



Washington, D.C. STEM TREK

Guide Book

Welcome to the Washington DC STEM Trek!!!!

The Science Technology Engineering and Mathematics (STEM) Trek consists of two hikes around the National Mall area of downtown Washington DC, highlighting some of the STEM that was involved in the creation of the Nation's Capital. One basic hike is 10.57-miles and the second, for less experienced Trekkers, is 4.75-miles. The Trek showcases 24 government agencies, private organizations and monuments related to the tenets upon which STEM is based. There will be a question to answer or activity for you to perform at each of these stops.

The very first step is to review the locations, plot them on a map, and work out your path! The Trek is designed to be challenging, but fun and educational as well. Some of the questions may be researched online, so participants may want to look the questions/activities over beforehand, or plan to research questions afterward if the answers are not readily obvious. This will allow you to focus on the on-site questions/activities and enjoy each location to the fullest. We expect each Trekker will do their best, but perfection is not the goal. You need only score an 85% to qualify to obtain your Trek patch. Happy trekking!!

Most importantly, BE SAFE. The District of Columbia is known for its heavy traffic, between cars, electric bikes and other forms of transportation. Sidewalks are often filled with people as well. Be careful when crossing streets, especially when you may be pre-occupied looking for a particular building or monument!!

What to Bring on the Trek?

Each hiker (including adults) should have a:

1. Water
2. First Aid kit
3. Map and Compass
4. Flashlight/Headlamp
5. Raingear
6. Sunscreen
7. Trail Food
8. Extra Clothing
9. Uniform or appropriate hiking gear
10. Calculator
11. A copy of this Guide Book and Answer Sheet
12. Pen/Pencil

How to Obtain Your Trek Patch?

The STEM Trek patch will be available for purchase after being successfully earned by completing the activities associated with the hike. You will have the opportunity to redo activities if needed, in order to qualify you for your Trek patch. When you are done with the Trek, please head over to <https://forms.gle/6q1UkiEnyebNfzxh6> and submit your answers! You only need to submit one form for your whole group/unit. Once you have submitted your answers, patches are available at <https://councilstuff.com/082?category=2627> in the online store, or for purchase at the Marriott Scout Service Center at 9190 Rockville Pike, Bethesda, MD 20814. An order can also be phoned in at 301-530-9360.

Acknowledgements

The STEM Trek *concept* originated from the NCAC STEM Committee, chaired by Dr. Arden Dougan, in 2019. STEM Committee member and Colonial District Supernova Mentor Mr. Tony Springer originally identified 18 Trek stops and presented this in a working session at University of Scouting 2020. From that original idea, Girls Troop 1853 of Springfield, Virginia adapted, enhanced and completed the development of the Trek! Special thanks to Reagan and Cordelia, who were the Senior Patrol Leaders during this development. Inputs were provided by Sarah, Kyra, Sadie, Paige, Sydney, Tessa, Evelyn, Lauren, Moksha, Sumi, Rowan, Aubrie, Reagan, and Cordelia. Input was also provided by Scouters Mrs. Foster, the Scoutmaster, and Mrs. Embry, Mrs. Kelley and Mr. Schulke.

Finally, we would be remiss if we did not recognize Mr. Donlin, a truly unsung hero of the DC STEM Trek. Mr. Donlin took the initiative to rally GTroop 1853 to adopt the development of the Trek during covid and he dedicated countless hours mentoring the group in this endeavor. Over several months, Mr. Donlin led the group to complete the design, stops and questions for the DC STEM Trek that you see today. We hope you enjoy the Trek, and learn about our Nation's Capital and Science, Technology, Engineering and Mathematics!

The Trek

1. Smithsonian Metro Station

The Washington Metropolitan Area Transit Authority (Metro) was created by an interstate compact in 1967 to plan, develop, build, finance, and operate a balanced regional transportation system in the national capital area. Metro began building its rail system in 1969, and began operating the first phase of Metrorail in 1976. Today, Metrorail serves 91 stations and has 117 miles of track. This station is named for its proximity with the Smithsonian, and is also close to the Washington Monument, Tidal Basin, and other popular tourist attractions near the National Mall. The station is also near several federal office buildings, including those of the Department of Agriculture and the Department of Energy. The station was opened on July 1, 1977.



SW corner of 12th Street and Independence Avenue, SW

CS Nova Award: Swing!; Scouts BSA Nova Awards: Start Your Engines, Whoosh!

Cub Scout: Metro is the second busiest transit system in the United States in number of passenger trips. Which system is first?

Scout BSA: What are the three regional jurisdictions which compose the compact that created Metro?

On-site question: What is the name of the arch to the west of the Metro Station entrance?

2. Department of Energy (DOE)

The United States Department of Energy is a cabinet-level department of the United States Government concerned with the United States' policies regarding energy and safety in handling nuclear material.



James V. Forrestal Building, Washington, D.C., Washington, D.C.

1000 Independence Ave SW, Washington, DC 20585

CS Nova Award: Tech Talk; Scouts BSA Nova Award: Start Your Engines

Cub Scouts: See the round statue near the building lobby, read the plaque. What is its name, what does it represent?

Scouts BSA: What does the DOE spend most of its money on?

On-site question: Look through the glass windows at the north side of the lobby. Here you will see exhibits of wind turbines, nuclear reactors, and a nuclear bomb. Can you tell which is which?

3. International Spy Museum

The International Spy Museum is the only museum dedicated completely to spying and espionage in the world! It has a large collection of spy artifacts dating from the 1950s to now. It is privately owned, meaning it receives no government funding, so admissions are required for entrance. Some exciting attractions in the museum are a replica of the East Berlin tunnel used by US spies and an invisible ink letter written by President George Washington during the American Revolution!



700 L'Enfant Plaza SW, Washington, DC 20024

CS Nova Award: Cub Scouts Can Code, 1-2-3 Go!; Scouts BSA Nova Award: Hello, World

Cub Scouts: What government agency is in charge of United States spies and espionage?

Scouts BSA: What training does it take to be a CIA agent?

On-site question: What is the slogan along the bottom of the front window on the museum?

4. Arts and Industries Building

The Arts and Industries Building (AIB) is the Smithsonian's second oldest building and a national hub for creative exchange between ideas and objects from our past and our future. AIB opened in 1881 as the country's first U.S. National Museum, an architectural icon in the heart of the National Mall. Its soaring halls introduced millions of Americans to wonders about to change the world—Edison's lightbulb, the first telephone, Apollo rockets.



Over the years, AIB was the origin and incubator for almost every other Smithsonian museum, debuting everything from dinosaurs to rocket ships. Never fully renovated, the building closed completely in 2004 due to structural concerns. Now, for the first time in 140 years, the building in its entirety is being reimagined to renew its original purpose: to be an incubator for thinking about, and even solving, some of the biggest challenges we face today.

900 Jefferson Dr SW, Washington, DC 20591

Scouts BSA Nova Award: Next Big Thing

Cub Scouts: Originally this building was known as the US National Museum. What was the first event held in it (even before the exhibits and permanent floor was installed)?

Scouts BSA: A wide range of exhibits were on display when the building first opened in October 1881. Name 5.

On-site question: What is the date under the National Museum sign over the front door?

5. Federal Aviation Administration (FAA)

The Federal Aviation Administration is the agency in the Department of Transportation responsible for the regulation and oversight of civil aviation within the United States. The FAA is also in charge of the operation and development of the National Airspace System. They work with NASA to ensure safety in commercial space operations as well. The main goal of the FAA is to ensure the safety of civil aviation in the United States.

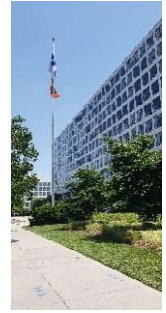
800 Independence Ave SW, Washington, DC 20591

CS Nova Award: Out of this World; Scouts BSA Nova Award: Start Your Engines, Whoosh!

Cub Scout: When was the FAA created?

Scouts BSA: On average, how many flights are there in and out of the U.S. daily?

On-site question: How many floors of the building are above the front columns?



6. National Air and Space Museum (NASM)

The Smithsonian's National Air and Space Museum maintains the world's largest and most significant collection of aviation and space artifacts, encompassing all aspects of human flight, as well as related works of art and archival materials. It operates two landmark facilities that, together, welcome more than eight million visitors a year, making it the most visited museum in the country. It also is home to the Center for Earth and Planetary Studies.

600 Independence Ave SW, Washington, DC 20560

CS Nova Award: Out of this World, Tech Talk, Up and Away; Scouts BSA Nova Award: Shoot!, Start Your Engines, Whoosh!

Cub Scouts: Find the plane - Bell X-1 "Glamorous Glennis". Question- Who named the Airplane and why did he name it "Glamorous Glennis"?

Scouts BSA: Find the plane - Bell X-1 "Glamorous Glennis". Question- What did this plane prove?

On-site question: Go to the Voyage Scale Model Solar System on the mall side of the Museum. Check all the stations representing the Sun and the planets and Pluto. Besides the Sun, what other non-planet bodies are represented.



7. Eisenhower National Presidential Memorial

Designed by world-renowned architect Frank Gehry, the memorial encapsulates Eisenhower's legacy in a four-acre urban park at the base of Capitol Hill. Gehry's unique vision is a grand new civic space in the heart of the nation's capital. The memorial features a one-of-a-kind stainless steel tapestry depicting beaches of D-Day, heroic-sized bronze sculptures, and stone bas reliefs. The site for the national memorial to Eisenhower bears a close and unique relationship to his life-long public service. Eisenhower's legacy has specific thematic relationships with federal entities adjoining the Maryland Avenue site. Together these buildings demonstrate Eisenhower's broad legacy of improved national infrastructure, the foundation upon which he worked to build "a peace with justice in a world where moral law prevails."



Cub Scouts: On March 5, 1958 President Eisenhower approved a memorandum that proposed a civilian space agency which we now know as NASA. What was its original name?

Scouts BSA: The plaza where this Memorial is located is surrounded by institutions connected to President Eisenhower's legacy. Name at least three.

On-site question: How tall is the Eisenhower figure in the left most sculpture?

8. National Aeronautics and Space Administration (NASA)

The National Aeronautics and Space Administration, or NASA, is an independent agency of the United States Federal Government responsible for the civilian space program, as well as aeronautics and aerospace research. NASA was established in 1958, and sent the first crew from the United States to the moon in July of 1969. Since then, NASA has completed hundreds of mission in space such as satellite launches to Mars or the launching of the Hubble Space Telescope.



300 E Street Southwest, Washington, DC 20546

CS Nova Award: Out of this World, Cub Scouts can Code, Swing!, Up and Away, 1-2-3 Go!; Scouts BSA Nova Award: Designed to Crunch, Hello, World, Shoot!, Start Your Engines, Whoosh!

Cub Scouts: Who were the first people to land on the moon? What crew were they apart of?

Scouts BSA: About what percent of astronauts were involved in Scouts?

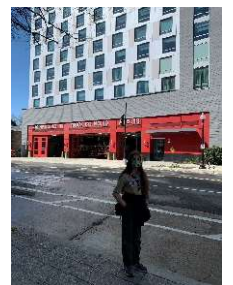
or

When was the Hubble Space Telescope launched and from where?

On-site question: Where on the building is the US flag?

9. Fire Station (DCFD)

The Fire and Emergency Medical Services Department (FEMS) has 33 engine companies throughout DC with 16 ladder trucks, 17 medic units, and 22 basic life support ambulances. The company you will be visiting is Engine Co. No. 13. You can expect for the FEMS to get to you between 4 to 6 minutes. The DC FEMS offer hands only CPR and AED awareness classes.

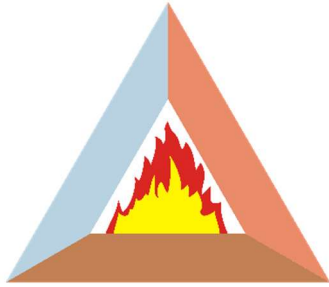


501 4th St SW, Washington, DC 20024

CS Nova Award: Up and Away; Scouts BSA Nova Award: Splash!

Cub Scout: Safety is important in science and in scouting. Name 3 campfire rules.

Scout BSA: A fire triangle consists of the 3 things that are needed to make a fire. Fill in the picture with the 3 parts of a fire triangle.

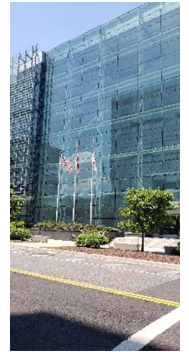


On-site question: What company built the hydrant across the street from the fire station?

Bonus question: What are the 3 sizes of firewood?

10. District of Columbia Department of Forensic Sciences

The Department of Forensic Sciences (DFS) was established by the "Department of Forensic Sciences Act of 2011" by the District of Columbia City Council and became operational as an agency on October 1, 2012. The Department's mission is to provide "high-quality, timely, accurate, and reliable forensic science services...[using] best practices and best available technology; a focus on unbiased science and transparency; and the goal of enhancing public safety." The DFS consists of the Forensic Science Laboratory Division, the Public Health Laboratory Division, and the Crime Scene Sciences Division. Housed in the Consolidated Forensic Laboratory at 401 E Street SW, the DFS is co-located with the Office of the Chief Medical Examiner (OCME).



401 E St SW, Washington, DC 20024

CS Nova Award: Science Everywhere, Tech Talk; Scouts BSA Nova Award: Mendel's Minions

Cub Scouts: There is a 30,000 square foot green roof with vegetation on the roof. What is its purpose?

Scouts BSA: One of the examinations conducted by the Forensic Science Laboratory Division is Fingerprint Analysis. What are three methods available to visualize prints?

On-site question: Name one flag at the entrance of the building?

11. United States Botanical Garden

The United States Botanical Garden is a botanic garden on the grounds of the United States Capitol in Washington, D.C., near Garfield Circle. The United States Botanic Garden is a living plant museum that informs visitors about the importance of plants to the wellbeing of humans and the earth. The U.S. Botanic Garden is supervised by the Congress through the Architect of the Capitol, who is responsible for maintaining the grounds of the United States Capitol.



100 Maryland Ave SW, Washington, DC 20001

CS Nova Award: Science Everywhere, Down and Dirty, Nova Wild, Fearful Symmetry; Scouts BSA Nova Award: Let It Grow, Mendel's Minions

Cub Scouts: Name a plant that provides shelter to a bird or an animal that you could plant at home.

Scouts BSA: Soapwort gentians are native along the east coast from Massachusetts to Florida. What are three reasons for it becoming endangered?

On-site question: Along the sidewalk at the beginning of the main walkway to the entrance of the Botanical Garden building is a short signpost. On top of the signpost is a metal object. What is that object?

The Capitol

The United States Capitol, or The Capitol Building, is the meeting place of the members of the U.S. Congress. Located inside are two wings: The Senate Chambers in the North Wing and the House of Representatives Chambers in the South Wing. Here is where laws are created, debated, and passed. The Capitol Building is in line with the Washington Monument, The Reflecting Pool, and the Lincoln Memorial.



Capitol Hill

CS Nova Award: Fearful Symmetry

Cub Scout: How many Senators are there? How many Representatives are there?

Scouts BSA: When was the Capitol Building first opened?

On-site question: What direction is the Washington Monument from the front of the Capitol Building?

12. Federal Bureau of Investigation (FBI)

From its inception in 1908 until 1975, the main offices of the FBI were housed in the Department of Justice building. The first request for a separate FBI building occurred in 1939. Although the Public Buildings Agency initiated plans for an FBI building in 1941, America's entry into World War II required postponing all government building projects. The next serious request to Congress for a separate building was not made until 1961. On October 7, 1964, the National Capital Planning Commission approved the major design concept with its security modifications. For reasons of economy, the approving agencies insisted upon poured concrete as the major outside building material. The concrete used for the FBI building contained an aggregate of crushed dolomite limestone, a unique composition. While contrasting with the traditional marble, granite, or limestone government buildings, it echoed a major architectural style of the 1960s. The concrete was poured into reusable steel forms separated by metal ties. The ties remained in the concrete when the molds were removed. This technique produced an architectural feature of evenly spaced holes throughout the exterior. The first FBI employees moved into the new building June 28, 1974. By May 30, 1975, the Director, the associate director, and several divisions had moved in. Thirty-eight years after the first proposal for a separate FBI building and 15 years after Congress approved



construction on the Pennsylvania Avenue site, the last employees moved into the building in June 1977. The FBI Experience is a self-guided tour at FBI Headquarters in Washington, D.C. Open to the public, visits may be requested up to five months in advance of, but no later than four weeks prior to the desired visit date.

555 11th St NW, Washington, DC 20004

Cub Scouts: What is the official name of the building?

Scouts BSA: How many stories is the FBI headquarters?

On-site question: There are 12 flags hanging on the south side of the FBI Building. What is at the tip of each flag staff?

13. Boy Scout Memorial

The Boy Scout Memorial is a public artwork by American sculptor Donald De Lue. The sculpture was built without any public funds, paid for with dimes collected by Boy Scouts throughout the country. The names of the boys are inscribed on scrolls placed inside the base. It was dedicated in 1964 and is located at The Ellipse in Washington, D.C., United States at the site of the first National Scout Jamboree which was held in 1937. The statue is made of bronze, a metal alloy composed mostly of copper with approximately 12% tin and small amounts of other metals. Bronze naturally has a golden color, but superficial oxidization will cause it to darken. This typically forms a sort of protective coating, preserving the underlying metal.



15th Street NW, Washington, DC 20006 ((between Pennsylvania Avenue and Constitution Avenue)

Cub Scout: How many sides does the “hexagonal” base have?

Scout BSA: Using your pace and the fallen tree method, determine the height of the Boy Scout Memorial.

On-site question: What rank is the Scout in the sculpture?

NOTE: For those Trekkers opting for the short Trek, proceed back to the Smithsonian Metro Station. At that point you have completed the shorter Trek. We hope you enjoyed your time visiting our Nation’s Capital, learned more about STEM!

14. White House

The White House is the official residence and workplace of the President of the United States and has been the residence of every U.S. president since John Adams in 1800. The residence was designed by Irish-born architect James Hoban in the neoclassical style and Hoban modelled the building on Leinster House in Dublin. In 1814, during the War of 1812, the White House was set ablaze by British troops during the Burning of



Washington, in retaliation for attacking and burning Toronto and other towns in Upper Canada. Only the exterior walls remained, and they had to be torn down and mostly reconstructed because of weakening from the fire and subsequent exposure to the elements, except for portions of the south wall. Of the numerous objects taken from the White House when it was ransacked by British troops, only two have been recovered.

1600 Pennsylvania Ave NW, Washington, DC 20500

Cub Scouts: What activities are conducted in the West Wing and East Wing of the White House?

Scout BSA: Who was president when electricity was installed in the White House. (Hint #1: electricity was so new at the time that the President and his wife alleged refused to touch the light switches for fear of electric shock.) (Hint #2: it was in 1891.)

On-site question: There is a marker in The Ellipse near the White House. It is the point for the measurement of distance from Washington on all high ways of the United States. What is the marker called?

15. The Octagon

The Octagon House, also known as the Colonel John Taylor III House, is located in the Foggy Bottom neighborhood of Washington, D.C. The American Institute of Architects owns and operates the Octagon House as a museum featuring special exhibits and information on the house itself. The house has an unusual shape to fit the triangular, corner lot. The owners offered use of their house to the French Consulate during the War of 1812 and a French flag flying from the house may have kept it safe (along with Dolley Madison's pet parrot) when the British burned the White House. When the Madison's returned to the city a few weeks later, they made the Octagon House their residence for about 6 months. The Treaty of Ghent, ending the War of 1812, was signed in the upstairs study.



1799 New York Ave NW, Washington, DC 20006

CS Nova Award: Uncovering the Past, Fearful Symmetry

Cub Scout and Scouts BSA: How many sides does the Octagon House have?

On-site question: One theory suggests that the name of the house refers not to the number of sides, but the number of angles. How many angles are formed by the main house outline?

16. National Academies of Science, Engineering and Medicine (NASEM)

The National Academy of Sciences, National Academy of Engineering, and National Academy of Medicine are honorary non-profit organizations, each of which has its own governing Council, and each of which elects its own new members. The membership of the three academies totals more than 6,300 scientists, engineers, and health professionals. RC was first formed in 1916 as an activity of the NAS. Now jointly governed by all three academies, it produces some 200 publications annually which are published by the National Academies Press.



500 5th Street NW, Washington, DC 20001

CS Nova Award: Science Everywhere, Swing!, 1-2-3 Go!; Scouts BSA Nova Award: Mendel's Minions

Cub Scouts: The National Academy of Science was signed into being by which US president, and when?

Scouts BSA: The first request for advice from the National Academy of Science was for a study from Salmon P. Chase, the Secretary of the Treasury in 1863. What was the topic of the study?

On-site question: There are three planting beds in front of the main entrance to the NAS Building as viewed from Constitution Avenue. What were they originally?

17. Albert Einstein Memorial

The Einstein Memorial sits in an elm and holly grove in the southwest corner of the grounds of the National Academy of Sciences. The statue depicts Einstein seated in casual repose on a three-step bench of white granite.



Engraved as though written on the papers held in the statue's left hand are three equations, summarizing three of Einstein's most important scientific advances. Along the back of the bench, behind the statue, three famous quotations from the scientist are inscribed. They were selected to reflect Einstein's sense of wonder, scientific integrity, and concern for social justice.

2101 Constitution Ave NW, Washington, DC 20418

CS Nova Award: 1-2-3 Go!; Scouts BSA Nova Awards: Shoot!

Cub Scouts: What are the scientific advances represented by the three equations engraved in the statue?

Scouts BSA: What are the three quotations inscribed on the bench?

On-site question: What is the map at Einstein's feet called?

18. Lincoln Memorial

Architect Henry Bacon modeled the Lincoln Memorial after the Parthenon in Athens, Greece. Bacon felt that a memorial dedicated to a man who defended democracy should echo the birthplace of democracy. The towering memorial is 190 feet long, 120 feet wide, 99 feet tall and constructed with a Colorado-Yule marble. Above the colonnade inscribed on the frieze are the names of 36 states and the dates in which they entered the Union. Their names are separated by double wreath medallions in bas-relief.



Scouts BSA Nova Awards: Designed to Crunch

Cub Scouts: question: How many columns surround the Memorial, and what does the number represent?

Scouts BSA: question: Using your pace to estimate its dimensions, determine the number of gallons of water in the Reflecting Pool. Use an average depth of 2.665 feet.

On-site question: How many steps from ground level to the entrance of the Memorial?

19. Tidal Basin

“Tidal” means relating to or affected by tides, the rise or drop in water level caused in part by the gravitational pull of the moon. We usually think of high and low tide in the Ocean, but the Potomac River feeds into the Ocean and is affected by the tides near Washington DC. Silt and sediment (dirt, small gravel, and anything else that happens to be in the river) can make some parts too shallow for boat traffic. The Tidal Basin is designed with gates which open and close with the rise and fall of the tide to help “clean” the river and keep the river channel open. In 2009, the reflecting pool on the National Mall was modified to circulate water from the Tidal Basin to eliminate stagnant water (formerly it held potable, city water)



CS Nova Award: Down and Dirty, Nova Wild, Up and Away; Scouts BSA Nova Award: Splash!

Cub Scouts: How many times a day does the tide change (rise and fall)?

Scouts BSA: Twice a day, 250 million gallons of water enter the Tidal Basin through the gates. If 1 million gallons is equal to 3,785,412 liters, how many liters is 250 million gallons?

On-site question: Using a tidal chart see if you can determine whether the tide is rising or falling in the Potomac River (Washington Channel) at the time of your visit.

20. Washington Monument

The Washington Monument is an obelisk within the National Mall in Washington, D.C., built to commemorate George Washington, once commander-in-chief of the Continental Army in the American Revolutionary War and the first President of the United States. Located almost due east of the Reflection Pool and the Lincoln Memorial, the memorial is both the world's tallest predominantly stone structure and the world's tallest obelisk at almost 555' 5 1/8 inches and weighs 81,120 tons.

2 15th St NW, Washington, DC 20024



Cub Scouts: How many observation windows does the Washington Monument have?

Scout BSA: When was the cornerstone of the Washington Monument laid?

On-site question: What are the red lights near the observation windows? What are they?

21. Trisha's Food Trucks

A food truck is a large motorized vehicle (such as a van) or trailer, equipped to cook, prepare, serve, and/or sell food. Some, including ice cream trucks, sell frozen or prepackaged food; others have on-board kitchens and prepare food from scratch, or they heat up food that was prepared in a brick and mortar commercial kitchen. Sandwiches, hamburgers, french fries, and other regional fast food fare is common. In recent years, food trucks offering gourmet cuisine and a variety of specialties and ethnic menus have become particularly popular. Food trucks may also sell cold beverages such as soda,



juices and water. Food trucks are on the front line of the street food industry that serves an estimated 2.5 billion people every day.

14th St between Constitution Avenue and Independence Avenue, Washington, DC

Scouts BSA Nova Award: Let it Grow

Cub Scouts: Most restaurants use commercial electrical lines and gas lines to power their restaurants and cooking on their stoves. What source or sources of power do food trucks use to provide power since they don't have external lines to their trucks?

Scouts BSA: How has social media contributed to the success of food trucks?

On-site question: What is the special of the day for the northern most truck on the west side of the road?

22. Department of The Treasury Bureau of Engraving and Printing

The Bureau of Engraving and Printing (BEP) is the largest producer of security documents in the United States and is the sole producer of US paper currency. There are two locations for the BEP: Washington DC and Fort Worth, TX. The BEP prints billions of Federal Reserve notes for distribution through the Federal Reserve System each year. The BEP also produces miscellaneous security documents for other government agencies.



The Bureau of Engraving and Printing began in a single room in the basement of the main Treasury Building on August 29, 1862. In its history, the Bureau also has printed currency for the governments of the Republic of China in 1934, Siam in 1945, Korea in 1947 and the Philippines in 1928. The Bureau was reimbursed by each government for its work.

Although currency notes in denominations above \$100 are no longer available, at one time the Bureau printed denominations of \$500, \$1,000, \$5,000, and \$10,000. They were last printed in 1945 but remained in circulation until 1969 when they were discontinued for lack of use. Although these notes are still legal tender, most notes still in circulation are in the hands of private dealers or collectors.

Mutilated currency can be redeemed through the BEP. It can be mailed or personally delivered to the Bureau by submitting a letter with the estimated value of the currency and an explanation of how the currency became mutilated. Experienced mutilated currency examiners will carefully examine the currency to determine the amount and value of the damaged note.

300 14th St SW, Washington, DC 20228

Cub Scouts: What is the largest denomination note (money) currently printed?

Scouts BSA: What president is on the \$2 bill and how long has it been in circulation?

On-site question: How many wings of the Bureau face 14th Street?

23. Department of Agriculture (USDA)

The USDA is made up of 29 agencies and offices and is responsible for many agricultural items from the safety of our food supply to the US Forest Service. The USDA is part of the Executive branch of the U.S. government that works to meet the needs of farmers and ranchers, promotes agricultural trade and production, assures food safety, protects natural resources, fosters rural communities, and works to end hunger in the United States and internationally.



1400 Jefferson Dr SW, Washington, DC 20024

Scouts BSA Nova Award: Let it Grow!

Cub Scout: The USDA Center for Nutrition Policy and Promotion (CNPP) was established in 1994 to improve the nutrition and well-being of Americans. In 2011, CNPP published MyPlate, which is the current nutrition guide that shows us what an ideal meal should look like. What percentage of our plates should be made up of fruits and vegetables?



Scouts BSA: The fiscal year (FY) 2021 budget for the USDA is \$240.6 Billion dollars. This is 2.9% of the total U.S. federal budgetary resources for FY2021. ([Department of Agriculture | Spending Profile | USAspending](#)) The total revenue for Boy Scouts of America is \$286 Million (total revenue from 2019 Annual Report). How much larger is the USDA budget than BSA's annual revenue? (Hint: USDA Budget divided by BSA revenue)

On-site question: How many lantern are there outside the South Entrance?

Washington, DC STEM Trek

ANSWER SHEET

1. Smithsonian Metro Station

Cub Scout:

- a. San Francisco
- b. New York**

Scout BSA:

- a. The District of Columbia, the State of Maryland and the Commonwealth of Virginia**
- b. Downtown DC, Arlington Virginia, L'Enfant Plaza

On-site:

- a. There is no arch to the west of the station entrance
- b. Knapp Memorial Arch**

2. Department of Energy

Cub Scout:

- a. The Chthonoddynamis**
- b. The Death Star

Scout BSA:

- a. Support to national security, to include environmental cleanup**
- b. Applied energy technologies to make energy more affordable

On-site:

- a. Yes**
- b. No

3. International Spy Museum

Cub Scout:

- a. CIA**
- b. FBI

Scout BSA:

- a. Undergraduate degree from an Ivy League school, advanced degree in criminal history, experience as a state trooper

- b. Undergraduate degree, GPA of 3.0 or higher, 3 years of criminal investigative experience and Criminal Investigation Training and CIA Training Programs**

On-site:

- a. “Hear everything, say nothing, deny everything”**
- b. “Tread softly until you see the whites of their eyes”

4. Arts and Industries Building

Cub Scout:

- a. A drill hall for Union troops during the Civil War
- b. The inaugural ball of President James Garfield and Vice President Chester A. Arthur**

Scout BSA:

- a. Dinosaurs, cave drawings, the zodiac, Greek and Roman mythology, ancient weaponry, and early dwellings
- b. Geology, metallurgy, zoology, ethnology, comparative technology (the study of everything made or consumed by mankind), navigation, architecture, musical instruments, and historical relics**

On-site:

- a. July 4, 1876_
- b. 1879**

5. Federal Aviation Administration

Cub Scout:

- a. August 21, 1958**
- b. July 20, 1969

Scout BSA:

- a. 43,290**
- b. 1,119

On-site:

- a. 8**
- b. 12

6. National Air and Space Museum

Cub Scout:

- a. Neal Armstrong in tribute to his grandmother who raised him

- b. **U.S. Air Force Capt. Charles E. "Chuck" Yeager named the airplane "Glamorous Glennis" in tribute to his wife**

Scout BSA:

- a. **The X-1 proved an aircraft could travel faster than sound and gathered transonic flight data that is still valuable**
- b. The X-1 proved a craft could leave the atmosphere, enter outer space and safely return to earth

On-site:

- a. **Asteroids and comets**
- b. The Hubble Telescope and the International Space Station

7. Eisenhower National Presidential Memorial

Cub Scout:

- a. **National Advisory Committee for Aeronautics (NACA)**
- b. The United Federation of Planets

Scout BSA:

- a. Department of Defense, The Pentagon, State Department_
- b. **The Department of Education, the Department of Health and Human Services, the Federal Aviation Administration, the Voice of America, and the National Air and Space Museum**

On-site:

- a. **Approximately 11 feet**
- b. 5 feet, 10 inches

8. National Aeronautics and Space Administration

Cub Scout:

- a. **Neil Armstrong, Buzz Aldrin were members of the Apollo 11 crew**
- b. Neil Armstrong, Michael Collins were members of the Apollo 11 crew

Scout BSA:

- a. **Over half, or 57%, of astronauts were involved in scouting**
- b. All

or

- a. The Telescope was launched in April of 1990 from the Goddard Space Flight Center in Greenbelt, Maryland

- b. The Telescope was launched in April of 1990 from the Kennedy Space Station in Florida**

On-site:

- a. On the roof at the Northwest corner**
- b. Directly over the front door

9. Fire Station

Cub Scout:

- a. Don't burn wet leaves, have a bucket of sand handy to extinguish the fire, the bigger the fire the better
- b. Follow the rules of your campsite. Some places do not allow ground fires. Ask if you don't know the rules**

Scout BSA:

- a. Fuel, heat and oxygen**
- b. Wood, matches and water

On-site:

- a. The Kennedy Valve company in Elmira, New York**
- b. The Lincoln Hydrant company in Washington, DC

Bonus question

- a. Logs, sticks, branches
- b. Tinder, kindling, fuel**

10. District of Columbia Department of Forensic Sciences

Cub Scout:

- a. To reclaim rainwater**
- b. Grow food for the cafeteria

Scout BSA:

- a. Lemon juice and heat, neon light, and chlorine
- b. Physical, chemical and through various light sources**

On-site:

- a. US Flag, District of Columbia Flag, and the Consolidated Forensic Laboratory Flag**
- b. US Flag, Virginia flag and Maryland flag

11. United States Botanical Garden

Cub Scout:

a. **(Any native, non-invasive plant)**

b. Kudzu

Scout BSA:

a. **Development, fire suppression and use of herbicides**

b. Droughts, global warming and flooding

On-site:

a. Non-flowering Hardwoods

b. **The logo for the Botanical Garden**

12. The Capitol

Cub Scout:

a. **100: 435**

b. 50:100

Scout BSA:

a. July 4, 1776

b. **September 18th, 1800**

On-site:

a. **West**

b. East

13. Federal Bureau of Investigation

Cub Scout:

a. **J Edgar Hoover F.B.I. Building**

b. S.W.A.T. Training Headquarters

Scout BSA:

a. **107 feet (seven stories) along Pennsylvania Avenue and 160 feet (eleven stories) along E Street**

b. Twelve stories

On-site:

a. Brass eagle

b. **A silver ball**

14. Boy Scout Memorial

Cub Scout:

- a. 6
- b. 8

Scout BSA:

- a. 17 feet
- b. **168 in × 120 in × 104 in**

On-site:

- a. **First Class**
- b. Eagle

15. White House

Cub Scout:

- a. **The West Wing houses the president's office (the Oval Office) and offices of his senior staff. The East Wing has intermittently housed the offices and staff of the first lady, and the White House Social Office**
- b. The West Wing houses the defense planning personnel and the First Family lives in the East Wing

Scout BSA:

- a. President Theodore Roosevelt (and his second wife Edith)
- b. **President Benjamin Harrison (and his wife was Caroline)**

On-site:

- a. Ground Zero__
- b. **Zero Milestone**

16. The Octagon

Cub Scout and Scouts BSA:

- a. **Octagon House has six “sides” plus a rounded front section**
- b. Octagon House has eight “sides” plus a rounded front section

On-site:

- a. **Ten**
- b. Eight

17. National Academies of Science, Engineering and Medicine

Cub Scout:

- a. **President Abraham Lincoln on March 3, 1863**
- b. President Kennedy on March 3, 1963

Scout BSA:

- a. **“uniformity of weights, measures, and coins, considered in relation to domestic and international commerce”**
- b. “the constancy of metrics, as pertaining to mathematical theory”

On-site:

- a. The location of telescopes
- b. **Reflecting pools**

18. Albert Einstein Memorial

Cub Scout:

- a. The Theory of Warp Speed, Quantum Power of Tesseract, and Power of Photosynthesis
- b. **The Theory of Relativity, the photoelectric effect, and the equivalence of energy and matter**

Scout BSA:

- a. **"As long as I have any choice in the matter, I shall live only in a country where civil liberty, tolerance, and equality of all citizens before the law prevail.", "Joy and amazement at the beauty and grandeur of this world of which man can just form a faint notion ...", and "The right to search for truth implies also a duty; one must not conceal any part of what one has recognized to be true."**
- b. “Give me your tired, huddled masses”, “send a man to the moon, and return him safely to earth”, and “I regret that I have but one life to give for my country”

On-site:

- a. **The Celestial Map**
- b. The Zodiac Map

19. Lincoln Memorial

Cub Scout:

- a. **The memorial is surrounded by 36 fluted Doric columns, one for each of the 36 states in the Union at the time of Lincoln's death**
- b. The memorial is surrounded by 13 fluted Doric columns, one for each of the 13 original states

Scout BSA:

- a. Approximately 20,000 gallons
- b. **Approximately 6,752,000 gallons**

On-site:

- a. 75 steps

b. 58 steps

20. Tidal Basin

Cub Scout:

- a. Usually 4. High tide occurs twice a day, low tide occurs twice a day
- b. Twice, once at noon and once at midnight

Scout BSA:

- a. 1,200,000 liters
- b. 946,353,000 liters

On-site:

- a. (From tidal chart)
- b. (From tidal chart)

21. Washington Monument

Cub Scout:

- a. **8** _____
- b. _____

Scout BSA:

- a. **July 4, 1848** _____
- b. _____

On-site:

- a. **8, Aircraft warning lights**
- b. 4, Laser emitters

22. Trisha's Food Trucks

Cub Scout:

- a. Wood and charcoal
- b. **Portable generators and propane gas**

Scout BSA:

- a. **Tracking food trucks has been made easy with social media where a favorite food truck can be located at any moment, with updates on specials, new menu items and location changes**
- b. Laptops allow owners of the food trucks to easily select different recipes to accommodate local food favorites

On-site:

- a. (Varies)
- b. (Varies)

23. Department of the Treasury Bureau of Engraving and Printing

Cub Scout:

- a. **\$100 Bill**
- b. \$1,00 Bill

Scout BSA:

- a. John F. Kennedy, since 1963
- b. **Thomas Jefferson, since 1976**

On-site:

- a. **4**
- b. The Bureau doesn't face 14th Street

24. Department of Agriculture

Cub Scout:

- a. **50%**
- b. 25%

Scout BSA:

- a. **Approximately 841 times larger**
- b. Approximately 10 times larger

On-site:

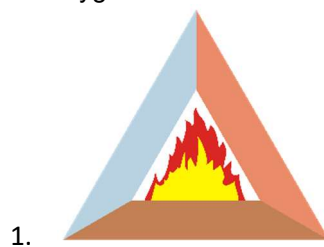
- a. **2**
- b. 4

Washington, DC STEM Trek

ANSWERS

1. Smithsonian Metro Station
 - a. New York City Subway
 - b. The District of Columbia, the State of Maryland and the Commonwealth of Virginia
 - c. Knapp Memorial Arch
2. Department of Energy
 - a. The Chthonodynamis. This global shaped sculpture depicts man trying to hold together the immense forces of energy within the earth, energy that both nourishes and threatens all mankind. The name is derived from an ancient Greek word for the primal energy of the earth.
 - b. Support to national security, including environmental cleanup
 - c. Yes/no
3. International Spy Museum
 - a. The CIA, or the Central Intelligence Agency
 - b. Receive your undergraduate degree in something like criminal justice, political science, technology and so on. You should have a GPA of 3.0 or higher and 3 years of criminal investigative experience. Lastly, you must complete the 56-day Criminal Investigation Training Program and the CIA Training Program. All of this combined takes on average between 4-6 years.
 - c. "Hear everything, say nothing, deny everything"
4. Arts and Industries Building
 - a. The inaugural ball of President James Garfield and Vice President Chester A. Arthur
 - b. Geology, metallurgy, zoology, ethnology, comparative technology (the study of everything made or consumed by mankind), navigation, architecture, musical instruments, and historical relics
 - c. 1879
5. Federal Aviation Administration
 - a. August 21, 1958
 - b. 43,290
 - c. 8
6. National Air and Space Museum
 - a. CS Answer: U.S. Air Force Capt. Charles E. "Chuck" Yeager named the airplane "Glamorous Glennis" in tribute to his wife
 - b. The X-1 proved an aircraft could travel faster than sound and gathered transonic flight data that is still valuable

- c. On-site Question: Asteroids and comets
7. Eisenhower National Presidential Memorial
 - a. National Advisory Committee for Aeronautics (NACA)
 - b. The Department of Education, the Department of Health and Human Services, the Federal Aviation Administration, the Voice of America, and the National Air and Space Museum
 - c. Approximately 11 feet
 8. National Aeronautics and Space Administration
 - a. Neil Armstrong (who was an Eagle Scout), Buzz Aldrin (who made it to tenderfoot) and Michael Collins (who remained in the command module) were members of the Apollo 11 crew
 - b. Over half, or 57%, of astronauts were involved in scouting.
 - c. The Telescope was launched in April of 1990 from the Kennedy Space Station in Florida
 - d. On the roof at the Northwest corner
 9. Fire Station
 - a. Follow the rules of your campsite. Some places do not allow ground fires. Ask if you don't know the rules.
 - i. Before building the fire, clear an area 10 feet in diameter. Remove leaves, sticks, other burnable materials, and any rocks bigger than a fist.
 - ii. Listen to the fire master.
 - iii. Don't light the fire until you have permission from an adult.
 - iv. Never leave the fire unattended.
 - v. Don't make the fire too big.
 - vi. Stay at least three feet away from the fire unless the firemaster tells you otherwise.
 - vii. What goes in the fire, stays in the fire.
 - viii. Don't poke the fire needlessly or throw things in the fire.
 - ix. Have a water bucket nearby to extinguish the fire.
 - x. Make sure the fire is dead out before you leave it.
 - b. Fuel, heat, and oxygen



- c. The Kennedy Valve company in Elmira, NY
 - d. Tinder, kindling, and fuel
10. District of Columbia Department of Forensic Sciences
 - a. To reclaim rainwater
 - b. Physical, chemical and through various light sources
 - c. US Flag, District of Columbia Flag, and the Consolidated Forensic Laboratory Flag

11. United States Botanical Garden
 - a. (Any native, non-invasive plant)
 - b. Development, fire suppression and use of herbicides
 - c. The logo for the Botanical Garden
12. The Capitol
 - a. 100: 435
 - b. September 18th, 1800
 - c. West
13. Federal Bureau of Investigation
 - a. J. Edgar Hoover F.B.I. Building
 - b. Height limits of 107 feet (seven stories) along Pennsylvania Avenue and 160 feet (eleven stories) along E Street conformed to the Pennsylvania Avenue Advisory Council and District of Columbia requirements.
 - c. A silver ball
14. Boy Scout Memorial
 - a. Six
 - b. Stated dimensions are 430 cm × 300 cm × 260 cm (168 in × 120 in × 104 in)
 - c. First Class Boy Scout
15. White House
 - a. The West Wing houses the president's office (the Oval Office) and offices of his senior staff. It also includes the Cabinet Room, where the president conducts business meetings and where the Cabinet meets. Among its uses, the East Wing has intermittently housed the offices and staff of the first lady, and the White House Social Office.
 - b. President Benjamin Harrison (and his wife was Caroline)
 - c. Zero Milestone
16. The Octagon
 - a. Despite its name, Octagon House has six “sides” plus a rounded front section. There are a few theories for the name origin. One is that some “round” rooms were actually octagonal, or 8-sided, with the angles plastered to make them look round.
 - b. Eight. One for each of the straight sides, plus those formed by the rounded front.
17. National Academies of Science, Engineering and Medicine
 - a. President Abraham Lincoln on March 3, 1863
 - b. “uniformity of weights, measures, and coins, considered in relation to domestic and international commerce”
 - c. Reflecting pools

18. Albert Einstein Memorial

- a. The Theory of Relativity, the photoelectric effect, and the equivalence of energy and matter
- b. "As long as I have any choice in the matter, I shall live only in a country where civil liberty, tolerance, and equality of all citizens before the law prevail.", "Joy and amazement at the beauty and grandeur of this world of which man can just form a faint notion ...", and "The right to search for truth implies also a duty; one must not conceal any part of what one has recognized to be true."
- c. The Celestial Map

19. Lincoln Memorial

- a. The memorial is surrounded by 36 fluted Doric columns, one for each of the 36 states in the Union at the time of Lincoln's death.
- b. The Reflecting Pool is 2,028 feet long and 167 feet wide. Using an average depth of 2.665 feet, this equals 902,572 cubic feet. There are 7.48 gallons in a cubic foot, which equates to approximately 6,752,000 gallons.
- c. 58 steps

20. Tidal Basin

- a. Usually 4. High tide occurs twice a day, low tide occurs twice a day
- b. 946,353,000 liters
- c. (From tidal chart)

21. Washington Monument

- a. 8
- b. July 4, 1848
- c. 8, aircraft warning lights

22. Trisha's Food Trucks

- a. Portable generators and propane gas
- b. Tracking food trucks has been made easy with social media where a favorite food truck can be located at any moment, with updates on specials, new menu items and location changes
- c. (Varies)

23. Department of the Treasury Bureau of Engraving and Printing

- a. \$100 Bill
- b. Thomas Jefferson, since 1976
- c. 4

24. Department of Agriculture

- a. 50%
- b. Approximately 841 times larger
- c. 2

