GENERAL OVERVIEW

DISTRICT ROUNDTABLE

MONTH DAY, YEAR

Name
email
phone
STEM IS...

SCIENCE

TECHNOLOGY

ENGINEERING

MATHEMATICS
MAKING GOOD CITIZENS OF THE WORLD

INTERACTION WITH TECHNOLOGY IS

- UNAVOIDABLE
- ESSENTIAL
- VALUABLE

GOOD LEADERS MUST BE GOOD STEWARDS OF TECHNOLOGY
STEM – ALWAYS PART OF SCOUTING

- ADVANCEMENT INCLUDED STEM-RELATED CONTENT, BUT THIS CONTENT WAS OFTEN HIDDEN IN OTHER ACTIVITIES

- STEM IS PART OF THE OUTDOOR PROGRAM - ENVIRONMENTAL SCIENCE, BOTANY, ASTRONOMY, WEATHER
STEM COMMITTEE MISSION

- BUILD EXCITEMENT AND ENGAGEMENT WITH SCIENCE, TECHNOLOGY AND ENGINEERING AND MATH

- SEED THE FOUNDATIONS FOR
  - PASSION IN STEM FIELDS – HELPING TO SPARK THE NEXT GREAT INNOVATORS
  - RESPONSIBLE TECHNOLOGY LEADERSHIP

- METHODS – ACTIVITIES, EVENTS, AWARDS AND ADVANCEMENT
GOALS

- MAKE STEM AN INTEGRAL PART OF SCOUTING EXPERIENCE
  - MAKE IT FUN
  - MAKE IT EASY FOR THE TROOPS

- HOW
  - EVENTS
  - AWARENESS
  - TRAINING
  - COMPANY SPONSORSHIPS
2018 STEM OBJECTIVES

- PLAN, PROMOTE, AND EXECUTE AT LEAST 6 STEM EVENTS
- AVERAGE ATTENDANCE OF 50 YOUTH AT EACH STEM EVENT THROUGHOUT THE YEAR
- FILL 75% (12 OF 16) OF THE DISTRICT REPRESENTATIVE POSITIONS
- SUPPORT THE NOVA AND SUPERNOVA AWARD
EVENTS

- UNIVERSITY OF SCOUTING (OCTOBER, APRIL)

- SCIENCE FAIRE
  - SUPER NOVA SCIENCE FAIRE (JANUARY 28, 2018) - COMPLETE
  - COUNCIL SCIENCE FAIRE (LATE 2018)

- DRONE TECH
  - BASE CAMP (MARCH 24, 2018)
  - STEARNS (JULY 2018)

- MERIT BADGES DAYS
  - MORTENSON CONSTRUCTION TRADES DAY AT BASE CAMP (APRIL 7, 2018)
  - BAKKEN MUSEUM ENERGY DAY (TBD)

- AEROSPACE
  - WINGS OF THE NORTH AVIATION DAY (TBD)
  - SPACE EXPLORATION (TBD)
CHALLENGES

➢ RECRUITING DISTRICT REP MEMBERS
  ▪ SO FAR 4 OF 16 DISTRICTS REPRESENTED
  ▪ CONTACT RYAN MC DONALD (RMCDONALD@NSBSA.ORG)

➢ GETTING THE WORD OUT TO DISTRICTS
  ▪ PROACTIVELY THINK OF STEM IN YOUR PLANNING
  ▪ LET US KNOW WHAT YOU NEED
BSA STEM NOVA PURPOSE & HISTORY

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STEM IS...

S\text{C} I\text{E} N\text{C} E

T\text{E} C\text{H} N\text{O} \text{L} O\text{G} \text{Y}

E\text{N}\text{G} \text{I} \text{N} \text{E} \text{R} \text{I} \text{N} \text{G}

M\text{A} \text{T} \text{H} \text{E} \text{M} \text{A} \text{T} \text{I} \text{C} \text{S}
STEM – ALWAYS PART OF SCOUTING

➢ ADVANCEMENT INCLUDED STEM-RELATED CONTENT, BUT THIS CONTENT WAS OFTEN HIDDEN IN OTHER ACTIVITIES

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The Nova Awards Program highlights the STEM content in the existing traditional programs and adds new activities and awards.
THE STEM PROBLEM

➢ THE USA IS BEHIND IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM)
  ▪ 44% of U.S. high school graduates were ready for college work in math
  ▪ 36% were ready in science

➢ STEM EDUCATION IS AN ECONOMIC IMPERATIVE
  ▪ Technological innovation accounted for almost half of all U.S. economic growth over the past 50 years
  ▪ The National Science Foundation projects that 80% of the jobs created in the next decade will require math and science skills
  ▪ Most of the fastest-growing occupations in the next decade require some background in STEM

➢ STEM LITERACY HAS A PROFOUND AND GROWING IMPACT ON OUR DAY-TO-DAY LIVES

MSN video
NOVA AWARDS PROGRAM

- CREATED WITH EXXON MOBIL TO ENCOURAGE YOUTH PARTICIPANTS TO EXPLORE OPPORTUNITIES IN STEM
- AWARDS INTRODUCED IN MAY 2012
- SUPPORTED BY THE CUB SCOUTING, BOY SCOUTING AND VENTURING GUIDEBOOKS
- REQUIRE ADULT PARTICIPATION AS NOVA COUNSELORS AND SUPERNOVA MENTORS
WHY AN EMPHASIS ON STEM

- Future Career Opportunities, Hobbies and Interests
- Science Literacy - Chemical Free, Climate Change, Vaccinations, Medicine, Food
- Prepared for Life
- Goal is Not to Turn Scouts into Scientists

STEM in Scouting: Survival Skills for the Future
SCOUTING AND STEM

- Scouting teaches survival skills – STEM literacy needed to survive in the future.
- Opportunity to experience STEM in tandem with character development, leadership training, and ethical decision-making.
- Within the framework of the aims and methods of scouting, exploration of STEM career opportunities, hobbies and interests.
- Councils that embrace STEM in their core programs attract more members with greater diversity.
- New community partnerships increase sources of membership, leadership, community and financial support.
STEM AND THE AIMS OF SCOUTING

- **CHARACTER**
  - IMPROVE INTELLECTUAL CURIOSITY
  - IMPROVE SELF-RELIANCE
  - IMPART SKILLS TO HELP OTHERS

- **CITIZENSHIP**
  - AS A PATHWAY TO BUILDING A BETTER COMMUNITY
  - TO HELP ENSURE THE ECONOMIC AND TECHNOLOGICAL SECURITY OF OUR NATION

- **PERSONAL FITNESS**
  - INCREASING MENTAL ACUITY AND LEADERSHIP
THE METHODS OF SCOUTING

- IDEALS OF SCOUTING (OATH, LAW, MOTTO, ETC.)
- PATROL (DEN, CREW) METHOD
- OUTDOOR PROGRAM
- ADVANCEMENT
- ASSOCIATION WITH ADULTS
- LEADERSHIP DEVELOPMENT
- UNIFORM

THE NOVA AWARDS PROGRAM
NOVA / SUPERNOVA PROGRAMS

➢ NOVA PROGRAM
  ▪ BASED ON ACCOMPLISHMENT OF EXISTING PROGRAM ACTIVITIES (ADVENTURES, MERIT BADGES, VENTURING ACTIVITY AREAS)
  ▪ EXTENDS AND ENHANCES EXISTING PROGRAM ACTIVITIES
  ▪ ADULT COUNSELORS FAMILIAR WITH STEM TOPICS GUIDE EXPLORATIONS

➢ SUPERNOVA PROGRAM
  ▪ SIGNIFICANT ACCOMPLISHMENT, EXTENDING PROGRAM ACTIVITIES
  ▪ LEARN SOME FUNDAMENTALS OF THE TOPIC AREAS
  ▪ DO ORIGINAL STEM INVESTIGATIONS AND PROJECTS
  ▪ ADULT MENTORS WHO ARE ACCOMPLISHED STEM PRACTITIONERS GUIDE EXPLORATIONS
WHAT ARE NOVA AWARDS?

http://www.scouting.org/steam
SUPERNova AWARDS

Dr. Sally Ride
Bronze medal

Wright Brothers
Silver medal

Dr. Albert Einstein
Gold medal

Dr. Bernard Harris
Bronze medal

Thomas Alva Edison
Silver medal

Dr. Luis W. Alvarez
Wolf/Bear Cub Scout
Bronze medal

Dr. Charles H. Townes
Webelos Scout
Bronze medal

Venturing

Boy Scouts

Cub Scouts

Northern Star Council STEM Committee
SUPERNOVA PROGRAM EXAMPLE

BOY SCOUT ACTIVITY: DR. BERNARD HARRIS AWARD

REQUIREMENTS BRIEFLY SUMMARIZED:

- Must be First Class or higher
- Earn at least three NOVA awards for Boy Scouts
- Earn Scholarship MB and four MBs from approved list
- Complete two Supernova activity topics. Each topic includes research, preparation, set up, coordination, organization, analysis, reflection, reporting.
- Participate in science fair or math competition
- Shadow science professional or explore a science career and present
- Present NOVA program to Cub den or other youth group
- Review scientific method and use it to examine a selected topic
HOW TO EARN A NOVA

- Scout selects award to pursue
- Find a Nova counselor to work with Scout
- Scouts complete requirements
- Scout and counselor discuss the work
- Turn in signed Nova card or worksheet
- Unit Advancement Chair purchases award
NOVA SIGN-OFF CARDS

Nova Award Application

This is to certify that (name) ______________________________
in (circle) Pack/Troop/Crew #__________ has completed the above-
named Nova achievement. A Nova Counselor has initialed and dated
each requirement as completed.

1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 ___
I certify that all requirements have been completed properly.

Counselor Name/Date ______________________________

Counselor Signature ______________________________
Unit leader should present this card and an advancement report to the local
Scout Shop to purchase awards.
NOVA AWARDS APPROVAL

- MUST BE APPROVED BY A COUNSELOR WHO IS A REGISTERED BSA ADULT LEADER

- COMPLETE A STANDARD ADVANCEMENT REPORT (FORM 34403) NOTING WHICH NOVA WAS EARNED BY EACH SCOUT

- TURN FORM IN TO SCOUT SHOP IN ORDER TO PURCHASE NOVA PATCH (FIRST NOVA EARNED) AND/OR PI PINS (2ND AND ALL SUBSEQUENT NOVAS EARNED)
HOW TO EARN A SUPERNOVA

- Scout selects award to pursue
- Find a Nova Counselor to work with Scout
- Scout & Mentor meet to discuss requirements
- Scout completes the requirements
- Scout & Mentor discuss the completed requirements
- Complete application and submit to Council
SUPERNNOVA AWARDS APPROVAL

- REQUIRE SUBMISSION OF OFFICIAL SUPERNOVA APPLICATION FORM (SAME FORM FOR ALL EXCEPT EINSTEIN SUPERNOVA)
  - HTTP://WWW.SCOUTING.ORG/FILESTORE/STEM/PDF/SUPERNOVAAPPLICATION.PDF

- SIGNATURES OF SEVERAL PEOPLE (NEXT SLIDES)

- RECOMMENDED THAT DISTRICT/COUNCIL SIGN OFF INCLUDE A “LOOK OVER” OF COMPLETED WORK

- REQUIREMENTS DIFFERENT FOR EINSTEIN SUPERNOVA
APPROVALS FOR SUPERNOVAS (ALL EXCEPT EINSTEIN)

- UNIT LEADER (NOT MENTOR)
- SUPERNova MENTOR (COUNCIL APPROVED)
  - A PARENT MAY MENTOR THEIR OWN CHILD ONLY AS ONE OF A GROUP OF SCOUTS WORKING ON THE SAME AWARD. PLEASE NOTE NAMES ALL SCOUTS WHEN SUBMITTING APPLICATION
- DISTRICT STEM OR ADVANCEMENT CHAIR REVIEWS OF COMPLETED WORK
- SCOUT EXECUTIVE – COUNCIL OFFICE (NOT SCOUT SHOP) MAY STAMP
- APPROVED APPLICATION AND ADVANCEMENT REPORT (FORM 34403) SUBMITTED TO SCOUT SHOP TO PURCHASE AWARD
APPROVALS FOR DR. ALBERT EINSTEIN SUPERNOVA GOLD AWARD (VENTURING)

- UNIT LEADER (NOT MENTOR)
- SUPERNOVA MENTOR (COUNCIL APPROVED)
  - MAY NOT BE PARENT UNDER ANY CIRCUMSTANCES.
- DISTRICT STEM OR ADVANCEMENT CHAIR
  - REQUIRES CANDIDATE TO PRESENT BOTH ORAL AND WRITTEN REPORTS ON THEIR ORIGINAL RESEARCH TO THE LOCAL COUNCIL STEM COMMITTEE (OF AT LEAST THREE CURRENT SUPERNOVA MENTORS)
- SCOUT EXECUTIVE – MUST SIGN PERSONALLY
- PACKET SENT TO NATIONAL STEM COMMITTEE FOR REVIEW/FINAL APPROVAL
  - APPLICATION WITH ALL SIGNATURES
  - COPY OF WRITTEN REPORT ON ORIGINAL RESEARCH
- AFTER APPROVAL, AWARD PURCHASED FROM THE NATIONAL BSA STEM OFFICE
PRESENT THE AWARD

- CELEBRATE AWARDS WITH AN APPROPRIATE CEREMONY
- NOVA TYPICALLY PRESENTED AT COH, PACK OR CREW MEETING
- SUPERNOVA AWARD MAY BE PRESENTED AT DISTRICT OR COUNCIL MEETING
NOVA NOT JUST ABOUT AWARDS

- **STEM FOR FUN VS STEM FOR AWARDS**

- **EMPHASIZE THE FUN AS WELL AS WHY IT IS IMPORTANT**
  - REWARDING CAREER
  - GENERAL BENEFIT TO EVERYDAY LIFE

- **STEM ACTIVITIES ARE FUN FOR PACK, TROOP AND CREW MEETINGS**

- **CAN DO SOME REQUIREMENTS**
  - JUST FOR FUN
  - CAN SHOW YOUTH THEY ALMOST HAVE A NOVA AWARD
GETTING YOUTH INTERESTED IN STEM

- How to encourage scouts to explore science (and earn awards)
  - Cub scouts: need little encouragement; they are interested
  - Boy scouts: fewer may be interested – why?
  - Venture scouts: some just don’t want to earn awards

- Creative ideas – tie in to other scout activities
- Make it fun!
- Give reasons why STEM is important – well paid career
BSA NATIONAL RESOURCES

- NORTHERN STAR WEBSITE (SEARCH STEM)
- SCOUTING.ORG/STEM
- BOYS LIFE
- SCOUT CAST (MAR 2015 – BS; NOV 2014 – CS)
- HIGH ADVENTURE BASES
- BRYAN ON SCOUTING (BRYAN’S BLOG)
RESOURCES

- GENERAL INTERNET
- TED TALKS
- STEVE SPANGLER SCIENCE
- SCIENCE BOB
- AMERICAN CHEMICAL SOCIETY
  - NATIONAL CHEMISTRY WEEK
  - KIDS N CHEMISTRY
  - MOLE DAY
  - EARTH DAY
  - EDUCATION DEPARTMENT

- YOUTUBE

- LOCAL/NATIONAL STEM SOCIETIES
  - PROFESSIONAL STEM (ACS, CIVIL AIR PATROL, ETC.)
  - TEACHING

- LOCAL SCHOOLS (ALL LEVELS)

- LOCAL RETAILERS

- LOCAL STEM COMPANIES

- ZOO OR SCIENCE CENTER

- LOCAL MILITARY BASES
  - SPACE JAM (RANTOUL, IL)
  - CUB SCOUT STEM DAY (ABERDEEN PROVING GROUND)
MOST IMPORTANT RESOURCE

YOU
SUMMARY

➢ THE BSA STEM PROGRAM IS DESIGNED TO INCREASE AWARENESS AND INTEREST IN SCIENCES AND TECHNOLOGY

➢ THE NOVA PROGRAM ADDS RECOGNITION FOR WORK DONE TO LEARN MORE ABOUT STEM

➢ IT’S FUN!