



RANGER & EXPLORER CLASS ENGINEERING & COMMUNICATION

Spec sheets, technical reports, engineering presentations, and poster displays

The ability to effectively communicate information about your vehicle and the design and building process is equally as important as how well your vehicle performs. Strong communication skills are also an essential part of good business practices. To emphasize this point – in addition to the ROV– the competition requires spec sheets, technical reports, engineering presentations, and poster displays.

This document, **Engineering & Communication**, contains information about the RANGER and EXPLORER class spec sheet, technical report, engineering evaluation, and poster display requirements. See the **SCOUT Class Engineering & Communication** document for information relevant to the SCOUT class.

COMPETITION SCORING OVERVIEW

The competition consists of underwater missions, technical reports, engineering presentations, and poster displays with the following scoring breakdown:

- Mission
 - RANGER and EXPLORER – 300 points (max), plus a time bonus
- Engineering & communication – 230 points (max)
 - Technical reports
 - RANGER and EXPLORER – 90 points (max)
 - Engineering evaluations
 - RANGER and EXPLORER – 90 points (max)
 - Poster displays
 - RANGER and EXPLORER – 50 points (max)
 - International competition teams ONLY – 5 bonus points for media outreach

Note that regional contests may not require all of these components. Contact your regional coordinator for more information.

THINK OF YOURSELVES AS ENTREPRENEURS

As you prepare for the competition, the MATE Center is challenging you to think of yourself as an entrepreneur. What is an entrepreneur and what skills does he or she possess? An entrepreneur organizes and manages a project or company – especially one that is challenging, involves some risk, and requires energy and creativity. The skills that are needed for such an undertaking include an understanding of the breadth of business operations (from finances to research and development to marketing), the ability to work as an integral part of a team, and the ability to apply technical skills in new and creative ways. Entrepreneurs are innovative thinkers (and tinkerers!) who can use their resourcefulness to quickly adapt to problems and



changing work environments.

As entrepreneurs participating in the MATE competition, your first task is to create a company or organization that specializes in solutions to real-world marine technology problems. Questions to help guide you in this process are included in each of the **Competition Missions** documents. This document builds upon those questions and challenges your company to prepare documentation, displays, and presentations that help to “sell” your products and services to your client, the MATE Center and scientists, engineers, and technicians at the University of Washington. The first three components described below (Company Spec Sheet, Technical Report, and Engineering Presentation) comprise the elements in which you are communicating with technical audiences, such as potential future clients. The fourth component (Poster Display) should be thought of as your marketing communications, keeping in mind that some of your audience will be technical while others will be non-technical.

COMPANY SPEC SHEET (ONE PAGE ONLY)

Your company is required to submit a one-page “company spec sheet” along with your technical report (see below for information about the report). The goal of the spec sheet is to provide the judges with a “snapshot” of your company. It includes basic information about your company and vehicle.

Companies participating in the international event must submit their spec sheets to the MATE competition coordinator 4 weeks prior to the competition date. The spec sheet should be sent to jzande@marinetech.org as a pdf attached to an e-mail or as a pdf saved on a CD-ROM or DVD and snail-mailed to the MATE Center at 980 Fremont Street, Monterey, CA 93940 USA. The spec sheet should NOT exceed one page in length and should follow the font style requirements of the technical report.

Note that your regional contest may or may not require a company spec sheet and, if it does, the deadline may vary. Contact your regional coordinator for more information, including where to submit the spec sheet if it is required.

Spec sheets must include the following information:

COMPANY SPECS

- **Company and school, club, or community organization name**
- **Home state and/or country**
- **Distance required to travel to the international competition**
- **History of MATE ROV competition participation.** Be sure to specify if your company and/or the members of your company are “new” or “returning.”
- **Company photo and caption indicating members’ names and roles (e.g. CEO, CFO, Design Engineer, Pilot, etc.).** This photo should include all of the members of your company.
- **Range of grade/college levels represented by the members of your company**



ROV SPECS

- **ROV name** if applicable
- **Total cost.** Be sure to include the approximate cost of any donated items.
- **Primary material(s) used in construction** (e.g. PVC, aluminum, acrylic)
- **Approximate dimensions in metric units**
- **Total weight in air in kilograms**
- **Safety features**
- **Special features**
- **Photo of the vehicle**

TECHNICAL REPORT

Prior to the competition, your company is required to submit a technical report that will be reviewed and evaluated by a panel of working professionals – individuals who represent science, exploration, government, and industry. (These individuals may not be the same judges who evaluate your company’s engineering presentation.) The technical report is a means for your company to describe the design, operations, and features of your vehicle. Your clients should gain a good technical understanding of your vehicle and your company’s capabilities in addressing your client’s needs for an ROV. Keeping a project notebook is a good business practice that will help your company with this report. Documenting your company’s progress, including your research, designs (regardless of whether or not they work), experiments, vehicle specifications, testing, expenditures, and donations, will provide you with both content and reference information to help you organize your report. It is also a good place to document your various company member’s contributions (time, ideas, support, etc.)

Technical reports must be submitted to the MATE competition coordinator 4 weeks prior to the competition date. The report should be sent to jzande@marinetech.org as a pdf attached to an e-mail or as a pdf saved on a CD-ROM or DVD and snail-mailed to the MATE Center. The report should not exceed a file size of 2MB.

Note that your regional contest may or may not require a technical report and, if it does, the deadline may vary. Contact your regional coordinator for more information, including where to submit the report if it is required.

Any changes or additions that you make to your ROV that differ from the information in the technical report that you submit should be presented to the judges during your company’s engineering presentation. **Note that the judges will not review and rescore revised versions of your technical report during the competition.**

Each judge on the panel will award a technical report score (90 points max). Judges’ report scores and comments will be returned to you shortly after the event.



Examples of technical reports from previous competition years are posted on the competition web site at www.marinetech.org/tech-reports.

The guidelines and required components for the report are:

Note: Make sure to label any and all figures, graphs, diagrams, and photographs. Also note that these components must be present in your report, but you must determine the best logical order for presenting you them.

- **Length is less than 20 pages***
- **Font size of at least 12 points (font type can vary)**
- **All measurements are in SI units (metric)**
Exceptions include ½-inch PVC pipe and other items described or sold in imperial units.
- **Title page** that includes:
 - Your company's name
 - School, club, or community organization's name, city, and state. If you are an international company, include the city and country.
 - **COMPLETE** list of the members of your company and their role (CEO, CFO, Design Engineer, Pilot, etc.). You can also include degree/area of study (or what you plan to major in in college) and expected graduation date.
 - Names of your instructor(s) and/or mentor(s)
- **Abstract (250 words or less)** that is concise and clearly summarizes the project.
- **Table of contents**
- **Photograph(s) of your completed ROV**
You are permitted to make modifications that may change the look of your vehicle between the time you submit your report and the competition; however this must be a photo(s) of your completed, intact vehicle, not photos of individual systems and/or payload.
- **Budget/expense sheet**
Keep an accounting of your monies and expenditures. In addition to funds, list any items (building materials, equipment, travel stipends, etc.) that were donated, the organization or individual who made the donation, and an estimate of the item's value. See the examples of technical reports from previous competitions (www.marinetech.org/tech-reports) for examples of how to create a budget sheet.
- **Electrical schematic**
Make sure to highlight safety features such as circuit breakers and fuses. This schematic may be NEATLY drawn by hand or created using a CAD software program (e.g. OroCAD).
- **Block-diagram or flow-chart of software in the ROV (if applicable)**
This flow diagram should detail the software code written for your control system or other elements of your ROV. If you are using a purchased control system that utilizes software, you are encouraged to learn about its operation and describe it in a diagram.
- **Design rationale** presented in a clear and logical manner. This section should comprise the bulk of your report. It should focus specifically on the technical aspects of your



vehicle and include a discussion of how your ROV was built/adapted to perform the specific mission tasks.

- **New in 2013!** To emphasize the importance of safety in the development and use of underwater technology, we are now requiring a section on **SAFETY**. This section should describe the steps that your company has taken to identify and address any safety concerns regarding the design, construction, maintenance, and operation of your vehicle.
- **Description of at least one challenge** that your company faced and what methods were used to overcome it. These can include both technical challenges and those related to working as a team. Be sure to explain how you overcame these challenges.
- **Description of at least one lesson learned or skill gained** during the design and building process.
- **Discussion of future improvements**
In this case, the MATE Center is your “client” and has defined both the problem to be resolved and the products and services you need to provide. However, future clients could include research institutions, private companies, and government agencies. A synopsis of ideas for future improvements is essential to any entrepreneurial organization.
- **Reflections on the experience**
This can be written from the point of view of your company as a whole or individual members of the company can contribute a reflection. It can include personal or professional accomplishments achieved as a result of participating in the competition.
- **References**
List any books, journal articles, magazines, trade publications, web sites, and professional advice that you used as sources of information for your work.
- **Acknowledgements**
Please recognize the companies, organizations (including the MATE Center), professionals from industry, and/or mentors who helped to support your company by donating funds, building supplies, equipment, site visits to facilities, time, and/or technical expertise. You can include organizations and/or individuals that provided logistical and/or moral support (e.g. your parents, siblings, or pets). Companies competing in regional events should also acknowledge regional contest supporters.

*You are permitted to include appendices that exceed the 20-page limit if the appendices are critical to explaining a particular aspect of your vehicle. However, judges reserve the right to deduct points for excessive use of appendices. Also, NONE of the required components can be presented as an appendix.

ENGINEERING EVALUATION

During the competition, your company is required to give a 15-minute oral presentation to a panel of working professionals – individuals who represent science, exploration, government,



and industry. (These individuals may not be the same judges who evaluate your company's technical report.) Your presentation should describe the engineering behind your vehicle's design and operation and address any possible safety issues. It should also highlight any design innovations or creative solutions to solving the mission tasks. After the presentation, the judges will take 10-15 minutes to ask the members of your company questions about your ROV. The judges will evaluate both your presentation and responses to their questions.

Instructors, mentors, family members, friends, and members of other companies are permitted to attend this evaluation. However, we ask that those in attendance be respectful and courteous throughout the presentation and follow-up question and answer period. Be mindful that this evaluation may be a stressful time for the students who are presenting. If the room becomes crowded or the spectators become distracting, it is up to the judges' discretion to request that some or all spectators leave the presentation. **While they are permitted to attend, instructors and mentors are not allowed to participate in the interview process.**

Who presents?

All student members of your company must participate in this presentation and question and answer period. You are required to have your ROV with you.

NOTE: The engineering presentation is designed to be a face-to-face interaction where students and representatives from industry become engaged in conversation. MATE will not provide audio visual aids, such as slide projectors, computer projection screens, white boards, etc.; however, you are welcome to distribute handouts to help judges better understand the information that you are presenting. **PowerPoint presentations are NOT permitted.** During the question and answer period, all members of the company must be present and prepared to answer.

Each judge on the panel will award an engineering score (90 points max). Judges' engineering scores and comments will be returned to you shortly after the event.

The judges' panel will focus on the features of your ROV's design and the process that went into building the vehicle. The judges will pay particular attention to whether or not the vehicle was built by the students from "scratch" or excessively uses complete, off-the-shelf systems. The use of complete, commercially-available systems is highly discouraged (see [Design & Building Specifications and Competition Rules](#) for more information on this topic). Design originality and innovation as well as safeguards to prevent injury or damage to the underwater environment will be noted.

Here are some examples of questions that the judges may ask. **NOTE: These are only examples and may not be the actual questions asked.** Your team must be prepared to answer questions other than those examples listed below.

**Structure**

- How did you decide on the shape of the vehicle and the materials used to build it?
- What is the design depth rating of your ROV? Did you test this? How?
- Did you use any pressure housings in your design? Explain how you designed and built these.
- What are o-rings and how do they work?
- How much did it cost to build your vehicle?
- How much does your ROV weigh in air? In water?

Control system

- What type of control scheme have you used? Why?
- How does your control system work?
- How many conductors are in the tether?
- What devices/functions does your system control?
- Is there some unique feature of your control system?
- How did you waterproof your underwater electrical connections?

Propulsion

- How many thrusters does your vehicle have? Why?
- How much thrust does each produce?
- How many watts does one thruster use at full rpm?
- How many amps does one thruster draw under full load?
- Explain how you measured thrust.
- How is power (watts) used by one thruster related to the thrust it produces?
- Do you know the forward speed of your ROV? How did you measure this?

Ballast System

- How does your ROV ballast system work?
- Explain what stability is.
- Why is it important to consider stability in the design of ROVs?

Sensors

- What type of camera did you choose? How did you waterproof it?
- What do your sensors measure or detect?
- What unique features are incorporated into your sensors?
- What additional sensors (other than a camera) have you put on your ROV? Why?

Payload Tools

- What type of payload tool(s) did you design to accomplish the mission tasks and why?
- Explain how the tool(s) works.



Resources

- Did the project stay within budget?
- What equipment/building supplies were donated, built, or bought?
- Were you able to produce a functional vehicle?

System Design

- Can the vehicle accomplish the mission tasks?
- What are the strengths of the design?
- What are the weaknesses?
- Do the safety systems work?

Originality

- Does the design of the vehicle and its systems exhibit unique concepts and innovation?
- Does the vehicle make excess use of commercially-available systems?
- Are there any innovations or modifications that resulted in higher functionality and reduced costs?
- If you are using the same vehicle as last year, why? What are the advantages? What, if any, modifications or additions did you make?

Workmanship

- What is the overall quality of the workmanship?
- Are the electrical systems neatly contained and wired?
- Is it easy to access components for maintenance?
- Is the tether neatly bundled and protected?
- Can the tether withstand the strain from the vehicle weight, handling, and operation?
- Does the vehicle look aesthetically pleasing yet have practical functionality?

Safety

- What potential safety hazards did you identify then address?
- Are warning labels and safeguards posted on potentially hazardous components?
- Did your team develop a safety checklist or protocol?

Theme

- In the real world, what role do ROVs play in the competition theme?
- What types of organizations' or individuals' work relates to the competition theme?

Preparing for your engineering presentation and evaluation

- Make sure that every member of your company has a good, general working knowledge of your vehicle, even though they may have specialized in one specific aspect of its design and construction.



- Research the specifications of the components that you use in your vehicle. For example, look up the specs of your ROV's camera and be familiar with such numbers as the amount of propulsive force the thrusters produce, the weight of your ROV, etc. Use the questions above as a guide.
- Freely share information among the members of your company.
- Produce clear, simplified diagrams that you may choose to use in your presentation.
- Make sure that your vehicle is complete and in working condition for the presentation.
- Make sure that all the members of your company are familiar with your technical report. Ask every member to read it over to catch any errors or omissions. This exercise will help to familiarize everyone with all aspects of the project.
- Practice your presentation so that you become comfortable speaking in front of other people in a coherent and organized way. Generally, you will have more to say about your ROV than can be presented in 15 minutes. That is why it is critical to organize your material and practice communicating it. Ask instructors or mentors to give you feedback. However, avoid coming across as having memorized your presentation verbatim. Judges want to see that you are prepared and understand the information, not that you can simply regurgitate a rehearsed speech from memory.
- When your company is prepared and knows the material well, you will all be more comfortable and confident. This will come across favorably to the judges.

Other important items

- If during the engineering presentation it becomes apparent that instructors, mentors, and other adults associated with your company exercised more than an advisory role, judges reserve the right to deduct points or, in extreme cases, disqualify teams.
- Your company is discouraged from using off-the-shelf, plug-and-play systems. You are encouraged to demonstrate innovation and creativity in the construction of your vehicle and its systems. This will also be reflected in your engineering evaluation score.

POSTER DISPLAY

Your company is required to create a poster that will be on display during the competition event. Your poster display should be an informative, clear, and concise marketing presentation about your company and how you designed and built the specialized tools to effectively complete the mission tasks. During the competition, your company's display will be evaluated and scored by a completely different group of working professionals – individuals who will represent science, business, government, industry, and education/outreach.

While some poster judges will have a technical background, others will have a communications, marketing, or public relations backgrounds. In addition, there will be visitors to the competition who may not completely understand what an ROV is or how it is used. You can think of these visitors as potential future clients who may authorize funding for your work, but have a limited understanding of it (i.e., you need to explain your technology, the tasks at hand, and “sell” them



on YOUR products and services). Design your poster to communicate to these potential “clients.”

Each judge will award a poster score (50 points max). Judges’ poster scores and comments will be returned to you shortly after the event.

INTERNATIONAL COMPETITION ONLY! MATE will provide each company with one 3-panel, free-standing presentation display board and an easel. Each display board is:

- Made out of black, corrugated cardboard
- 36” tall with a total width of 48”
- Comprised of three panels
 - One 24” wide by 36” tall center panel
 - Two 12” wide by 36” tall side panels

Note: You are welcome to bring your own poster display board, but the space that the text and photographs/graphics occupy CANNOT exceed 36” tall by 48” wide. For example, company names CANNOT be mounted above the poster board. NO EXCEPTIONS!

In addition, at the international competition, display boards brought by your company must be able to fit and stand secure onto the easels provided. There will not be a table on which to set additional materials.

For more details about the display board, visit www.staples.com and search for project display board item #922528. MATE will also provide scissors, tape, glue sticks, adhesives, and other means of attaching display items to the presentation board, although you are also welcome to bring your own.

The guidelines and required components for the poster display are:

Note: Keep in mind that, with up to 60 posters to score, the judges will have approximately 10 minutes to evaluate your poster. Make key points. Be concise. Keep the general public (a.k.a. potential future clients) in mind. Also, make sure to label any and all figures, graphs, diagrams, and photographs.

GENERAL GUIDELINES

- **Font size that is clearly legible from a distance of 1.5 m**
- **Choose a font style and use it throughout**
- **All measurements are in SI units (metric).** Exceptions include ½-inch PVC pipe and other items described or sold in imperial units.
- **Include headers (see REQUIRED COMPONENTS below)**
- **Photos should be clear and high-quality for the print sizes that you choose**
- **EVERY PHOTO MUST HAVE A CAPTION!** No caption = no credit for that photo. Also



include photo credits if the photo was not taken by someone in your company.

- **Items that you MAY include in your poster or have on display include:**
 - Diagrams or sketches (CAD drawings, for example). Make sure they are understandable to a general, non-technical audience. If they are not, do not include them; technical drawings belong in the engineering reports.
 - Photo journals
 - Copies of your company's technical report
 - Resumes of the members of your company
- **Items that you MAY NOT include in your poster:**
 - Flip charts on the poster board
 - Video screens on or in the actual poster board

REQUIRED COMPONENTS

Note: The following are REQUIRED headers. These headers not only assist the judges in evaluating your display, they also make your poster easy to read.

- **Company name and school, club, or community organization name**

Make sure that your company name is in large, bold font (larger than any other font on your poster). Include your school, club, or community organization name as well as your company name. Include your geographic location (i.e. city and state). If you are an international company, include the city and country.
- **Abstract (concise – 250 word limit)**

Include a written introduction to your company and how your company designed and built specialized tools to effectively complete the mission tasks. Make sure to relate the mission to how ROVs can be used in the real world. Don't assume that your audience knows what an ROV is or the details about the competition missions.
- **Company information**

Include photo(s) (group or individual) of all of the members of your company. Provide a brief description of each member. This description should include the person's name, role in the company (e.g. CEO, CFO, design engineer, pilot, marketing and communications specialist, etc.) and their qualifications, such as grade level, major or area of expertise, career goals, etc.
- **Design rationale**

This section should be the bulk of your poster display. It will be worth the most points.

 - Why did your company build your ROV the way that you did?
 - Include photos of your ROV. Make sure to highlight the various systems of your vehicle.
 - Include photos or drawings of any special features of your vehicle and how these features relate to the mission tasks, safety, general operations, etc. This is the most important part of your design rationale.
- **New in 2013! Safety**

This section should describe, to the layperson, how you have made safety your company's



primary concern during the design, construction, and operation of your vehicle.

▪ **Company evaluation**

Answer the following questions:

- What was the most rewarding part of this experience?
- If you were to do this again, what would you do differently?

▪ **Theme**

More than half the population of the planet now lives or works adjacent to coastal environments. Many nations rely on the economic contributions of goods and services associated with ocean activities for their overall economic health.

The pressure that we place on our ocean continues to increase – water pollution, overfishing, and ocean acidification from the use of fossil fuels are a few examples of our impact. How the ocean responds to this pressure will, in turn, impact us. For example, patterns of ocean circulation and changing sea-surface temperatures correlate closely with ever-shifting patterns of drought and flooding on the continents, which in turn links directly to patterns of plentiful food and famine. It is critical that we better understand the ocean so that we can better manage this vital resource. Our future and the ocean’s future depend upon it.

As our reliance on the ocean continues to grow along with the world population, this “theme” section challenges you to research and discuss the future health of our ocean and society. Rather than regurgitating information that you find on the Internet, take the time to think through the challenges that we face and how ocean observing systems and the data they provide can help to address them. You can choose to focus on a technical, economic, or socioeconomic issue. In addition to the Internet, you are encouraged to contact individuals (such as a local scientist or resource manager) who can offer their views.

▪ **Acknowledgements**

Please recognize any companies, organizations (including the MATE Center), professionals from industry, and/or mentors who helped to support your company by donating funds, building supplies, equipment, site visits to facilities, time, and/or technical expertise. You can include organizations and/or individuals that provided logistical and/or moral support (e.g. your parents, siblings, or pets). Regional competition teams should also acknowledge regional contest supporters.

Note: “Accessories” such as video footage, PowerPoint slide presentations running on laptop computers, video projections, etc. are permitted but should be used with discretion. Remember that the judges will have a limited amount of time to evaluate your poster and may find excessive use of audio or video presentations distracting.

However, if you do make a video of your ROV building or competition experience, please submit information about it via www.marinetech.org/contact so that it can be uploaded to the MATE



Center's YouTube channel.

BONUS POINTS FOR MEDIA OUTREACH FOR INTERNATIONAL COMPETITION PARTICIPANTS ONLY

Companies that participate in the international competition can earn bonus points by writing a press release and working with their local media to publicize their company's participation in the competition. This can help your company gain community support, media exposure, and local sponsorship.

Place your press release and the results of your media campaign in the envelope located on the easel of your poster display. The media outreach component is worth 5 bonus points, in addition to the 50 total points awarded for the poster display.

Media outreach consists of:

- Developing a list local media contacts
- Writing a press release about your participation in the MATE ROV competition
- Distributing it to your media contacts
- Following up with your media contacts to see if they're interested in your company and its ROV
- Compiling a summary of results
- Submitting your results electronically via www.emailmeform.com/builder/form/V90b3b7Fc6D23.
- Including hard copies of your press release, press summary, and press articles/results in the envelope located on the easel of your poster display.

Please submit a copy of your press release, a copy of your media contacts list, and a summary of news articles, TV or radio coverage, etc. that your team received. Include copies of articles and URLs, and list any television or radio coverage. Be sure to include name of outlet, date, and a summary of the coverage.

Media Relations Guidelines (for International ROV Competition Participants ONLY)

Here are some general guidelines for working with the media.

1. You should begin your media effort about 4-5 weeks before the international competition (which is from June 20 – 22, 2013).
2. Write a press release highlighting your team's involvement in the upcoming MATE competition. If you participated in a regional, feel free to talk about it and how you performed. It doesn't have to be more than 1-1 ½ pages, double-spaced. Be creative. For example, you could find out if there are plans to install an ocean observatory in your region and contact the engineers, technicians, and scientists involved for more information. A



sample release follows these guidelines below.

3. Develop a list of community news media contacts, including newspapers, magazines, radio stations with public service announcements and local news, television news programs, and local online news reports or blogs. If your town is small and doesn't have any media outlets, reach out to those in the city or large town that's closest to you.
4. Try to find the name and email address of a reporter who covers education or technology—they're the ones that will be most interested in your story. You can often find this information online, or you may have to call the media outlet and speak with a receptionist to find out who the most appropriate contact is and how to reach them. Usually, email is the best way to contact a reporter.
5. Become familiar with the news outlets and the reporter that you're going to "pitch" your story to. For example, learn if they've written about your school before, or what kinds of news stories they tend to develop.
6. Compose an email introducing yourself, your team, and your school. Tell them that you're participating in the Marine Advanced Technology Education (MATE) Center's international ROV competition, which will be held in June 2013 in Tacoma, Washington, USA. Explain what ROV stands for, and tell them how ROVs are used in the real world. Give examples of the skills that you and your teammates have learned by designing, building, and piloting ROVs. You may have already written some of this information for your poster display or engineering report.
7. Reporters are interested when a local team is participating in an international event. So make sure to let them know that the MATE competition is an international competition, funded by the National Science Foundation, the Marine Technology Society ROV Committee, and other international organizations and businesses, and that teams from all over the world participate. Be sure to provide the link to the ROV competition web site (www.marinetech.org/rov-competition).
8. Copy and paste the release below your email. (Reporters in general prefer cut and pasted releases to opening up an attachment.) If you have any photos of your team and/or ROV, especially a photo of your vehicle in action, feel free to attach the photo to the email. Explain to the reporter what's going on in each photo you attach.
9. Make sure you include your name and a phone number where the reporter can reach you. Also include MATE's media contact information and let them know they can contact her if they want more specific information about MATE or the competition. MATE's media contact is Caroline Brown at cbrown@marinetech.org or (401) 338-8980.



10. After you've emailed your media contacts, wait for a week and email them a reminder if you don't hear back from them. You can simply forward the original message to them.
11. If a reporter calls and wants more information, be creative about how you provide it. Offer to give interviews with a few of the team members, your mentor, or even a key sponsor. Invite them to meet you at the pool to see your ROV in action. Ask them if they want to try piloting the ROV on their own. If they want to speak with someone from MATE, give them the MATE media contact information from above.
12. If your team receives media coverage, save a paper copy of print or Internet coverage. For radio or TV stories, include the URL to the video or audio if available. If not list the station, name of reporter, date and time of broadcast and summary of the broadcast.
13. To earn the five extra points, you must submit the following information in the envelope located on the easel of your poster display. You must also submit your results electronically to MATE via the form located at www.emailmeform.com/builder/form/V90b3b7Fc6D23.
 - a copy of your press release
 - a sample of your "pitch" email
 - your list of media contacts
 - copies or lists/summaries of media coverage

Below is the sample press release to help you get started.

**East Lake Charter School Team to Participate in
International Underwater Robotics Competition**

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**Local students develop underwater robots to install ocean observatories at MATE  
International ROV Competition in the Pacific Northwest**

May 15—Saginaw, Mich.—A team from the East Lake Charter School has been selected to compete the Marine Advanced Technology Education (MATE) Center's 12<sup>th</sup> Annual International Student ROV Competition. Remotely operated vehicles, or ROVs, are tethered underwater robots used to complete tasks in underwater environments. The East Lake team will compete against more than fifty teams from around the world, using an ROV that they designed and built during the past 6 months.

At the International ROV Competition, which will be held June 20-22 in Tacoma, Washington, East Lake Charter will compete against the top teams from MATE's network of 22 regional competitions. East Lake Charter was one of the winners in the MATE Great Lakes Regional ROV Contest, which was held in April.



Each year, MATE's ROV competition encourages students to learn and apply science, technology, engineering, and math skills to complete tasks that simulate real-world problems from the ocean workplace. This year, the contest focuses on ocean observing systems and the role that ROVs play in the installation, operation, and maintenance of cabled underwater observatories.

Ocean observing systems are collections of high-tech instruments above and below the waves that provide around-the-clock information about what is happening in the ocean. Meteorologists have used sensors and the Internet to monitor and predict weather for the past two decades. Ocean observing systems are now coming of age to provide critical information on climate (i.e., long-term weather forecasts), biological productivity, sea level change, ocean hazards such as tsunamis and toxic algal blooms, and much more.

Teams will participate in underwater mission tasks, piloting their ROV to install a simulated power and communications "hub" and scientific instruments on the seafloor in order to complete an ocean observatory. They will also remove biofouling organisms from instruments and perform maintenance on moorings, among other tasks. In addition, teams must prepare an engineering report, make a presentation to a panel of judges, and create a poster display.

This is the fifth year that East Lake Charter has participated in the Great Lakes Regional ROV Contest, and the first year it has attended the MATE International ROV Competition. The team members are:

- Jill Zande
- Deidre Sullivan
- Erica Moulton
- Matt Gardner
- Scott Fraser
- Jeremy Hertzberg

East Lake Charter's ROV team is supported by local sponsors, including Tom's Hobby Shop, East Bay Marina, and Schaumburg Electronics.

For more information about the East Lake Charter School ROV team, please contact Matt Gardner at (831) 555-1234 or [email@email.com](mailto:email@email.com).

For more information about the MATE ROV competition, visit [www.marinetech.org/rov-competition/](http://www.marinetech.org/rov-competition/) or contact Caroline Brown at (401) 338-8980 or [email@email.com](mailto:email@email.com).

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