BOY SCOUT NOVA AWARD - DESIGNED TO CRUNCH (MATHEMATICS)

Additional checkoff sheets and helps are available from <u>ScouterMom.com</u>.

each day. Image: Characterization of the second of the					 	
1A. Watch about three hours total math-related shows or documentaries that involve scientific models and modeling, physics, sports equipment design, bridge building, or cryptography. Then do the following: Image: Compute Scientific models and modeling, physics, sports equipment design, bridge building, or cryptography. Then do the following: 1A-1. Make a list of at least five questions or ideas with your counselor Image: Compute Scientific Models and Polanic Science	This module is designed to help you explore how math affects your life each day.					
documentaries that involve scientific models and modeling, physics, sports equipment design, bridge building, or cryptography. Then do the IA-1. Make a list of at least five questions or ideas from the show(s) you addition IA-2. Discuss two of the questions or ideas with your counselor addition IA-2. Discuss two of the questions or ideas with your counselor addition IA-2. Discuss two of the questions or ideas with your counselor addition IA-2. Discuss two of the questions or beople who worked extensively with cryptography. Then do the following: addition IB-1. List and record the URLs of the websites you visited and the major topics covered on the websites you visited. (You may use the copy and paste function—eliminate the words—if you include your sources.) addition IB-2. List and record the URLs of the websites you visited and the major topics covered on the websites you visited. (You may use the copy and paste function—eliminate the words—if you include your sources.) addition IC. Read at least three articles (about three hours total) about physics, math, modeling, or cryptography. You may wish to read about how technology and engineering are changing sports equipment, how and why triangles are used in construction, bridge building, engineering, climate and/or weather models, how banks keep information secure, or about the stock market. Then do the following: addition IC-1. Make a list of at least two questions or ideas from each article. addition addition ID. Do a combination of re	1. Choose A or B or C or D and complete ALL the requirements.	 				
watched. Image: Constraint of the set of t	1A. Watch about three hours total math-related shows or documentaries that involve scientific models and modeling, physics, sports equipment design, bridge building, or cryptography. Then do the following:					
1B. Research (about three hours total) several websites (with your parent's or guardian's permission) that discuss and explain cryptography or the discoveries of people who worked extensively with cryptography. Then do the following: IB-1. List and record the URLs of the websites you visited and the major topics covered on the websites you visited. (You may use the copy and paste function—eliminate the words—if you include your sources.) IB-2. List and record the URLs of the websites you visited and the major topics covered on the websites you visited. (You may use the copy and paste function—eliminate the words—if you include your sources.) IC. Read at least three articles (about three hours total) about physics, math, modeling, or cryptography. You may wish to read about how technology and engineering are changing sports equipment, how and why triangles are used in construction, bridge building, engineering, climate and/or weather models, how banks keep information secure, or about the stock market. Then do the following: IC-1. Make a list of at least two questions or ideas from each article. IC-2. Discuss two of the questions or ideas from each article, website, or show. ID-2. Discuss two of the questions or ideas from each article, website, or show. ID-2. Discuss two of the questions or ideas from each article, website, or show. ID-2. Discuss two of the questions or ideas from each article, website, or show. ID-2. Discuss two of the questions or ideas from each article, website, or show. ID-2. Discuss two of the questions or ideas from each article, website, or show. ID-2. Discuss two of the questions or ideas from each article, website, or show. ID-2. Discuss with your counselor for the dispered on the fo	1A-1. Make a list of at least five questions or ideas from the show(s) you watched.					
parent's or guardian's permission) that discuss and explain cryptography or the discoveries of people who worked extensively with cryptography. Then do the following: 1B-1. List and record the URLs of the websites you visited and the major topics covered on the websites you visited. (You may use the copy and paste function—eliminate the words—if you include your sources.) 1B-2. List and record the URLs of the websites you visited and the major topics covered on the websites you visited. (You may use the copy and paste function—eliminate the words—if you include your sources.) 1C. Read at least three articles (about three hours total) about physics, math, modeling, or cryptography. You may wish to read about how technology and engineering are changing sports equipment, how and why triangles are used in construction, bridge building, engineering, climate and/or weather models, how banks keep information secure, or about the stock market. Then do the following: 1C-1. Make a list of at least two questions or ideas from each article. 1C-2. Discuss two of the questions or ideas with your counselor. 1D. Do a combination of reading, watching, or researching (about three hours total). Then do the following: 1D-1. Make a list of at least two questions or ideas from each article, website, or show. 1D-2. Discuss two of the questions or questions with your counselor. 2. Complete ONE merit badge from the following list. (Choose one that you have not already used toward another Nova award.) After completion, discuss with your counselor. 2. American Business 28. Chess 26. Computers 27. Computers 26. Computers 27. Computers 27. Computers 27. Computers 27. Computers 27. Computers 27. Computers 28. Chess 20. Computers 27. Computers 28. Chess 20. Computers 28. Chess 20. Computers 20. Computers 20	1A-2. Discuss two of the questions or ideas with your counselor					
topics covered on the websites you visited. (You may use the copy and paste function—eliminate the words—if you include your sources.) Image: Constraint of the constraint of the websites you visited and the major topics covered on the websites you visited. (You may use the copy and paste function—eliminate the words—if you include your sources.) 1B-2. List and record the URLs of the websites you visited and the major topics covered on the websites you visited. (You may use the copy and paste function—eliminate the words—if you include your sources.) Image: Constraint of the websites you visited and the major topics covered on the websites you visited. (You may use the copy and paste function—eliminate the words—if you include your sources.) 1C. Read at least three articles (about three hours total) about physics, math, modeling, or cryptography. You may wish to read about how technology and engineering are changing sports equipment, how and why triangles are used in construction, bridge building, engineering, climate and/or weather models, how banks keep information secure, or about the stock market. Then do the following: Image: Constraint of the questions or ideas from each article. 1C-1. Make a list of at least two questions or ideas from each article. Image: Constraint of the questions or ideas from each article. Image: Constraint of the questions or ideas from each article. 1D-2. Discuss two of the questions or questions with your counselor. Image: Constraint of the following: Image: Constraint of the questions or questions with your counselor. 2. Complete ONE merit badge from the following list. (Choose one that you have not already used toward another Nova award.) After completion, discuss with your coun	1B. Research (about three hours total) several websites (with your parent's or guardian's permission) that discuss and explain cryptography or the discoveries of people who worked extensively with cryptography. Then do the following:					
topics covered on the websites you visited. (You may use the copy and paste function—eliminate the words—if you include your sources.) Image: Construction of the provided the provi	1B-1. List and record the URLs of the websites you visited and the major topics covered on the websites you visited. (You may use the copy and paste function—eliminate the words—if you include your sources.)					
math, modeling, or cryptography. You may wish to read about how technology and engineering are changing sports equipment, how and why triangles are used in construction, bridge building, engineering, climate and/or weather models, how banks keep information secure, or about the stock market. Then do the following:Image: Completion of the questions or ideas from each article.1C-1. Make a list of at least two questions or ideas from each article.Image: Completion of the questions or ideas with your counselor.Image: Completion of the questions or ideas from each article.1D. Do a combination of reading, watching, or researching (about three hours total). Then do the following:Image: Completion of the questions or ideas from each article, website, or show.1D-2. Discuss two of the questions or questions with your counselor.Image: Completion of the questions or questions with your counselor.2. Complete ONE merit badge from the following list. (Choose one that you have not already used toward another Nova award.) After completion, discuss with your counselor how the merit badge you earned uses mathematics.Image: Completion of the question of how the merit badge you earned uses mathematics.2A. American BusinessImage: ComputersImage: Completion of the question of how the merit badge you earned uses mathematics.2C. ComputersImage: Completion of the question due to the	1B-2. List and record the URLs of the websites you visited and the major topics covered on the websites you visited. (You may use the copy and paste function—eliminate the words—if you include your sources.)					
1C-2. Discuss two of the questions or ideas with your counselor.Image: Constraint of the question of reading, watching, or researching (about three hours total). Then do the following:Image: Constraint of the question of the questions or ideas from each article, website, or show.Image: Constraint of the question of questions or ideas from each article, website, or show.Image: Constraint of the question of the questions or questions with your counselor.Image: Constraint of the question of the questions or questions with your counselor.Image: Constraint of the question of the question of the following list. (Choose one that you have not already used toward another Nova award.) After completion, discuss with your counselor how the merit badge you earned uses mathematics.Image: Constraint of the question of question of the question of questions with your counselor.Image: Constraint of the question of question of the question	1C. Read at least three articles (about three hours total) about physics, math, modeling, or cryptography. You may wish to read about how technology and engineering are changing sports equipment, how and why triangles are used in construction, bridge building, engineering, climate and/or weather models, how banks keep information secure, or about the stock market. Then do the following:					
1D. Do a combination of reading, watching, or researching (about three hours total). Then do the following:Image: Complete completion1D-1. Make a list of at least two questions or ideas from each article, website, or show.Image: Complete completionImage: Complete completion1D-2. Discuss two of the questions or questions with your counselor.Image: Complete completionImage: Complete completionImage: Complete completion2. Complete ONE merit badge from the following list. (Choose one that you have not already used toward another Nova award.) After completion, discuss with your counselor how the merit badge you earned uses mathematics.Image: Complete completionImage: Complete completion2A. American BusinessImage: ComputersImage: ComputersImage: ComputersImage: Computers	1C-1. Make a list of at least two questions or ideas from each article.					
hours total). Then do the following:Image: Constraint of the following:Image: Constraint of the following:1D-1. Make a list of at least two questions or ideas from each article, website, or show.Image: Constraint of the questions or questions with your counselor.1D-2. Discuss two of the questions or questions with your counselor.Image: Constraint of the questions or questions with your counselor.2. Complete ONE merit badge from the following list. (Choose one that you have not already used toward another Nova award.) After completion, discuss with your counselor how the merit badge you earned uses mathematics.Image: Constraint of the questions of the question of questions of question of the question of questions of question of the questi	1C-2. Discuss two of the questions or ideas with your counselor.					
website, or show.Image: constraint of the questions or questions with your counselor.Image: constraint of the questions or questions with your counselor.1D-2. Discuss two of the questions or questions with your counselor.Image: constraint of the questions or questions with your counselor.Image: constraint of the questions or questions with your counselor.2. Complete ONE merit badge from the following list. (Choose one that you have not already used toward another Nova award.) After completion, discuss with your counselor how the merit badge you earned uses mathematics.Image: constraint of the questions of the question of the ques	1D. Do a combination of reading, watching, or researching (about three hours total). Then do the following:					
2. Complete ONE merit badge from the following list. (Choose one that you have not already used toward another Nova award.) After completion, discuss with your counselor how the merit badge you earned uses mathematics. Image: Choose one that you counselor how the merit badge you earned uses mathematics. 2A. American Business Image: Choose one that you counselor how the merit badge you earned uses Image: Choose one that you counselor how the merit badge you earned uses mathematics. 2B. Chess Image: Choose one that you counselor how the merit badge you earned uses Image: Choose one that you counselor how the merit badge you earned uses 2C. Computers Image: Choose one that you counselor how the merit badge you earned uses Image: Choose one that you counselor how the merit badge you earned uses 2B. Chess Image: Choose one that you counselor how the merit badge you earned uses Image: Choose one that you counselor how the merit badge you earned uses 2C. Computers Image: Choose one that you counselor how the merit badge you earned uses Image: Choose one that you counselor how the merit badge you earned uses 2C. Computers Image: Choose one that you counselor how the merit badge you earned uses Image: Choose one that you counselor how the merit badge you earned uses	1D-1. Make a list of at least two questions or ideas from each article, website, or show.					
you have not already used toward another Nova award.) After completion, discuss with your counselor how the merit badge you earned uses mathematics. 2A. American Business 2B. Chess 2C. Computers	1D-2. Discuss two of the questions or questions with your counselor.					
2B. Chess 2B. Chess 2B. Chess 2B. Chess 2C. Computers	2. Complete ONE merit badge from the following list. (Choose one that you have not already used toward another Nova award.) After completion, discuss with your counselor how the merit badge you earned uses mathematics.					
2C. Computers	2A. American Business					
	2B. Chess					
2D. Digital Technology	2C. Computers					
	2D. Digital Technology					

This module is designed to help you explore how math affects your life Image: Section of the se			 	 	 	
2F. Entrepreneurship Image: Construction of the second						
26. Orienteering Image: Construct of the second	2E. Drafting					
2H. Personal Management Imagement I	2F. Entrepreneurship					
21. Radio 21. Signs, Signals, and Codes 21. Signs, Signals, and Codes 21. Weather 22. Weathe	2G. Orienteering					
2). Signs, Signals, and CodesImage: Signals, and	2H. Personal Management					
2K. Surveying Image: Constraint of the second s	2I. Radio					
21. Weather Image: Construct on the set of	2J. Signs, Signals, and Codes					
3. Choose TWO from A or B or C or D or E and complete ALL the requirements. (Write down your data and calculations to support your explanation to your counselor. You may use a spreadsheet. Do not use someone else's data or calculations.) Image: Complete	2K. Surveying					
requirements. (Write down your data and calculations to support your explanation to your counselor. You may use a spreadsheet. Do not use someone else's data or calculations.)Image: Stress of the stress of t	2L. Weather					
your calculations with your counselor, and discuss what you learned about horsepower. 3A-1. How does your horsepower compare to the power of a horse? A-2. How does your horsepower compare to the horsepower of your favorite car? 3B. Attend at least two track, cross-country, or swim meets. Share your calculations with your counselor, and discuss your conclusions about the racers' strengths and weaknesses. 3B-1. For each meet, time at least three racers. (Time the same racers at each meet.) 3B-2. Calculate the average speed of the racers you timed. (Make sure you write down your data and calculations.) 3B-3. Compare the average speed of the racers to each other, to the official time, and to their times at the two meets you attended. 3D. Attend a football game or watch one on TV. (This is a fun activity to do with a parent or friend!) Keep track of the efforts of your favorite examples. Share your calculations with your counselor, and discuss your conclusions about your team's statistics using the following as examples. Share your calculations with your counselor, and discuss your conclusions about your team's statistics using the following as examples. Share your calculations with your counselor, and discuss your conclusions about your team's statistics using the following as examples. Share your calculations with your counselor, and discuss your conclusions about your team's statistics using the following as examples. Share your calculations with your counselor, and discuss your conclusions about your team's statistics using the following as examples. Share your calculations with your counselor, and discuss your conclusions about your team's strengths and weaknesses. 3D-1. Kickoff—Kick return yards 3D-1. Field goals—Attempted, percent completed, yards 3D-1. Extra point—Attempted, percent completed, yards 3D-1. Coffense 4D 4D 4	requirements. (Write down your data and calculations to support your explanation to your counselor. You may use a spreadsheet. Do not use					
3A-2. How does your horsepower compare to the horsepower of your favorite car?Image: Compare to the horsepower of your favorite car?Image: Compare to the horsepower of your calculations with your counselor, and discuss your conclusions about the racers' strengths and weaknesses.Image: Compare to the horsepower of your calculations with your counselor, and discuss your conclusions about the racers' strengths and weaknesses.Image: Compare to the horsepower of your calculate the average speed of the racers you timed. (Make sure you write down your data and calculations.)Image: Compare to the average speed of the racers you timed. (Make sure you write down your data and calculations.)Image: Compare to the average speed of the racers you timed. (Make sure you write down your data and calculations.)Image: Compare to the average speed of the racers you timed. (Make sure you write down your data and calculations.)Image: Compare to the average speed of your racers to each other, to the official time, and to their times at the two meets you attended.Image: Compare to the average speed of the racers you the down your data and calculate your team's statistics using the following as examples. Share your calculations with your counselor, and discuss your conclusions about your team's strengths and weaknesses.Image: Compare to the top	your calculations with your counselor, and discuss what you learned					
favorite car?Image: Control of the contro	3A-1. How does your horsepower compare to the power of a horse?					
calculations with your counselor, and discuss your conclusions about the racers' strengths and weaknesses.Image: Calculation with your counselor, and discuss your conclusions about the racers' strengths and weaknesses.Image: Calculation weaknesses.<						
at each meet.)III <tdi< td=""><tdi< td="">I<tdi< td=""><tdi< td=""><td>calculations with your counselor, and discuss your conclusions about</td><td></td><td></td><td></td><td></td><td></td></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<></tdi<>	calculations with your counselor, and discuss your conclusions about					
you write down your data and calculations.)Image: Constraint of the second						
official time, and to their times at the two meets you attended.Image: Constraint of the times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you favorite to do with a parent or friend!) Keep track of the efforts of your favorite team during the game. (Make sure you write down your data and calculations.) Calculate your team's statistics using the following as examples. Share your calculations with your counselor, and discuss your conclusions about your team's strengths and weaknesses.Image: Constraint of the times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times at the two meets you attended.Image: Constraint of times attended. <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td></th<>						
do with a parent or friend!) Keep track of the efforts of your favorite team during the game. (Make sure you write down your data and calculations.) Calculate your team's statistics using the following as examples. Share your calculations with your counselor, and discuss your conclusions about your team's strengths and weaknesses.Image: Complete team team team team team team team t						
3D-1a. Kickoff—Kick return yardsImage: Sector of the sector o	do with a parent or friend!) Keep track of the efforts of your favorite team during the game. (Make sure you write down your data and calculations.) Calculate your team's statistics using the following as examples. Share your calculations with your counselor, and discuss					
3D-1b. Field goals—Attempted, percent completed, yardsImage: Completed by a completed	3D-1. Kicks/punts					
3D-1c. Field goals—Attempted, percent completed, yardsImage: Completed by the second seco	3D-1a. Kickoff—Kick return yards					
3D-1d. Extra point—Attempted, percent completedImage: CompletedImage: CompletedImage: Completed3D-2. OffenseImage: CompletedImage: CompletedImage: CompletedImage: Completed	3D-1b. Field goals—Attempted, percent completed, yards					
3D-2. Offense	3D-1c. Field goals—Attempted, percent completed, yards					
	3D-1d. Extra point—Attempted, percent completed					
3D-2a. Number of first downs	3D-2. Offense					
	3D-2a. Number of first downs					

This module is designed to help you explore how math affects your life each day.					
3D-2b. Forward passes—Attempted, percent completed, total length of passes, longest pass, number and length of passes caught by each receiver, yardage gained by each receiver after catching a pass					
3D-2c. Running plays—Number, yards gained or lost for each run, longest run from scrimmage line, total yards gained or lost, and number of touchdowns					
3D-3. Defense—Number of quarterback sacks, interceptions turnovers, and safeties					
3E. How starry are your nights? Participate in a star count to find out. This may be done alone but is more fun with a group. Afterward, share your results with your counselor.					
3E-1. Visit the website of the Astronomical Society of the Pacific at http://www.astrosociety.org/education/hands-on-astronomy-activities/ for instructions on performing a star count.					
3E-2. Do a star count on five clear nights at the same time each night.					
4. Do ALL of the following.					
4A. Investigate your calculator and explore the different functions.					
4B. Discuss the functions, abilities, and limitations of your calculator with your counselor. Talk about how these affect what you can and cannot do with a calculator. (See your counselor for some ideas to consider.)					
5. Discuss with your counselor how math affects your everyday life.					
Completed					
Presented					