

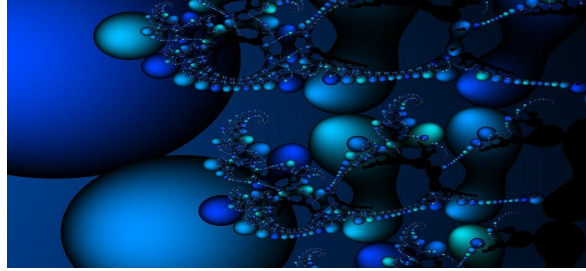


**NORTH CAROLINA  
SCIENCE OLYMPIAD**

**The Science Olympiad Companion  
for Students**

*A Student's Guide on How to Succeed and  
Have Fun with Science Olympiad*

By Cara McLauchlan



## A Letter to Science Olympiad Students

Dear Student,

Congratulations on deciding to take on one of the coolest, most fun and challenging science competitions there is - Science Olympiad. Just by deciding to pursue Science Olympiad, you are now among some of the smartest people to walk the face of the earth.

Seriously, Science Olympiad gives you so many things for life. And not just medals! Whether you pursue it to add to your accomplishments on your transcript or simply to dive deep into a subject you love, you will never regret the experience it gives you.

When students I worked with first got started with Science Olympiad, it took time to figure out how to plan, prepare and get things ready for the greatest competition. I wrote this guide to help you make this process efficient and to be able to focus on the most important things right away.

I hope you will see this resource as an extra tool in your Science Olympiad Toolbox. You are about to embark on one of the greatest learning adventures there is. Be sure to have fun, make some friends, be willing to fail and give it your best.

Go make some science memories! More importantly, have a blast!

With science hugs,

Cara McLauchlan

10 year Veteran Science Olympiad Elementary/Middle and High School Coach

2019 North Carolina Science Olympiad Coach of the Year

2020 National Science Olympiad Board Member

Superfan of Science Olympiad

Top Ten Reasons Why Science Olympiad Is Awesome

As if you needed a list. This is to remind you why Science Olympiad might be the best thing you do in your school years.



## 10. Critical Thinking

Science Olympiad teaches you not only to learn, but to apply it in an out of the box setting -- you don't know what test you are going to get. So you have to think in a multi-faceted way.



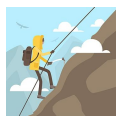
## 9. Going Deep

Science Olympiad allows you to explore all the curiosities and depths of a subject or a device. Instead of scratching the surface, you will know the subject like it's part of your DNA, literally. (oh wait, because it is.)



## 8. Getting Out of the Classroom

Science Olympiad puts the class outside the classroom. You are learning a subject outside of the four walls, beyond books and into life.



## 7. Challenging Yourself

Science Olympiad puts your abilities to study and test -- you spend an entire school year marinating on a subject and exploring its limits.



## 6. Failing Forward

Some of the best Science Olympiad adventures come from absolute failures. You will learn that failure is great and a necessary part of life.



## 5. Life Skills

Science Olympiad gives you so many things beyond studying and building a device. It gives you tools for research, writing, communication, teambuilding, leadership and so much more. Your toolbox will be full of good stuff!



## 4. Exploring New Stuff

With 23 events, there is always something new and interesting to explore. There will always be something new to be curious about in Science Olympiad.



## 3. Kickstart Your Dreams

Not only will you get to work in a team for your events, you will get to work in a bigger team for your school or organization. Opportunities abound for meeting other great people in industry, academics, colleges and career related applications. This could be the start of launching your dreams!



## 2. Making Friends

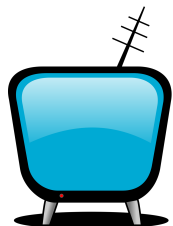
Working with your partner and larger team, you have the opportunity to make some excellent friends through Science Olympiad. Not only will you practice side by side all year long with your teammates, but you get to encourage each other on the journey. People have made friends for a lifetime with Science Olympiad.



## 1. Testing Yourself

What are you made up of? Science Olympiad allows you to develop tenacity, determination and resilience -- all important skills for life. You become better as a human from Science Olympiad.

## Month One -- Getting Started



### Looking at the Big Picture

Before you even get started with Science Olympiad, it's important to do a quick reality check to be sure it's a fit for you. In my experience, sometimes students try to take on too many things from an academic and extracurricular standpoint and end up doing nothing well. Don't be like those students. Get real about your schedule, your commitments and your year, before you get started. If you think through things from a big picture, you can save you and your team a lot of heartache all year long.

### Science Olympiad Reality Check:



There are a few reasons NOT to pursue Science Olympiad. Below are some warning signs that Science Olympiad may not be a fit if you can agree with any of the statements below:

- I want to be on the Science Olympiad team to make my transcript look good.
- I want to be a part of Science Olympiad because I already know everything about science.
- I'm taking the hardest academic year so far and Science Olympiad is going to put a lot of pressure on me.
- I have a zillion activities I am already doing and Science Olympiad is just another thing on my checklist.
- The intensity of competition terrifies me - so I'm trying to get over that.
- My friends made me sign up for it.
- My teacher made me sign up for it.
- My parents made me sign up for it.



## Is Science Olympiad For Me?

1. Science Olympiad is a year long commitment - do I have the time to devote to weekly practice and preparation?

YES            NO

2. Am I doing Science Olympiad because I'm really passionate about science and want to learn more about a subject?

YES            NO

3. With my current academic and after school workload, is it realistic for me to spend time with a partner practicing and studying every week for at least 1-2 hours?

YES            NO

4. Am I willing to make this weekly commitment this year to support my partner and my team, even when things are busy or hard?

YES            NO

5. Am I okay with the intensity of competition, hard work and resilience that I know Science Olympiad will require of me?

YES            NO

6. Can I be a team player? Am I willing to take on events that may not be my first love, helping out my partner, being willing to encourage my team this year?

YES            NO

**IF YOU ANSWERED YES with....**

**5-6 Yes Answers** - Science Olympiad is most likely a good fit for you!

**3-4 Yes Answers** - Science Olympiad may or may not be good for you - talk it over with your friends, parents and teachers to get some feedback.

**1-2 Yes Answers** - Science Olympiad is probably not a good fit for you. Perhaps consider it next year and revisit it when your Yes answers may change.



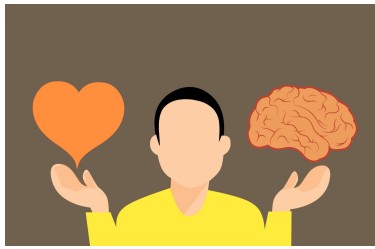
## **But First, What's Your Why?**

Before great and humble explorers ever set off on a great adventure, they always decided on WHY they were doing this. It's important to do a heart check on your "why goal" too. This helps when the going gets tough, you will be reminded why you took on this fantastic adventure.

### **The Why Worksheet**

1. If I can be completely real, the reason I'm doing Science Olympiad is.....
  
2. I think Science Olympiad is going to benefit me personally in the following three ways:
  
3. My most important goals for Science Olympiad this year are:
  
4. When things get tough or I feel unmotivated, it will be important for me to remember these things below:
  
5. When Science Olympiad is over, the things I'm going to want to celebrate beyond possibly getting a medal will be:





## Event Matchmaking

Sometime during the summer of the Olympiad season, the draft of events will come out for the season ahead. You can keep tabs on this list of ideas by checking out the national website at [www.soinc.org](http://www.soinc.org). These are usually shared as “draft” form in mid summertime. This will give you an idea of potential events to consider for the season ahead.

### Things to Think About For Selecting Events (and share with your coach!)

1. What science classes have I taken that I already love? Is there a Science Olympiad event that matches that?
2. Am I good with my hands and building things?
3. Am I a great test taker and memorizer of a vast amount of facts?
4. Does my personality suit more hard core sciences like physics/chemistry/biology/physical science?
5. Am I more suited to “out of the box” events that create things or combine a test with a device building aspect?
6. What science subjects am I so curious about that I am willing to dedicate a year to learning about them?
7. Are there any science topics that I might like to explore as a potential major in college or career in my future?
8. Do I have special skills -- Are there experiences, camps, workshops, intensives or trainings that I have already taken that would have great synergy with a Science Olympiad event?

9. Do I want only study events or only build events -- or would it be better for me to have a mix of event types?
10. Do I have access to any mentors, experts in their field or resources that would be a great support or advantage for a specific Science Olympiad event?

**Bonus Idea:**

If you have a partner in mind for your events, consider reaching out to them to collaborate. If you have someone that you already know and think would be a great match for you, share that with your coach. Having a great partner is a great way to build synergy and inspiration all year long. But also be flexible if your coach needs you to partner with a new person too.

**Lastly - What Events Match You? List your personal favorites here:**

**My favorite 5-10 events:**

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

## Getting Started Checklist -In Review

- Look at Your Year Ahead - Is Science Olympiad a Good Fit for Me?
- Evaluate Your Schedule and Academic Load
- Determine Best Days and Times for Practice
- Review List of Science Olympiad Events
- Evaluate Which Events Would be the Best Fit for Your Strengths
- Share Your Event Hopes with Your Coach
- Reach Out to Potential Partners/Share with Coach
- Be Flexible For Event and Partner Assignments



## Making a Game Plan

As you embark on your Science Olympiad journey, it's helpful to have a gameplan for the year. This is best done after you have been assigned your partner(s) and know what events you have for the year. Consider getting feedback/input on your plans from your coach or parent mentor.



### “Best practices” for planning ideas:

- ❑ First, meet with your partner to discuss goals and expectations for the year.
- ❑ Compare calendars and figure out what day/times will work best to practice weekly.
- ❑ It's best to make practice times a regular, weekly, ongoing commitment right away. This helps it become a habit.
- ❑ Read the rules together to see what resources are required and what you will need for the year.
- ❑ Decide as a team what supplies, resources and support tools you already have and what you need. Coordinate with your coach/parent on items that need to be purchased.
- ❑ First learn the basics for your event -- or the “grammar” of all the terms of the event listed in the rules that you don't understand. This is really important and often overlooked. Make flashcards, quiz each other -- whatever it takes to be sure you understand all the key terms for your event.

- ❑ For study events, it's helpful to tie topics to each practice as a theme or focus. If you can go ahead and map out your topics with your practice, this will help you to be sure you are covering all the materials. These are listed in your rules.
- ❑ For build events, it's helpful to have larger blocks of time for practice -- consider getting together on weekends so you are able to have more time to tinker freely without time constraints.
- ❑ Set milestone goals by month. For example, decide to have an awful first prototype of your device by month one. For study events, as an example decide milestones to have a portion of topics reviewed by a certain date.
- ❑ Consider hands-on activities or field trips to reinforce what you are learning after a couple months of study/practice.
- ❑ After you have learned the basics of the events, consider setting up a meeting with a mentor or an expert in the field to answer more difficult questions/concepts.
- ❑ Check for Event updates or Rules Clarifications on your own State Science Olympiad website on an ongoing basis -- especially during the few weeks prior to competition.
- ❑ Be sure to read your Event Rules on a regular basis. As you learn more, you will be able to clarify and understand the rules in a deeper way.
- ❑ Check in with your coach/parent mentor on a monthly basis to share your progress. Ask for any help with problem areas, resources or questions you may have -- they are there to help and can find out answers for you if needed.



### **A Note About Not Having a Partner Situation**

Sometimes you may find yourself without a partner for your event or have to compete solo. This can be great too -- think how efficient you can be with only yourself! It's important to schedule your practice and preparation time on your calendar, just as you would with a partner. By making it a regular part of your school week, you can be sure you are giving it the time and attention it deserves. When you are working on your own, it's easy to get slack or let things slide. Don't do this -- if needed, schedule monthly check-ins with your coach or mentor to report your progress and set goals for the following month. By showing accountability, it will help keep you honest about diligently working on your events. This will be better for you at competition too!



### **Remember, A Plan Needs to Be Flexible Too**

Keep in mind that the best plans also need to be flexible. Start the year off by getting good momentum by regular weekly meetings for your events. This allows you to build some traction and figure out the early stage learning stuff. As your school year gets busy with tests, sports, sickness and other activities, you will have already built up a good base of practice to ebb and flow a bit with your schedule. But even if you need to miss a week or two due to unexpected situations, get right back to things to keep regular, scheduled practices a part of your week.



### **Your Study Resource Toolbox**

Here is a laundry list of ideas and tools to help you study and practice for your events. There will always be more resources -- but here are a few good ones.

#### **Section One -- Start Here -- The Resource Essentials**

- ❑ **The Rules** - make sure you have a copy of the current year's rules for all your events from your coach. You can download these for free according to your division at [www.soinc.org](http://www.soinc.org).
- ❑ **State Event Resources** -- check your local state's Science Olympiad website for Event Resources and rules clarifications. Check back often for updates!
- ❑ **National Science Olympiad Website** --- [www.soinc.org](http://www.soinc.org) -- you can find great support resources, websites, links and items for purchase on this site.
- ❑ **National Student Science Olympiad Website** -- [www.scioly.org](http://www.scioly.org) -- you will find some great forums, test exchanges, discussions, question marathons and more here.

## **Section Two -- Next Level Resources for Science Olympiad**

Once you have reviewed the great resources and basics from the Essentials section, here are some additional tools to consider.

- ❑ **Quizlet** - [www.quizlet.com](http://www.quizlet.com) - Go ahead and search for your event and see if there are any existing sets. Just make sure they are accurate and match current year's rules.
- ❑ **Edmodo** - [www.edmodo.com](http://www.edmodo.com) -- This is a great place to share and study practice tools when you are not together. By creating an Edmodo class for your study event, you can load videos, study tools, articles and resources to collaborate your study plans when you are not together. It's also a great way to share knowledge for future teammates.
- ❑ **YouTube** - [www.youtube.com](http://www.youtube.com) -- Go ahead and search YouTube for your event. Many students post helpful study videos or examples of their device from competition. There are many great teaching videos on how to create your device or best practices for competition. Find out if your State has their own YouTube channel for sharing helpful content for their Olympians.
- ❑ **Google** -- [www.google.com](http://www.google.com) -- This may seem obvious, but it is often overlooked. Go ahead and type in your event and see what comes up. Search using different words as well to see what resources come up for these events.
- ❑ **Social Media** -- Be sure to follow your state and national Science Olympiad organizations on Facebook/Twitter and Instagram. This is a great way to find out new news, catch any great updates, and connect to the Science Olympiad community.
- ❑ **Your Local Library** -- Again, this probably feels obvious as well, but often overlooked. Search for your topic in the children's book section first to get some great basics to summarize key topics for your event. Then move into more advanced books to support a deeper understanding. Don't underestimate the power and help of the children's picture book and visual reference books! Also, if you don't have access to a computer, the library is a great place to use free computers, wi-fi and print resources to study at home.

### **Section Three -- Going Deeper and Thinking Bigger for Your Resources**

These are some tools to give your Science Olympiad events more real world depth, as well as discover experts and mentors in these areas.

- ❑ **Field Trips** -- where can you go to find a hands on experience related to your events? Local museums, nature parks, airfields, manufacturers and aquariums. Finding a hands on activity related to your event only requires some brainstorming, creativity and planning.
- ❑ **Mentors in Industry/University** -- reach out to area companies, community colleges, and universities that have expertise in your event. You can use it as an opportunity to explore careers, learn about what they do as well as get your questions clarified on difficult subject matter, and tour the campus. Most professionals are happy to share their knowledge with students.
- ❑ **Community Interest Clubs** -- connect with local hobbyist groups that have subject matter related to your event. Clubs like astronomy, fossils, rocks, arborists and rocketry are all examples of community groups in your area. Check out their calendars for related events, or ask them for a meeting to learn more about what they do and help with your event studies.
- ❑ **Professional Organizations** -- Groups like the American Society of Civil Engineers are a great example of a professional organization that may be a resource. Most groups in aviation, engineering, science and technology all have educational outreach and volunteer components as part of what they do. Ask to be connected to a member who has an expertise in your event areas.
- ❑ **Museums/Museum Events** -- Be sure to check out your local museums and their upcoming events calendars for activities that relate to what you are studying. Activities like Astronomy Days, Bug Events, Fossil/Rock Activities and more are all activities that most museums schedule on a regular basis. They may also be a great resource to connect with a professional/scientist in your area of interest.
- ❑ **College Textbooks** -- Sometimes events require you to go beyond the surface. Consider looking to college textbooks (hopefully used!) when you need to go deeper and wider on your events. Typically college textbooks offer a methodical way to study the material with good review questions/problems as part of the study process. These are particularly helpful for core science events like Anatomy & Physiology, Chemistry, Biology and Earth Science.
- ❑ **Amazon and Online Merchant Sites** -- There are many great resources on-line and through the Science Olympiad stores of items for purchase. Usually these come as starter kits or handy resources. Examples may be items like car kits or airplane kits. These are great items to help get you started. Keep in mind that



these are truly intended to get you started. You will still have to do testing, modifying, tweaking and testing some more on your own to make these truly effective devices for competition.



## Study Game Plan Checklist - In Review

- Read the rules. Keep reviewing them monthly.
- Set dates/times for practice on your calendar weekly.
- Set milestones for your build events.
- Set milestones for study events.
- Master the basic terms of your event first -- know all the terms listed in your rules first. This is really important.
- Match the topics from the rules with each practice date so that you can be sure you are covering all important areas for your event.
- Watch for event clarifications monthly as you get closer to your event competition.
- After you have mastered the basics in Section One, consider adding in elements from Section Two and Section Three for digging deeper into your events.

# Science Olympiad Study Plan Template

Event Name:

Month One	Goal	Date Completed/Notes
Month Two	Goal	Date Completed/Notes
Month Three	Goal	Date Completed/Notes
Month Four	Goal	Date Completed/Notes
Month Five	Goal	Date Completed/Notes

<b>Month Six</b>	<b>Goal</b>	<b>Date Completed/Notes</b>

## EXAMPLE -- Science Olympiad Study Plan Template

Event Name: Dynamic Planet - Division C

Month One	Goal	Date Completed/Notes
September	<ol style="list-style-type: none"> <li>1. Read the Rules.</li> <li>2. Make/study Quizlet with key terms weekly.</li> <li>3. Set meetings weekly for Sept/Oct/Nov.</li> <li>4. Divide materials with partner from rules.</li> </ol>	9/30/20
Month Two	Goal	Date Completed/Notes
October	<ol style="list-style-type: none"> <li>1. Read the Rules</li> <li>2. Take Quizlet Quizzes weekly.</li> <li>3. Focus on Section I/II/III and IV. Seawater/Radiation/Water Temp and Topo features.</li> </ol>	10/30/20
Month Three	Goal	Date Completed/Notes
November	<ol style="list-style-type: none"> <li>1. Read the Rules.</li> <li>2. Take Quizlet Quizzes weekly.</li> <li>3. Focus on Sections V/VI/VII and VIII. Tectonic plate motion/chemicals/reef formations and waves.</li> <li>4. Visit local weather station to meet experts in weather.</li> </ol>	11/30/20
Month Four	Goal	Date Completed/Notes
December	<ol style="list-style-type: none"> <li>1. Check for Event Updates.</li> <li>2. Read Rules.</li> <li>3. Set practice times weekly for December/January/February.</li> <li>4. Take practice tests weekly.</li> <li>5. Focus on Sections IX, X, XI and XII - Surface currents, balances, coastal currents, circulation and tides.</li> <li>6. Begin draft of Note Sheet for</li> </ol>	12/30/20

	<p>Competition.</p> <p>7. Field Trip over break with event experts or hands on activity.</p>	
<b>Month Five</b>	<b>Goal</b>	<b>Date Completed/Notes</b>
<b>January</b>	<ol style="list-style-type: none"> <li>1. Check rules/check for event clarifications.</li> <li>2. Take timed practice tests weekly.</li> <li>3. Focus on Sections XIV, XV and XVI - Coastal features, ocean tools and research , relationships with fisheries/ocean.</li> <li>4. Quality draft of Note Reference Sheet for Competition.</li> <li>5. Meet with Mentor for answering hard questions.</li> </ol>	1/30/20
<b>Month Six</b>	<b>Goal</b>	<b>Date Completed/Notes</b>
<b>February</b>	<ol style="list-style-type: none"> <li>1. Check rules/check for event clarifications.</li> <li>2. Simulate competition conditions with timing/test taking.</li> <li>3. Review all materials and sections that were difficult.</li> <li>4. Final draft of Note Reference Sheet for Competition.</li> </ol>	2/15/20

# Science Olympiad Device Plan Template

Event Name:

Month One	Goal	Date Completed/Notes
Month Two	Goal	Date Completed/Notes
Month Three	Goal	Date Completed/Notes
Month Four	Goal	Date Completed/Notes
Month Five	Goal	Date Completed/Notes

<b>Month Six</b>	<b>Goal</b>	<b>Date Completed/Notes</b>



# EXAMPLE - Science Olympiad Device Plan Template

Event Name: Wright Stuff - Division C

Month One	Goal	Date Completed/Notes
September	<ol style="list-style-type: none"> <li>1. Read the Rules.</li> <li>2. Make/study Quizlet with key terms and related concepts weekly.</li> <li>3. Set meetings weekly for Sept/Oct/Nov.</li> <li>4. Make a plan to purchase/gather supplies.</li> <li>5. Look for videos/pics online for ideas.</li> </ol>	9/30/20
Month Two	Goal	Date Completed/Notes
October	<ol style="list-style-type: none"> <li>1. Read the Rules</li> <li>2. Take Quizlet Quizzes weekly.</li> <li>3. Brainstorm ideas for design.</li> <li>4. Check out design ideas on-line.</li> <li>5. Make horrible first build of device.</li> <li>6. Keep log of key ideas and learnings.</li> </ol>	10/30/20
Month Three	Goal	Date Completed/Notes
November	<ol style="list-style-type: none"> <li>1. Read the Rules.</li> <li>2. Test/Build and Practice - take log notes of key</li> </ol>	11/30/20

	<ul style="list-style-type: none"> <li>learnings.</li> <li>3. Have working device by the end of the month.</li> <li>4. Take a field trip to airfield to meet with aviation expert. Get design ideas.</li> </ul>	
<b>Month Four</b>	<b>Goal</b>	<b>Date Completed/Notes</b>
<b>December</b>	<ul style="list-style-type: none"> <li>1. Read the Rules.</li> <li>2. Check for Event Updates.</li> <li>3. Schedule practice for January/February/ March.</li> <li>4. Test/build/practice and take notes in log for key learnings.</li> <li>5. Have a solid working device by end of the month.</li> <li>6. Ask Event Mentor or Coach any questions.</li> </ul>	12/30/20
<b>Month Five</b>	<b>Goal</b>	<b>Date Completed/Notes</b>
<b>January</b>	<ul style="list-style-type: none"> <li>1. Read the rules.</li> <li>2. Check for Event Updates.</li> <li>3. If available, attend an invitational or other regional to gain ideas and insights into design and competition.</li> <li>4. Test/Build/Practice and take notes in log for learnings.</li> <li>5. Simulate regional</li> </ul>	1/30/21

	<p>event competition.</p> <p>6. Goal - mostly ready device for competition.</p>	
<b>Month Six</b>	<b>Goal</b>	<b>Date Completed/Notes</b>
February	<ol style="list-style-type: none"> <li>1. Read rules. Pack all required supplies for competition.</li> <li>2. Check for final event updates.</li> <li>3. Final device test/build/practice.</li> <li>4. Prepare a repair kit to bring to competition.</li> <li>5. Prepare device for safe transport to competition.</li> <li>6. Label your device with your team name and division.</li> <li>7. Bring any logs/binders or records to competition - be sure they have your name on them.</li> <li>8. Bring back up supplies, device and resources to competition.</li> </ol>	2/15/21



## **Tips for Event Study Binders, Logs and Event Reference Sheets**

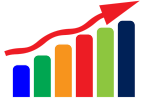
Once you are given your assigned events, you will want to gather resources in one place to keep track of it. As well, some of your events require logs or reference sheets (some call them “cheat sheets” - but we are not really cheating here.) Below are some best practices that will help you as you gather all of this “stuff” together for event study and preparations.



### **Event Study Binders**

Event Study Binders are a place to keep all the materials and resources for practice/study in one place. They also serve as a great record of the year and can be shared with future teammates as a reference. Unless the rules say otherwise, these typically are not allowed to be brought into the event competition itself.

- Start by getting a 1-2 inch binder to gather all your resources together. Have a three hole punch ready for ease of putting items in the binder.
- Put your names, your team names and event name on the binder in case it gets lost.
- Personalize your study binder with fun clip art or printables to make it yours.
- Print out a copy of the rules and place them in the front.
- Print out your Goal Template to fill in and schedule goals/ dates as you go.
- Gather resources with each practice/study session and place them in binder.
- Divide resources into sections for easy reference and study.
- Consider dividing each section according to topics from the rules for study reference.
- Include a section of blank notebook paper for you to take notes, save reminders, questions, key learnings or ideas for next practices.



## Event Logs/Charts or Graphs

Event logs/charts or graphs are resources that the rules state that are to be brought into competition for evidence of practice/testing. It will be clearly stated in the rules what the requirements are and what needs to be shared for event testing resources.

- Read the rules to determine exactly what sort of parameters are required for the event log/chart or graph.
- Include your and your partners' names, team name, division and event name on the event log/chart or graph.
- Prepare a template to begin capturing your information/data.
- Share your template with your coach/parent mentor for feedback and accuracy according to the rules.
- If you are using handwritten logs/resources, make sure they are clean, legible, without misspellings and clearly documented with integrity.
- Start early -- Prepare your logs/charts and graphs early so that you will have ample time to polish before competition.
- Before competition, make a couple copies of your logs/charts or graphs to have back up resources in case the original gets lost, damaged or destroyed.
- If allowed, place the logs in a sheet protector to prevent damage.



## Event Reference or “Cheat Sheets”

Event Reference or “Cheat Sheets” are typically 1-2 pages that are allowed to be brought into competition as a reference. It is clearly stated in the rules what dimensions and amount of pages are allowed for you to bring in with you to your event.

- Read the rules to determine what size, dimensions and details of your cheat sheet that is allowed for your event.
- Sometimes the cheat sheets allowed are per person and sometimes per team. Be sure to know the rules about what is allowed.
- Include your name/partners' name/team name/Division and event name on the sheet in case you misplace it.
- Make sure your cheat sheet is clean, legible, easy to navigate and prepared with good integrity.
- Start early -- place items on your cheat sheet as you work through studying the materials. You can always polish the cheat sheet closer to competition by eliminating things you already have mastered.
- Great items to include on cheat sheets are colorful diagrams, reference charts/timelines, images of detailed items to be identified, important dates/names/concepts, formulas, graphs - anything that is complicated to have all the details mastered.
- Share your cheat sheet with your coach/parent mentor for feedback and accuracy according to the rules.
- Before competition, make a couple copies of your cheat sheets to have back up resources in case the original gets lost, damaged or destroyed.
- If allowed, place the cheat sheet in a sheet protector or laminate it to prevent damage.



## Study Binders/Logs and Reference Resources - In Review

- Read the rules for what you need to bring into your event.
- Keep a binder of all you are studying to gather resources, capture notes/key learnings and include a copy of the rules.
- Start early to create binders/logs/cheat sheets for your events -- polish as you go.
- Share your logs/graphs and cheat sheet drafts with your coach/parent mentor for feedback and fine-tuning.
- Be sure all of your resources are clean, without misspellings, following the rules and are prepared with integrity.
- Be sure your name/team name, JV or Varsity and event name are on all of your resources in case they are misplaced.
- Make back-up copies of everything.
- Laminate or use sheet protectors for additional protection.



## Tips for Build Events

Building events are ones that involve creating a device and having it perform a specific task for competition. Typically this might mean cars, airplanes, rockets, Rube Goldberg style machines, bridges or towers. Even though you are not memorizing a huge swath of information, there is still so much experience and knowledge gained through the trials and testing of build events.



### Step One - Brainstorming

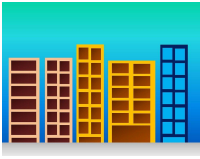
- The best way to get started is to read the rules.
- Then do some “visioncasting” -- get out large sheets of paper and dream up some ideas with your partner for what your device might look like.
- Take some time to see what other great ideas for your device are out there. Watch some videos, search for images, look on student forums.
- Also look at some great examples in the world -- if your event is bridges or planes, look at how real world examples are designed for optimum performance.
- Sketch out all of your ideas on paper and post them where you can look at them for inspiration.
- Don't be afraid to think outside the box or innovate existing designs.



### Step Two - Planning/Resource Gathering

- Once you have your rough ideas for a first design, make a list of what resources you need.
- Research on-line if there are kits to order to get you started as an option.
- See what resources you and your partner may already have -- or what resources might be repurposed for your project.
- As needed, take a field trip to the home improvement or hobby store for resources like wood, PVC, glue or balsa.
- Share what you are working on with the hobby shop or home improvement employee -- you never know what kind of tips or advice they have to share.
- Be sure to track costs for your event to share with your coach/parent mentor.





### **Step Three - Building**

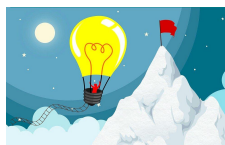
- If you can, set aside a space in your garage or basement where you can work on your building project. This would be a space that you can leave works in progress for several months as you perfect and build. It helps to keep making progress if you don't have to get all of your supplies out every time you want to work on it.
- As soon as you can, make the first prototype of your device. Expect it not to work and remember you are just getting started. This should happen in the first 30 days of being assigned your event. The sooner you get started the better.
- For building meetings, it's nice to have these on a weekend and in a large chunk of time, like 3 hours. This way you have ample time to tinker without the pressure of having to be done quickly.
- Set milestones for each month until competition for what progress you would like to achieve.
- Plan to have a competition ready device at least 30 days prior to competition so you can spend the last month tweaking and fine tuning your devices.



### **Step Four - Testing**

- This is the fun part! Make sure you take notes or record your testing with dates, times and key learnings. Consider ideas on how you can improve your device.
- Use a cell phone to make videos to capture how your device performs --this will allow you to go back and review what worked well and where there are areas to improve.
- For items like Boomilever or Bridge, consider using a slow motion video option on a cell phone in order to capture where the device breaks and areas to strengthen.
- Share videos or your devices with a coach or parent mentor and ask for feedback or ideas on how to improve.
- If there are any upcoming invitationals or regional events prior to your competition, consider attending those to see how the events are run and gather best practices prior to competition.

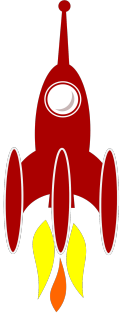
- As you get closer to competition, be sure you are checking the rules, as well as the competition websites for any clarifications or event updates.
- As much as you can, within 30 days of competition, simulate real competition conditions prior to your regional event.



### **Competition Best Practices for Building Events**

- **Travel safely** - think about how you are going to transport your device to competition without it getting damaged or harmed in transport. This is really important!
- **Label** - Be sure your team name, junior varsity/varsity and division are clearly labeled on your device. If needed, include your team number.
- **Repairs** - Bring a repair kit or back ups. Things happen and you may need to adjust, tweak, repair or touch up your device -- be ready with repair supplies and back ups.
- **Extras** - Be ready to share with extras. We've all been there. You forget a pencil or you forget your goggles for your event. Be a gracious competitor and be ready to share with a fellow competitor if you have extras and they forgot their supplies. You never know when you might need help!
- **Check it Out** - Get to your event early to scope out the scene. It's also helpful to see how it's being run. As much as you can avoid it, don't go first at an event as volunteers are sometimes just beginning to learn how to run the event. Watch for mistakes people make, look for how you can optimize your performance.
- **Be Respectful and Fluid.** Things come up, volunteers are late or get it wrong. Sometimes the event isn't being run correctly. If you need to, kindly and respectfully be ready with the rules and ask for clarification.
- **Easy Points** -- don't miss the easy points like presenting a log, graphs, charts or any required materials for your event. Show up prepared with what you need to bring and collect the easy points for your team.
- **Have Fun** -- you've worked hard. Enjoy the moment and feel good about all you've learned regardless if you medal. Wish your fellow competitors luck and high five your partner.
- **Good Manners** -- I know this seems obvious, but have good manners during your event. This means thanking the volunteers, cleaning up after yourselves, being kind and respectful. These people are giving up their free time to help you, so give them some kindness. You never know how your good manners,

treatment of competitors and cleaning up after yourselves may be the difference in a tie-breaking situation.



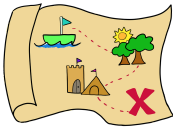
## Build Events Best Practices -- In Review

- ❑ Read and study the rules for your building event.
- ❑ Brainstorm ideas from existing examples, real life and whatever you dream up.
- ❑ Have a terrible first prototype within 30 days of being assigned your event.
- ❑ Make consistent, testing and evaluating a regular practice - take notes on what you learn.
- ❑ As much as you can, simulate real competition testing of your device.
- ❑ Think about getting your device safely to competition, having a repair and back up materials.
- ❑ Be ready to claim easy points by following the rules for logs, graphs, resources to present at competition.
- ❑ Be a gracious competitor that has good manners, cleans up after themselves, shares resources and thanks volunteers.



## Tips for Study Events

Study events typically involve memorizing a large content of information about a specific scientific subject. Study events may require you to sit down and take a written test or a station format where you are asked to identify or answer a series of questions about a topic. Sometimes its a combination of both. Regardless of the format, study events are a fun way to go really deep into a subject that you love and learn more than you thought possible.



### **Step One: Make Your Study Plan**

- The first step is to meet with your partner and map out how much time you have between now and competition.
- Make a roadmap on how you will work through the topic areas covered in the rules.
- Decide if you will divide the material or make topic experts -- you both will learn the content, but one partner may make certain topics their expertise.
- Make sure you build in enough time to cover all the event topics, as well as review and practice tests as you get closer to competition.
- It's best to have regular, consistent study sessions and practice rather than trying to cram in studying over a holiday break or long weekends.
- Think about and gather resources you may need to support your study times -- textbooks, library books, flashcards, learning CDs, mentors, on-line study sites.



### **Step Two: Master the Basics of Your Event**

- It's important to learn all the key terms or "grammar" for your event.
- Even if you already think you know what the terms mean, make sure you take the time to create flashcards or Quizlets to have both partners on the same page for the key event terms.
- Go through the rules and make a vocabulary list of any word or concept that is new, unfamiliar or essential to the event mastery.

- Your first several practices should include study and review of key vocabulary and concepts related to your event.



### **Step Three: Cover Topics from the Rules**

- Once you have mastered the vocabulary or grammar for your event, consistently work through the key topics covered in the event rules.
- You will assign a topic or key concept to every practice - this allows you to systematically work through all the key topics covered in the rules.
- Be sure you allow yourself enough time to cover all the key topics in the rules, as well as time to go back and review topics that were more challenging or difficult to fully grasp.
- Best advice is to go wide in your understanding for regional competition, but not very deep. For States or National competition, you will have to go not only wide, but also very deep in the subject matter.



### **Step Three: Real World Learning, Field Trips, Mentors**

- Once you have mastered the event basics and developed a deeper understanding of the materials, you may consider setting up a field trip or a real world experience for a deeper understanding.
- Meeting with a professional in industry or from an educational association with an expertise in your event topic is a great way to get difficult questions answered and have real world experience with your event.
- Event mentors are also great people to stay in touch with for you to ask questions about your event as you go, or learn about how this study event may be a fit for a career opportunity down the road.
- Seek out people and experiences in museums, clubs, university, industry or field trips. These type of experiences help your events truly come alive and allow for great enrichment opportunities.



#### **Step Four: Practice Tests/Event Simulation**

- As you get closer to competition, try to begin simulating what a true competition experience might look like. This usually means timed conditions where you are either completing a written test or rotating at station experience.
- Take practice tests -- you can either create your own as you go or find example tests on the national websites shared earlier. Be sure that the sample tests match the current year's theme and area of emphasis.
- Keep in mind that practice tests may be more difficult or easier than what you may see at competition. Every area will emphasize different subject matter - so it's important to be ready with a broad understanding of your topic.
- Practice rotating through stations under timed conditions. Remember you may not start at Station One -- so practice reminding yourself to circle the Station number you begin with to stay on track.
- If your test requires short explanations or answers, be sure to write clearly and legibly. Use as many of the key topic terms to demonstrate you know what you are talking about. Be sure to answer the question in the most concise, accurate and scientifically sounding manner.
- If you are dividing the responsibilities during the event -- discuss how you will collaborate together. Will you divide the test up, will you collaborate through every problem, who will be the writer for the test? Who will keep track of time?
- Be sure to find ways to be a team for your event -- is one of you a better math person, does one person have better penmanship? Think about each other's strengths and agree how you will work together at competition.
- Practice writing your names, your team name, number (if appropriate), junior varsity/varsity and division on your test. I know this seems obvious, but it's not.
- Above all, remember that the little things may be tie-breakers at competition - did you and your partner collaborate kindly with each other? Did you write the test neatly? Did you clean up after yourselves? Did you give more than one word or simple answers? Did you thank the volunteers?
- Check your rules to make sure you are bringing all the resources/supplies/binders/cheat sheets or materials needed for your event.



## Study Event Best Practices - In Review

- Meet with your partner and make a study plan for the season.
- Gather resources for study support.
- Decide if you will divide and conquer the topics or both learn the material.
- Master the basics/grammar of your event first.
- Align your practices to cover each topic listed in the rules.
- Schedule in field trips, real world learning, mentor visit or other real application for the content to understand your topic in a deeper way.
- Decide responsibilities for the event - who will do the writing, timekeeper, who will do what during the event?
- Take practice tests under timed conditions.
- Practice a station test under timed conditions.
- As much as you are able, simulate a real competition experience at least 30 days prior to competition.
- Prepare all your resources needed for competition and have backups ready.





## Making It Fun

Let's face it - Science Olympiad is a year long season. Remember that you can sprinkle in the fun along the way to make the learning joyful. Below are a few ideas on how you can add some fun to your Science Olympiad Season.

## Ideas to Make Science Olympiad a Blast All Year Long



### Food, Glorious Food

Isn't everything more fun with food? Consider having fun food after each practice as a way to celebrate your hard work. Pizzas, subs, donuts or tacos are easy items to get delivered or make together at home.



### Movies and Popcorn

There are lots of great videos and documentaries related to the Science Olympiad topics. Find a great one on Netflix, DVD or YouTube that covers the materials you are studying. Pop some popcorn and enjoy learning with a movie night!



### Music

Music is a great addition for when you are working on building events. When you are tinkering over your boomilever, or cutting out fins for your rocket, crank up some tunes and share favorite playlists as a way to enjoy new music and the time together.



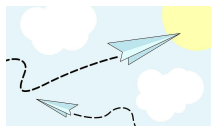
### **Get Hands On/Make Something**

Look for hands-on activities to support your academic events. Search on-line for a craft activity or maker style task to play with what you are learning. Make a glacier out of Jell-O, use construction paper to model the layers of the earth, lay out maps to practice geo mapping tasks. There are infinite possibilities of making events more hands-on for enhanced learning.



### **Friends Fun**

If your team has a Junior Varsity Division with your same event, consider scheduling a few practice sessions together. This is a great way to share practice resources, build team camaraderie and motivate each other. Another option is if your team has a Middle School Division with your same event -- this is an awesome way to practice mentoring and leadership. Or if you happen to have friends from another team, practicing together may also spark friendly rivalries and competition.



### **Demo Day -- Demonstrate What You are Learning**

Consider sharing your build devices as a way to showcase what you are learning, provide accountability for you and your partner. Great ways to do this might be at a team meeting, for a science class or even for your siblings/parents. By showing people in your circle what you are working on, it allows you to practice sharing it for an audience. You never know what great ideas and creative inspirations can happen from people admiring your work.



### **Make Funny Videos/Team Social Media Posts**

A great way to capture your progress is to share social media posts, videos or photos of the progress you are making. If your team has a social media account, this is a great way to show off your efforts and get feedback too. Or you can share or post on your own personal social media accounts. It can also serve as a scrapbook of your work to

see how far you come in a season. Always check before posting that people are okay with you sharing images on social media.



### **Games & Prizes**

For academic events, a fun way to motivate each other is to compete informally each week. This could be done virtually through websites like Quizlet or Edmodo for mastering flash card vocabulary. Or you could have a “Quiz Bowl” style practice in person where every correct answer gets a point. Prizes could be simple things M&Ms, candy bars or dollar store prizes



## Keys to Staying Motivated



### Calendar Habit

Having a regular, weekly time on your calendar for practice is important.

As much as you can, staying consistent for the long haul is vital for a positive Science Olympiad experience. Things always come up, people get sick, sometimes school events and activities have to take priority -- but as much as you can, make practice a weekly habit.



### Be a Good Partner

Being a good partner means sharing the load. One of you may be stronger than the other in the topic -- that is great. But as much as you can, be a strong contributor by making the effort to learn the materials too. Putting

the burden on one of the partners is no fun for anyone.



### Share the Load

Look for ways to divide the work for your event -- maybe that means having one partner be an expert in half of the materials and the other partner the other half. Also, it might mean you take turns leading the practice and what you will study or build that day. Discuss and be a team

to find ways to share the work to study, build, prepare and own your events together.



### Communicate

Figure out the best way to stay in touch with your partner -- are they better by text or email or calling? If you aren't able to practice, agree to share things to work on while you are not together like watching videos, practicing Quizlet or making a study resource. Be a good partner and

communicate regularly. This means responding to texts/emails or calls promptly and sharing things that are helpful as you go.



### Encourage

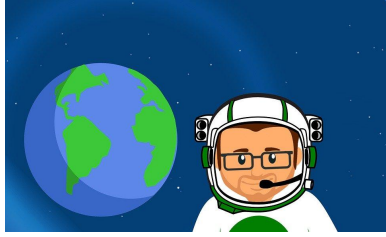
Find ways to encourage each other as you go -- whether it's noticing how easily certain math equations come for your partner or whether they are super good at building things. Taking time to notice and encourage each other's hard work and talents seems like a small thing,

but it's actually pretty important. Science Olympiad is a hard work; find ways to celebrate all of the small things as you go!



### **Visualize The End Result**

Think about what you would like to experience after Science Olympiad is over. Do you want to feel confident at competition? Do you want to hear the clang of a medal around your neck? Do you want to give it your best and make your team proud? Imagine the day of competition and what you would like to experience - this helps motivate you and your partner to work hard and stay committed in the daily work leading up to competition.



## Getting Ready for Competition Day!



### **Supplies for the Day**

Think about what you need for the day. Things like schedules, map of the competition site, address for the competition, event resources, etc. Even if these are electronic, consider printing them out in case cell service or wifi is not great at the site.



### **No Cramming.**

The night before competition is not the time to stay up all night getting in last bits of practice or building. This will just leave you exhausted and brain drained for competition day. Set a goal to be completely done by 5 p.m. the night before competition. Then get a good night's sleep.



### **Read Your Rules - One More Time.**

Just do it. Read your rules one more time to be sure you are not overlooking anything important -- every point matters. Make a copy to bring with you for competition if you need to check it. Make sure you ask for help if you need clarification on the rules.



### **Coaches' Contact Information**

Be sure to plug into your or your parent's phone how to get in touch with your coaches on the day of the tournament. It's also a good idea to find out if your coach responds better by text or if a phone call is better if you need help, get lost, can't find the team, etc.



### **Know if You Need to Impound - When and Where**

Please review your rules and schedule to know if you need to impound your device, when and where. This is listed on the event schedule.

Impound times are typically earlier in the day and listed on the schedule.



### **Pack Your Car the Night Before Competition**

Nothing starts your day off terribly than forgetting something really important. Pack your car the night before with stadium chairs, cooler with water/drinks, snacks, food, games, event rules, maps, study resources and a safe travel house for devices. Bring extras of everything.



## Competition Day Best Practices



### **Be Early - Allow Plenty of Travel Time.**

This is the one time in your life that being early is essential. If you have a first period event, you should arrive 1 hour before. If you have a later events, be sure you are arriving at least 1-1.5 hours before the event to check in, take a deep breath, relax, go to the bathroom, get your bearings, etc. before you have to compete.



### **Smile, Laugh, Have Fun**

Whether you practiced a ton or not at all, just enjoy this. No crying or stressing or nagging or criticizing at this point -- it is what it is, good bad or ugly. Trust that whatever happens is a great experience and enjoy it!



### **Pay Attention to Event Time**

Make sure you arrive at your event at least 15-20 minutes prior to start time at your event room. This allows you to take a deep breath, go to the bathroom, have a few minutes to chill.



### **Fuel and Hydrate Well**

Make sure you are drinking water and eating enough to be fueled up all day. Make good choices like high protein, nuts, fruits and waters -- save sodas, cookies and junky



stuff until after you are done competing. Give your brain the best chance to succeed.



### **Be Ultra Classy!**

Remember - you are representing your team and your school, not just you. Make sure they see you as cool, classy and super awesome. This means saying “Thank You” to every event volunteer and saying “thank you for volunteering today!” Push in your chairs, clean up after yourselves, leave everything better than you found it. Be completely awesome.



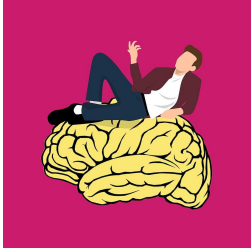
### **Be Helpful and Gracious to Fellow Competitors.**

Wish other teams good luck, smile, everyone has worked hard -- so congratulate them. If you notice someone is missing something and you have extra, offer it up. If someone’s device breaks and you have glue, offer to help. Help everyone.



### **Have Awesome Integrity.**

Make sure you are demonstrating great integrity at competition by keeping your eyes on your own work. Limit temptations for others by covering your answers at station events and collaborating quietly with your partner. Above all, never cheat. It’s not worth it.



## Bonus Competition Day Tips

- **JV or Varsity?** Make sure you know whether you are on the JV or Varsity for your team. This seems obvious, but sometimes people have a way of forgetting under the stress of competition day.
- **Event Challenges** - If you have a challenge, ask for help or politely clarify with the event supervisor. These people may or may not know the rules as well as you do and they are volunteers. This is when having a copy of the rules comes in handy.
- **Station Warning** - Remember, if you are at a station event, circle the number station you are starting at -- it usually is not Number One!
- **Watch Public Events** - If you are competing in a public event, go early to watch to see if you can learn anything from early competitors.
- **Write Neatly** - Use good penmanship -- sometimes this is a tiebreaker!
- **Troubles** - if you feel that you were treated unfairly, there was a rule violation at the event, take it to your coach. Help your coach out by being able to share specifically in the rules where something was violated. **Parents are not the people to address the problem - take it to your coach and let them handle it.**
- **Remember - every single point counts!**
- **Take Pictures** -- be sure to capture some fun candid pics of you and your teammates on competition day. This is a great way to capture some great memories and fun from the day.
- **Lastly - Good Manners** - when you use great manners that include words like please, thank you, yes ma'am and yes sir, people want to help you and support you. Under no circumstances should you ever argue with event leaders or volunteers. **Good manners have a way of smoothing things over and allowing people to do all they can to help you succeed.**



## Celebrating Your Experience

Once Science Olympiad is over, here are a few ideas on taking stock of your experience. These are great ways to capture the moment and savor it for years to come!



### Celebrate!

Be sure to take time with your partner to celebrate your achievement with your partner - regardless if you earned a medal. Have ice cream, a special meal or pizza party, a night to watch movies and enjoy a relaxing evening together. Set aside some time to commemorate this awesome milestone!



### Share Memories

Share any pics from competition day with your coach, teammates or family members to celebrate the fun memories you made. You could make a scrapbook of memories from the season or print a picture to remind you of your hard work.



### Write It Down

Some students like to write down what they learned from Science Olympiad. If you plan on competing next year in a similar event or want to remind yourself of the key learnings, jot it down. It's great to capture your thoughts while they are still fresh in your mind. Some students like to write themselves a letter and date it for when they are gearing up for the season next summer. "Dear Future Self...here's what you need to remember for Science Olympiad this year..."



### **Thank Your Coach/Parent Mentors and Encouragers**

Be sure to take some time to thank your team coach, parents and any additional mentors or people that encouraged you this year with Science Olympiad. All of them set aside their personal time to make Science Olympiad happen for you, be sure to let them know how much you appreciate them. Great ideas could be a personal thank you note or a small token of appreciation.



## Science Olympiad Is Over - Now What?

A few good questions to ask yourself after Science Olympiad is over:



### What are my Key Takeaways?

Besides great academic knowledge, what did you gain as a person? A few things others have enjoyed are: being a better critical thinker, a good team player, ability to handle failure or challenges, serving as a stronger student because of competition. Consider how you are better now than when you began this process.



### How can I use what I learned?

Did you discover a newfound passion or interest? Did you realize that certain interests were actually not for you after all? Think about how you might build on what you learned whether exploring a career, class selection or future college study. Think about how you can take what you experienced and use it as a resource for the future.



### Where do I need to document my efforts?

Now that Science Olympiad is fresh in your mind, now is a great time to write down all of your events and the places you took in each of them. Don't trust your memory! Go ahead and capture all the events you worked on this year, any places or medals you'd like to note and any special recognition you or your team generated. This will be helpful when you are preparing college application resources to have the specifics documented well.



### **How can I share the Science Olympiad love?**

If your season is over, consider volunteering or volunteering with a parent at an upcoming competition - whether elementary, middle, high or State event. You have gained much insight and knowledge about competition. Consider volunteering at an upcoming event as a way to share your wisdom to benefit others in the Science Olympiad community.

## 10 Great Science Olympiad Resources At a Glance

1. Your State's Science Olympiad Website - Event Resources section.
2. National Science Olympiad - [www.soinc.org](http://www.soinc.org)
3. National Student Science Olympiad Website - [www.scioly.org](http://www.scioly.org)
4. Quizlet - [www.quizlet.com](http://www.quizlet.com) - for searching and creating flashcard sets.
5. Edmodo - [www.edmodo.com](http://www.edmodo.com) - for searching and creating shareable virtual class materials for current and future use.
6. YouTube -- [www.youtube.com](http://www.youtube.com) -- for learning about your event and seeing what other students have created, built or shared about your event.
7. Khan Academy -- [www.khanacademy.org](http://www.khanacademy.org) -- to learn about most any topic with free academic content, videos and support materials.
8. Social Media - if allowed, check Facebook, Instagram or Twitter feeds about your event. Some events create a feed to share questions, event posts and updates for resources.
9. Google -- [www.google.com](http://www.google.com) -- Search for your event or with other related key words to see what information, shares and other resources are available in the topics you are interested in learning.
10. Your Local Library -- this may seem obvious, but don't underestimate the power of your local library. Start with children's

picture books on your topic and increase in difficulty as you go. You can borrow college textbooks and other advanced resources through library loan. Talk to your reference librarian for ideas on how to tap into the amazing resources and on-line databases you can access to help you.