**Cub Scouts – Novas**

There are no pre-reqs for Tech Talk, Swing, and Out of this World. Those taking Science Everywhere should: (Req 4A)

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| Visit a place where science is being done, used, or explained, such as one of the following: zoo, aquarium, water treatment plant, observatory, science museum, weather station, fish hatchery, or any other location where science is being done, used, or explained. During your visit talk to someone in charge about science. |

**Cub Scouts – Adventures**

There are no pre-reqs for Wolves Motor Away. Bears in Robotics should: Visit a place that uses robots. Webelos in Adventures in Science should: Visit a museum, a college, a laboratory, an observatory, a zoo, an aquarium, or other facility that employs scientists. Prepare three questions ahead of time, and talk to a scientist about his or her work

**Boy Scout – Novas**

The pre-req for all of the Boy Scout Novas is to come prepared to discuss what you read or watched for requirement 1 of the Award you are working.

Additionally, note that as part of requirement 2 of each Nova Award, you must earn one of the listed Merit Badges (see http://www.scouting.org/stem/Awards/BoyScouts.aspx ). If you have already earned one of the MBs from this list, you may use it towards your Nova Award. Alternatively you should plan to take a Nova-related Merit Badge class offered on this day.

 **Boy Scouts – Merit Badges
 Be sure to bring blue cards for your activities signed by your scout master.**

**Drafting**

1. Read the Wikipedia page on Technical Drawing
2. Do ONE of the following (a or b): (Req 6) Be prepared to discuss what you found.
	1. Visit a facility or industry workplace where drafting is part of the business. Ask to see an example of the work that is done there, the different drafting facilities, and the tools used.
		1. Find out how much of the drafting done there is manual, and how much is done using CAD. If CAD is used, find out what software is used and how and why it was chosen.
		2. Ask about the drafting services provided. Ask who uses the designs produced and how those designs are used. Discuss how the professionals who perform drafting cooperate with other individuals in the drafting area and other areas of the business.
		3. Ask how important the role of drafting is to producing the end product or service that this business supplies. Find out how drafting contributes to the company's end product or service
	2. Using resources you find on your own such as at the library and on the Internet (with your parent's permission), learn more about the drafting trade and discuss the following with your counselor.
		1. The drafting tools used in the past - why and how they were used. Explain which tools are still used today and how their use has changed with the advent of new tools. Discuss which tools are being made obsolete by newer tools in the industry.
		2. Tell what media types were used in the past and how drawings were used, stored, and reproduced. Tell how the advent of CAD has changed the media used, and discuss how these changes affect the storage or reproduction of drawings.
		3. Discuss whether the types of media have changed such that there are new uses for the drawings, or other outputs, produced by designers. Briefly discuss how new media types are used in the industry today.

**Digital Technology**

1. Complete your Cyber Chip, and bring card signed by unit leader for approval.
2. (Req 5B) Using an Internet search engine (with your parent’s permission), find ideas about how to conduct a troop court of honor or campfire program. Print out a copy of the ideas from at least three different websites and bring this to class.
3. (Req 8C) With your parents permission, 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.
4. (Req 9A) Investigate three career opportunities that involve digital technology. Pick one and find out the education, training, and experience required for this profession.

**Electricity (if offered)**

1. Read the Wikipedia page on Electricity.
2. Complete an electrical home safety inspection of your home, using the checklist you can find on this registration site. (Req 2) Be prepared to discuss what you found. {See checklist on our web site}
3. On a floor plan of a room in your home, make a wiring diagram of the lights, switches, and outlets. Show which fuse or circuit breaker protects each one. (Req 8) Be prepared to discuss what you found
4. Read an electric meter and, using your family’s electric bill, determine the energy cost from the meter readings. (Req 9 a) Be prepared to discuss what you found.
5. Look up the following electrical terms: volt, ampere, watt, ohm, resistance, potential difference, rectifier, rheostat, conductor, ground, circuit, and short circuit. (Req 10) Be prepared to discuss what you found.

**Energy**

1. Read the Wikipedia page on Energy.
2. Find an article on the use or conservation of energy. (Req 1 a) Be prepared to discuss.
3. Conduct an energy audit of your home. You may use the one provided on the registration site or one of your own. (Req 4) Be prepared to discuss. {See Energy Audit on our web site}
4. Keep a 14 day log that records what you and your family did to reduce energy use. (Req 4) Be prepared to discuss.
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. (Req 5) Be prepared to discuss.

**Engineering**

1. Read the Wikipedia page on Engineering and Regulation and licensure in Engineering
2. Select some manufactured item in your home (such as a toy or an appliance) and, under adult supervision, investigate how and why it works as it does. Find out what sort of engineering activities were needed to create it. Be ready to discuss what you learned and how you got the information. (Req 1)
3. Select an engineering achievement that has had a major impact on society. Use the resources available to you to research it. Look for who made it possible, the special obstacles they had to overcome, and how this achievement has influenced the world today. (Req 2) Be prepared to discuss.

**Weather**

1. Read the Wikipedia page on Weather.
2. Keep a daily weather log for 1 week using information from an instrument as well as from other sources such as local radio and television stations or NOAA Weather Radio, and Internet sources (with your parent's permission). Record the following information at the same time every day: wind direction and speed, temperature, precipitation, and types of clouds. Be sure to make a note of any morning dew or frost. In the log, also list the weather forecasts from radio or television at the same time each day and show how the weather really turned out. (Req 8) Be prepared to discuss.
3. Prepare a 5 minute talk on one of the following (a or b): (Req 9)
	1. Outdoor safety rules in the event of lightning, flash floods, and tornadoes.
	2. Acid rain using articles you have found.
4. Find out about a weather-related career opportunity that interests you. Be able to explain to the group what training and education are required for such a position, and the responsibilities required of such a position. (Req 10) Be prepared to discuss.