General schedule for a 4-day ASRT workshop

** The following information is ONLY a starting point. The ASRT workshop can be customized daily to address the specific short-term and long-term goals of all involved. See "*Possible Topics for the ASRT workshop*" on the following pages for more ideas and topics that can be included.

** Though some items and activities may be labeled "for 1st year" or "for 2nd year" or "for 3rd year" students, all activities can be customized to fit in any type of student research project opportunity or program including for use within a core science class (ex. Biology, Chemistry, Earth Science, Physics, etc.)

Day 1 (full day)

- Benefits of having students become involved in STEM research projects.
- Mistakes made by teachers that may hinder success when providing STEM research opportunities for students.
- Understanding the current and/or potential obstacles that may interfere with the goals of increasing STEM research opportunities.
- Different timelines for students based on the differences between in-school projects, at-home projects, professional lab/medical facility projects and field projects.
- Helping students to "think outside of the box" when deciding on a topic and project.
- How to effectively manage multiple students that are all working on different types of STEM research projects at different stages.
- Helping each student to connect with a potential mentor, local or distant, that can help to better understand the area of research they have chosen and to help guide them with their project.
- How to increase STEM research opportunities including building a program (club and/or class), and gaining interest and support from students, administration, colleagues, and parents.
- Making it a "thing" until it becomes a THING (Building/Gaining support for a STEM Research Program/Class/Club)
- Activities for 1st year students (part 1), regardless of whether STEM research opportunities/projects are being incorporated into a traditional STEM classroom or as a part of a research program or club.

Day 2 (full day)

- Activities for 1st year students (part 2), regardless of whether STEM research opportunities/projects are being incorporated into a traditional STEM classroom or as a part of a research program or club.
- Training students how to present their research in a professional, clear, enthusiastic manner.
- Recruiting strategies to help build an enthusiastic cohort of student researchers.
- Opportunities to have students present research in different venues including local gatherings, professional conferences, and local, national, and international competitions (science fairs, STEM showcases, etc.).
- Understanding the different deadlines, formats, and application forms of the numerous competitions.

Day 3 (full day)

- Poster presentations – Creative ideas for poster presentations including numerous tips and tricks.
- Research paper (research report) writing – including numerous tips and tricks.
- Community outreach
    - establishing a practice night for the Poster and PowerPoint/Google Slides competitions.
    - incorporating an info session for incoming students and their parents
    - developing a pre-competition, "practice night" for the older students

Day 4 (full day)

- Statistical analysis and graphing resources.
- Creating Behavioral (Survey) Projects. Detailed "How to" guide for creating, distributing and analyzing in-person and large (nationwide) online survey projects.
    - Creating a school-based Institutional Review Board (IRB), Deciding on a topic, Creating a survey, Reaching out to potential mentors and organizations, Coding results to be statistically analyzed, Analyzing what the results show.
- Customizing any/all activities reviewed, to suit any style of class, club, or STEM research program.

Possible Topics for the ASRT workshop

www.ASRTprogram.com

1. Building a STEM Research Program/Class/Club

- Increasing the quantity and quality of incoming students
- Building parent support
- Building school district support
- Making the program a "thing"
- Spirit building merchandise
- Spirit building social media ideas

2. 1st year Science Research student activities

- Class structure and rules
- Goals and grading
- Online searching skills
- Finding general and advanced (journal) articles related to the chosen area of research
- PowerPoint/Google Slides basic skills
- Selecting research topics that are appropriate based on the available time, resources, etc..
- Understanding and explaining Basic info. in the chosen area of research
- Deciphering, understanding and explaining advanced info. in the chosen area of research
- Designing a small project and writing up a research plan
- Identifying and memorizing key vocabulary terms in the chosen area of research
- Presenting general research topic via PowerPoint/Google Slides
- Creating a general research topic via poster
- Presenting an advanced, journal article in the chosen area of research
- Anticipating general and challenging questions in the chosen area of research
- Creating a poster to showcase the upcoming, intended research project
- Practicing the poster presentation to peers, teachers, parent and community members
- Presenting the upcoming, intended research project at a local competition
- Presenting at the end-of-year symposium/showcase via poster
- Planning for a long-term, summer-based research project

3. 2nd year Science Research student activities

- Class structure and rules
- Goals and grading
- Analyzing winning vs non-winning student research papers
- Writing the first section of the research paper including; intro., rev.of lit., problem statements, objectives and hypotheses
- Creating the first section of the research poster
- Writing the second section of the research paper including methodology
- Creating the second section of the research poster
- Writing the third section of the research paper including; results, analysis, disc., application, conc. and future research
- Creating the third section of the research poster
- Practicing the poster presentation to peers, teachers, parent and community members
- Presenting phase 1 of the research project in local competitions
- Planning for phase 2 of a long-term, summer-based research project or designing phase 1 of a new project
- Starting the personal essays and application for the senior year competition – the Regeneron Science Talent Search
- Presenting at the end-of-year symposium/showcase via poster

4. **3rd year Science Research student activities**
   - Writing the full paper to enter into all competitions including; Regeneron Science Talent Search (STS), Junior Science and Humanities Symposium (JSHS), Regional Science Fair affiliated with the Regeneron International Science and Engineering Fair (ISEF) and the International Genius Olympiad
   - Creating a PowerPoint/Google Slides presentation to present in the JSHS competition
   - Creating a poster to present in the regional ISEF-affiliated science fair and the International Genius Olympiad
   - Creating a brochure to share the research project with a broader audience
   - Presenting at the end-of-year symposium/showcase via PowerPoint/Google Slides

5. **Competitions and non-competitive public presentations**
   - Understanding the different competitions
   - Formats, deadlines and limitations/restrictions

6. **Mentors**
   - How to help students find a mentor to help guide them with their research project.
   - How to reach out to a potential mentor as a teacher and as a student.
   - Resources to find potential mentors for almost any area of research in rural, suburban, and urban settings.

7. **Community outreach**
   - Public presentations/practice sessions at the school
   - Public presentations in the community

8. **Behavioral (Survey) Projects - in-person and large (nationwide) online survey projects.**
   - Creating a school-based Institutional Review Board (IRB)
   - Deciding on a topic
   - Creating a survey
   - Reaching out to potential mentors and organizations
   - Coding results to be statistically analyzed
   - Analyzing what the results show

9. **Statistical analysis and graphing resources**
   - Benefits and drawbacks of different statistical analysis/graphing programs (apps)
   - How to manage the proper type of data analysis for the very wide variety of project types
   - Choosing the correct graph type to represent the data appropriately and clearly

10. **Poster presentations**
    - Technology tips to help with poster design
    - Poster review and critique
    - Poster printing and display supplies and ideas
    - Presentation timing and tips

11. **PowerPoint/Google Slide presentations**
    - PowerPoint/Google Slides design and tech. tips
    - PowerPoint/Google Slides review and critique
    - Presentation timing and tips

12. **Research Paper (report) writing**
    - Paper design and structure based on different competitions
    - Paper review and critique

13. **Building and growing a science fair**
    - Organizing the numerous components
    - Awards and Sponsors
    - Facility/Staff/Volunteer requirements