coin Collecting (Level 2)

<https://www.scouting.org/merit-badges/coin-collecting/>

Prerequisites:

#4, #7

Requirements:

1. Understand how coins are made and where the active U.S. Mint facilities are located.
2. Explain these collecting terms:
 - a. Obverse
 - b. Reverse
 - c. Reeding
 - d. Clad
 - e. Type set
 - f. Date set
3. Describe three different ways to store a collection, and the benefits, drawbacks, and cost of each method.
4. Do each of the following and explain to your counselor the design features, designer name, designer initials, and where to find them for each item:
 - a. Collect a one-cent coin from the year group: 1959-2008 (that is, dated between 1959 and 2008) and a one-cent coin from the year group 2010-present. Explain how and why the one-cent coins issued in 2009 were different from either of the other two year groups.
 - b. Collect two five-cent coins, one from each of these year groups: 1959-2003 and 2006-present. Explain how and why the five-cent coins issued in 2004-2005 were different from either of the other two year groups.
 - c. Collect a ten-cent coin from 1965-present.
 - d. Collect a twenty-five-cent coin from 1965-1998, two examples from the 50-State Quarter® /territories Program 1999-2009, two designs from the America the Beautiful® program 2012-2021 and two designs from the American Woman Quarter® program (2022-2024). Explain the purpose of each of those programs.
 - e. Collect a half dollar coin from 1965-present.
 - f. Collect a dollar coin from each of these design groups: Susan B. Anthony 1979-81, Sacagawea 1990-2005, U.S. Presidents 2000-2014.
5. Describe and discuss with your counselor the special reverse designs of the quarters, half dollar and dollar coin struck in 1975-1976 to honor the U.S. Bicentennial.
6. Identify for your counselor the people depicted on current currency: \$1, \$2, \$5, \$10, \$20, \$50, and \$100 notes. Explain where United States currency is printed.
7. Do ONE of the following:
 - a. Collect and identify for your counselor 20 different world coins from at least 7 different countries. Identify the country, major design elements, and denomination of each.
 - b. Collect and identify for your counselor 20 different world paper money from at least 7 different countries. Identify the country, major design elements, and denomination of each.
 - c. Collect and identify for your counselor 20 different tokens and/or medals. Identify the issuer and use of each.

d. Complete one of the following and report to your counselor what you experienced:

(1) Attend a coin show

(2) Attend a coin club meeting

(3) Tour a U.S. Mint facility or museum

(4) Tour a virtual exhibit (with your parent or guardian's permission) approved by your counselor.

Collections (Level 2)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Collections.pdf



Prerequisites:

#1 and be prepared to discuss #6, #8

Requirements:

1. Prepare a short written report or outline for your counselor, giving a detailed description of your collection,* including a short history, why you enjoy your collection, and what you have learned from collecting. Be sure to include why you chose that particular type of collection/collecting method.
2. Explain the growth and development of your collection.
3. Demonstrate your knowledge of preserving and displaying your collection.
 - a. Explain the precautions you need to take to preserve your collection, including
 - i. Handling
 - ii. Cleaning
 - iii. Storage
 - b. Explain how best to display your collection, keeping in mind preserving as discussed above.
 - c. Explain to your counselor the events available for a hobbyist of this collection, including shows, seminars, conventions, contests, and museum programs and exhibits.
 - d. Explain to your counselor how you keep track of your collection. Describe your cataloging method.
4. Demonstrate your knowledge of collecting and investing. Discuss with your counselor:
 - a. How investing and speculation would apply to your collection
 - b. What you would look for in purchasing other collections similar to yours
 - c. What you would expect in return value if you decided to sell all or part of the collection
5. Do the following:
 - a. Discuss with your counselor at least 10 terms commonly used to describe your collection and be prepared to discuss the definition of each.
 - b. Show your counselor any two groups from your collection. Explain how you organized your collection and why you chose that method. (Note: If your collection is too large to transport and your counselor is unable to view your collection directly, photographs should be available to share.)
 - c. Explain the monetary value of your collection and where you learned about those values.
 - d. Explain how your collection is graded for value, physical defects, size, and age. Show the various classifications or ratings used in your collection.
 - e. List the national, state, or local association(s) related to or associated with your collection.
 - f. Explain to your counselor the purpose of and reason for the identification number (if applicable), series, brand name (if any), and any other special identification marks.
6. Discuss with your counselor the plans you have to continue with the collection in the future.

7. Find out about career opportunities in collecting. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

*Stamp and coin collecting are excluded from eligibility for this merit badge.

Notes/Comments from MB Counselor:

Complete MB Worksheet and Bring with you.

Communication (Level 4)

https://filestore.scouting.org/filestore/merit_badge_reqandres/communication.pdf



Prerequisites:

#1, #2 (a or b, bring w/you), #3 (write speech, bring w/you), #4 and #5 (email to lead counselor in advance), #6 (have plan before class and bring aids w/you), #7 (if using b and c) and #8 (provide proof of completing #8).

Requirements:

1. Do **ONE** of the following:
 - a. For one day, keep a log in which you describe your communication activities. Keep track of the time and different ways you spend communicating, such as talking person-to-person, listening to teachers, listening to the radio or podcasts, watching television, using social media, reading books and other print media, and using any electronic communication device. Discuss with your counselor what your log reveals about the importance of communication in your life. Think of ways to improve your communication skills.
 - b. For three days, keep a journal of your listening experiences. Identify one example of each of the following, and discuss with your counselor when you have listened to:
 - i. Obtain information
 - ii. Be persuaded
 - iii. Appreciate or enjoy something
 - iv. Understand someone's feelings
 - c. In a small-group setting, meet with other Scouts or with friends. Have them share personal stories about significant events in their lives that affected them in some way. Take note of how each Scout participates in the group discussion and how effectively each Scout communicates their story. Report what you have learned to your counselor about the differences you observed in effective communication.
 - d. List as many ways as you can think of to communicate with others (face-to-face, by telephone, letter, email, text messages, social media, and so on). For each type of communication, discuss with your counselor an instance when that method might not be appropriate or effective.
2. Do **ONE** of the following:
 - a. Think of a creative way to describe yourself using, for example, a collage, short story or autobiography, drawing or series of photographs, or a song or skit. Using the aid you created, make a presentation to your counselor about yourself.
 - b. Choose a concept, product, or service in which you have great confidence. Build a sales plan based on its good points. Try to persuade the counselor to agree with, use, or buy your concept, product, or service. After your sales talk, discuss with your counselor how persuasive you were.
3. Write a five-minute speech. Give it at a meeting of a group.
4. Interview someone you know fairly well, like, or respect because of his or her position, talent, career, or life experiences. Listen actively to learn as much as you can about the person. Then prepare and deliver to your counselor an introduction of the person as though this person were to be a guest speaker, and include reasons why the audience would want to hear this person speak. Show how you would call to invite this person to speak.

5. Attend a public meeting (city council, school board, debate) approved by your counselor where several points of view are given on a single issue. Practice active listening skills and take careful notes of each point of view. Prepare an objective report that includes all points of view that were expressed, and share this with your counselor.
6. With your counselor's approval, develop a plan to teach a skill or inform someone about something. Prepare teaching aids for your plan. Carry out your plan. With your counselor, determine whether the person has learned what you intended.
7. Do **ONE** of the following:
 - a. Write to the editor of a magazine or your local newspaper to express your opinion or share information on any subject you choose. Send your message by fax, email, or regular mail.
 - b. Create a webpage or blog of special interest to you (for instance, your troop or crew, a hobby, or a sport). Include at least three articles or entries and one photograph or illustration, and one link to some other webpage or blog that would be helpful to someone who visits the webpage or blog you have created. It is not necessary to post your webpage or blog to the internet, but if you decide to do so, you must first share it with your parents and counselor and get their permission.
 - c. Use desktop publishing to produce a newsletter, brochure, flier, or other printed material for your troop or crew, class at school, or other group. Include at least one article and one photograph or illustration.
8. Plan a troop or crew court of honor, campfire program, or interfaith worship service. Have the patrol leaders' council approve it, then write the script and prepare the program. Serve as master of ceremonies.
9. Find out about three career opportunities in communication. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

Notes/Comments from MB Counselor:

#1 and #9 will be done in class

Materials to be used for #6 must be approved by MB Counselor – no live animals

Dentistry (Level 2)



https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Dentistry.pdf

Prerequisites:

#3, #4, #6

Requirements:

1. Using X-ray (radiographic) films and with your counselor's guidance, study the tooth structure and look for decay. Then do the following:
 - a. Using the radiographs as a guide, draw a lower molar. Label its parts and surfaces. Show surrounding structures such as bone and gum tissues.
 - b. Show on your drawing where the nerves and blood vessels enter the tooth.
 - c. Show on your drawing where bacterial plaque is most likely to be found.
2. Do the following:
 - a. Tell or write about what causes dental decay and gum disease. Tell how each of the following contributes to dental decay and gum disease: bacterial plaque, sugars, and acid.
 - b. Tell the possible causes for traumatic tooth loss, describe the types of mouth guards used to help prevent tooth trauma, and list the athletic activities during which a person should wear a mouth guard.
 - c. Explain the first-aid procedure for saving a tooth that has been knocked out.
 - d. Discuss how the use of tobacco products can negatively affect your oral health.
3. Arrange for a visit with a dentist. Before you go, ask whether your visit can include a dental examination and a plaque-control demonstration. Afterward, ask questions about things you want to know. Then tell your counselor what the dentist does during a checkup examination.
4. Do **TWO** of the following:
 - a. Name at least five instruments and five pieces of equipment a dentist uses.
 - b. With the help of a dentist, prepare a dental stone cast using a vibrator, a mixing bowl, a water measure, a plastic measure, model stone, and a spatula.
 - c. Keep a record of everything you eat for three days. Circle those items that may provide the sugars that bacterial plaque needs to make acid. List snacks that you should avoid to help maintain the best oral health.
5. Discuss with your merit badge counselor the following:
 - a. How fluorides help prevent tooth decay and the ways fluorides can be provided to the teeth.
 - b. How the mouth is related to the rest of the body. Topics might include chewing, saliva, enzymes, nutrition, and speech.
6. Do **TWO** of the following:
 - a. Make a model tooth out of soap, clay, papier-mâché, or wax. Using a string and a large hand brush, show your troop or a school class proper toothbrushing and flossing procedures.
 - b. Make a poster on the prevention of dental disease. Show the importance of good oral health.
 - c. Collect at least five advertisements for different toothpastes. List the claims that each one makes. Tell about the accuracy of the advertisements.

- d. Write a feature story for your school newspaper on the proper care of teeth and gums. Include in your story how the use of tobacco products can negatively affect a person's oral health.
 - e. Make drawings and write about the progress of dental decay. Describe the types of dental filling and treatments a dentist can use to repair dental decay problems.
- 7. Learn about career opportunities for both Doctor of Dental Surgery (D.D.S.) and auxiliary dental professions. Pick either general dentistry OR a dental specialty, plus one auxiliary dental profession. Find out about the education, training, and experience required for these two professions. Discuss these with your counselor, and explain why these professions interest you

Digital Technology (Level 1)

<https://www.scouting.org/merit-badges/digital-technology/>



Prerequisites:

#1, #5b, #5c, #6 (Note: options #6d, 6g, and 6h require prior counselor approval), #8, #9



Nova Award Merit Badge

Requirements:

1. View the [Personal Safety Awareness "Digital Safety" video](#) (with your parent or guardian's permission.)
2. Do the following:
 - a. Give a brief history of the changes in digital technology over time. Discuss with your counselor how digital technology in your lifetime compares with that of your parent's, grandparent's, or other adult's lifetime.
 - b. Describe what kinds of computers or devices you imagine might be available when you are an adult.
3. Do the following:
 - a. Explain to your counselor how text, sound, and pictures are digitized for storage.
 - b. Describe the difference between lossy and lossless data compression, and give an example where each might be used.
 - c. Describe two digital devices and how they are made more useful by their programming.
 - d. Discuss the similarities and differences between computers, mobile devices, and gaming consoles.
 - e. Explain what a computer network is and the difference between a local area network (LAN) versus a wide area network (WAN).
4. Do the following:
 - a. Explain what a program or software application or "app" is and how a computer uses a CPU and memory to execute it.
 - b. Name four software programs or mobile apps you or your family use, and explain how each one helps you.
 - c. Describe what malware is, and explain how to protect your digital devices and the information stored on them.
5. Do the following:
 - a. Describe at least two different ways data can be transferred through the internet.
 - b. Using an internet search engine (with a parent or guardian's permission), find ideas from at least three different websites about how to conduct a troop court of honor or campfire program. Present the ideas to your counselor and explain how you used a search engine to find this information.
 - c. Use a web browser to connect to an HTTPS (secure) website (with your parent's permission). Explain to your counselor how to tell whether the site's security certificate can be trusted, and what it means to use this kind of connection.
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.
 - c. Using a graphics program, design and draw a campsite plan for your troop OR create a flier for an upcoming troop event, incorporating text and some type of visual such as a photograph or an illustration.
 - 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 it 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.
 - g. Create a blog and use it as an online journal of your Scouting activities, including group discussions and meetings, campouts, and other events. Include at least five entries and two photographs or illustrations. Share your blog with your counselor. You need not post the blog to the internet; however, if you choose to go live with your blog, you must first share it with your parents AND counselor AND get their approval.
 - h. Create a webpage for your troop, patrol, school, or place of worship. Include at least three articles and two photographs or illustrations. Include at least one link to a website of interest to your audience. You need not post the page to the internet; however, if you decide to do so, you must first share the webpage with your parents AND counselor AND get their approval.
7. Do the following:
- a. Explain to your counselor each of these protections and why they exist: copyright, patents, trademarks, trade secrets.
 - b. Explain when it is permissible to accept a free copy of a program from a friend.
 - c. Discuss with your counselor an article or (with your parent or guardian's permission) a report on the internet about a recent legal case involving an intellectual property dispute.
8. Do **TWO** of the following:
- a. Describe why it is important to properly dispose of digital technology. List at least three dangerous chemicals that could be used to create digital devices or used inside a digital device.
 - b. Explain to your counselor what is required to become a certified recycler of digital technology hardware or devices.
 - c. Do an internet search for an organization that collects discarded digital technology hardware or devices for repurposing or recycling. Find out what happens to that waste. Share with your counselor what you found.
 - d. Visit a recycling center that disposes of digital technology hardware or devices. Find out what happens to that waste. Share what you learned with your counselor.
 - e. Find a battery recycling center near you and find out what it does to recycle batteries. Share what you have learned with your counselor about the proper methods for recycling batteries.
9. Do **ONE** of the following:
- a. Investigate three career opportunities that involve digital technology. Pick one and find out the education, training, and experience required for this profession.

Discuss this with your counselor, and explain why this profession might interest you.

- b. Visit a business or an industrial facility that uses digital technology. Describe four ways digital technology is being used there. Share what you learned with your counselor.

Disabilities Awareness (Level 2)

[http://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/2023_Updates/35883\(23\)_Disabilities_Awareness_REQ.pdf](http://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/2023_Updates/35883(23)_Disabilities_Awareness_REQ.pdf)



Prerequisites:

#2, #3 (Two Choices), #4 (One Choice), #5

Requirements:

1. Do the following:
 - a. Define and discuss with your counselor the following disabilities awareness terms: disability, accessibility, adaptation, accommodation, invisible disability, person-first language, and inclusion.
 - b. Explain why proper disability etiquette is important, and how it may differ depending on the specific disability. Give three examples.
2. Visit an agency that works with people with physical, mental, emotional, or educational disabilities. Collect and read information about the agency's activities. Learn about opportunities its members have for training, employment, and education. Discuss what you have learned with your counselor.
3. Do **TWO** of the following:
 - a. Talk with a Scout who has a disability and learn about the Scout's experiences taking part in Scouting activities and earning different merit badges. Discuss what you have learned with your counselor.
 - b. Talk with an individual who has a disability and learn about this person's experiences and the activities in which this person likes to participate. Discuss what you have learned with your counselor.
 - c. Learn how people with disabilities take part in a particular adaptive sport or recreational activity. Discuss what you have learned with your counselor.
 - d. Learn about independent living aids such as service animals, canes, and augmentative communication devices such as captioned telephones and videophones. Discuss with your counselor how people use such aids.
 - e. Plan or participate in an activity that helps others understand what a person with a visible or invisible disability experiences. Discuss what you have learned with your counselor.
4. Do **EITHER** option A or option B:

Option A. Visit TWO of the following locations and take notes about the accessibility to people with disabilities. In your notes, give examples of five things that could be done to improve upon the site and five things about the site that make it friendly to people with disabilities. Discuss your observations with your counselor.

 - Your school
 - Your place of worship
 - A Scouting event or campsite
 - A public exhibit or attraction (such as a theater, museum, or park)

Option B. Visit TWO of the following locations and take notes while observing features and methods that are used to accommodate people with invisible disabilities. While there, ask staff members to explain any accommodation features that may not be obvious. Note anything you think could be done to better accommodate people who have invisible disabilities. Discuss your observations with your counselor.

 - Your school

- Your place of worship
 - A Scouting event or campsite
 - A public exhibit or attraction (such as a theater, museum, or park)
5. Explain what advocacy is. Do **ONE** of the following advocacy activities:
 - a. Present a counselor-approved disabilities awareness program to a Cub Scout pack or other group. During your presentation, explain and use person-first language.
 - b. Find out about disabilities awareness education programs in your school or school system, or contact a disability advocacy agency. Volunteer with a program or agency for eight hours.
 - c. Using resources such as disability advocacy agencies, government agencies, the internet (with your parent's permission), and news magazines, learn about myths and misconceptions that influence the general public's understanding of people with disabilities. List 10 myths and misconceptions about people with disabilities and learn the facts about each myth. Share your list with your counselor, then use it to make a presentation to a Cub Scout pack or other group.
 6. Make a commitment to your merit badge counselor describing what you will do to show a positive attitude about and toward people with disabilities and to encourage positive attitudes among others. Discuss how your awareness has changed as a result of what you have learned.
 7. Name five professions that provide services to people with disabilities. Pick one that interests you and find out the education, training, and experience required for this profession. Discuss what you learn with your counselor, and tell why this profession interests you.

Energy (Level 3)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Energy.pdf



Prerequisites:

#1a, #4, #5, #6



Nova Award Merit Badge

Requirements:

- 1) Do the following:
 - a. With your parent's permission, use the internet to find a blog, podcast, website, or an article on the use or conservation of energy. Discuss with your counselor what details in the article were interesting to you, the questions it raises, and what ideas it addresses that you do not understand.
 - b. After you have completed requirements 2 through 8, revisit your source for requirement 1a. Explain to your counselor what you have learned in completing the requirements that helps you better understand the article.
- 2) Show you understand energy forms and conversions by doing the following:
 - a. Explain how THREE of the following devices use energy, and explain their energy conversions: toaster, greenhouse, lightbulb, bow drill, cell phone, nuclear reactor, sweat lodge.
 - b. Construct a system that makes at least two energy conversions and explain this to your counselor.
- 3) Show you understand energy efficiency by explaining to your counselor a common example of a situation where energy moves through a system to produce a useful result. Do the following:
 - a. Identify the parts of the system that are affected by the energy movement.
 - b. Name the system's primary source of energy.
 - c. Identify the useful outcomes of the system.
 - d. Identify the energy losses of the system.
- 4) Conduct an energy audit of your home. Keep a 14-day log that records what you and your family did to reduce energy use. Include the following in your report and, after the 14-day period, discuss what you have learned with your counselor.
 - a. List the types of energy used in your home such as electricity, wood, oil, liquid petroleum, and natural gas, and tell how each is delivered and measured, and the current cost; OR record the transportation fuel used, miles driven, miles per gallon, and trips using your family car or another vehicle.
 - b. Describe ways you and your family can use energy resources more wisely. In preparing your discussion, consider the energy required for the things you do and use on a daily basis (cooking, showering, using lights, driving, watching TV, using the computer). Explain what is meant by sustainable energy sources. Explain how you can change your energy use through reuse and recycling.
- 5) In a notebook, identify and describe five examples of energy waste in your school or community. Suggest in each case possible ways to reduce this waste. Describe the idea of trade-offs in energy use. In your response, do the following:
 - a. Explain how the changes you suggest would lower costs, reduce pollution, or otherwise improve your community.
 - b. Explain what changes to routines, habits, or convenience are necessary to reduce energy waste. Tell why people might resist the changes you suggest.

- 6) Prepare pie charts showing the following information, and explain to your counselor the important ideas each chart reveals. Tell where you got your information. Explain how cost affects the use of a nonrenewable energy resource and makes alternatives practical.
- a. The energy resources that supply the United States with most of its energy
 - b. The share of energy resources used by the United States that comes from other countries
 - c. The proportion of energy resources used by homes, businesses, industry, and transportation
 - d. The fuels used to generate America's electricity
 - e. The world's known and estimated primary energy resource reserves
- 7) Tell what is being done to make FIVE of the following energy systems produce more usable energy. In your explanation, describe the technology, cost, environmental impacts, and safety concerns.
- a. Biomass digesters or waste-to-energy plants
 - b. Cogeneration plants
 - c. Fossil fuel power plants
 - d. Fuel cells
 - e. Geothermal power plants
 - f. Nuclear power plants
 - g. Solar power systems
 - h. Tidal energy, wave energy, or ocean thermal energy conversion devices
 - i. Wind turbines
- 8) Find out what opportunities are available for a career in energy. Choose one position that interests you and describe the education and training required

Engineering (Level 3)

<https://www.scouting.org/merit-badges/engineering/>



Prerequisites:

#1, #2, #5



Nova Award Merit Badge

Requirements:

1. Select a manufactured item in your home (such as a toy or an appliance) and, under adult supervision and with the approval of your counselor, 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.
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. Tell your counselor what you learned.
3. Explain the work of six types of engineers. Pick two of the six and explain how their work is related.
4. Visit with an engineer (who may be your counselor or parent) and do the following:
 - a. Discuss the work this engineer does and the tools the engineer uses.
 - b. Discuss with the engineer a current project and the engineer's particular role in it.
 - c. Find out how the engineer's work is done and how results are achieved.
 - d. Ask to see the reports that the engineer writes concerning the project.
 - e. Discuss with your counselor what you learned about engineering from this visit.
5. Use the systems engineering approach to design an original piece of patrol equipment, a toy or a useful device for the home, office or garage.
6. Do **TWO** of the following:
 - a. *Transforming motion.* Using common materials or a construction set, make a simple model that will demonstrate motion. Explain how the model uses basic mechanical elements like levers and inclined planes to demonstrate motion. Describe an example where this mechanism is used in a real product.
 - b. *Using electricity.* Make a list of 10 electrical appliances in your home. Find out approximately how much electricity each uses in one month. Learn how to find out the amount and cost of electricity used in your home during periods of light and heavy use. List five ways to conserve electricity.
 - c. *Understanding electronics.* Using an electronic device such as a smartphone or tablet computer, find out how sound, video, text or images travel from one location to another. Explain how the device was designed for ease of use, function, and durability.
 - d. *Using materials.* Do experiments to show the differences in strength and heat conductivity in wood, metal, and plastic. Discuss with your counselor what you have learned.
 - e. *Converting energy.* Do an experiment to show how mechanical, heat, chemical, solar, and/or electrical energy may be converted from one or more types of energy to another. Explain your results. Describe to your counselor what energy is and how energy is converted and used in your surroundings.
 - f. *Moving people.* Find out the different ways people in your community get to work. Make a study of traffic flow (number of vehicles and relative speed) in both heavy

and light traffic periods. Discuss with your counselor what might be improved to make it easier for people in your community to get where they need to go.

- g. *Building an engineering project.* Enter a project in a science or engineering fair or similar competition. (This requirement may be met by participation on an engineering competition project team.) Discuss with your counselor what your project demonstrates, the kinds of questions visitors to the fair asked, and how well you were able to answer their questions.
- 7. Explain what it means to be a registered Professional Engineer (P.E.). Name the types of engineering work for which registration is most important.
- 8. Study the Engineer's Code of Ethics. Explain how it is like the Scout Oath and Scout Law.
- 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.

Entrepreneurship (Level 4)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Entrepreneurship.pdf



Prerequisites:

#3, #4, #5

Requirements:

1. In your own words, define entrepreneurship. Explain to your merit badge counselor how entrepreneurs impact the U.S. economy.
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.
3. Identify and interview an individual who has started a 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.
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.
5. Create a written business plan for your idea that includes all of the following:
 - a. Product or Service
 - i. Describe the product or service to be offered.
 - ii. Identify goals for your business.
 - iii. Explain how you can make enough of the product or perform the service to meet your goals.
 - iv. Identify and describe the potential liability risks for your product or service.
 - v. Determine what type of license, if any, you might need in order to sell or make your product or service.
 - b. Market Analysis
 - i. Identify the types of people who would buy your product or service.
 - ii. Identify your business's competitors, and describe their strengths and weaknesses.
 - iii. Describe what makes your product or service unique.
 - c. Financial
 - i. Determine how much money you will need to start your business, and identify how you will obtain the money.
 - ii. Determine the cost of offering your product or service and the price you will charge in order to make a profit.
 - iii. Describe what will happen with the money you make from the sales of your product or service.
 - iv. Entrepreneurship
 - d. Personnel
 - i. Determine what parts of the business you will handle yourself, and describe your qualifications.

- ii. Determine whether you will need additional help to operate your business. If you will need help, describe the responsibilities and qualifications needed for the personnel who will fill each role.
 - e. Promotion and Marketing
 - i. Describe the methods you will use to promote your business to potential customers.
 - ii. Explain how you will utilize the Internet and social media to increase awareness of your product or service.
 - iii. Design a promotional flier or poster for your product or service.
- 6. When you believe your business idea is feasible, imagine your business idea is now up and running. What successes and problems might you experience? How would you overcome any failures? Discuss with your counselor any ethical questions you might face and how you would deal with them.

Notes/Comments from MB Counselor:

Material for this merit badge is geared towards older scouts and recommend a minimum age of 15 to enroll

Fire Safety (Level 1)

https://filestore.scouting.org/filestore/merit_badge_reqandres/fire_safety.pdf



Prerequisites:

#9, #10, #12

Requirements:

1. Do the following:
 - a. Demonstrate the technique of stop, drop, cover, roll, cover your face, and cool. Explain how burn injuries can be prevented.
 - b. List the most frequent causes of burn injuries.
 - c. Explain how to safely store flammable and combustible liquids. Describe the options available for safely disposing of unwanted hazardous substances in your community.
2. Explain the concept of fire and name the parts of the fire tetrahedron. Name the by-products of combustion. Describe the life cycle of a fire.
3. Explain the role of human behavior in the arson problem in this country.
4. Do the following:
 - a. Explain the four classifications of fire origin (accidental, natural, incendiary, or undetermined) and give an example of each.
 - b. Describe how a fire classified as incendiary might lead to criminal prosecution of a person charged with arson.
 - c. Explain some of the social, economic and environmental consequences that result from incendiary fires that damage or destroy structures and wildlands.
5. Conduct a home safety survey with the help of an adult. Then do the following:
 - a. Draw a home fire-escape plan, create a home fire-drill schedule, and conduct a home fire drill.
 - b. Test a smoke alarm and demonstrate regular maintenance of a smoke alarm.
 - c. Explain what to do when you smell gas and when you smell smoke.
 - d. Explain how you would report a fire alarm.
 - e. Explain what fire safety equipment can be found in public buildings.
 - f. Explain who should use fire extinguishers and when these devices can be used.
 - g. Explain how to extinguish a grease pan fire.
 - h. Explain what fire safety precautions you should take when you are in a public building.
6. Conduct a home safety survey with the help of an adult. Then do the following:
 - a. Draw a home fire-escape plan, create a home fire-drill schedule, and conduct a home fire drill.
 - b. Identify the location of all smoke alarms in your home and confirm that none are more than 10 years old. Test each smoke alarm and demonstrate regular maintenance of a smoke alarm.
 - c. Explain what to do when you smell natural gas and when you smell smoke.
 - d. Explain how you would report a fire to have the fire department respond.
 - e. Explain what fire safety equipment can be found in public buildings.
 - f. Explain who should use fire extinguishers and when these devices can be used.
 - g. Explain how to extinguish a stovetop pan fire.
 - h. Explain what fire safety precautions you should take when you are in a public building.

7. Do the following:
 - a. Demonstrate lighting a match safely, the proper way to extinguish it and to dispose of it.
 - b. Demonstrate the safe way to start a charcoal fire.
 - c. Demonstrate how to safely light a candle. Discuss with your counselor how to safely use candles.
8. Explain the difference between combustible and noncombustible liquids and between combustible and noncombustible fabrics.
9. Do the following:
 - a. Describe for your counselor the safe way to refuel a liquid fueled engine, such as a lawn mower, weed eater, outboard motor, farm machine, or automobile with fuel from an approved gasoline container.
 - b. Demonstrate the safety factors, such as proper ventilation, for auxiliary heating devices and the proper way to fuel those devices.
10. Do the following:
 - a. Explain the costs associated with outdoor and wildland fires and how they can be prevented.
 - b. Demonstrate setting up and putting out a cooking fire.
 - c. Demonstrate using a camp stove and lantern.
 - d. Explain how to set up a campsite safe from fire.
11. Visit a fire station. Identify the various types of fire trucks and describe the functions of each. Find out about the fire prevention activities in your community during your visit.
12. Determine if smoke detectors are required in all dwellings within your municipality. If so, explain which specific types are required. Tell your counselor what type of smoke detectors your house has or needs.
13. Choose a fire safety-related career that interests you and describe the level of education required and responsibilities of a person in that position. Tell why this position interests you.

First Aid (Level 3)

<https://www.scouting.org/merit-badges/first-aid/>



Prerequisites:

#1, #5

Bring completed First Aid Kit to class

Requirements:

1. Demonstrate to your counselor that you have current knowledge of all first-aid requirements for Tenderfoot, Second Class, and First Class ranks.
2. Explain how you would obtain emergency medical assistance from:
 - a. Your home
 - b. A remote location on a wilderness camping trip
3. Define the term triage. Explain the steps necessary to assess and handle a medical emergency until help arrives.
4. Explain the precautions you must take to reduce the risk of transmitting an infection between you and the victim while administering first aid.
5. Do the following:
 - a. Prepare a first-aid kit for your home. Display and discuss its contents with your counselor.
 - b. With an adult leader, inspect your troop's first-aid kit. Evaluate it for completeness. Report your findings to your counselor and Scout leader.
6. Describe the early signs and symptoms of each of the following and explain what actions you should take:
 - a. Shock
 - b. Heart attack
 - c. Stroke
7. Do the following:
 - a. Describe the conditions that must exist before performing CPR on a person.
 - b. Demonstrate proper CPR technique using a training device approved by your counselor.
 - c. Explain the use of an automated external defibrillator (AED).
 - d. Demonstrate or simulate the proper use of an automated external defibrillator (AED), using an AED training device if available.
 - e. Identify the location of the AED at your school, place of worship, and troop meeting place, if one is present
8. Do the following:
 - a. Show the steps that need to be taken for someone who has a large open wound or cut that is not bleeding severely.
 - b. Show the steps that need to be taken for someone who has a large open wound or cut that is severely bleeding.
 - c. Explain when it is appropriate and not appropriate to use a tourniquet. List some of the benefits and dangers of the use of a tourniquet.
 - d. Demonstrate the application of a tourniquet without tightening it.
9. Explain when a bee sting could be life threatening and what action should be taken for prevention and for first aid.
10. Describe the signs and symptoms and potential complications of a fracture and dislocation.

11. Demonstrate the proper procedures for handling and immobilizing suspected closed or open fractures or dislocations of the:
 - (a) Finger
 - (b) Forearm
 - (c) Wrist
 - (d) Upper leg
 - (e) Lower leg
 - (f) Ankle
12. Describe the signs, symptoms, and possible complications and demonstrate care for someone with a suspected injury to the neck or back.
13. Describe the symptoms, proper first-aid procedures, and possible prevention measures for the following conditions:
 - a. Concussion
 - b. Anaphylaxis/allergic reactions
 - c. Asthmatic attack
 - d. Bruises
 - e. Sprains or strains
 - f. Hypothermia
 - g. Frostbite
 - h. Burns—first, second, and third degree
 - i. Convulsions/seizures
 - j. Dehydration
 - k. Muscle cramps
 - l. Heat exhaustion
 - m. Heat stroke
 - n. Abdominal pain
 - o. Broken, chipped, or loosened tooth
14. Do the following:
 - a. Describe the conditions under which an injured person should be moved.
 - b. If a sick or an injured person must be moved, tell how you would determine the best method. Demonstrate this method.
 - c. With helpers under your supervision, improvise a stretcher and move a presumably unconscious person.
15. Describe the following:
 - a. The indications that someone might be a danger to themselves or others.
 - b. What action you should take if you suspect that someone might be a danger to themselves or others.
16. Teach another Scout a first-aid skill selected by your counselor.

Game Design (Level 3)

https://filestore.scouting.org/filestore/merit_badge_reqandres/game_design.pdf



Prerequisites:

#1, #5



Nova Award Merit Badge

Requirements:

1. Do the following:
 - a. Analyze four games you have played, each from a different medium. Identify the medium, player format, objectives, rules, resources, and theme (if relevant). Discuss with your counselor the play experience, what you enjoy in each game, and what you dislike. Make a chart to compare and contrast the games.
 - b. Describe five different reasons that people play games. For each, give an example of a game that fits that reason.
2. Discuss with your counselor five of the following 17 game design terms. For each term that you pick, describe how it relates to a specific game.
Thematic game elements: *story, setting, characters*
Gameplay elements: *play sequence, level design, interface design*
Game analysis: *difficulty, balance, depth, pace, replay value, age appropriateness*
Related terms: *single-player vs. multiplayer, cooperative vs. competitive, turn based vs. real-time, strategy vs. reflex vs. chance, abstract vs. thematic*
3. Define the term intellectual property. Describe the types of intellectual property associated with the game design industry. Describe how intellectual property is protected and why protection is necessary. Define and give an example of a licensed property.
4. Do the following:
 - a. Pick a game where the players can change the rules or objectives (examples: basketball, hearts, chess, kickball). Briefly summarize the standard rules and objectives and play through the game normally.
 - b. Propose changes to several rules or objectives. Predict how each change will affect gameplay.
 - c. Play the game with one rule or objective change, observing how the players' actions and emotional experiences are affected by the rule change. Repeat this process with two other changes.
 - d. Explain to your counselor how the changes affected the actions and experience of the players. Discuss the accuracy of your predictions.
5. Design a new game. Any game medium or combination of mediums is acceptable. Record your work in a game design notebook.
 - a. Write a vision statement for your game. Identify the medium, player format, objectives, and theme of the game. If suitable, describe the setting, story, and characters.
 - b. Describe the reason that someone would want to play your game.
 - c. Make a preliminary list of the rules of the game. Define the resources.
 - d. Draw the game elements. You must have your merit badge counselor's approval of your concept before you begin creating the prototype.
6. Do the following:

- a. Prototype your game from requirement 5. If applicable, demonstrate to your counselor that you have addressed player safety through the rules and equipment. Record your work in your game design notebook.
 - b. Test your prototype with as many other people as you need to meet the player format. Compare the play experience to your descriptions from requirement 5b. Correct unclear rules, holes in the rules, dead ends, and obvious rule exploits. Change at least one rule, mechanic, or objective from your first version of the game, and describe why you are making the change. Play the game again. Record in your game design notebook whether or not your change had the expected effect.
 - c. Repeat 6b at least two more times and record the results in your game design notebook.
7. Blind test your game. Do the following:
- a. Write an instruction sheet that includes all of the information needed to play the game. Clearly describe how to set up the game, play the game, and end the game. List the game objectives.
 - b. Share your prototype from requirement 6 with a group of players that has not played it or witnessed a previous playtest. Provide them with your instruction sheet(s) and any physical components. Watch them play the game, but do not provide them with instruction. Record their feedback in your game design notebook.
 - c. Share your game design notebook with your counselor. Discuss the player reactions to your project and what you learned about the game design process. Based on your testing, determine what you like most about your game and suggest one or more changes.
8. Do **ONE** of the following:
- a. With your parent or guardian's permission and your counselor's approval, visit with a professional in the game development industry and ask them about their job and how it fits into the overall development process.
 - b. Alternatively, meet with a professional in game development education and discuss the skills they emphasize in the classroom.



Genealogy (Level 2)

[http://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/2023_Updates/35903\(23\)_Genealogy_REQ.pdf](http://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/2023_Updates/35903(23)_Genealogy_REQ.pdf)

Prerequisites:

#2, #3, #4, #5, #6, #7

Requirements:

1. Do **EACH** of the following:
 - a. Explain to your counselor what the words genealogy, ancestor and descendant mean.
 - b. Explain what a family tree is and what information would be kept there.
 - c. Explain what a family group record is and what information would be kept there.
2. Do **ONE** of the following:
 - a. Create a time line for yourself or for a relative. Then write a short biography based on that time line.
 - b. Keep a journal for six weeks. You must write in it at least once a week.
3. With your parent's help, choose a relative or a family acquaintance you can interview in person, by telephone, or by email or letter. Record the information you collect so you do not forget it.
4. Do **EACH** of the following:
 - a. Name three types of physical genealogical resources, where you can find them, and explain how these resources can help you chart your family tree.
 - b. Name three types of digital genealogical resources, where you can find them, and how these resources can help you chart your family tree.
 - c. Obtain at least one genealogical document that supports an event that is or can be recorded on your pedigree chart or family group record.
 - d. Tell how you found it and how you would evaluate the genealogical information you found for requirement 4c.
 - e. Tell a likely place to find these type of genealogical records: marriage record, census record, birth record, and burial information.
5. Contact **ONE** of the following individuals or institutions. Ask what genealogical services, records, or activities this individual or institution provides, and report the results:
 - a. A genealogical or lineage society
 - b. A professional genealogist (someone who gets paid for doing genealogical research)
 - c. A surname organization, such as your family's organization
 - d. A genealogical educational facility or institution
 - e. A genealogical record repository of any type (courthouse, genealogical library, state or national archive, state library, etc.)
6. Begin your family tree by listing yourself and include at least two additional generations. You may complete this requirement by using the chart provided in this pamphlet or the genealogy software program of your choice.
7. Complete a family group record form, listing yourself and your brothers and sisters as the children. On another family group record form, show one of your parents and his or her brothers and sisters as the children. This requirement may be completed using the chart provided or the genealogy software program of your choice.
8. Do the following:

- a. Explain the effect computers and the internet are having on the world of genealogy.
 - b. Explain how photography has influenced genealogy.
 - c. Explain how record indexing works and how that has influenced genealogy.
9. Discuss what you have learned about your family and your family members through your genealogical research



Health Care Professions (Level 2)

[https://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/35975\(21\)-HealthCare-WEB-Requirements.pdf](https://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/35975(21)-HealthCare-WEB-Requirements.pdf)

Prerequisites:

#1, #2, #3, #4, #5, #9

Requirements:

1. Select three of the professions from Group 1 listed below which interest you, then complete the following:
 - a. Briefly describe to your counselor the roles these professionals play in the delivery of health care.
 - b. Describe to your counselor the educational and licensing requirements for the professionals you selected.

Group 1:

- (1) Allopathic physician (MD) — all specialties
- (2) Osteopathic physician (DO) — all specialties
- (3) Podiatrist (DPM)
- (4) Chiropractor (DC)
- (5) Nurse Practitioner (NP)
- (6) Psychologist (PhD or PsyD)
- (7) Optometrist (OD)
- (8) Audiologist (AudD)

2. Select three of the professions from Group 2 listed below which interest you, then complete the following:
 - a. Briefly describe to your counselor the roles these professionals play in the delivery of health care.
 - b. Describe to your counselor the educational and licensing requirements for the professionals you selected.

Group 2:

- (1) Physician Assistant (PA)
- (2) Registered Nurse (RN)
- (3) Certified Nurse Midwife (CNM)
- (4) Certified Nurse Assistant (CNA)
- (5) Licensed Practical Nurse (LPN/LVN)
- (6) Nurse Anesthetist (CRNA)
- (7) Pharmacist (PharmD)
- (8) Pharmacy Technician
- (9) Emergency Medical Technician (EMT)/Paramedic

3. Select three of the professions from Group 3 listed below which interest you, then complete the following:
 - a. Briefly describe to your counselor the roles these professionals play in the delivery of health care.

- b. Describe to your counselor the educational and licensing requirements for the professionals you selected.

Group 3:

- (1) Physical Therapist (DPT)
- (2) Occupational Therapist (OT)
- (3) Orthotist/Prosthetist
- (4) Medical Appliance Technician
- (5) Respiratory Therapist (RT)
- (6) Medical Assistant
- (7) Dietitian (RD)
- (8) Speech-Language Pathologist (Speech Therapist) (SLP)

4. Select three of the professions from Group 4 listed below which interest you, then complete the following:
 - a. Briefly describe to your counselor the roles these professionals play in the delivery of health care.
 - b. Describe to your counselor the educational and licensing requirements for the professionals you selected.

Group 4:

- (1) Biomedical Engineer (BME)
- (2) Medical Technologist
- (3) Phlebotomist
- (4) Radiology Technologist
- (5) Sonographer
- (6) Medical Records Specialist
- (7) Cytopathologist
- (8) Histotechnologist

5. Select one career from any of the lists in Requirements 1, 2, 3, or 4 and arrange to visit that professional at their workplace. Discuss with your counselor the following:
 - a. Why did they choose their particular career?
 - b. What do they most like about their job?
 - c. What are their biggest challenges in doing their job?
 - d. Identify the tools/instruments that may be used in their jobs.
 - e. What has been the most surprising aspect of their career?
 - f. What continuing education requirements are required to maintain certification
 6. Discuss with your counselor your understanding of the meaning of the Physician's Oath.
 7. Describe the role of confidentiality between a patient and the health care provider. What is HIPAA?
 8. Identify a medical advancement or discovery that has been in the news recently. Discuss with your counselor how this can affect patient care.
 9. With approval of your counselor and parents/guardian, serve as a volunteer at a health related event or facility in your community (e.g. blood drive, health fair, blood pressure screening event). Report to your counselor what you did and learned from the experience.

Journalism (Level 3)

https://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/Journalism.pdf



Prerequisites:

#2, #3, #4, #5

Requirements:

1. Explain what freedom of the press is and how the First Amendment guarantees that you can voice your opinion. In your discussion, tell how to distinguish between fact and opinion, and explain the terms libel, slander, defamation, fair comment and criticism, public figure, privacy, and malice. Discuss how these matters relate to ethics in journalism.
2. Do either A OR B:
 - a. Newspaper, magazine, and online journalism (with your parent or guardian's permission).
 - i. On the same day, read a local news source or newspaper, a national news source or newspaper, a news magazine (online or printed) and a social media news feed. From each source, clip, read, and compare a story about the same event. Tell your counselor how long each story is and how fair and accurate the stories are in presenting different points of view. Tell how each source handled the story.
 - ii. Visit the office of a newspaper, magazine, or internet news site. Ask for a tour of the various divisions (editorial, business, and printing). During your tour, talk to an executive from the business side about management's relations with reporters, editors, and photographers and what makes a "good" newspaper, magazine, or internet news site.
 - b. Radio and television journalism
 - i. All on the same day, watch a local and national network newscast, listen to a radio newscast, and (with your parent's permission) view a national broadcast news source online. List the different news items and features presented, the different elements used, and the time in minutes and seconds and the online space devoted to each story. Compare the story lists and discuss whether the stories are fair and accurate. Explain why different news outlets treated the stories differently and/or presented a different point of view.
 - ii. Visit a radio or television station. Ask for a tour of the various departments, concentrating on those related to news broadcasts. During your tour, talk to the station manager or other station management executive about station operations, particularly how management and the news staff work together, and what makes a "good" station. If possible, go with a reporter to cover a news event.
3. Discuss the differences between a hard news story and a feature story. Explain what is the "five W's and H." Then do **ONE** of the following:
 - a. Choose a current or an unusual event of interest to you, and write either a hard news article OR a feature article about the event. Gear the article for print OR audio OR video journalism. Share your article with your counselor.
 - b. With your parent's permission and counselor's approval, interview someone in your community who is influential because of his or her leadership, talent, career,

- or life experiences. Then present to your counselor either a written or oral report telling what you learned about this person.
- c. With your parent's permission and counselor's approval, read an autobiography written by a journalist you want to learn more about. Write an article that tells what you learned about this person and the contributions this person has made to the field of journalism.
 - d. Attend a Scouting event and write a 200-word article (feature or hard news) about the event. Use either the inverted pyramid style or the chronological style. Review the article with your counselor, then submit it to your community newspaper or BSA local council or district newsletter for consideration.
4. Attend a public event and do **ONE** of the following:
- a. Write two newspaper articles about the event, one using the inverted pyramid style and one using the chronological style.
 - b. Using a radio or television broadcasting style, write a news story, a feature story, and a critical review of the event.
 - c. Take a series of photographs to help tell the story of the event in pictures. Include news photos and feature photos in your presentation. Write a brief synopsis of the event as well as captions for your photos.
5. Find out about three career opportunities in journalism. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

Law (Level 2)

https://filestore.scouting.org/filestore/merit_badge_reqandres/law.pdf



Prerequisites:

#4, #6

Requirements:

1. Define “law.” Tell some of its sources. Describe what the “Rule of Law” is. Outline the functions the law serves.
2. Discuss TWO of the following:
 - a. Justinian’s Code, the Code of Hammurabi, and the Magna Carta
 - b. The development of the jury system
 - c. Two famous trials in history
3. Tell what civil law is; tell what criminal law is. Tell the main differences between them. Give examples of each.
4. Ask five people (not more than one from your immediate family) about the role of law enforcement officers in our society. Discuss their answers with them. Go to a law enforcement officer in your neighborhood and ask about his or her responsibilities and duties. Report your findings.
5. Discuss with your counselor several laws that were passed to protect the consumer and the seller. Describe several organizations that provide help to consumers and sellers.
6. Do **ONE** of the following:
 - a. Attend a session of a civil or criminal court. Write 250 words or more on what you saw.
 - b. Plan and conduct a mock trial with your troop or school class. After the trial is over, discuss it with the group.
7. Arrange a visit with a lawyer who works for a business, bank, title company, or government agency. Find out his or her duties and responsibilities. Report what you have learned.
8. Explain the requirements for becoming a lawyer in your state. Describe how judges are selected in your state.
9. Make a list of 15 jobs that deal with some aspects of law or legal processes. Tell which you prefer. Why?
10. Tell where people can go to obtain the help of a lawyer if they are unable to pay for one. Tell what you can do if you can afford a lawyer but do not know of any in your area.
11. Discuss with your counselor the importance in our society of TWO of the following areas of the law:
 - a. Administrative
 - b. Bankruptcy
 - c. Environmental
 - d. Family
 - e. Immigration
 - f. Information Technology
 - g. Intellectual Property
 - h. International
 - i. Privacy

Music (Level 2)

https://filestore.scouting.org/filestore/merit_badge_reqandres/music.pdf



Prerequisites:

#1, #3 (Choice of Two), #4 (Choice of One)

Counselors will contact you via email for musical selections for Requirement #1 and /or instrument needs for Requirements #1 and #4b

Requirements:

1. Sing or play a simple song or hymn chosen by your counselor, using good technique, phrasing, tone, rhythm, and dynamics. Read all the signs and terms of the score.
2. Name the five general groups of musical instruments. Create an illustration that shows how tones are generated and how instruments produce sound.
3. Do **TWO** of the following:
 - a. Attend a live performance, or listen to three hours of recordings from any two of the following musical styles: blues, jazz, classical, country, bluegrass, ethnic, gospel, musical theater, opera. Describe the sound of the music and the instruments used. Identify the composers or songwriters, the performers, and the titles of the pieces you heard. If it was a live performance, describe the setting and the reaction of the audience. Discuss your thoughts about the music.
 - b. Interview an adult member of your family about music. Find out what the most popular music was when he or she was your age. Find out what his or her favorite music is now, and listen to three of your relative's favorite tunes with him or her. How do those favorites sound to you? Had you ever heard any of them? Play three of your favorite songs for your relative, and explain why you like these songs. Ask what he or she thinks of your favorite music.
 - c. Serve for six months as a member of a school band, choir, or other organized musical group, or perform as a soloist in public six times.
 - d. List five people who are important in the history of American music and explain to your counselor why they continue to be influential. Include at least one composer, one performer, one innovator, and one person born more than 100 years ago.
4. Do **ONE** of the following:
 - a. Teach three songs to a group of people. Lead them in singing the songs, using proper hand motions.
 - b. Compose and write the score for a piece of music of 12 measures or more, and play this music on an instrument.
 - c. Make a traditional instrument and learn to play it.
5. Define for your counselor intellectual property (IP). Explain how to properly obtain and share recorded music.

Pets (Level 1)

https://filestore.scouting.org/filestore/merit_badge_reqandres/pets.pdf



Prerequisites:

#1, #2, #3, #4 (Pictures or video required)

Requirements:

1. Present evidence that you have cared for a pet for four months. Get approval before you start.*
2. Write in 200 words or more about the care, feeding, and housing of your pet. Tell some interesting facts about it. Tell why you have this kind of pet. Give local laws, if any, relating to the pet you keep.
3. Show that you have read a book or pamphlet, approved by your counselor, about your kind of pet. Discuss with your counselor what you have learned from what you read.
4. Do any **ONE** of the following:
 - a. Show your pet in a pet show.
 - b. Start a friend raising a pet like yours. Help your friend get a good start.
 - c. Train a pet in three or more tricks or special abilities.

***Work done for other merit badges cannot be used for this requirement.**

Photography (Level 2)

<https://www.scouting.org/merit-badges/photography/>



Prerequisites:

#1b, #4 (Choice of Two), #5 (Choice of Three), #6 (Choice of One), #7

Requirements:

1. Safety. Do the following:
 - a. Explain to your counselor the most likely hazards you may encounter while working with photography and what you should do to anticipate, mitigate, prevent, and respond to these hazards. Explain how you would prepare for exposure to environmental situations such as weather, sun, and water.
 - b. View the [Personal Safety Awareness "Digital Safety" video](#) (with your parent or guardian's permission.)
2. Explain how the following elements and terms can affect the quality of a picture:
 - a. Light—natural light (ambient/existing), low light (such as at night), and artificial light (such as from a flash)
 - b. Exposure—aperture (f-stops), shutter speed, ISO
 - c. Depth of field
 - d. Composition—rule of thirds, leading lines, framing, depth
 - e. Angle of view
 - f. Stop action and blur motion
 - g. Decisive moment (action or expression captured by the photographer)
3. Explain the basic parts and operation of a camera. Explain how an exposure is made when you take a picture.
4. Do **TWO** of the following, then share your work with your counselor.
 - 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 depths of field.
 - d. Photograph one subject with two different compositional techniques.
5. Photograph **THREE** of the following, then share your work with your counselor.
 - 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
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.
 - a. Crop your photograph.
 - b. Adjust the exposure or make a color correction.
 - c. Show another way you could improve your picture for impact.
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.
- 8. Identify three career opportunities in photography. Pick one and explain to your counselor how to prepare for such a career. Discuss what education and training are required, and why this profession might interest you.

Programming (Level 2)



<https://www.scouting.org/merit-badges/programming/>

Prerequisites:

#1a, #5

Requirements:

1. Safety. Do the following:
 - a. View the [Personal Safety Awareness "Digital Safety" video](#) (with your parent or guardian's permission.)
 - b. Discuss first aid and prevention for potential injuries, such as eyestrain and repetitive stress injuries, that could occur during programming activities
2. History. Do the following:
 - a. Discuss with your counselor the history of programming and programming languages, and discuss how programming languages have evolved over time to become easier to use while adding additional capabilities.
 - b. Discuss with your counselor the history of programming and the evolution of programming languages.
3. General knowledge. Do the following:
 - a. Create a list of 10 popular programming languages in use today and describe which industry or industries they are primarily used in and why.
 - b. Describe three different programmed devices you rely on every day.
4. Intellectual property. Do the following:
 - a. Explain the four types of intellectual property used to protect computer programs.
 - b. Describe the difference between licensing and owning software.
 - c. Describe the differences between freeware, open source, and commercial software, and why it is important to respect the terms of use of each.
5. Projects. Do the following:
 - a. With your counselor's approval, choose a sample program. Modify the code or add a function or subroutine to it. Debug and demonstrate the modified program to your counselor.

The Programming merit badge website, www.scoutlife.org/programming, has a number of sample programs that you could use for requirement 5a. However, you have the option of finding a program on your own. It's a good idea to seek your merit badge counselor's guidance.

- b. With your counselor's approval, choose a second programming language and development environment, different from those used for requirement 5a and in a different industry from 5a. Then write, debug, and demonstrate a functioning program to your counselor, using that language and environment.
- c. With your counselor's approval, choose a third programming language and development environment, different from those used for requirements 5a and 5b and in a different industry from 5a or 5b. Then write, debug, and demonstrate a functioning program to your counselor, using that language and environment.
- d. Explain how the programs you wrote for requirements 5a, 5b, and 5c process inputs, how they make decisions based on those inputs, and how they provide outputs based on the decision making.

6. Careers. Find out about three career opportunities that require knowledge in programming. Pick one and find out the education, training, and experience required. Discuss this with your counselor and explain why this career might be of interest to you.

Counselor Notes:

Public Health (Level 3)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Public_Health.pdf



Prerequisites:

#5 (Choose One), #7 (Choose One)



Nova Award Merit Badge

A parental permission form will be sent to class attendees.

This must be signed by the parent and returned to the counselor prior to the Merit Badge College.

Requirements:

1. Explain what public health is. Explain how Escherichia coli (E. coli), tetanus, AIDS, encephalitis, salmonellosis, Lyme disease, and coronavirus (COVID-19) are contracted. Then, pick any four of the following diseases and explain how each one is contracted and possibly prevented: gonorrhea, West Nile virus, botulism, influenza, syphilis, hepatitis, emphysema, meningitis, herpes, lead poisoning. For all 10 diseases, explain the type or form of the disease (viral, bacterial, environmental, toxin), any possible vectors for transmission, ways to help prevent exposure or the spread of infection, and available treatments.
2. Do the following:
 - a. Explain the meaning of immunization.
 - b. Name eight diseases against which a young child should be immunized, two diseases against which everyone should be reimmunized periodically, and one immunization everyone should receive annually.
 - c. Using the list of diseases and conditions in requirement 1, discuss with your counselor those which currently have no immunization available.
3. Discuss the importance of safe drinking water in terms of the spread of disease. Then, demonstrate two ways for making water safe to drink that can be used while at camp. In your demonstration, explain how dishes and utensils should be washed, dried, and kept sanitary at home and in camp.
4. Explain what a vector is and how insects and rodents can be controlled in your home, in your community, and at camp. Tell why this is important. In your discussion, explain which vectors can be easily controlled by individuals and which ones require long-term, collective action.
5. With your parent's and counselor's approval, do **ONE** of the following:
 - a. Visit a municipal wastewater treatment facility or a solid-waste management operation in your community.
 - i. Describe how the facility safely treats and disposes of sewage or solid waste.
 - ii. Discuss your visit and what you learned with your counselor.
 - iii. Describe how sewage and solid waste should be disposed of under wilderness camping conditions.
 - b. Visit a food service facility, such as a restaurant or school cafeteria.
 - i. Observe food preparation, handling, and storage. Learn how the facility keeps food from becoming contaminated.
 - ii. Find out what conditions allow microorganisms to multiply in food, what can be done to help prevent them from growing and spreading, and how to kill them.

- iii. Discuss the importance of using a thermometer to check food temperatures.
 - iv. Discuss your visit and what you learned with your counselor.
- 6. Do the following:
 - a. Describe the health dangers from air, water, and noise pollution.
 - b. Describe health dangers from tobacco use and alcohol and drug abuse.
 - c. Describe the health dangers from abusing illegal and prescription drugs.
- 7. With your parent's and counselor's approval, do **ONE** of the following:
 - a. Visit your city, county, or state public health agency.
 - b. Familiarize yourself with your city, county, or state health agency's website.

After completing either 7a or 7b, do the following:

- i. Compare the four leading causes of mortality (death) in your community for any of the past five years with the four leading causes of disease in your community. Explain how the public health agency you visited is trying to reduce the mortality and morbidity rates of these leading causes of illness and death.
 - ii. Explain the role of your health agency as it relates to the outbreak of diseases.
 - iii. Discuss the kinds of public assistance the agency is able to provide in case of disasters such as floods, storms, tornadoes, earthquakes, and other acts of destruction. Your discussion can include the cleanup necessary after the disaster.
- 8. Pick a profession in the public health sector that interests you. Find out the education, training, and experience required to work in this profession. Discuss what you learn with your counselor

PLEASE NOTE: A parental permission form will be sent to class attendees. This must be signed by the parent and returned to the counselor prior to the Merit Badge College.

Choose one from questions 5 and 7. Have the booklet, know what immunization are, also know what public health careers there are. Also make sure that all scouts and parents are aware that there are some sensitive topics that we may cover and have understanding / knowledge of diseases that are discussed in the workbook.

Public Speaking (Level 3)

https://filestore.scouting.org/filestore/merit_badge_reqandres/public_speaking.pdf



Prerequisites:

#1, #2, #4

Requirements:

1. Give a three- to five-minute introduction of yourself to an audience such as your troop, class at school, or some other group.
2. Prepare a three- to five-minute talk on a topic of your choice that incorporates body language and visual aids.
3. Give an impromptu talk of at least two minutes either as part of a group discussion or before your counselor. Use a subject selected by your counselor that is interesting to you but that is not known to you in advance and for which you do not have time to prepare.
4. Select a topic of interest to your audience. Collect and organize information about the topic and prepare an outline. Write an eight- to 10-minute speech, practice it, then deliver it in a conversational way.
5. Show you know parliamentary procedure by leading a discussion or meeting according to accepted rules of order, or by answering questions on the rules of order.

Radio (Level 2)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Radio.pdf



Prerequisites:

#3, #7

Requirements:

1. Explain what radio is. Then discuss the following:
 - a. The differences between broadcast radio and hobby radio
 - b. The differences between broadcasting and two-way communications
 - c. Radio station call signs and how they are used in broadcast radio and amateur radio
 - d. The phonetic alphabet and how it is used to communicate clearly
2. Do the following:
 - a. Sketch a diagram showing how radio waves travel locally and around the world.
 - b. Explain how the radio stations WWV and WWVH can be used to help determine what you can expect to hear when you listen to a shortwave radio.
 - c. Explain the difference between a distant (DX) and a local station.
 - d. Discuss what the Federal Communications Commission (FCC) does and how it is different from the International Telecommunication Union.
3. Do the following:
 - a. Draw a chart of the electromagnetic spectrum covering 300 kilohertz (kHz) to 3,000 megahertz (MHz).
 - b. Label the MF, HF, VHF, UHF, and microwave portions of the spectrum on your diagram.
 - c. Locate on your chart at least eight radio services, such as AM and FM commercial broadcast, citizens band (CB), television, amateur radio (at least four amateur radio bands), and public service (police and fire).
4. Explain how radio waves carry information. Include in your explanation: transceiver, transmitter, receiver, amplifier, and antenna.
5. Do the following:
 - a. Explain the differences between a block diagram and a schematic diagram.
 - b. Draw a block diagram for a radio station that includes a transceiver, amplifier, microphone, antenna, and feed line.
 - c. Discuss how information is sent when using amplitude modulation (AM), frequency modulation (FM), continuous wave (CW) Morse Code transmission, single sideband (SSB) transmission, and digital transmission.
 - d. Explain how NOAA Weather Radio (NWR) can alert you to danger.
 - e. Explain how cellular telephones work. Identify their benefits and limitations in an emergency.
6. Explain the safety precautions for working with radio gear, including the concept of grounding for direct current circuits, power outlets, and antenna systems.
7. Visit a radio installation (an amateur radio station, broadcast station, or public service communications center, for example) approved in advance by your counselor. Discuss what types of equipment you saw in use, how it was used, what types of licenses are required to operate and maintain the equipment, and the purpose of the station.

8. Find out about three career opportunities in radio. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.
9. Do **ONE** of the following (a OR b OR c OR d):
 - a. **Amateur Radio**
 - i. Tell why the FCC has an amateur radio service. Describe activities that amateur radio operators can do on the air, once they have earned an amateur radio license.
 - ii. Explain differences between the Technician, General, and Extra Class license requirements and privileges. Explain who administers amateur radio exams.
 - iii. Explain at least five Q signals or amateur radio terms.
 - iv. Explain how you would make an emergency call on voice or Morse code.
 - v. Explain the differences between handheld, mobile, and base station transceivers and their uses. Explain the use of amateur radio repeaters.
 - vi. Using proper call signs, Q signals, and abbreviations, carry on a 10-minute real or simulated amateur radio contact using voice, Morse code, or digital mode. (Licensed amateur radio operators may substitute five QSL cards as evidence of contacts with five amateur radio operators.) Properly log the real or simulated ham radio contact, and record the signal report.
 - b. **Radio Broadcasting**
 - i. Discuss with your counselor FCC broadcast regulations. Include power levels, frequencies, and the regulations for low-power stations.
 - ii. Prepare a program schedule for radio station “KBSA” of exactly one half hour, including music, news, commercials, and proper station identification. Record your program on audiotape or in a digital audio format, using proper techniques.
 - iii. Listen to and properly log 15 broadcast stations. Determine the program format and target audience for five of these stations.
 - iv. Explain to your counselor at least eight terms used in commercial broadcasting, such as segue, cut, fade, continuity, remote, Emergency Alert System, network, cue, dead air, PSA, and playlist.
 - v. Discuss with your counselor alternative radio platforms such as internet streaming, satellite radio, and podcasts.
 - c. **Shortwave and Medium-Wave Listening**
 - i. Listen across several shortwave bands for four one-hour periods—at least one period during daylight hours and at least one period at night. Log the stations properly and locate them geographically on a map, globe, or web-based mapping service.
 - ii. Listen to several medium-wave stations for two one-hour periods, one period during daylight hours and one period at night. Log the stations properly and locate them on a map, globe, or web-based mapping service.
 - iii. Compare your daytime and nighttime shortwave logs; note the frequencies on which your selected stations were loudest during each session. Explain differences in the signal strength from one period to the next.
 - iv. Compare your medium-wave broadcast station logs and explain why some distant stations are heard at your location only during the night.

- v. Demonstrate listening to a radio broadcast using a smartphone/cell phone. Include international broadcasts in your demonstration.

d. Amateur Radio Direction Finding

- i. Describe amateur radio direction finding and explain why direction finding is important as both an activity and in competition.
- ii. Describe what frequencies and equipment are used for ARDF or fox hunting.
- iii. Build a simple directional antenna for either of the two frequencies used in ARDF.
- iv. Participate in a simple fox hunt using your antenna along with a provided receiver.
- v. Show, on a map, how you located the “fox” using your receiver

Railroading (Level 2)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Railroading.pdf



Prerequisites:

#8

Requirements:

1. Do **THREE** of the following:
 - a. Name three types of modern freight trains. Explain why unit trains are more efficient than mixed freight trains.
 - b. Name one Class I or regional railroad. Explain what major cities it serves, the locations of major terminals, service facilities and crew change points, and the major commodities it carries.
 - c. Using models or pictures, identify 10 types of railroad freight or passenger cars. Explain the purpose of each type of car.
 - d. Explain how a modern diesel or electric locomotive develops power. Explain the terms dynamic braking and radial steering trucks.
2. Do the following:
 - a. Explain the purpose and formation of Amtrak. Explain, by the use of a timetable, a plan for making a trip by rail between two cities at least 500 miles apart. List the times of departure and arrival at your destination, the train number and name, and the type of service you want.
 - b. List and explain the various forms of public/mass transit using rail.
3. Do **ONE** of the following:
 - a. Name four departments of a railroad company. Describe what each department does.
 - b. Tell about the opportunities in railroading that interest you most and why.
 - c. Name four rail support industries. Describe the function of each one.
 - d. With your parent's and counselor's approval, interview someone employed in the rail industry. Learn what that person does and how this person became interested in railroading. Find out what type of schooling and training are required for this position.
4. Explain the purpose of Operation Lifesaver and its mission.
5. Do **THREE** of the following:
 - a. List five safety precautions that help make trains safer for workers and passengers.
 - b. Explain to your merit badge counselor why safety around rights-of-way is important.
 - c. List 10 safety tips to remember when you are near a railroad track (either on the ground or on a station platform) or aboard a train.
 - d. Tell your counselor about the guidelines for conduct that should be followed when you are near or on railroad property. Explain the dangers of trespassing on railroad property.
 - e. Tell what an automobile driver can do to safely operate a car at grade crossings, and list three things an automobile driver should never do at a grade crossing.
 - f. Tell how to report a malfunction of grade crossing warning devices.
 - g. List safety precautions a pedestrian should follow at a public crossing.

6. Explain the appearance and meaning of the following warning signs and devices: advance warning sign, pavement markings, crossbucks, flashing red lights, crossing gates.
7. Do **EACH** of the following:
 - a. Explain how railroad signals operate and show two basic signal types using color or configuration.
 - b. Explain the meaning of three horn signals.
 - c. Describe a way to signal a train for an emergency stop.
 - d. Explain the use and function of the EOTD (end-of-train device), or FRED (flashing rear end device), used on the last car of most freight trains.
8. Select **ONE** of the following special-interest areas and complete the requirements.
 - a. **Model Railroading:** With your parent's and counselor's approval, do **TWO** of the following:
 - i. Draw a layout of your own model railroad or one that could be built in your home. Design a point-to-point track or loop with different routings. Include one of the following: turnaround or terminal or yard or siding.
 - ii. Build one model railroad car kit or one locomotive kit.
 - iii. Name the scale of four popular model railroad gauges. Identify the scale of four model cars or locomotives.
 - iv. Locate the website of four model railroad-related manufacturers or magazine publishers. Print information on their products and services and discuss the information with your counselor.
 - v. Build one railroad structure (from scratch or using a kit), paint and weather the structure, mount it on your layout or diorama, and make the surrounding area on the diorama scenic.
 - vi. Alone or with others, build a model railroad or modular layout including ballast and scenery. Make electrical connections and operate a train. Describe what you enjoyed most.
 - vii. Participate in a switching contest on a timesaver layout and record your time.
 - viii. Explain the difference between powering and controlling a model railroad by using direct current, and powering and controlling a model railroad using digital command control.
 - b. **Railfanning:** With your parent's and counselor's approval, do **TWO** of the following:
 - i. Visit a railroad museum, historical display, or a prototype railroad sponsored public event. With permission, photograph, videotape, or sketch items of interest. Explain what you saw and describe your photos, sketches, or videotape.
 - ii. Purchase tickets and ride a scenic or historic railroad. Under supervision, photograph the equipment and discuss with your counselor the historic significance of the operation.
 - iii. Locate the website of four rail historical groups, then find information on the history of the rail preservation operations and purpose of each group. Talk with a member of one of the groups and find out how you might help.
 - iv. Plan a trip by rail between two points. Obtain a schedule and explain when the train should arrive at two intermediate points. Purchase the tickets and make the trip. Explain to your counselor what you saw.

Safety (Level 2)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Safety.pdf



Prerequisites:

#3b, #5, #6, #8

Requirements:

1. Explain what safety is and what it means to be safe. Then prepare a notebook to include:
 - a. Newspaper, internet (with parent's or guardian's permission), or other articles, facts, and statistics showing common types and causes of injuries in the home and in the workplace, and how these injuries could be prevented
 - b. Newspaper, internet (with parent's or guardian's permission), or other articles, facts, and statistics showing common types of crime and ways to avoid being a crime victim
 - c. A paragraph or more, written by you, explaining how a serious fire, accident, crime, or a natural disaster could change your family life
 - d. A list of safe practices and safety devices currently used by your family, such as safety practices used at home, while working, and while driving
2. Do the following:
 - a. Using a safety checklist approved by your counselor, make an inspection of your home. Identify any hazards found and explain how these can be corrected.
 - b. Review and develop your family's fire prevention plan. Review your family's emergency action plan for fire in your home. As you develop these plans with family members, share with them facts about the common causes of fire in the home, such as smoking, cooking, electrical appliances, and candles.
 - c. Develop a family emergency action plan for a natural disaster.
 - d. Explain what risk assessment is and its purpose.
 - e. Explain the BSA's Commitment to Safety.
3. Do the following:
 - a. Discuss with your counselor how you contribute to the safety of yourself, your family, and your community.
 - b. Show your family members how to protect themselves and your home from accidents, fire, burglary, robbery, and assault.
 - c. Discuss with your counselor the tips for online safety. Explain the steps individuals can take to help prevent identity theft.
 - d. Discuss with your counselor the three R's of Youth Protection and how to recognize child abuse.
4. Show your family the exits you would use from different public buildings (such as a theater, municipal building, library, supermarket, shopping center, or your place of worship) in the event of an emergency. Teach your family what to do in the event that they need to take shelter in or evacuate a public place.
5. Make an emergency action plan for five family activities outside the home (at your place of worship, at a theater, on a picnic, at the beach, and while traveling, for example). Each plan should include an analysis of possible hazards, proposed action to correct hazards, and reasons for the correction you propose in each plan.
6. Plan and complete a safety project approved by your counselor for your home, school, place of worship, place of employment, or community.

7. Explain what the National Terrorism Advisory System is and how you would respond to each type of alert.
8. Learn about three career opportunities in the field of safety. Pick one career and find out the education, training, and experience required for this profession. Discuss this choice with your counselor, and explain why this profession might interest you

Salesmanship (Level 2) ages 12 and up

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Salesmanship.pdf



Prerequisites:

#3, #4, #6

Requirements:

1. Do the following:
 - a. Explain the responsibilities of a salesperson and how a salesperson serves customers and helps stimulate the economy.
 - b. Explain the differences between a business-to-business salesperson and a consumer salesperson.
2. Explain why it is important for a salesperson to do the following:
 - a. Research the market to be sure the product or service meets the needs of customers.
 - b. Learn all about the product or service to be sold.
 - c. If possible, visit the location where the product is built and learn how it is constructed. If a service is being sold, learn about the benefits of the service to the customer.
 - d. Follow up with customers after their purchase to confirm their satisfaction and discuss their concerns about the product or service.
3. Write and present a sales plan for a product or service and a sales territory assigned by your counselor.
4. Make a sales presentation of a product or service assigned by your counselor.
5. Do **ONE** of the following and keep a record (cost sheet). Use the sales techniques you have learned, and share your experience with your counselor:
 - a. Help your unit raise funds through sales of merchandise or of tickets to a Scout event.
 - b. Sell your services such as lawn raking or mowing, pet watching, dog walking, snow shoveling, and car washing to your neighbors. Follow up after the service has been completed and determine the customer's satisfaction.
 - c. Earn money through retail selling.
6. Do **ONE** of the following:
 - a. Interview a salesperson and learn the following:
 - i. What made the person choose sales as a profession?
 - ii. What are the most important things to remember when talking to customers?
 - iii. How is the product or service sold?
 - iv. Include your own questions.
 - b. Interview a retail store owner and learn the following:
 - i. How often is the owner approached by a sales representative?
 - ii. What good traits should a sales representative have? What habits should the sales representative avoid?
 - iii. What does the owner consider when deciding whether to establish an account with a sales representative?
 - iv. Include at least two of your own questions.
7. Investigate and report on career opportunities in sales, then do the following:

- a. Prepare a written statement of your qualifications and experience. Include relevant classes you have taken in school and merit badges you have earned.
- b. Discuss with your counselor what education, experience, or training you should obtain so you are prepared to serve in a sales position.

Scholarship (Level 2)

https://filestore.scouting.org/filestore/merit_badge_reqandres/scholarship.pdf



Prerequisites:

#1. Do **One**:

A printout or electronic picture of your report card will suffice for either choice A or B.

#2. Do **Two**:

If A is chosen, please present list and be prepared to discuss.

If B is chosen, be prepared to discuss

If C is chosen, be prepared to show daily planner and to discuss

Choice D will be discussed in class.

#3. A note, letter or email from Principal (or other designated school official) will need to be presented in order to fulfill this requirement.

#4. Please be prepared to discuss

#5. For either A or B, please bring report to class OR email at least 2 days prior to class.

Requirements:

1. Do **ONE** of the following:

- Show that your school grades have been an average of B or higher (80 percent or higher) for one term or semester.
- Show that for one term or semester you have improved your school grades over the previous period.

2. Do **TWO** of the following:

- Make a list of educational places located where you live (other than schools). Visit one, and report on how you used the place for self-education.
- With your counselor's and your parent's approval, interview two professionals (other than teachers or other professionals at your school) with established careers. Find out where they were educated, what training they received, and how their education and training have helped prepare them for the career they have chosen. Find out how they continue to educate themselves. Discuss what you find out with your counselor.
- Using a daily planner, show your counselor how you keep track of assignments and activities, and discuss how you manage your time.
- Discuss the advantages and disadvantages of the different methods of research available to you for school assignments, such as the library, books and periodicals, and the internet.

3. Get a note from the principal* of your school (or another school official named by the principal) that states that during the past year your behavior, leadership, and service have been satisfactory.

4. Do **ONE** of the following:

- Show that you have taken part in an extracurricular school activity, and discuss with your counselor the benefits of participation and what you learned about the importance of teamwork.

- b. Discuss your participation in a school project during the past semester where you were a part of a team. Tell about the positive contributions you made to the team and the project.
- 5. Do **ONE** of the following:
 - a. Write a report of 250 to 300 words about how the education you receive in school will be of value to you in the future and how you will continue to educate yourself in the future.
 - b. Write a report of 250 to 300 words about two careers that interest you and how specific classes and good scholarship in general will help you achieve your career goals.

Scouting Heritage (Level 2)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Scouting_Heritage.pdf



Prerequisites:

Read the Scouting Heritage Merit Badge pamphlet

#2, #4, #5, #6, #8

Requirements:

1. Discuss with your counselor the life and times of Lord Baden-Powell of Gilwell. Explain why he felt a program like Scouting would be good for the young men of his day. Include in your discussion how Scouting was introduced in the United States, and the origins of Boy Scouting and Cub Scouting under Baden-Powell.
2. Do the following:
 - a. Give a short biographical summary of any TWO of the following, and tell of their roles in how Scouting developed and grew in the United States.
 - i. Daniel Carter Beard
 - ii. Ernest Thompson Seton
 - iii. William D. Boyce
 - iv. James E. West
 - v. Waite Phillips
 - vi. "Green Bar Bill" Hillcourt
 - b. Discuss the significance to Scouting of any TWO of the following:
 - i. Brownsea Island
 - ii. The First World Scout Jamboree
 - iii. Scouts BSA Handbook
 - iv. Scout Life magazine (formerly Boys' Life)
3. Discuss with your counselor how Scouting's programs have developed over time and been adapted to fit different age groups and interests (Cub Scouting, Scouts BSA, Exploring, Venturing).
4. Do **ONE** of the following:
 - a. Attend either a BSA national jamboree, OR world Scout jamboree, OR a national BSA high-adventure base. While there, keep a journal documenting your day-to-day experiences. Upon your return, report to your counselor what you did, saw, and learned. You may include photos, brochures, and other documents in your report.
 - b. Write or visit the National Scouting Museum. Obtain information about this facility. Give a short report on what you think the role of this museum is in the Scouting program.
 - c. Visit an exhibit of Scouting memorabilia or a local museum with a Scouting history gallery, or (with your parent's permission and counselor's approval) visit with someone in your council who is recognized as a dedicated Scouting historian or memorabilia collector. Learn what you can about the history of the BSA. Give a short report to your counselor on what you saw and learned.
5. Learn about the history of your unit or Scouting in your area. Interview at least two people (one from the past and one from the present) associated with your troop. These individuals could be adult unit leaders, Scouts, troop committee members, or representatives of your troop's chartered organization. Find out when your unit was

originally chartered. Create a report of your findings on the history of your troop, and present it to your patrol or troop or at a court of honor, and then add it to the troop's library. This presentation could be in the form of an oral/written report, an exhibit, a scrapbook, or a computer presentation such as a slide show.

6. Make a collection of some of your personal patches and other Scouting memorabilia. With their permission, you may include items borrowed from family members or friends who have been in Scouting in the past, or you may include photographs of these items. Show this collection to your counselor, and share what you have learned about items in the collection. (There is no requirement regarding how large or small this collection must be.)
7. Reproduce the equipment for an old-time Scouting game such as those played at Brownsea Island. You may find one on your own (with your counselor's approval), or pick one from the Scouting Heritage merit badge pamphlet. Teach and play the game with other Scouts.
8. Interview at least three people (different from those you interviewed for requirement 5) over the age of 40 who were Scouts. Find out about their Scouting experiences. Ask about the impact that Scouting has had on their lives. Share what you learned with your counselor.

Signs, Signals, and Codes (Level 3)

https://filestore.scouting.org/filestore/merit_badge_reqandres/signsignals_and_codes.p



Prerequisites:



Nova Award Merit Badge

- Read the MB pamphlet, bring it to class with you, and be prepared to discuss the topics in it. The scouts will need to reference parts of the pamphlet to complete the pre-reqs.
- Print the Signs, Signals and Codes merit badge workbook and bring it to class with you.
- Complete the final section of requirement 6 (Use these scout signals to direct the movements and actions of your patrol or troop). Have your patrol leader, SPL or Scoutmaster initial this page in the workbook.
- Complete both parts of requirement 7 (On a Scout outing, lay out a trail for your patrol or troop to follow. Cover at least one mile in distance and use at least six different trail signs and markers. After the Scouts have completed the trail, follow no-trace principals by replacing or returning trail markers to their original locations.) Ideally, Scouts should bring a few pictures of this event, but if that isn't possible, they can ask their patrol leader, SPL or Scoutmaster to sign off on both parts of their workbook.
- Complete the second part of requirement 10 (make up your own secret code and write a message of up to 25 words using this code.) Bring this to class with you.

Requirements:

1. Discuss with your counselor the importance of signs, signals, and codes, and why people need these different methods of communication. Briefly discuss the history and development of signs, signals, and codes.
2. Explain the importance of signaling in emergency communications. Discuss with your counselor the types of emergency or distress signals one might use to attract airborne search-and-rescue personnel if lost in the outdoors or trying to summon assistance during a disaster. Illustrate these signaling examples by the use of photos or drawings.
3. Do the following:
 - a. Describe what Morse code is and the various means by which it can be sent. Spell your first name using Morse code. Send or receive a message of six to 10 words using Morse code.
 - b. Describe what American Sign Language (ASL) is and how it is used today. Spell your first name using American Sign Language. Send or receive a message of six to 10 words using ASL.
4. Give your counselor a brief explanation about semaphore, why it is used, how it is used, and where it is used. Explain the difference between semaphore flags and nautical flags. Then do the following:
 - a. Spell your first name using semaphore. Send or receive a message of six to 10 words using semaphore.
 - b. Using illustrations or photographs, identify 10 examples of nautical flags and discuss their importance.
5. Explain the braille reading technique and how it helps individuals with sight impairment to communicate. Then do the following:

- a. Either by sight or by touch, identify the letters of the braille alphabet that spell your name. By sight or touch, decode a braille message at least six words long.
 - b. Create a message in braille at least six words long, and share this with your counselor. To satisfy the braille writing requirement 5b for this merit badge, you do not need to emboss braille dots in thick paper. Rather, you may use a pencil or pen to draw the dots on ordinary paper, copying the characters of the braille alphabet to spell out your message letter by letter.
6. Do the following:
 - a. Describe to your counselor six sound-only signals that are in use today. Discuss the pros and cons of using sound signals versus other types of signals.
 - b. Demonstrate to your counselor six different silent Scout signals. Use these Scout signals to direct the movements and actions of your patrol or troop.
7. On a Scout outing, lay out a trail for your patrol or troop to follow. Cover at least one mile in distance and use at least six different trail signs and markers. After the Scouts have completed the trail, follow no-trace principles by replacing or returning trail markers to their original locations.
8. For THREE of the following activities, demonstrate five signals each. Tell what the signals mean and why they are used:
 - a. Sports official's hand signs/signals
 - b. Heavy-equipment operator's hand signals
 - c. Aircraft carrier catapult crew signals
 - d. Cyclist's hand signals
 - e. An activity selected by you and your counselor
9. Share with your counselor 10 examples of symbols used in everyday life. Design your own symbol. Share it with your counselor and explain what it means. Then do the following:
 - a. Show examples of 10 traffic signs and explain their meaning.
 - b. Using a topographical map, explain what a map legend is and discuss its importance. Point out 10 map symbols and explain the meaning of each.
 - c. Discuss text-message symbols and why they are commonly used. Give examples of your favorite 10 text symbols or emoticons. Then see if your counselor or parent can identify the meaning or usage of each symbol.
10. Briefly discuss the history of secret code writing (cryptography). Make up your own secret code and write a message of up to 25 words using this code. Share the message with a friend or fellow Scout. Then share the message and code key with your counselor and discuss the effectiveness of your code.

Sports AND Athletics MB's (Level 3)

http://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/2023_Update_REQ.pdf

https://filestore.scouting.org/filestore/merit_badge_reqandres/athletics.pdf



This is a combined session for BOTH MB's!

Prerequisites (Sports):

#1, #2, #3

#4 can be sent ahead of time for participation in Fall 2023 & current Winter 2023-2024 season or can be done after using Spring 2024 season.

#5 a & c (Two Sports) – Send plan / participation to counselor prior to MBC for approval.

Prerequisites (Athletics):

#1, #2, #4, #6a

#3a – Sport chosen for the rest of the requirement. Send plan to counselor for approval.

#6b – Communicate your plan and if approved you can complete this before the MBC A current physical must be submitted before 3/1/2024. Physical must be done after 4/1/2023 and using the BSA Physical form.

Requirements (Sports):

Note: The activities used to fulfill the requirements for the Sports merit badge may not be used to help fulfill requirements for other merit badges.

Also, since this MB requires physical activity, Class A uniform is not required for this class. If you're planning on staying for the full day, please bring a change of clothes so that you can be properly dressed for the other class done during the day.

PLEASE BE DRESSED IN GYM CLOTHES AND SNEAKERS FOR THIS EVENT.

1. Do the following:
 - a. Explain to your counselor the most likely hazards you may encounter while playing sports, and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.
 - b. Show that you know first aid for injuries or illnesses that could occur while participating in sports, including sprains, strains, contusions, abrasions, fractures, blisters, muscle cramps, injured teeth, dehydration, heat and cold reactions, and concussions or other suspected injuries to the head, neck, and back.
2. Explain the importance of the following:
 - a. The importance of the physical exam
 - b. The importance of maintaining good health habits for life (such as exercising regularly), and how the use of tobacco products, alcohol, and other harmful substances can negatively affect your health and your performance in sports activities
 - c. The importance of maintaining a healthy diet
3. Discuss the following:

- a. The importance of warming up and cooling down
 - b. The importance of weight training
 - c. What an amateur athlete is and the differences between an amateur and a professional athlete
 - d. The attributes (qualities) of a good sport, the importance of sportsmanship, and the traits of a good team leader and player who exhibits Scout spirit on and off the playing field
4. With guidance from your counselor, establish a personal training program suited to the activities you choose for requirement. Then do the following:
 - a. Create a chart and use it to track your training, practice, and development in these sports for one season (or four months).
 - b. Demonstrate proper technique for your two chosen sports.
 - c. At the end of the season, share your completed chart with your counselor and discuss how your participation in the sports you chose has affected you mentally and physically.
5. Take part for one season (or four months) as a competitive individual or as a member of an organized team in TWO of the following sports: baseball, basketball, bowling, cross-country, diving, field hockey, flag football, flag team, golf, gymnastics, ice hockey, lacrosse, soccer, softball, spirit/cheerleading, swimming, tackle football, table tennis, tennis, track & field, volleyball, water polo and wrestling, and/or badminton. Your counselor may approve in advance other recognized sports.* Then with your chosen sports do the following:
 - a. Give the rules and etiquette for the two sports you picked.
 - b. List the equipment needed for the two sports you chose. Describe the protective equipment and appropriate clothing (if any) and explain why it is needed.
 - c. Draw diagrams of the playing areas for your two sports

Requirements (Athletics):

If meeting any of the requirements for this merit badge is against the Scout's religious convictions, the requirement does not have to be done if the Scout's parents and the proper religious advisors state in writing that to do so would be against religious convictions. The Scout's parents must also accept full responsibility for anything that might happen because of this exemption. Requirement 2a is being added for health and safety, and to provide consistency with the Personal Fitness merit badge.

1. Do the following:
 - a. Explain to your counselor the most likely hazards you may encounter during athletics activities, and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.
 - b. Show that you know first aid for injuries or illnesses that could occur while participating in athletics events, including sprains, strains, contusions, abrasions, blisters, dehydration, and heat reactions.
2. Do the following:
 - a. Before completing requirements 3 and 5, have your health-care practitioner give you a physical examination, using the Scout medical examination form.
 - b. Explain the importance of a physical exam.

- c. Explain the importance of maintaining good health habits, especially during training—and how the use of tobacco products, alcohol, and other harmful substances can negatively affect your health and your performance in athletic activities.
- d. Explain the importance of maintaining a healthy diet.
- 3. Select an athletic activity that interests you, then do the following:
 - a. With guidance from your counselor, establish a personal training program suited to the activity you have chosen. Follow this training program for three months.
 - b. Create a chart to monitor your progress during this time.
 - c. Explain to your counselor the equipment necessary to participate in this activity and the appropriate clothing for the time of year.
 - d. At the end of four months, review the chart you created for requirement 3b, and discuss with your counselor what progress you have made during training. Tell how your development has affected you mentally and physically.
- 4. Do the following:
 - a. Give the rules for two athletic activities, one of which is the activity you chose for requirement 3.
 - b. Discuss the importance of warming up and cooling down.
 - c. Explain to your counselor what an amateur athlete is and the differences between an amateur and a professional athlete.
 - d. Discuss the traits and importance of good sportsmanship. Tell what role sportsmanship plays in both individual and group athletic activities.
- 5. Complete the activities in FOUR of the following groups and show improvement over a three-month period:
 - Group 1: Sprinting
 - a. 100-meter dash
 - b. 200-meter dash
 - Group 2: Long-Distance Running
 - a. 3k run
 - b. 5k run
 - Group 3: Long Jump OR High Jump
 - a. Running long jump OR running high jump (best of three tries)
 - b. Standing long jump OR standing high jump (best of three tries)
 - Group 4: Swimming
 - a. 100-meter swim
 - b. 200-meter swim
 - Group 5: Pull-Ups AND Push-Ups
 - a. Pull-ups in two minutes
 - b. Push-ups in two minutes
 - Group 6: Baseball Throw
 - a. Baseball throw for accuracy, 10 throws at a target (distance to be determined by age): ages 11 to 12, 20 feet; ages 13 to 15, 30 feet; ages 16 to 17, 40 feet
 - b. Baseball throw for distance, five throws (total distance)
 - Group 7: Basketball Shooting
 - a. Basketball shot for accuracy, 10 free-throw shots
 - b. Basketball throw for skill and agility, the following shots as shown on the diagram:
 - 1. Left-side layup
 - 2. Right-side layup
 - 3. Left side of hoop, along the key line

4. Right side of hoop, along the key line
5. Where key line and free-throw line meet, left side
6. Where key line and free-throw line meet, right side
7. Top of the key
8. Anywhere along the three-point line

Group 8: Football Kick OR Soccer Kick

- a. Goals from the 10-yard line, eight kicks
- b. Football kick or soccer kick for distance, five kicks (total distance)

Group 9: Weight Training

- a. Chest/bench press, two sets of 15 repetitions each
- b. Leg curls, two sets of 15 repetitions each

6. Do the following:

- a. Prepare plans for conducting a sports meet or field day that includes 10 activities, at least five of which must come from the groups mentioned in requirement 5. Outline the duties of each official needed and list the equipment the meet will require.
- b. With your parent's and counselor's approval, serve as an official or volunteer at a sports meet to observe officials in action. Tell your counselor about your responsibilities at the meet and discuss what you learned.

Note: The activities used to fulfill the requirements for the Sports merit badge may not be used to help fulfill requirements for other merit badges.

For Sports #4 - If sending the personal training program beforehand it will **only be accepted** with coach contact information and letter from coach attesting to your commitment and duration of time spent to meet section 4. JV/Varsity/modified team sports, recreational town sports, or travel team sports are all accepted. Reach out if your sport is not indicated.

Stamp Collecting (Level 2)

https://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/Stamp_Collecting.pdf



Prerequisites:

#7

Requirements:

1. Do the following:
 - a. Discuss how you can better understand people, places, institutions, history, and geography as a result of collecting stamps.
 - b. Briefly describe some aspects of the history, growth, and development of the United States postal system. Tell how it is different from postal systems in other countries.
2. Define topical stamp collecting. Name and describe three other types of stamp collections.
3. Show at least ONE example of each of the following:
 - a. Perforated and imperforate stamps
 - b. Mint and used stamps
 - c. Sheet, booklet, and coil stamps
 - d. Numbers on plate block, booklet, or coil, or marginal markings
 - e. Overprint and surcharge
 - f. Metered mail
 - g. Definitive, commemorative, semipostal, and airmail stamps
 - h. Cancellation and postmark
 - i. First day cover
 - j. Postal stationery (aerogramme, stamped envelope, and postal card)
4. Do the following:
 - a. Demonstrate the use of ONE standard catalog for several different stamp issues. Explain why catalog value can vary from the corresponding purchase price.
 - b. Explain the meaning of the term condition as used to describe a stamp. Show examples that illustrate the different factors that affect a stamp's value.
5. Demonstrate the use of at least **THREE** of the following stamp collector's tools:
 - a. Stamp tongs
 - b. Water and tray
 - c. Magnifiers
 - d. Hinges and stamp mounts
 - e. Perforation gauge
 - f. Glassine envelopes and cover sleeves
 - g. Watermark fluid
6. Do the following:
 - a. Show a stamp album and how to mount stamps with or without hinges. Show at least ONE page that displays several stamps.
 - b. Discuss at least **THREE** ways you can help to preserve stamps, covers, and albums in first-class condition.
7. Do at least **TWO** of the following:
 - a. Design a stamp, cancellation, or cachet.
 - b. Visit a post office, stamp club, or stamp show with an experienced collector. Explain what you saw and learned.

- c. Write a review of an interesting article from a stamp newspaper, magazine, book, or website (with your parent's permission).
 - d. Research and report on a famous stamp-related personality or the history behind a particular stamp.
 - e. Describe the steps taken to produce a stamp. Include the methods of printing, types of paper, perforation styles, and how they are gummed.
 - f. Prepare a two- to three-page display involving stamps. Using ingenuity, as well as clippings, drawings, etc., tell a story about the stamps and how they relate to history, geography, or a favorite topic of yours.
8. Mount and show, in a purchased or homemade album, ONE of the following:
- a. A collection of 250 or more different stamps from at least 15 countries.
 - b. A collection of a stamp from each of 50 different countries, mounted on maps to show the location of each.
 - c. A collection of 100 or more different stamps from either one country or a group of closely related countries.
 - d. A collection of 75 or more different stamps on a single topic. (Some interesting topics are Scouting, birds, insects, the Olympics, sports, flowers, animals, ships, holidays, trains, famous people, space, and medicine.) Stamps may be from different countries.
 - e. A collection of postal items discovered in your mail by monitoring it over a period of 30 days. Include at least five different types listed in requirement 3.

Sustainability (Level 3)

<https://www.scouting.org/merit-badges/sustainability/>

Prerequisites:

#1, #2 thru #6 (1 of each), #8a



Nova Award Merit Badge



Requirements:

- 1. Describe the meaning of sustainability in your own words. Explain the importance of sustainability to society and how you can contribute to fulfilling the needs of current generations without compromising the needs of future generations.**
- 2. Water. Do ONE of the following and discuss with your counselor:**
 - a. Evaluate your household water usage. If available, review water bills from the past year and evaluate the seasonal changes in water use. Identify three ways to help reduce water consumption.
 - b. Explain why water is necessary in our lives. Create a diagram to show how your household gets its clean water from a natural source and what happens with the water after you use it. Tell two ways to preserve your community's access to clean water in the future.
 - c. Different areas of the world are affected by either too much (flooding) or too little (drought) water. Explore whether either or both affect where you live. Identify three water conservation or flood mitigation practices (successful or unsuccessful) that have been tried where you live or in an area of the world that interests you.
- 3. Food. Do ONE of the following and discuss with your counselor:**
 - a. Explore the sustainability of different types of plant-based, animal-based and aquaculture food. Identify where four different foods (such as milk, eggs, tuna fish, avocados, or ketchup) come from and how they are processed and transported from the source to you.
 - b. Identify four factors that limit the availability of food in different regions of the world. Discuss how each factor influences the sustainability of worldwide food supplies. Share three ways individuals, families, or your community can create their own food sources.
 - c. Develop a plan to reduce your household food waste in a sustainable manner. Establish a baseline and then track and record your results for two weeks.
- 4. Community. Do ONE of the following and discuss with your counselor:**
 - a. Create a sketch depicting how you would design a sustainable community and be prepared to explain how the housing, work locations, shops, schools, and transportation systems affect energy, pollution, natural resources, and the economy of the community.
 - b. Identify one unsustainable practice in your community and develop a written plan to fix it.
 - c. Identify five sustainability factors in housing and rate your own home's sustainability against these factors.
- 5. Energy. Do ONE of the following and discuss with your counselor:**
 - a. Learn about the sustainability of different energy sources, including coal, gas, geothermal, hydro power, nuclear, petroleum, solar, and wind. Identify three common energy sources in the United States and describe how the production and consumption of each of these energy sources affects sustainability.

- b. List eight ways your family consumes energy, such as gas appliances, electricity, heating systems or cooling systems, and transportation. For one home- and one transportation-related energy use, list three ways to help reduce consumption, reduce your carbon footprint, and be a better steward of this resource.
 - c. List five ways you and your family could reduce energy consumption in your home, such as adjusting your thermostat, window shades, opening windows, reducing hot-water temperature, and minimizing water consumption. Identify the benefits and risks of each idea and implement if possible.
- 6. Stuff. Do ONE of the following and discuss with your counselor:**
- a. Create a list of 15 items of your personal "stuff." Classify each item as an essential need (such as soap) or a desirable want (such as a video game). Identify any excess "stuff" you no longer need, working with your family, if possible. Donate, re purpose, or recycle those items you can.
 - b. List five ways having too much "stuff" affects you, your family, your community, AND the world. For each of the five ways, consider the following aspects: the financial impact, time spent, maintenance, health, storage, and waste generation. Identify practices that can be used to avoid accumulating too much "stuff."
 - c. Research the impact waste has on the environment (land, water, air). Find out what the trash vortex is and how it was formed. Explain the number system for plastic recyclables and which plastics are more commonly recycled. Identify the average lifespan of one electronic device in your household, and whether it can be recycled in whole or part.
- 7. Do TWO of the following and discuss with your counselor:**
- a. The United Nations lists 17 Sustainable Development Goals. These include Zero Hunger, Clean Water and Sanitation, Affordable and Clean Energy, Sustainable Cities and Community, Responsible Consumption and Production, Climate Action, Life Below Water, and Life on Land. Pick one of these eight and summarize the goal and its current and future impact on you, your family, community, and the world.
 - b. Identify how the planetary life-support systems (soil, climate, freshwater, atmospheric, nutrient, oceanic, ecosystems, and species) support life on Earth and interact with one another. Share what happens to the planet's sustainability when these systems are disrupted by natural events or human activity.
 - c. Identify how product life cycles (the cycle of design, sourcing, production, use, and disposal or reuse) influence current and future sustainability. Chose one common product to demonstrate how the full product life cycle would apply.
 - d. Learn how the world's population affects the sustainability of Earth. Discuss three human activities that may contribute to putting Earth at risk, now and in the future.
 - e. Explain the term species (plant or animal) decline. Share the human activities that contribute to species decline, what can be done to help reverse the decline, and its impact on a sustainable environment.
 - f. Find a world map that shows the pattern of temperature change for a period of at least 100 years. Identify three factors that scientists believe affect the global weather and temperature. Discuss how climate change impacts sustainability of food, water, or other resources.
- 8. Do the following:**
- a. On a camp out or other outdoor Scouting activity that you attend, make notes on the sustainability practices you and your fellow Scouts practice.

Observe transportation, forestry, soil conservation, water resources, habitat, buildings, campsites, and sanitation. Share what you observed and learned with your counselor.

- b. Discuss with your counselor how living by the Scout Oath, Scout Law, and Outdoor Code in your daily life helps promote sustainability.
 - c. Identify 5 behavioral changes that you and your family can make to improve the sustainability of your household. Share and discuss each with your counselor.
- 9. Learn about career opportunities in the sustainability field. Pick one and find out the education, training, and experience required. Discuss what you have learned with your counselor and explain why this career might interest you.**

Textile (Level 2)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Textile.pdf



Prerequisites:

Bring Workbook and Scout Spirit!

Requirements:

1. Discuss with your merit badge counselor the importance of textiles. In your discussion, define the terms fiber, fabric, and textile. Give examples of textiles you use every day.
2. Do the following:
 - a. Get swatches of two natural-fiber fabrics (100 percent cotton, linen, wool, or silk; no blends). Get swatches of two synthetic-fiber fabrics (nylon, polyester, acrylic, olefin, or spandex). Get a sample of one cellulosic fabric (rayon, acetate, or lyocell).
 - b. Give the origin, major characteristics, and general content of each type of fiber obtained for 2(a). Explain the difference between a cellulosic manufactured fiber and a synthetic manufactured fiber.
 - c. Describe the main steps in making raw fiber into yarn, and yarn into fabric.
 - d. Assume you will soon buy a new garment or other textile item. Tell your counselor what fiber or blend of fibers you want the item to be, and give reasons for your choice.
3. Do **TWO** of the following:
 - a. Visit a textile plant, textile products manufacturer, or textile school or college. Report on what you saw and learned.
 - b. Weave a belt, headband, place mat, or wall hanging. Use a simple loom that you have made yourself.
 - c. With a magnifying glass, examine a woven fabric, a nonwoven fabric, and a knitted fabric. Sketch what you see. Explain how the three constructions are different.
 - d. Make a piece of felt.
 - e. Make two natural dyes and use them to dye a garment or a piece of fabric.
 - f. Waterproof a fabric.
 - g. Demonstrate how to identify fibers, using microscope identification or the breaking test.
4. Explain the meaning of 10 of the following terms: warp, harness, heddle, shed, aramid, spandex, sliver, yarn, spindle, distaff, loom, cellulose, sericulture, extrusion, carbon fibers, spinneret, staple, worsted, nonwoven, greige goods.
5. List the advantages and disadvantages of natural plant fibers, natural animal fibers, cellulosic manufactured fibers, and synthetic manufactured fibers. Identify and discuss at least four ecological concerns regarding the production and care of textiles.
6. Explain to your merit badge counselor, either verbally or in a written report, five career possibilities in the textile industry. Tell about two positions that interest you the most and the education, cost of training, and specific duties those positions require.

Traffic Safety (Level 3)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Traffic_Safety.pdf



Prerequisites:

#1, #5

Requirements:

1. Do the following:
 - a. Describe the top 10 mistakes new drivers frequently make. Name the two items you are required by law to carry with you whenever you operate a motor vehicle.
 - b. Describe how alcohol and other drugs affect the human body and why a person should never drink and drive, or drive while under the influence of any mind-altering substances including prescription drugs, cold medications, and illicit drugs. For the state where you live, find out what is the legal blood alcohol concentration and the consequences for driving while intoxicated or driving under the influence. Find out what the open-container law is in your state.
 - c. Describe at least four factors to be considered in the design of a road or highway. Explain how roadside hazards and road conditions contribute to the occurrence and seriousness of traffic crashes.
 - d. Explain why a driver who is fatigued or distracted should not operate a motor vehicle. List five common distractions, explain how driver distractions contribute to traffic accidents, and tell how drivers can minimize distractions. Describe how volunteer drivers can plan to be alert when transporting Scouting participants.
2. Do the following:
 - a. Demonstrate how to properly wear a lap or shoulder belt. Explain why it is important for drivers and passengers to wear safety belts at all times.
 - b. List five safety features found in motor vehicles besides occupant restraint systems. Describe each safety feature, how each works, and how each contributes to safety.
3. Do the following:
 - a. Using your family car or another vehicle, demonstrate that all lights and lighting systems in the vehicle are working. Describe the function and explain why each type of light is important to safe driving.
 - b. Using your family car or another vehicle, demonstrate how to check tire pressure and identify the correct tire pressure for the vehicle. Explain why proper tire pressure is important to safe driving.
 - c. Demonstrate a method to check for adequate tire tread. Explain why proper tire tread is important to safe driving.
 - d. Demonstrate with a smear-and-clear test if the windshield wiper blades will clear the windshield completely or need to be replaced. Describe instances in good and bad weather when windshield washers are important to safe driving.
4. Do the following:
 - a. In a location away from traffic hazards, measure with a tape measure— not in a car—and mark off with stakes the distance that a car will travel during the time needed for decision and reaction, and the braking distances necessary to stop a car traveling 30, 50, and 70 miles per hour on dry, level pavement. Discuss how environmental factors such as bad weather and road conditions will affect the distance.

- b. Describe the difference in nighttime visibility between a properly lit bicycle and rider (or a pedestrian) wearing reflective material and a bicycle and rider with no lights (or a pedestrian) dressed in dark clothing, without reflective material.
 - c. Explain how color and shape are used to help road users recognize and understand the information presented on traffic and roadway signs. Explain the purpose of different types of signs, signals, and pavement markings.
 - d. Describe at least three examples of traffic laws that apply to drivers of motor vehicles and that bicyclists must also obey.
5. Do **ONE** of the following:
- a. Interview a traffic law enforcement officer in your community to identify what three traffic safety problems the officer is most concerned about. Discuss with your merit badge counselor possible ways to solve one of those problems.
 - b. Using the internet (with your parent's permission), visit five websites that cover safe driving for teenagers. Then, in a group session with at least three teenagers and your counselor, discuss what you have learned.
 - c. Initiate and organize an activity or event to demonstrate the importance of traffic safety.
 - d. Accompanied by an adult and a buddy, pick a safe place to observe traffic at a controlled intersection (traffic signal or stop sign) on three separate days and at three different times of the day, for 30 minutes on each visit. At this intersection, survey violations that might occur. These violations might include (but are not limited to) running a red light or stop sign, speeding, using a cell phone while driving, or occupants not wearing their seat belts. Count the number of violations. Record in general terms the approximate age of the people you observed. Keep track of the total number of vehicles observed so that you can determine the percentage of compliance vs. violations. Discuss your findings with your merit badge counselor.



Veterinary Medicine(Level 3)

https://filestore.scouting.org/filestore/Merit_Badge_RegandRes/Veterinary_Medicine.pdf

Prerequisites:

#6

Requirements:

1. Discuss with your counselor the roles a veterinarian plays in the following:
 - a. Companion or small animal medicine, and equine medicine
 - b. Food animal or large animal medicine
 - c. Exotic animal medicine
 - d. Marine animal medicine (mammal and fish)
 - e. Poultry medicine
 - f. Wildlife medicine and aquaculture medicine
2. Discuss with your counselor the roles a veterinarian plays in the following:
 - a. Public health medicine and zoonotic disease surveillance and control
 - b. The military
 - c. Food safety and inspection
 - d. Laboratory animal medicine and research
 - e. Teaching and government
3. Describe the training required to become a veterinarian.
Where is the veterinary medical college nearest you?
Describe the prerequisites for applying to veterinary school.
4. Tell your counselor what a registered veterinary technician (R.V.T.) or animal health technician (A.H.T.) is. Describe the training required to become an R.V.T. or A.H.T. Where is the school or facility for R.V.T. or A.H.T. training nearest you? Describe the role an R.V.T. or A.H.T. would play in assisting a veterinarian working in three of the practice types listed in requirement 1.
5. Discuss with your merit badge counselor the role a veterinarian plays in the human-animal bond.
6. Do **ONE** of the following:
 - a. Visit a veterinary clinic, hospital, or veterinary referral teaching hospital that does work in one of the practices listed in requirement 1. Spend as much time as you can observing the veterinarians and their staff. Write a report on what you observed and learned at the facility. Share your report with your counselor.
 - b. Spend as much time as possible with a veterinarian who works in one of the fields listed in requirement 2. Learn what special training beyond veterinary medical school may have been required for that position. Learn about any special or unusual activities required of this position. Write a report on what you have learned about this field of veterinary medicine. Include in your report how this field serves the needs of the general public. Share your report with your counselor

What is STEM and Nova?

STEM—Science, Technology, Engineering and Mathematics

STEM is part of an initiative the Boy Scouts of America has taken on to encourage the natural curiosity of youth members and their sense of wonder about these fields through existing programs. From archery to welding, Scouts can't help but enjoy the wide range of STEM-related activities. To support this initiative, the BSA developed the Nova Awards program so that youth members have fun and receive recognition for their efforts.



Why STEM?

We live in a time of great opportunity. The spirit of innovation can help us overcome challenges and ensure a prosperous and secure future. To seize this opportunity, we must position ourselves at the cutting edge of scientific discovery and technological innovation. Yet our country is falling behind in science, technology, engineering and mathematics. This is why many professionals and educators in science, technology, engineering, and mathematics believe the United States should do more now than ever to encourage students to enter STEM-related fields. These experts say our young people need strong STEM skills to compete in the world market. We must work together to cultivate the next generation of critical thinkers and innovators.

TEN-YEAR EMPLOYMENT PROJECTIONS BY THE U.S. DEPARTMENT OF LABOR SHOW THAT OF THE 20 FASTEST-GROWING OCCUPATIONS PROJECTED FOR 2014, 15 OF THEM REQUIRE SIGNIFICANT MATHEMATICS OR SCIENCE PREPARATION.

STEM Is the future

Fostering a strong STEM education is our best opportunity to boost the spirit of innovation. It's what we need to help ensure this country continues on a prosperous and secure journey. STEM literacy is also critical because it has a profound and growing impact on our day-to-day lives. Nature, space exploration, and any STEM-related interest reveals to us the beauty and power of the world we inhabit.

What Are the [Nova Awards](#)?



The Boy Scouts of America developed the [Nova Awards](#) program to excite and expand a sense of wonder in our Scouts. By working with an adult counselor or mentor, the various modules allow them to explore the basic principles of STEM and discover how fun and fascinating STEM can be. The Supernova awards are offered for those who enjoy a super challenge. For more information about STEM and the Nova Awards program, visit www.scouting.org/stem. Discover how the Nova Awards program helps you be "Prepared. For Life."

QUALIFYING [NOVA AWARD](#) MERIT BADGES OFFERED AT MERIT BADGE COLLEGE INCLUDE:

American Business, Animation, Aviation, Chess, Digital Technology, Engineering, Game Design, Public Health, "Signs, Signals and Codes", Sustainability, Weather

WELDING Merit Badge Qualifies under [SUPER NOVA AWARD](#)

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