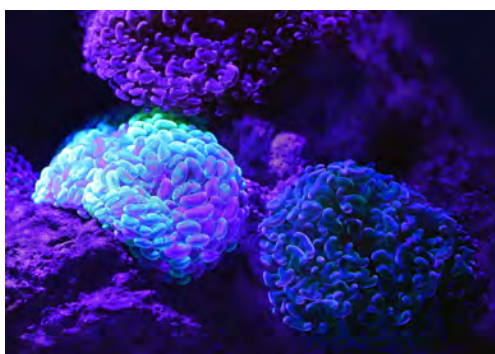




The Science Olympiad Companion For Coaches

How to Succeed and Have Fun with Science Olympiad

By Cara McLauchlan



A Letter to Science Olympiad Coaches

Dear Coach,

First, thank you for being willing to lead your team in the adventure of Science Olympiad! As a veteran coach, parent and volunteer, I can easily say Science Olympiad was one of my greatest experiences in life. More than anything, it gives students a chance to fall in love with science in unexpected ways. It gives an opportunity for students with all abilities to shine, gain confidence and grow.

When I first started off as a coach, I had no idea what I was doing. Who was I to think I could coach an unruly bunch of kids in areas where I knew nothing about? I didn't have a science degree, I didn't work in a science industry. I wasn't an expert in anything other than encouraging and working hard. It turns out, that is all I really needed.

The most important thing I learned as a coach is that passion gets it done. You don't have to be the smartest person in the room. You don't have to have extensive training. But if you show up and continue to show up with a positive and encouraging attitude, your students will follow suit.

Not only is this a great example for Science Olympiad, but also for life. I wrote this guidebook to encourage you on this journey. My hope is this resource gives you some support and ideas. Thanks for deciding to be an encourager. If you are like me, you will find it's one of the greatest choices you ever made.

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 Being a Science Olympiad Coach Is Awesome

As if you needed a list. This is to remind you why being a Science Olympiad Coach might be the best thing you ever do with your free time.

Getting Out of Your Comfort Zone

As a coach, you are setting the tone for your team to go all out, work hard and participate in an intense competition. But, navigating the emotions of students, parents, success, failure and everything in between will be a rollercoaster. You will definitely become a stronger person as a result with greater abilities to nurture, problem solve and motivate students..

Teaching Kids It's Okay to Fail

For students, so much about life is about success. The great thing about Science Olympiad is that sometimes the greatest failures are where students gain the most. The competition experience offers them the chance to fail and letting it be a good thing. Or at least an okay, life lessons and adding more to their toolkit thing.

Sharing How to Learn Anything

When students first read the rules for their event, the look of panic and overwhelm sets in. But as their coach, you get the privilege to walk them through how to break it down into baby steps. Through weekly practice and consistent small efforts, they can see how little things build up over time. One of the secret but amazing things about Science Olympiad is it demonstrates to them they can learn pretty much anything.

Learning How to Do Hard Things

There are a million hard things found in Science Olympiad. Whether it's dealing with whiny students or complaining parents. But you are modelling for students that showing up for practice weekly, working through failure, persevering, embracing the grind and continuing to

show up will get you there. You are modeling and serving as their guide for how to do hard things.

Practicing Teamwork with Grace and Style

Many of the students that participate in Science Olympiad are smart little particles on their own, but teaching them to work with a team can be hard for them. Helping them navigate the life lessons of pulling your own weight, being a supportive partner, helping others when you don't really want to -- all of these skills of practicing teamwork will be vital for these kids down the road. As the coach, you are encouraging them to see the best in others and be a great teammate.

Seeing Learning as Bigger than a Classroom

Science Olympiad allows kids to see how much learning can take place away from a desk and beyond a textbook. These are all great things, but there is a big fat world out there for learning and experiencing. Science Olympiad allows them to learn things but also see their application in the world through building things, studying things from all sides and going deep in a subject.

Giving Kids Life Skills

As the coach, you are helping students put so many great tools in their toolbox. Through the hands on experience of competition, they get to learn about preparation, collaboration, how to handle failure, dealing with difficult partners/subjects/situations. They have to deal with deadlines, testing of devices, timed tests that are super hard and what to do if things don't go your way. They also might experience one of the best feelings -- working really hard all year long and then being rewarded for it. You get to be the catalyst to help them gain all of these tools.

Creating Amazing Memories

I always tell people that Science Olympiad is as serious as it needs to be. But if you are doing it right, you are having a ton of fun. As the coach, you will set the tone that this should be fun. Help your kids see this as a chance to not only learn a ton about science things, but as a way to create some fantastic life memories that they will look back on for years to come.

Giving Kids a Rich Foundation of Life Learning

The secret sauce of Science Olympiad is the confidence it gives students. Help your students see that this is more than just a science competition. You will help them see the bigger picture for how they can approach it as an example for life. Truly Science Olympiad is a chance to practice picking something you love, working hard and doing all you can to understand it in a really deep way and then testing yourself to see what you learned. After that, to celebrate doing something hard and the people that helped you get there. This is a great model for how to approach life well and go after something with passion.

Helping Kids See Their Greatness

Many of the students who pursue Science Olympiad know they are smart. However, as their coach, you have a chance to point out, specifically, how they are gifted. You can be an enlightened encourager to the gifts they have and have the chance to celebrate them in ways they may not see for themselves. You have the chance to influence them in their abilities that others may never notice.



Getting Started

What is Your Why?

Before you begin the adventure of coaching a Science Olympiad team, you may want to ask yourself why you are doing this. This may seem like an obvious thing. For me, coaching was something that happened by accident because there was no one else to do it. As well, I wanted my own child to have it as an experience. This may look different for you. But getting clear about your why is important. When challenges arise, difficult students and parents complain, when things get hard or you are tired, you will want to have your why front and center to remind you what your aim was at the start.

Here are a few reasons why fellow coaches choose to spend their free time on Science Olympiad:

"I am passionate about science and want kids to have the opportunity to experience that too."

"I love learning and Science Olympiad is an incredible chance to go deep in a subject."

"I want kids to see that science is more than just what they see in a classroom."

“Science Olympiad shows kids they can do hard things and test themselves in a fun atmosphere.”

“Science Olympiad gives super smart kids and even not so smart kids their opportunity to shine.”

“Science Olympiad teaches kids to learn incredibly hard things over a long period of time. It shows them there isn’t anything they cannot learn or understand through consistent effort.”

Pro Tip: Know Your Why

Write down your why and post it somewhere to remind you why you are doing this. This will help keep you grounded and focused on the bigger, better perspective.

Answer this question:

The reason I am setting off to be a Science Olympiad coach is....



What does a Science Olympiad Coach Do?

When defining what a coach's role is in Science Olympiad, there is quite a bit of variety of what this might look like. Below are some options for considering your coaching role.

Science Olympiad Coach Basics:

- Registers their team for Science Olympiad.
- Recruits students to participate in Science Olympiad.
- Assigns/designates students to specific Science Olympiad events.
- Shares resources and ideas for preparation of Science Olympiad competition.
- Motivates, encourages and inspires students to practice and prepare to their best ability.
- Communicates important team dates, deadlines.
- Serves as administrator for paperwork, team registration and team details.
- Serves as point person for parents, students and Science Olympiad office contacts.
- Manages the team before and during the competition.

A Few Styles of Coaches

The Hands On Coach

- Typically the Coaching style for Division A and some Division B Teams.
- Meets with students - gives feedback/guidance for devices and academic preparation strategies.
- Recruits a few parents to support students in coaching/mentoring students for their events.
- Shares personalized ideas for study/preparation.
- Hosts weekly practices for the team.
- Connects mentors from industry/career/clubs or associations with students.
- Organizes field trips or suggests parent mentors.
- Encourages team spirit and team-building activities.

The Hands Off Coach

- Typically the coaching style for Division C Teams.
- Designates student leaders to lead team.
- Requires student leaders to assign events.
- Requires student leaders to host/lead their own team events and practices.
- Serves more as chaperone/guide and club advisor.
- Passes along all communication to student team leaders.
- Makes resources available for best practices.
- Encourages students to manage their role/event and learning process on their own.
- Attends only kick off events and competitions.

The Hybrid Coach

- A cross between Hands Off/Hands On Coach - actively recruits parents and mentors from industry to coach each event within the team.
- Designates parents to take on a division of labor roles such as event resources, team meeting activities, team spirit, administration, event assignments, etc.
- Actively engaged in a year long fashion, but designates parents/students to take ownership/leadership of their specific events.
- Hosts select team meetings to share best practices and foster accountability, but encourages smaller event teams to meet on their own on a regular basis.
- Serves as the team CEO with actively engaged parents and students to manage their own events.
- Provides best practices/resources and tips all year long for teams on a larger scale basis.

Pro Tip: Decide Your Style

Think about your own educational environment and what would work best in the culture of your atmosphere. Also consider, what style works best for you and would be a fit for your students? If you aren't sure, check in with some parents/students and educators to see what is the best fit for your community.

Answer the Question:

When I consider my own personal situation and the dynamic of my students/community, the ideal coaching style would look like this....



First Things First - Mile High View

Here are the first things to consider when starting your team. For simplicity sake, I am going to assume you have support from your school, your family and resources to register a team. If you do not have those yet, you may need to do some preliminary groundwork to line up financial support for your team registration and supplies, and get everyone on board that Science Olympiad is a great idea. If you need help, there are many great articles and studies in the Resource Section on page X about the equipping Science Olympiad gives students not only academically, but for life.

10 Key Things Coaches Need to Do For the Season

Number One - Get People Interested.

The first thing you want to do for your team is to recruit students. You can do a generic announcement for a Kick Off Meeting at the beginning of the school year. But the best way is to invite students personally. Who doesn't like a personal invitation? Reach out to your best and brightest, highly motivated as well as "diamonds in the rough" style students who you think are ready to rise to the challenge and fun of Science Olympiad. You will find some sample announcements in the Resource section.

Number Two - Host a Kick Off Meeting.

Host a Kick Off Meeting as early as you can in the school year - this means ideally August or early September at the latest. Time is your friend when you start early. Trust me on this. Even if you aren't quite organized yet or have all the details on the events yet, host a meeting. At this meeting, share what Science Olympiad looks like, how to decide what events to choose

and qualities for who would be a best fit on the team for Science Olympiad. Be prepared to have people complete paperwork and provide payment at this meeting. Be firm about payment right away to avoid hunting people down later. Students are not assigned events until they pay.

Number Three - Register Your Team.

Now that you have collected some funds, go ahead and register your team with Science Olympiad. If you have more than 15 students and are up to the task, consider forming a Junior Varsity Team as well. Even if it's only a handful of students, it's a really great idea. This way, you have back up resources and are building up a team for the next season.

Number Four - Create A Yearlong Team Schedule.

Go ahead and create a regular team calendar for the year. Include your Regionals date and your States date just to have that on your kids' radar. You may or may not qualify for States -- but you want to get key dates on the calendar. There is nothing more tragic than finding out they have a conflict a month before competition. We will share more ideas about team practices and meeting ideas later. But for now, map out your year and share that with parents/students to get it on their calendars right away.

Number Five - Event Selections/Tryouts

Review your student registrations for Event Preferences to begin the matching process of students with event choices. It's helpful to have another coach, parent or interested party help you with this process. We will say more about this later in the Event Pairings section. If you are a hands off coach, you will transition the registrations to your Student Leaders for event assignments. Be sure to review best practices/guidelines from this book to give them practical guidance from the start. You may opt to review your Student Leaders choices as a support for them.

Note -- if you have too many kids and don't want to set up a Junior Varsity team, you may have to consider team tryouts. Personally, I don't love this since I want to give as many kids as possible the Science Olympiad experience. But if you are limited by resources, you may have to have students make a case/apply for the team, take event tests or have some sort of criteria for making the team.

Number Six -- Share Rules and Resources.

The most important thing is to share first is the Event Rules Book. As well, you will need to direct Students/Parents where to find Event Resources and to begin learning about their events. If you can, attach key websites for Event Resources and your Event Rules Manual to every email you send out. Reminding about the Rules and Resources is something students and parents cannot see enough.

Number Seven - Communicate Updates, Ideas, Fun Stuff

Coaches will serve as the main conduit of information between Science Olympiad and the team. You will share any Event Updates or clarifications, get questions answered and help facilitate information with the team. You will share competition schedules, homebase locations, event impound or location details and more. You will be communication central -- so have a good system to do this regularly and easily.

Number Eight - Go Time - Competition!

As the coach you are the head cheerleader of inspiration! Remember you set the tone for the team. You are in charge of making sure kids get where they are going, parents/students have all the details for what they need for their events, providing supplies/backups, as well as troubleshooting and handling issues that come up. You get to celebrate as well as comfort families. It's a lot to ask -- but it's all good. Take lots of pictures, capture the moment!

Number Nine - Wrapping it Up - Key Learnings for Next Year

Lastly, as you close out the season, it's important to take stock. Thank all the people who helped you, congratulate and celebrate all the kids/parents that worked hard. Remind your families that the medals are great, but it's the life lessons and the personal growth that is where it's at. Celebrate everything and take notes about any key learnings or what things you would like to be different next year.

Pro Tip: Passion and Time are Key.

You may be a coach without a lot of resources or support. You may lack knowledge in the events or be overwhelmed by the amount of material the kids need to learn. Forget about that. By starting early in the season, time is on your side. Have a positive attitude no matter what. You will be amazed at how tiny, consistent efforts build up for the kids over time. But you must start early and encourage the kids to be consistent in their practices. How do you eat an elephant? One bite at a time.



No Coach is an Island -- Building Your Tribe

Creating Your Science Olympiad Community

Below are some best bets on designing a great team and community for your Science Olympiad season. People support what they help create -- so enlist some allies early to create a community to see you through the season.

Partners in Crime

The first step is to create allies -- people don't like committing to vague ways of supporting. So ask them specifically. Ask for parents/friends/teachers and other friendlies to support you in ways you know you will need. Here are a few ideas on asking for help:

- Can you help me identify students that would be a good fit for Science Olympiad?
- Can you help me match students with events aligned to their strengths?
- Can you help me organize meaningful team meetings?
- Can you help lead some fun team building activities?
- Can you help me organize team communication, admin and updates?
- Can you help me work with students to design and produce a t-shirt?
- Can you help match resources with students/parents for event learning?
- Can you help me come up with fun ways to put team spirit into what we do?
- Can you help me to create a snack/refreshment sign up for competition?
- Can you help be a chaperone at competition to check students in and make sure they know where to go?

Identify and Invite Students

Think about what students would be a great fit for your Science Olympiad team. Again, invite students personally and specifically. Starting out, it's fine to send out a generic announcement to recruit kids in your school/academic information resources. But by being intentional with who you are reaching out to for the team, you are designing a group of kids that have the best chance of succeeding.

Here are a few ideas for identifying students:

- Start with any students you know and love personally -- try to have a mix of academic kids that like to memorize facts and tinkering creative kids that like to build stuff.
- Invite science and math teachers to share the Science Olympiad opportunity with specific kids that they think would be a fit.
- Reach out to enrichment student groups like science/math clubs, honor societies, student volunteer groups or faith based enrichment groups. These groups already have a highly motivated population that already loves these types of opportunities.
- Connect with your Partners in Crime from above to help you identify great students for Science Olympiad that are dedicated students and have a ready to learn attitude.

Line Up Event Mentors Where You Can

As the coach, you cannot be all things to all people. Wherever possible, find "event mentors" that can help your students get started with their event and support them along the way. You may have to do a little coordination on the front side to get them started, but having a dedicated personal resource for their event goes a long way in accountability, motivation and support.

Here are a few ideas for identifying event mentors:

- **Parents** - ask parents to share on their student's registration if they have any special skills/expertise related to STEM and if they would be willing to lend a hand throughout the year.
- **Clubs & Professional Organizations** - share contacts of clubs and professional organizations that may be a fit for specific events. (i.e., Astronomy Club) Or invite your students to reach out to these groups for their activities calendar or an outreach event. Many times they have members dedicated to education and can connect with a mentor as part of their organization's efforts.
- **Museums** - check out your local science museum's calendar for events related to your students' events. Connect with the museum education outreach contact to find out if there are professionals/education resources to connect with your kids on a specific subject.
- **Universities** -- many universities have interns, grad students/undergrads that would love the chance to mentor or share their knowledge with students. As well, contacting university groups, college professional organizations and student groups are excellent

ways to connect with people that are dedicated to education and have wisdom to share.

Pro Tip - Design Your Team with Intention

When putting your team and tribe of support together, be intentional with the students, parents, event mentors and resources you put in place. Enlist the support of parents and community organizations to help you. This may require some extra effort up front to get it started, but a supportive foundation will make the season and future seasons go smoothly.



The Basics of Setting Up a Science Olympiad Team

1. Create a Registration Form

These can be customized for your group. There are some samples in the Resources section as well. Here are a few important things to include:

- Students Name/Grade/Parents/contact info
- T-shirt size for parents/students
- Event preferences by period
- Confirmation signature that they understand the commitment for Science Olympiad are able to compete on specific Regional dates.
- Students - Areas where they have special abilities, gifts, coursework or knowledge.
- Parents - Areas where they are able to help you or sharing specific skills/expertise.
- Payment info options.

2. Collect Money/Register Your Team

Recruit a parent to keep track of the money and handle the admin part of the team if possible. If for no other reason than to have a check/balance on the integrity of money management. They will need to collect funds, pay team registration fees and handle keeping track of team funds. If you have additional resources, you can have them purchase team supplies, competition items, t-shirts, pizza and spirit stuff. But it's important that someone handles this separately.

3. Administrative/Paperwork

As the season continues, you will be asked to complete more paperwork for the team. This might include Team Rosters, Photo Releases, Vandalism and Liability Release forms. For competition you may be asked to enter your students into a formal registration system or schedule them for specific events. If you can have a parent help you with the

administrative parts of the team, it's a huge help. This person could be the same person that handles the money or a separate volunteer.

4. Develop a Team Calendar for the Year

For your very first meeting, hand out a team meeting calendar for the year. Include your Regional and State competitions as well. Even if your team does not end up qualifying for States, you want to have it on your families' radar for good opportunities for volunteering/inspiration. If you can tag each meeting with a purpose/team activity it helps families stay engaged and willing to come to every meeting all year long. Declare your meeting prior to competition as "mandatory." See sample team meeting calendar in the Resources section.

5. Set Up Communications Systems

Consider setting up a way your team will communicate and share ideas/resources. Some ideas may include: a team Facebook page, an ongoing email distribution, an Edmodo Classroom resource, a specific Google drive for your team or Instagram account to post things as you go. You may want to secure feedback from your parents/students up front to see what is the best way to communicate with them.

6. Attend a Coaches' Clinic or Training If You Can.

If your state offers a Coaches' Clinic or Training, attend if you can. It also helps to recruit an invested parent or two. Typically, it is a lot of information, so consider swapping yourself out with another invested parent to give yourself breaks. Share the load by sending at least one additional parent to attend sessions you cannot. If they have a resource store that sells items to support your team, buy as many items as you can afford and that are useful for your team. For example, many of the chemistry or forensics kits included chemicals that cannot be shipped and are good items to purchase. By purchasing these items for your students/families, you are helping them get started. Figure out an easy way to share the key learnings or notes after the training through a group Google drive or similar.

Pro Tip: Start as you mean to continue.

Start as you mean to continue by setting up strong systems from the start. This means having someone else handle the money and administrative tasks of the team. Establish your calendar for the year from the start and set up solid means of communication that are meaningful for your team/parents. Not only is this a good practice from an integrity standpoint, it also sets you up to manage your team well by having a good support systems in place.



Best Practices for Event Selections

Matching Students With Events

Think of it like a puzzle. You are trying to find the ideal students together with the best events. Below are some best practices for matchmaking students for their Science Olympiad events. It helps not to have to do this alone. Strive to have a couple wise parents or volunteer coaches to assist you with this.

Seniority/Dedication

The first thing to think about is the grade/age of each of your students and their past participation. Have they been a part of Science Olympiad before? Will this be their first/last chance at competition? The most veteran students typically receive their first choices of events as a reward for their consistency.

Current Academic Load

It's important to consider a student's existing academic load when assigning events. Are they taking a super challenging course load? Do any of those classes align with events they are requesting? It can be great synergy to assign students events they are studying in an advanced way. As well, if they have a particularly demanding academic year, it's best to give them events that balance this.

Partners

Creating good partner combinations can truly make or break the success of your students. If you can match friends that would work together, this is the ideal scenario. Or keep personalities in mind to match partners that would be a good fit, balance each other and would work together well.

Geography

In a perfect world, it would be great to match partners that live nearby each other. However, this is only one more factor to keep in mind for ease of practice. The easier it is to get together, the more likely they are to practice. If you can match partners that are close geographically, you are setting up an optimal chance to practice frequently.

Abilities and Gifts

Think about each student's giftedness when assigning events. Are they an amazing builder/tinker kid? Are they good with designing and creating? Are they able to master a huge depth of information? Think about each student's talents and choose events aligned with their skills.

Current Classes/Studies that Are Aligned with Topic

If your students are taking classes that are naturally aligned with Science Olympiad topics, this makes them a great choice for those events. Examples include AP, community college classes or other experiences with intensives in Science Olympiad topics. Be sure to invite students to list special classes on their registration forms to match them accordingly.

Parent/Coach Mentors

If a student has a parent that is a professional in a related Science Olympiad topic, it makes sense for them to consider that event. Obviously, if it would create a negative relationship or experience, do not put the student in that position. But if the student is interested in the subject and the parent is open to helping coach them in their expertise, this makes a natural opportunity to have a built in support/mentor for their events.

Balancing Choices for the Team

When selecting students for events, the goal is to give them at least one of their top choices. Ideally, you would like to assign events that are in their top 1-3 preferences. However, this isn't always possible. In event selections, there are many things to balance, but it helps to always give at least one top choice. It's important to manage expectations at the first meeting to share that not everyone will get their top choices. Emphasize that being a part of a team means that you sometimes have to do things you don't love for the team.

Covering All the Events is Key

To be the most competitive team possible, it's important that you have someone that covers every event. In competition, every point matters and your team gets points just by having someone come in and write their name on a test or show up with any sort of device - working or not. Ideally, you will have the maximum number of students that are slotted in all the events in advance. But sometimes you have kids drop out or have less teammates than you hoped for. Make sure you do all you can to cover every event, even if that means

you send people in who have never studied for the test but will just fill in guesses. Or for devices, they show up with anything at all simply to get the most points possible.

Warning Tips:

- Do NOT put kids in events that they hate, but the parents want them to do.
- Do NOT give kids more than 1-2 building events -- they are super time consuming and three building events are too much.
- If you give a kid four events, make sure you are balancing them out with a combination of skills like some intense study, some build and some minimal memorization.
- It helps to match the same partners with all events so that study/practice time are more efficient.
- Manage expectations that everyone will need to contribute to their events. For example, building events may require some investment of purchasing glue, balsa, or other items needed. Same goes with study events. They may need to purchase a college textbook or download learning material that has a cost associated with it. You can decide as a coach whether you will support purchasing materials to get them started or if an event is particularly cost intensive, allow them to use their team registration fee to purchase materials.
- Manage expectations up front that every team member may not get every event they want or love. Share that you will make it a goal to give them at least one top choice, but they may be asked to take an event they don't love for the team. If this is a dealbreaker for them, it probably tells you everything you need to know and you may kindly suggest they not join your team this year.

Pro Tip - Manage Expectations Up Front

Be sure to communicate clearly and thoroughly how you evaluate students and match them with events up front. Be sure they understand that not everyone will get all their favorite events and that this is being part of a team. When you have a draft of event pairings together, it's nice to send that parent/student an email to "trial balloon" your event drafts for that person to gauge whether this is going to be a fit for them. Obviously this takes a bit more time, but by asking for input instead of "assigning" it allows for a more collaborative approach. If the event choices are deal-breakers for the student/family, they are probably not a great fit for your team anyways.



Making Team Meetings Meaningful

Determine Style of Team Meetings

Depending on what kind of coach you are - hands on, hands off or hybrid, decide what would make sense from a team meeting standpoint. Some coaches make the team meetings informational and as a means for equipping students/parents, and others make them actual event practices on a regular basis. Decide what makes sense for your team and design a practice schedule that offers accountability, resources and support for the season.

Set Schedule for the Year

One of the first things to do as a coach is to map out the team meeting schedule for the year. See examples of team calendars in the Resource Section on page X. It's helpful to have a theme or purpose for each meeting to give people a reason why they should attend. For example, host a "Building Demo Day" early on in your season for help in getting first prototypes done. Another idea is to set up an "Event Simulation Practice" where students go through a practice test or station under timed conditions. Make each practice meaningful for parents and students so they feel as if it's a good use of their time.

Start and End on Time

Be a good steward of people's time by starting and ending on time. This may seem like a small thing, but if people can count on the fact that the team meeting will go exactly as planned, they are more likely to participate. Running 15 minutes late to start or end tells people to not show up on time and communicates that you are not organized.

Remind All the Time

Attach your team calendar including date/time/location and theme to every single email you send out. This may seem like overkill, but it's not. Even if you host the meeting in the same place every time, people will still ask where the meeting is. Remind people about meetings with every email. I also suggest sending an additional reminder email one week prior to the meeting and the 1-2 days prior to the meeting. If they don't attend meetings,

Science Olympiad falls off their priority list and they become less engaged. By attending regular meetings, they stay motivated, inspired and accountable. Do all you can through regular reminders and communication to impress upon people the importance of team meetings.

Team Building Sparks the Fun

As part of every meeting, consider including team building activities. This is really important. Some ideas include: STEM maker challenges, Minute to Win It style games, fun Science Trivia games or building the best tower out of recycled items, just to name a few. You can have fun, simple prizes like candy or toys if you like. When the students have fun while they are working on Science Olympiad, they are more likely to stay engaged. As well, they connect with other teammates in a meaningful way. Keep the fun going by including team activities all year long. Check out the Resource Section for more team building ideas.

Mix Up Your Meetings

Try to have a mix of experiences all year long for your team meetings. For example, bring in Alumni students to talk about their advice to current Olympians. At the same time, veteran parents can answer questions for new Science Olympiad parents. Invite a Science Olympiad staff member to come and answer questions and inspire students a few months prior to competition. Host a build demo day for all your builders to showcase what they are working on. Offer a “show and tell” time for your academic event students to share a bit about what they are learning and interesting experiences so far. Try to make every meeting a bit different to encourage your students and parents.

Last Meeting Is Most Important

Make your last meeting prior to competition mandatory. There will always be people who cannot make it. But trying to get as many people to this meeting as possible is key. Ideally, hosting it two weeks prior to competition is ideal so that you can encourage students for the final two weeks. As well, it also starts to become very real when you are talking about what to expect at competition. Use your final meeting prior to competition to remind students/parents about important details for the day, sign paperwork, share what to bring, reminders about the rules and competition best practices for students/parents. You can also incorporate spirit sign making and pass out team t-shirts at this meeting.

Pro Tip - Over Communicate.

Team meetings are your chance to connect, inspire and motivate students/parents. Use these as your opportunities for accountability, teambuilding and fun. All season long, keep an “overcommunication” style mindset to remind folks about meetings, rules, practice best bets. Provide a recap of the meeting for important information conveyed to both reinforce details and share for those that missed the meeting. Attach a team calendar and rules manual to every email you send.



18 Key Best Practices for Coaching Build Events

Here are a few best practices to share with your kids who are building devices. These might be rockets, cars, bridges, boomilevers, Rube Goldberg machines and more. Ideally, students would work independently with mentoring from a parent or volunteer coach. But here are a few ideas to get them started off on the right foot.

1. Read the Rules First and Often

This may be the single most important idea. Encourage all your students, regardless of their event to make their first practice task to be reading the rules. Tell them that there will be things in the rules that they will not understand. Reassure them this is normal. Students should have their own copy of their rules. Tell them to read them monthly as they will learn new things and grow in understanding as they work on their devices.

2. Set a Regular Practice Calendar.

Just do it. Seriously. Encourage the event teams to calendar in weekly time they will spend working on their events. Even if it doesn't happen every week, challenge the kids to have consistent time and dates set aside. Things will come up, people will get sick, vacations and holidays will happen. But if they have a consistent time together on the calendar, it becomes a regular habit. Schedule out at least 90 days for getting together. For build events, they are a bit more time consuming so it's nice to work on these with a big chunk of time on Saturdays or Sundays.



3. Brainstorm Device Designs

After reading the rules, students can begin brainstorming ideas for their device. They can use large sheets of paper to sketch out or map out ideas and options. Allow students to be creative and think about outlandish ideas -- no idea is too crazy in the brainstorming phase. Encourage collaboration within the team to consider each other's ideas and work together to figure out what makes the most sense. It's perfectly okay if none of their ideas work. This is all part of the testing and learning experience of Science Olympiad.

4. Gather/Order Supplies

Once students understand the big picture of their events, have them make a list to order the supplies needed. This is good planning and budgeting practice for them. Some resources are available as kits online and other resources can be purchased from home improvement stores or hobby shops. Before they purchase supplies, suggest they look at their own resources first simply for experimenting and trying out ideas. Then once they know more about what they are doing, purchase resources as it makes sense. As a coach, you will decide whether to purchase supplies for them or encourage them to budget their purchases at their own costs. See the Resources section for build supply ideas.

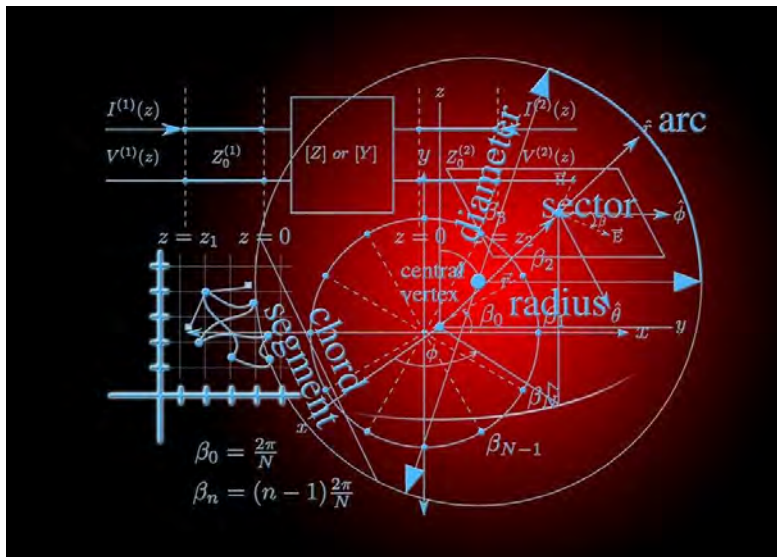
5. Set Up A Designated Workspace

Once students have their supplies, encourage parents to allow them to have a designated working space. This might be in a garage, basement or bonus room area. This would be an area where they can leave supplies gathered together in order to pick up where they left off after practices. Make it a space where they have to do minimal clean up and can leave it in a designated space. If they have to get every supply out every time they want to work on their device, it makes it difficult to practice frequently. With a separate area they can work

with simple clean up, you are making it easy for them to constantly tinker, create and build as time allows.

6. Prepare Any Documentations

Typically build events require some documentation to demonstrate learning and testing. Have your students read the rules to determine what is needed. Sometimes it may be a log, chart, graphs, or design and build progress. Regardless of the rules, encourage them to snap pictures and take notes as they go to capture the progress and process. Make sure every entry is dated with notes of key learnings. If you have a team social media page, these are great pictures to post and share to inspire the team and chart progress.



7. Learn Important Science Principles

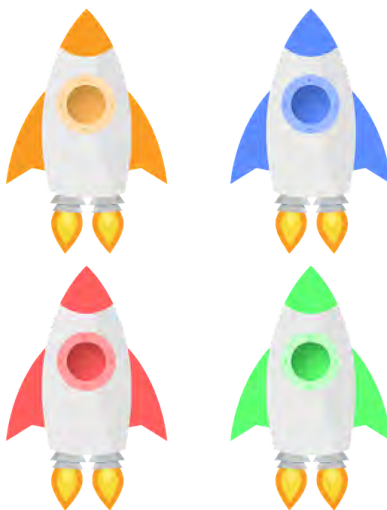
Every build event has key science principles such as physics, load, force, efficiencies, aerodynamics, chemistry or biology that play into their developments. Usually the rules will highlight these aspects for your students to understand as part of the learning process. Encourage your students to study important science concepts as part of what they are creating with their build event. Help them to make the connection of their device project to the greater scientific ideas at work.

8. Make An Ugly First Prototype

Usually the hardest part about build events is getting started. Set a goal for your build teams to have an ugly first prototype to share after 30 days. Make their first builds a part of your team meetings show and tell time Even if they end up having nothing complete to share, invite them to share what they have done to get started and what they are learning. Accountability is important for build events. Help them get some traction by setting an early deadline and additional milestones at future team meetings.

9. Set Milestones

Hold the standards high for your build events by giving them a milestone to shoot for each month. Based on your competition date, as the coach you can decide what makes the most sense. In my experience, I invite students to have an ugly first prototype within 30 days of being assigned the event. From there, I challenge them to have a working device 90 days prior to competition. Then a competition ready device 30 days prior to competition. This allows them to spend the last month tweaking their devices, finishing any final adjustments and documenting anything needed for competition.



10. Test, Test and More Testing

Encourage students to remember that the secret to devices is to test, test and test some more. This might be frustrating to some students. Tell them that this is the best and most important part of the learning process. True scientists test things over and over again to figure out how they can improve their results. The more they test and learn, the better chances of doing their best at competition. As well, this teaches them the amazing life skills of patience, learning from failure and continuing to be resilient through many attempts.

11. Study YouTube. Online Examples

While it's helpful to brainstorm your own ideas, invite students to search for YouTube videos or examples from the Internet. Many students post device videos to show off their hard work -- these are an excellent way to get ideas and examples for reference. Just be sure that students are referencing examples that follow this year's rules.

12. Take a Field Trip to See Real World Examples

One of the neatest things about Science Olympiad is being able to get out of the classroom and see how science is applied in real life. There are many real-world examples of bridges, wind turbines, simple machines and more. Invite your students to research what real

world examples that are nearby as a way to see science come alive in the world. You may need to share ideas and examples for them to consider.

13. Talk to a Professional in a Related Industry

If you can't find an example device in the real world, you could always find a professional from industry with expertise in the related area of emphasis. Many professional societies and associations offer representatives for educational outreach, or through contact can pair you with someone in industry that can offer insights or guidance. Also, local college/university professors are another excellent resource for support and wisdom on your devices.



14. Show Off Your Progress

Give students time during designated meetings to show off their progress. This allows them to have accountability, as well as share what they are learning with other students. It also may inspire others to consider a build event like it in a future season. Students are able to practice their public speaking skills and get some shine time too. Not everyone loves the shine time, so you can do a Q&A with you about their device if they are more shy or invite them to demonstrate and explain their device if they are more outgoing.

14. Go Watch the Competition at a Regional Event/Participate in an Invitational

If your students have never competed in a Science Olympiad and have a public event, it's a good idea to go watch a nearby Regional competition to see how the event is run and best practices. This doesn't always work out from a calendar or geography standpoint, but watching the event they have to do very soon goes a long way in inspiration. If they are bold, they can ask students questions about their devices and what they are made of, how they came up with their designs. Most students are happy to share once their event is over.

I found that watching a public event prior to our own competition “supercharged” their motivation and dedication to perfecting their devices.

16. Read the Rules Again.

Just do it. Have your students read the rules every month. Also the closer you get to competition, the more clarifications and updates on the events come available.



17. Clarify Details/Simulate Competition Time Constraints

The closer students get to competition, the more they may have questions about the rules. Be sure to invite students to submit any questions to you so that you can ask for any clarifications on details prior to competition. As you get closer to competition, encourage your students to begin practicing as they would under timed circumstances or by keeping the rules in mind for competition constraints.

18. Prepare Devices for Safe Travel to Competition

As a parent who accidentally stepped on my student’s airplane in the car the day of the competition, I can’t emphasize safe transport enough. The worst thing that could happen is to spend 6 months on a device, only to have it get jumbled around in the car on the way to competition and ruined. Think ahead for protected, safe transport for your devices.

Bonus Tip -- Final Preparation for Any Documentation/Competition Resources

Label devices as indicated in the rules if required. Be sure it includes Team Name, Division and Varsity or Junior Varsity. Make sure your students bring back ups of any logs, charts, graphs, binders or other resources required as part of the rules. Be sure these also are labeled with the Students' Names, Team Name, Division and either Varsity or Junior Varsity. Have extra copies of any items you can on hand in case one gets ruined. Make sure you are following the rules exactly to submit what is required. Don't miss these easy points. Remember every point matters!



18 Key Best Practices for Coaching Academic Events

1. Read the Rules First and Often.

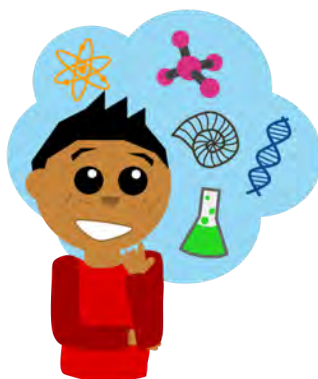
I know I sound like a broken record about the rules -- but for good reason. The number one reason that students don't succeed in their events or miss valuable points is that they haven't read the rules carefully. Start by reading the event rules and encourage your students to revisit them monthly or more frequently as needed.

2. Set a Regular Practice Calendar.

Just do it. Seriously. Encourage the event teams to calendar in weekly time they will spend working on their events. Even if it doesn't happen every week, challenge the kids to have consistent time and dates set aside. Things will come up, people will get sick, vacations and holidays will happen. But if they have a consistent time together on the calendar, it becomes a regular habit. Schedule out at least 90 days for getting together.

3. Make an Event Study Binder.

Have your students put their copy of the rules, study resources, notes and anything they use to prepare for their events in a binder. It's fun to take the first practice to decorate or create these together. This binder will be gold at the end of the season for (hopefully) all that the students have learned or worked through. This will also be an amazing resource to pass along to future team members after the season is through.



4. Set Up Templates for What is Needed at Competition

Most academic events allow you to bring a binder, cheat sheet/resource document or reference guide into competition with you. Encourage the students to create this as they go. Perhaps after each practice, they drop into a document anything important that they think they may need to reference for competition. It's okay to dump as much as you can each week -- they can also fine tune it as they get closer to competition. Encourage them to create this as they go.

5. Develop System for Sharing

Consider ways to allow teams to gather and share information electronically as they practice and study. There are many great platforms like Edmodo.com or Google Drive where they can share and save all the learning resources they have worked through. With an opportunity to connect virtually, you are also creating efficiencies to study even when they are not in person. This might be educational videos, articles, practices quizzes or tests, Quizlet sets or whatever the students' work through to practice weekly. This allows them to review what they have learned over time, as well as captures a historical account for team members on resources to study in the future.

6. Start with the Event Grammar

Encourage your team to learn the event "grammar" or vocabulary for their event first. This means looking over the rules and creating a study card for each term that is unfamiliar. A great resource to learn the grammar is Quizlet.com, an on-line flashcard study tool. You can even search Quizlet for sets created for the specific event. Just be sure they reflect the most recent rules. Encourage your students to start here first, review existing flashcard sets and make their own. No matter how brilliant they are, everyone needs to be on the same page with the event grammar first.



7. Plan to Go Wide, Not Too Deep for Regionals.

Some of the best advice I have ever heard is to “go wide, not deep” for Regionals. In other words, it’s important to have a good surface knowledge of all the topics listed in the rules for their events. For a State level competition, students will need to go “Deep and Wide” in their knowledge of events in order to make it challenging and to differentiate who really knows their stuff.

8. Gather Resources for Study.

Once your students have spent time with the rules, encourage them to look for resources to support their study and preparation. One great resource that is often overlooked is simple picture books or below grade science books at the library. I know this may seem juvenile, but by starting simple and working your way up, you are building a vast foundation of knowledge. Other ideas include used college textbooks, on-line resource websites and educational resource databases. It’s worth it to encourage the kids to ask the reference librarian for guidance on resources that would be a help. After the librarian gets over their shock of being asked to share knowledge, they typically are thrilled to share all the myriad of reference resources for diving deep into a subject.

9. Map Out Your Study Calendar.

Tell students to map out a “focus” for each practice scheduled. Do this by encouraging your students to match a topic from the rules to the dates they have on the calendar for practice. Leave about a 30-day buffer to allow for missed practices and then time to go back over topics that were difficult. This ensures that they are covering all the topics in the rules.



10. Get Hands On

Where possible, encourage students to find opportunities to make a practice more fun with hands-on activities. For example, create paper models of the earth or jello glaciers for a Dynamic Planet study. Use experiments as a way to learn important concepts. Look at water samples, leaves, bugs or cells under a microscope to bring ideas to life. Get hands on to make your practices interesting and fun for the kids.

11. Play Games

Students love games. Encourage them to play games for fun and competition as part of their practice. Students could make up questions for each other based on what they are learning, use Quizlet/flashcards for terms or create a Jeopardy style game too. With a little creativity, games go a long way in helping students to stay motivated for the entire season.

12. Read the Rules Again/Gather Stuff

Broken record again here, but this is where most students fail. After your teams have a good foundational knowledge of their events, ask them to go back over their rules and read them as if it were their very first time. One team I had didn't realize that their event could be a written test, a station event or a combination of both. They had prepared entirely for a written test and the event turned out to be a station event and it completely rocked their world. Have them read the rules again and see what they missed the first time. Also, now is a good time to gather any supplies they will need for their event in competition -- goggles, lab equipment, lab coats, calculators, etc. Have them make a list of supplies needed for their event and start gathering those items now so they are familiar with everything.

13. Watch for Event Clarifications

It's important to watch your local state website Event Resources sections for any rules clarifications and event updates. It's quite common for these to come out after the first Regional competitions have happened in your state. These will be vital and important tweaks to the rules -- so be sure to pay attention and ask your students/volunteer coaches to do the same.



14. Ask Questions

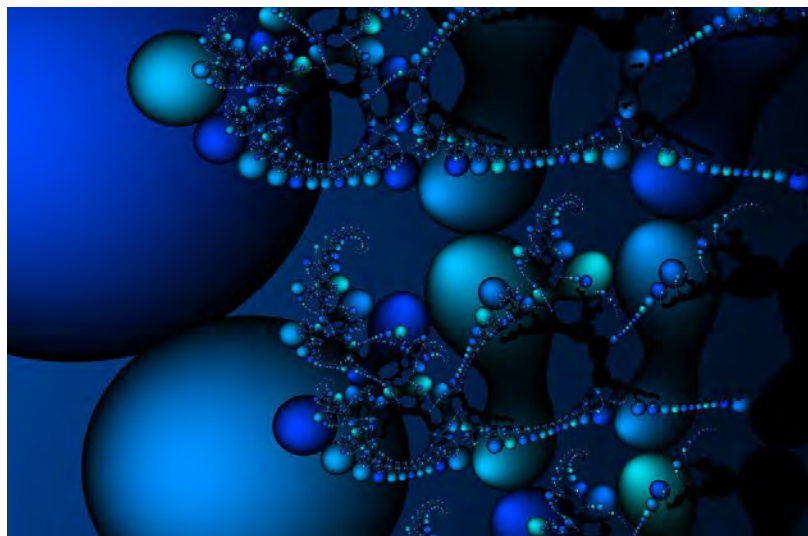
Encourage your students to submit questions to you as they work through their events. If you don't know the answer, you will submit these to your point of contact at Science Olympiad for clarifications. Chances are really high that if your team has questions, many other students do as well. Remind your students that by asking good questions, it will help support their practices.

15. Social Media, Student Forums & Resources

There are many great student wikis, national student forums and social media handles specifically dedicated to their events. A simple internet search for their event and year (i.e. Dynamic Planet 2021) can share some Science Olympiad gold for additional support. The National Student Forum also has sample question marathons, Q&As and more ideas for support. See the Resources section for additional ideas.

16. Practice Tests

The National Science Olympiad website and National Science Olympiad Student website have a section for test exchanges. You can find these in the Resources section. Typically, I encourage students not to work on this until about 60 days prior to competition. In my experience, I have found that once students begin using the sample tests, they begin to get obsessed with the content on these tests, instead of reviewing the actual materials from the rules. The sample tests aren't always a good example for what they might see and some tend to be over the top difficult or emphasizing content that isn't appropriate. My encouragement is to wait until they have made solid traction covering most of the rules content before they begin taking sample tests. But as you get closer to competition, sample tests under timed conditions are important.



17. Prep Final Resources for Competition

For the last 30 days prior to competition, students should be putting final touches on resources they will use for competition. This means any reference binders, cheat sheets, logs, charts/graphs, supplies. Now is a good time to go back over anything they need to bring into competition like calculators, goggles, lab coats, lab resources, etc. Students need to have everything they need together for competition ready to go two weeks prior. There is nothing worse than trying to hunt down some obscure science item the night before competition. Have back up supplies of all of your cheat sheets/binders/resources. Make sure everything is clearly labeled with your team name, division and varsity/junior varsity designation.

18. Simulations & Final Days

The last few practices should be dedicated to simulating competition experiences. Testing under timed conditions, stations events that rotate every 1.5 minutes or a lab identifying rotations with a partial test. Make the final practices exactly what you think your competition might be like. Tell your students to be done studying and preparing by 5 p.m. the night prior to competition. No cramming, stressing the night before. Whatever has been done up until that point is all that is going to be done. Tell them to eat and hydrate really well. Then go to bed early and have some sciencey dreams!



Spirit Makes Your Team Soar

Team spirit is an important way to establish team pride, camaraderie and fun for your season. As the coach, you set the tone for gracious competitors filled with team spirit. Here are a few ideas to build team spirit for competition.

Team T-shirts

The first place to start with spirit is a team t-shirt. You can go as simple and fancy as you like. Encourage a parent volunteer to take on this project if you can as it involves lots of details from collecting shirt sizes to ordering/producing a shirt. You can make drawing ideas for t-shirt designs a team activity, or find a graphic artist volunteer willing to donate a design for your team. There are many great on-line ideas for producing a t-shirt. Check out the Resources Section on page X for team t-shirt resources.

Fun Signs/Banners

As part of your final team meetings prior to competition, have the students create some fun spirit signs to bring with you to competition. You can have parents donate 3-5 pieces of posterboard or engage your art department to help. The signs can be used to decorate your homebase at Regional competition and also work great to save a designated seating area for your team for Awards Ceremony time. If budget allows, consider working with a local print shop to create a logo for your team. The banner can be used every year and at every competition, so it's a good investment to make early on. If you don't have a budget for a banner, invite the students to decorate one out of paper for your team space at Homebase and Closing Ceremonies. Poster Boards can also be used each year if stored properly.

Team Flair

If you have extra budget for team flair, this can be a fun item to add into your spirit stash. Ideas might be fun head boppers, fedoras, funny beads or Hawaiian leis. Think about your team mascot and consider if there are ways to weave in your school theme with your team flair for added fun for the students and spirit at competition. These can either be worn during competition or to the closing Awards Ceremony to celebrate the tournament being complete.

Highlight Seniors or Team MVPs

If you would like to celebrate Seniors that are graduating, one idea is to provide a special iron on patch for their team t-shirt. I would automatically designate Seniors as Team Captains and provide them with a simple "C" patch purchased online. Other ideas might include doing the same with an MVP patch or simple award as voted on by fellow students or designated by the Coach. For middle school students, I liked to pick out a few to recognize who went above and beyond for the season and deserved special recognition.



Getting Ready for Competition

During the final weeks and months prior to competition, here are a few helpful practices and ideas to get your team ready to perform at their best.

Simulations/Invitationals

Consider dedicating a final team meeting to hosting a simulation of competition experience -- or as close as it can be to the real thing. If this is not possible, area invitationals are another way to have your students experience a “scrimmage” style atmosphere for event practice. Anything you can encourage for your team to practice as they mean to compete will go a long way towards feeling ready for competition.

Saturday Build Gatherings for Device Teams

A fun way to add fellowship for your team is to encourage a group get together to work on build projects. For example, if you have a middle and high school team, you can gather all the rocket teams together to work on their projects and show off their work to date. This works well across divisions or with junior varsity and varsity. If you don't have these team aspects, consider inviting all the build students together to work and show off their devices for great accountability.

Provide Regional Tournament Checklist

At your final meeting prior to competition, provide a written handout that gives parents and students the “must have” details. Items to include: school name, address, home base assignments, helpful items to bring, what time to arrive, coaches' contacts, behavior reminders, rules reminders. See a sample of what this might look like in the Resources

section. Other handouts that are helpful for your final meeting are competition day schedule, map of the school and details for food options/sign ups.

Encourage Parents to Volunteer at Tournaments

Typically the Regional tournaments need a lot of help with volunteers. Encourage your team parents to help out during competition day for signing up to volunteer at the tournament. If they do volunteer, encourage them to use good integrity by volunteering in a different division than their child is competing.

Before Competition, Remind Parents to Celebrate their Student

The week of competition, invite parents to tell their student something good about their efforts this year and find something to celebrate. Science Olympiad is a long season and sometimes without rewards despite working hard. Invite parents to take time BEFORE competition to congratulate their student and let them know how much their hard work was appreciated.

Competition Day Pro Tips:

- Snap Photos - be sure to capture the day with public events, candid shots, team shots or pics from your homebase and closing ceremony. Or ask a parent to take charge of this for the day to share for the team.
- Large Schedules - have a large poster print out made from your local copy shop to display on competition day. You will be endlessly referring to the schedule, so it's super helpful to have it large for all to see.
- Team Snack Sign Up - have a parent put together a snack sign up with healthy items and bottles of water. It's a long competition day and having each parent bring an item to share helps fuel the kids up and makes it a fun feast for the families too.
- Thank You Notes -- when the students have down time in between events, invite them to write out a personal thank you note to their parents, volunteer coaches or event volunteers for the day. This is a great practice for them to learn about gratitude and to remember all the people that helped them get to this day.
- Food -- Have a game plan for lunch for competition day. Either be sure all parents are ordering food or bringing their own food. We like to order pizza for the whole team as it's fun and celebratory and takes stress off the parents for the day. Whatever you decide, make a plan and have another parent in charge of it.
- Decorations - Remember those spirit posters you made? Use them to decorate your home base area. If you are feeling extra spirited, you can add in more fun decor as it makes sense. The students love it when their homebase is festive and fun - so consider easy and simple ways to do this. Ask a parent to lead this for you.
- Set the Tone for Fun -- As the coach, you are not only setting the tone for the team, but you are also helping parents/students follow suit. This means you should be super positive, calm, organized and high fiving every student you can. Even if you are not feeling this on the inside, help ease everyone's anxiety by reminding them how proud you are of them and thank them for working hard for the year.



THE END

Celebrating Your Year

Now that your season is over, be sure you take some time to celebrate and take stock of all your hard work. Jot down any key learnings or notes you want to remember from the season while they are fresh. Below are a few additional ideas.

1. Share Photos

Hopefully you were able to capture some great photos of competition. Be sure to share those with your team or post on social media (if appropriate). A private team Facebook page is a fun way to capture pictures and share ideas all year long. Make sure parents/students are okay with sharing pictures here on social media first.

2. Thank Everyone

Be sure to take time on competition day to thank every parent and student for dedication over the year. Science Olympiad is hard work. Send special appreciation to volunteer coaches/parent mentors or any volunteers that went above and beyond. If you are feeling extra thankful, you can put a small basket of kindness together for the Regional Event Director or Tournament Host Leader. They do a lot of work on top of their regular job without a lot of thanks -- take time to thank them for putting the tournament together for your team.

3. Celebrating the Year

Some teams like to have pool parties, others use the final moments together at competition to celebrate a great year. Whatever your style, encourage your parents and families to take time to celebrate their hard work --either together as a team or as a family with a special celebratory activity. It could be as simple as an ice cream or pizza as a family. Or as elaborate as a team park day picnic. Encourage your parents and kids to take stock of their hard work.