



**Guidelines for
Honors Earth
Science Students**

Goals:

As students move through their high school, college and professional lives they will need to become increasingly competent at reading, writing and speaking. Professional scientists and engineers share their ideas and discoveries through peer reviewed magazine (journal) articles and professional conferences. The goal of the Earth Science Symposium is to expose students to such articles and to help them develop their ability to digest the articles and to use them to synthesize the information. Students will also learn to identify the societal implications of the science described in the articles. All students will become more clear and confident public speakers. As part of the Honors Earth Science course each student will be required to present a research project at the LHS Earth Science Symposium in March.

Each project will consist of three products:

1. A magazine article written by the student. Each student will select an Earth science topic approved by his or her teacher. The student will then use library and internet resources to find at least 3 general magazine articles and 3 scientific articles about that topic. The student will then write an original, two-page magazine article summarizing the scientific methods and results reported in those references. The student article will include at least 2 photos, figures or graphs with captions and a discussion of the societal implications of the research. Students will also include a list of references and use parenthetical citations throughout the article. The teacher will provide a template for the format of the two-page student magazine article and all student articles will be published in the proceedings book.

2. A poster describing the student research. Each student will create a display poster on standard 20"x 30" foam core poster board that summarizes and expands upon the magazine article that they wrote. The poster will contain additional photos and illustrations of the data and results from the list of reference articles. The posters will be displayed in the Annex gymnasium at the March symposium. Awards will be presented for the best posters.

3. A slideshow presentation. Each student will create a 6 to 8 minute oral presentation with a 10 to 20-slide visual slide show that presents the information in the student's magazine article. Like the article, the presentation will describe a geoscience problem, compare and contrast the methods that have been used by scientists to study the problem and summarize the conclusions those scientists have reported. The student will also present their own analysis and discussion of the problem, methods and data. Finally, the student will describe the implications of the impact of this problem on society and their recommendations. The slideshow presentation will be given at the LHS Earth Science Symposium in March in front of a panel of judges. At the end of the slideshow the judge panel will ask a series of questions and encourage the student to clarify and expand upon the points of the presentation. The presentation will be open to the public including other students, families, community members and faculty. Student presentations will be grouped by topic and 8-12 students will present in each room. Each judge panel will select the best presentations in their room and medals will be awarded at the end of the symposium.

2018-2019 Important Dates

DATE	ACTIVITY	DESCRIPTION
October 1 and continuing	Begin to search for a topic.	Teachers will offer examples of former student work as well as lists of topic ideas. Students will use various library and online sources of information to review and select a topic.
October 10	Family Orientation	6:30-7:30pm meeting in LHX Café. with parents & students to describe the symposium process & calendar.
October 17	Introduction to Research Methods (in class).	Through the guidance of teachers, students will visit online library sites and search engines, and analyze various sources to determine if they are appropriate for the symposium process.
October 29	“Declaration Day”	Students will verbally discuss their intended topic and current sources. At this point, students need to have acquired and read three general articles.
November 7	Three scientific articles submitted for teacher approval via Google Classroom. Students spend remainder of month closely reading these articles in preparation for outline.	On Nov. 7, students will submit PDF documents of 3 scientific journal articles on Google Classroom for teacher approval. If students print physical copies of their three scientific articles they should be marking them up as they read (i.e. highlighting, annotation, notes, underlining, etc.).
December 3	Article outline	Students will submit a completed graphic organizer outlining their article.
December 17	Peer review (1 st draft)	Students will review each other’s articles and give feedback using a rubric.

DATE	ACTIVITY	DESCRIPTION
January 11	Submit 2 nd draft	This draft will be submitted to the teacher and will be graded as the literacy assignment in the second quarter.
February 8	Final draft	This final draft will be published and bound in the Symposium Proceedings. Each family will receive a copy of the proceedings.
March 4	Completed slideshows due in class.	Students will present their slide show in class to a student audience and will be graded by the teacher.
March 13	Research posters due in Google Classroom. Poster can be printed in-district for free or paid for outside of school (i.e. Staples).	March 13 pdf file of poster is due to teacher for in-district printing. Outside (Staples) printed posters are physically due on March 21 st in class.
March 23	The Big Show!	L.H.S. Earth Science Symposium all day Saturday at the Annex. Honors students are required to attend. (8:30 a.m.-1:30 p.m.)

LHS Earth Science Symposium Article Grade Sheet

Student _____ Class _____ Teacher _____

Magazine Article Total Points= 100

Article Section	Point Value	Author	Student Reviewer	Teacher
Title	2			
Abstract	10			
Introduction	10			
Research Methods	10			
Results/Data	10			
Discussion	10			
Conclusions and Implications	10			
References	10			
Figures/Graphs/Photos	6			
Parenthetical Citations	6			
Format and Professionalism	10			
Article File	6			
Total	100			

Expectations for the magazine article

Title Clear and professional?

Abstract Does it summarize the whole article including the problem and the scientific efforts to study it?.

Introduction Does it state the problem/question being addressed by the research?. Does it introduce the problem in its historic and/or societal context? Does it include the necessary background information to interest *and* inform the reader?

Research Methods Does it clearly describe, in detail, the range of methods used by the scientists to study, gather, and analyze the data including where and/or when the data was collected? Does it mention any obstacles encountered by the scientists?

Results/Data Does it clearly summarize the data collected and the results of the experiments conducted by scientists? Does it include quantitative data and describe the trends reported by the scientists? Are data tables, graphs, photos, etc. included where appropriate?

Discussion Does it discuss the interpretations made by the scientists regarding their data? Does it address additional questions raised by the scientists in the articles? Does the student address additional questions or ideas for further research expressed by the scientists?

Conclusions and Implications Is there a concise summary conclusion the brings the reader back to the “Big Picture”? Does it describe the implications and impacts on society, the environment, the economy, etc? Does the student explain why this topic is important in real life and/or how the research might be otherwise applied? Does the student express his/her own suggestions for future studies to build upon our existing knowledge of this topic?

References Does the paper list at least 3 general (newspaper) and 3 peer-reviewed scientific journal articles in a properly formatted reference section?

Figures/Graphs/Photos Does the paper include 3 figures, graphics, or photos with captions?

Parenthetical Citations Did the student use APA-style parenthetical citations correctly throughout the article? Every reference must be cited at least once.

Format and Professionalism Did the student use the article format prescribed in the template? Does the grammar, spelling, use of language and general organizations of the article give the impression that the student carefully drafted, and repeatedly edited the article?

Article File Did the student create an electronic folder on their “Drive” with PDF copies of all scientific articles in their reference list? Is there evidence that the student has closely read and digested the articles?

LHS Earth Science Symposium Presentation Grade Sheet

Student _____ Class _____ Teacher _____

Slideshow Presentation Total Points= 100

Presentation Section	Point Value	Author	Student Reviewer	Teacher
Introduction/Overview	10			
Research Methods	10			
Results/Data	10			
Discussion	10			
Conclusions/Implications	10			
Literature Review/References	5			
Figures/Graphs/Photos	10			
Parenthetical Citations	5			
Slide Format/Professionalism	5			
Oral Presentation	10			
Questions/Answers	10			
Timing	5			
Total	100			

Expectations for the presentation

Introduction/Overview Does the student begin by introducing them self? Did the student explain why they chose this topic? Did they introduce the problem in its historic and/or societal context?

Research Methods Does it clearly describe, in detail, the range of methods used by the scientists to study, gather, and analyze the data including where and/or when the data was collected? Does it mention any obstacles encountered by the scientists?

Results/Data Does it clearly summarize the data collected and the results of the experiments conducted by scientists? Does it include quantitative data and describe the trends reported by the scientists? Are data tables, graphs, photos, etc. included where appropriate?

Discussion Does it discuss the interpretations made by the scientists regarding their data? Does it address additional questions raised by the scientists in the articles?

Does the student address additional questions or ideas for further research expressed by the scientists?

Conclusions and Implications Is there a concise summary conclusion the brings the reader back to the “Big Picture”? Does it describe the implications and impacts on society, the environment, the economy, etc? Does the student explain why this topic is important in real life and/or how the research might be otherwise applied? Does the student express his/her own suggestions for future studies to build upon our existing knowledge of this topic?

Literature Review/References Did the student introduce a list of at least 6 references?

Figures/Graphs/Photos Does the slideshow make effective use of figures, graphics or photos with captions? Do all images contain parenthetical citations as needed?

Parenthetical Citations Did the student use parenthetical citations correctly throughout the slides as needed?

Slide Format/Professionalism Does the grammar, spelling, use of language and general organizations of the slideshow give the impression that the student carefully drafted, and repeatedly edited the slideshow?

Oral Presentation Did the student speak clearly and confidently? Was the oral presentation well organized to match the slides and did they maintain consistent eye contact with the audience? Was there evidence that the student had rehearsed the oral presentation?

Questions/Answers Did the student clearly and effectively respond to the questions from the judges? Did they make use of slides and references to respond to some of the questions?

Timing Did the student’s slide and oral presentation fit the prescribed 6-8 minute limit?

LHS Earth Science Symposium Poster Grade Sheet

Student _____ Class _____ Teacher _____

Poster Total Points= 100

Poster Section	Point Value	Author	Student Reviewer	Teacher
Student Name	5			
Abstract	5			
Body of Poster/Text	30			
Figures/Graphs/Photos	30			
Format/Professionalism	30			
Total	100			

Expectations for the poster

Title Does the title clearly reflect the content of the article?

Abstract 75-100 word summary of the entire article?

Body/Text Does the body of the poster include all of the text parts of the student's magazine article including:

- Introduction
- Research Methods
- Results/Data
- Discussion
- Conclusions and Implications
- References

Figures/Graphs/Photos Does the poster include additional images (at least 6 total) that help to illustrate the review of literature and the topic of study? Does each image have an APA parenthetical citation and caption as needed?

Format/Professionalism Does it clearly summarize the data collected and the results of experiments conducted by scientists? Are data tables, graphs, photos, etc. included where appropriate?