STUDENT OUTCOME: Students will be prepared to present their research at the GLOBE Student Research Symposium and/or submit to the GLOBE International Virtual Science Symposium.

TIMELINE SRS:
Count backwards from your region’s SRS date for a suggested timeline for completing a GLOBE student research project. Find the dates for each regional SRS here. For support on each step of the research process see the SRS Science Practices Pages.

☐ 12-15 weeks prior to SRS:
- Student groups assigned
- Research question developed by/assigned to student groups

☐ 10-11 weeks prior to SRS: The Research Question and Revision of Research Question
- Three types of Research Questions:
  - Descriptive. When a study is designed primarily to describe what is going on or what exists.
    - Describing the characteristics of a variable or phenomenon.
    - Public opinion polls compared to GLOBE data can be used to describe something.
  - Relational. When a study is designed to look at the relationships between two or more variables.
    - How does ___ and ___ compare?
  - Causal. When a study is designed to determine whether one or more variables causes or affects one or more outcome variables.
    - What affect does ___ have on ___?
- Write a one sentence HYPOTHESIS that answers your question.

☐ 3-10 weeks prior to SRS: Collect Data
- Determine equipment need to perform field work.
- Design data collection plan:
  - Determine frequency of data collection.
  - Decide where will data be collected.
  - Identify who will collect data.
  - Identify who will enter data into GLOBE database.
- Data Collection from:
  - Field work from data collection plan
  - GLOBE Visualization Tool
  - NASA Satellite data/images
  - HoloGLOBE

☐ 5 weeks prior to SRS: Write Introduction
- Obtain GLOBE poster template (link downloads a PPT) and SRS reviewer feedback forms (see below).
- Write about the following:
GLOBE Research Project Planning Guide

- Describe the problem you are trying to solve.
- State of the science of your topic(s).
- Why is this research important to your group?
- What is the community impact/connection of your research?

☐ 4 weeks prior to SRS: Write About Your Research Method
  ● Write about the following:
    - Describe what you did for your research:
      - Include number of data sets you used.
      - What data sets did you compare?
    - Describe your study areas: (site, school, community)
    - Describe GLOBE protocols used
    - Justify why the data presented are sufficient to answer the research question
  ● Include a picture of your study area (e.g., from Google Earth)
  ● Include an image or two of students collecting data

☐ 3 weeks prior to SRS: Analyze Results
  ● Create a table of your results:
    - Make sure your table has a title and is numbered.
    - Make sure each column and row in your table is clearly labeled.
  ● Create a visualization of your results- graph(s):
    - Make sure your graph has a title and is numbered.
    - Make sure you have a legend (description of the information) in your graph.

☐ 2 weeks prior to SRS: Discussion of the Results
  ● Summarize (in words) your results by referring to your tables(s) and graphs(s).
  ● Write about possible sources of error with your data:
    - What errors in your data might there be?
    - Do your results compare with someone else’s research? (You will have to look online to see if anyone else has done the same kind of research as you just completed.)

☐ 2 weeks prior to SRS: Conclusion
  ● Discuss whether the results support your hypothesis:
    - Discuss why or why not your hypothesis was correct.
  ● Write about how you reached your conclusion.
  ● Restate why it is important to know the results of your research.
  ● What follow-up actions would you like to take:
    - Continue the study?
    - Different protocols?
    - Collaboration with others?
  ● Write about the impact of working with a project mentor/scientist (if applicable).

☐ 1 week prior to SRS: Bibliography
  ● State the books/articles/websites you used in this project.

☐ 1 week prior to SRS: Abstract (1 paragraph)
  ● Write down what you did in your research project.
  ● Write down why you did this research project.
GLOBE Research Project Planning Guide

- Write down your conclusion of your research.

**Week of the SRS: Practice Presentation**
- Prepare Poster(s).
- Students present to Class and Other Stakeholders.

**TIMELINE IVSS – International Virtual Science Symposium**
If you want to submit to the International Virtual Science Symposium and compete for a cash prize:

**Required Elements:**
1. Visual (poster or power point or video)
2. Written report (your written report can be adapted from your poster information)
3. 2 badges with summary in visual and report
4. Abstract
5. Photo release form
6. Thumbnail image

- Only projects that have received 4 stars on “research” and have completed all of the elements will be entered into the random drawing for a cash prize in the spring. *(Cash prize is intended to offset the costs for students/teacher to attend the GLOBE Annual Meeting held each summer)*

- 12 weeks prior to IVSS deadline: Assign Groups
- 10-11 weeks prior to IVSS: Research Question and Revision of Research Question
- 4-9 weeks prior to IVSS: Collect Data
- 6 weeks prior to IVSS: Write Introduction
- 5 weeks prior to IVSS: Write Research Methods
- 4 weeks prior to IVSS: Analyze Results
- 3 weeks prior to IVSS: Discuss Results
- 2 weeks prior to IVSS: Write Conclusion
- 1 week prior to IVSS: Write Bibliography and Abstract
- Week April 8th: Upload to GLOBE website from January 1st to April 10th

**RUBRICS/REVIEW FEEDBACK**

**SRS:**
- Both a Reviewer and a Peer Review Feedback Form will be used at the SRS, which can be found [here](#).

**IVSS:**
- [IVSS Rubric](#) (includes types of badges) will be used for reports/visuals uploaded to the GLOBE website for the IVSS.