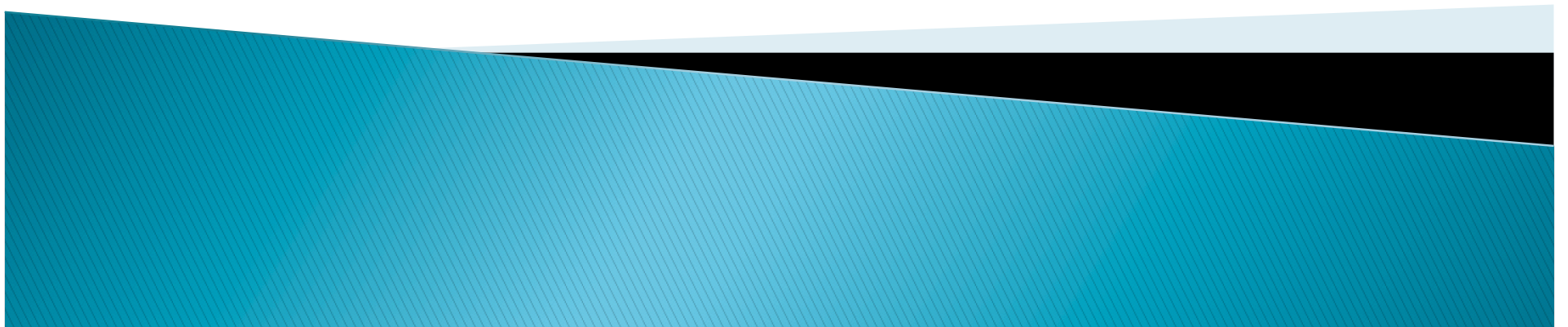


Focusing on the Report

Supercomputing Challenge
2013 Summer Teacher Institute
Bob Robey



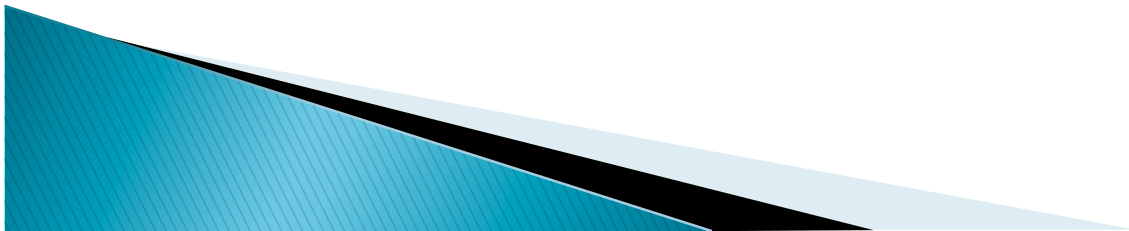
Review of Last Year Finishers

- ▶ Quality of reports dropped off rapidly after the finalists – more than prior years, but not substantially different
- ▶ Reports are key for achieving top finisher status – finalists or award winners
- ▶ Differentiates between top schools and second tier
- ▶ We never have trained report writing
- ▶ This is something you as team sponsor can dramatically influence



Technical Reports with Graphics

- ▶ Never taught in school – writing the great American novel is taught, but most of us write technical material
- ▶ How to incorporate graphics is not taught
- ▶ This material is from the world of proposal writing where 300 page proposals need to be written in three weeks.



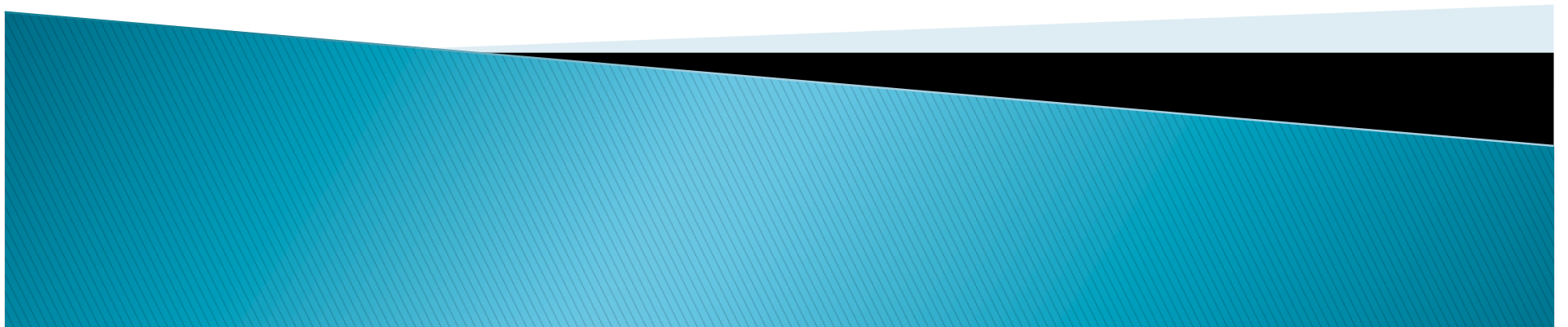
How to Guide your Team

- ▶ Teach the process, not the results – this is one of the critical skills for your students for success in their future
- ▶ Recruit red-teams, pink-teams for written reviews, presentation reviews
- ▶ Reviews help sharpen both written and oral presentations
- ▶ Do not touch the keyboard – leave it in their voice even with awkward parts. The reviewers are aware that these are students and evaluate content and enthusiasm. Perfection masks enthusiasm and innovation.



How to Efficiently Write a Report

Integrating Graphics and Technical Content



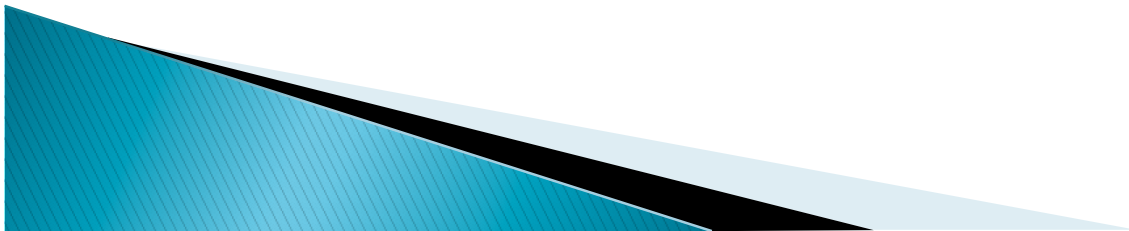
Overarching Concepts

- ▶ *No wasted effort or text*
- ▶ *Don't start writing yet – it comes last*
- ▶ *Think of the reviewers! Don't make them hunt for things*



Step 1. Assign Page Counts

- a. Collect all guidance and evaluation criteria
 - Final Report Guidance
 - Evaluation Criteria
- b. Estimate total pages
 - 1 page Executive Summary
 - 20 pages Main Body // 10 pages for Middle School
 - Acknowledgements and References
 - Appendices including source code
- c. Assign page counts in proportion to evaluation criteria
 - 25% -> 5 pages
 - 10% -> 2 pages
- d. Team review before going forward



Final Report Guidelines

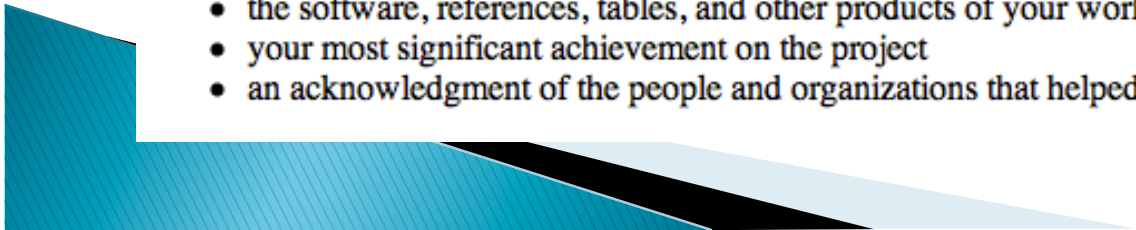
This page contains information about format, content, and how to submit your final report. Another page is provided to offer assistance [writing](#) your final report.

Every team is required to submit an electronic copy (no faxes) of the final report via e-mail — e.g. as a Microsoft Word or OpenOffice document (team_XXX_report.doc/team_XXX_report.odt) attached to an e-mail message to **finalreport13** at **challenge dot nm dot org**

Teams are further encouraged (but not required) to submit a [Web-based Presentation](#) of the final report. An award for the "Best Web-based Presentation of a Final Report" will be given during the Awards Ceremony.

Email your ELECTRONIC-COPY to: finalreport13@challenge.nm.org

Your report should focus on your project rather than on the experiences of your team. The report must show that you conducted a scientific investigation, obtained results, and arrived at some conclusions. Be sure to include the following:

- an executive summary that is shorter than one page
 - a statement of the problem that you have investigated
 - a description of the method you used to solve your problem
 - a discussion of how you verified and validated your model
 - the results of your study
 - the conclusions you reached by analyzing your results
 - the software, references, tables, and other products of your work
 - your most significant achievement on the project
 - an acknowledgment of the people and organizations that helped you
- 

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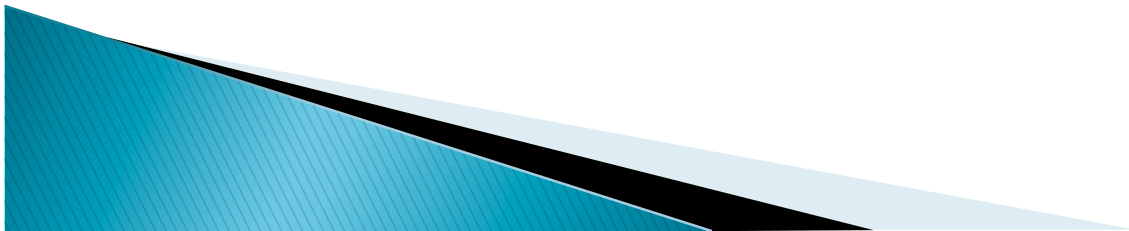


Supercomputing Challenge Judging Criteria (Finalists)

Evaluation Criterion	How to Score (0 to 10 points)
Problem Statement (Weight 15%) <ul style="list-style-type: none"> <input type="checkbox"/> Was a scientific or mathematical problem clearly defined? <input type="checkbox"/> Was the problem clearly thought out and well researched? <input type="checkbox"/> Was appropriate background information presented to understand the context of the problem? <input type="checkbox"/> Is the proposed solution clever and well thought out? <input type="checkbox"/> Is it a complex problem or could it be solved on a calculator or with off-the-shelf applications? <input type="checkbox"/> Was the problem appropriately simplified? 	0 – problem not defined 5 – problem clearly defined, but lacks background or simplification or is not complex 10 – complex problem clearly defined with appropriate background and simplification
Computational, Mathematical and/or Agent-Based Model (Weight 20%) <ul style="list-style-type: none"> <input type="checkbox"/> Is the computational model appropriate for the project? Are the assumptions/limitations of the model documented? Does the model require multiple iterations or samples to identify an optimum solution or range of solutions? <input type="checkbox"/> Is the mathematical model accurate (or a reasonable approximation)? Is the model correctly applied to the problem and its solution? Does the team understand the model, its equations, and variables? <input type="checkbox"/> Is the agent-based model a reasonable representation of the problem? Does the model correspond to a well-known mathematical model? If so, was the mathematical model used to validate the agent-based model? Does the model provide insight into the problem? Can anything be learned from the model? Does the team understand the agent's states and behaviors, and the role of the environment? In particular, does the team understand how the agents affect each other and/or modify their environment? 	0 – no model 5 – basic understanding of model(s), but unable to answer questions; only one model 10 – thorough understanding of both models (computational and mathematical or computational and agent-based)
Code (Weight 10%) <ul style="list-style-type: none"> <input type="checkbox"/> Is the code original or borrowed? (Note: no penalty for using borrowed code.) <input type="checkbox"/> If the code was borrowed: Is the originator acknowledged? Does the team understand the borrowed code? Were any modifications made? Why? <input type="checkbox"/> Extra points for: original code or combination of original code with borrowed code; real-time demo; graphical display of results; parallel computing; multiple languages; elegance. 	0 – none 5 – clean, documented code 10 – clean, documented code with extras
Results & Conclusions (Weight 15%) <ul style="list-style-type: none"> <input type="checkbox"/> Are the results reasonable and verifiable? <input type="checkbox"/> Were logical conclusions drawn from the results? <input type="checkbox"/> Do the conclusions relate to the stated problem? 	0 – no results or conclusions 5 – results, but conclusions are incomplete or illogical 10 – reasonable results with logical conclusions that relate to the stated problem
Presentation (Weight 10%) <ul style="list-style-type: none"> <input type="checkbox"/> Are the project's goals, objectives, and expected and actual results clearly articulated? <input type="checkbox"/> Is the presentation professional? Is the layout logical and well organized? Was there good contrast between text and background? Were the slides too busy? Is the presentation free of spelling and grammatical errors? Were questions handled gracefully? 	0 – presentation does not support the project, is incomplete, or is not visually pleasing 5 – a good presentation with some minor problems 10 – a professional presentation
Teamwork (Weight 10%) <ul style="list-style-type: none"> <input type="checkbox"/> Do all members of the team understand the problem and conclusions? <input type="checkbox"/> Was the work divided among the team members to take advantage of each member's skills? (Note: not all members need to contribute equally in all phases of the project.) <input type="checkbox"/> Did the team consider differences of opinion and come to an amiable solution? 	0 – a dysfunctional team 5 – at least 50% of team participated or only one participant 10 – 100% of team participated, team dynamics were excellent
Integrity (Weight 10%) <ul style="list-style-type: none"> <input type="checkbox"/> Was the work original (i.e., not plagiarized)? <input type="checkbox"/> Were references cited and proper attribution given? <input type="checkbox"/> Were graphics, figures, and equations cited and proper attribution given? 	0 – evidence of plagiarism 5 – no plagiarism, but attribution not complete 10 – no plagiarism, complete and accurate attribution, complete and proper citing of references
Level of Effort (Weight 10%) <ul style="list-style-type: none"> <input type="checkbox"/> Was significant research performed? Was at least one print source used? <input type="checkbox"/> Is this a first year project? Was a full year of work done? <input type="checkbox"/> Is this a continuation of a previous year's work? Was the previous work acknowledged and compared to the new work? Was the new work a significant improvement or merely a refinement of the previous work? 	0 – less than a full year's effort 5 – a full year's effort, but research was lacking 10 – a full year's effort with significant research and at least one print source

Evaluation Categories

- ▶ Problem Statement
- ▶ Computational, Mathematical and/or Agent-Based Model
- ▶ Code
- ▶ Results & Conclusions
- ▶ Presentation
- ▶ Teamwork
- ▶ Integrity
- ▶ Level of Effort



Step 2. Page Map

- ▶ Layout pages and put headings on pages with the number of blank pages determined from the page count.
- ▶ Cut out evaluation criteria and other guidance. Tape on appropriate page.
 - • Underline or highlight key phrases. Use for subheadings/ paragraphs.
 - • Write subheadings as bulleted list spaced out on the page allocation.
- ▶ Decide on “graphics with a target of a) popular science – 1 graphic per page, or b) formal science – 1 graphic for every 2 or 3 pages.”
 - • Graphics can be pictures, simulation results, *flowcharts, tables, text boxes, equations, etc.*
 - • Consider using “cherry box” on Executive Summary page like the text box on the upper right corner of this page.
- ▶ Team review before going forward. Review should focus on whether the page map answers the requirements and evaluation criteria



Assignment

- ▶ Do the page map for your STI mini-project
 - Select the major headings
 - Note the graphics needed on the page map
 - Review the page map with the team
 - Initial discussion of themes with team
 - Reflections: How does this process enable the whole team to write? (parallel writing)

