

ALL for Science™

Authentic Literacy and Language for Science

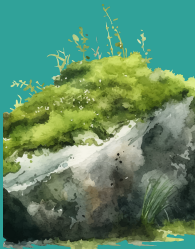
Baylor
College of
Medicine

CENTER FOR
EDUCATIONAL
OUTREACH

DAY 13: PREPARING FOR THE SCIENCE CONFERENCE (PART 1)

CULMINATING ACTIVITY

Teams work on creating an informational product that answers a question (and supports a claim) about the representative plant they have been investigating.



BRYOPHYTES



GYMNOSPERMS



VASCULAR PLANTS



**FLOWERING
PLANTS**

ABBREVIATED STANDARDS

- Reading TEKS: 4.9D(iii), 4.12B, 4.13E
- CCSS: RI.4.5, SL.4.1, W.4.2(b)(d)
- NGSS: 4-ESS2-1, 4-ESS2-2, 4-LS1-1
- Science TEKS: 2018–19: 4.2F; 2024–25: 4.3B

Day 13: Preparing for the Science Conference (Part 1)

Literacy Strategy: Culminating activity part 1: thinking and writing like a scientist to compose an informational text.

Science Concept: Scientists organize their data in a way that is easily understood by others, making it easier to discuss and share.

Science and Literacy Connection: At the end of an investigation, scientists share new knowledge with others in many ways, including scientific presentations, published papers, and the media.

Culminating Activity (30–45 minutes)

SUMMARY OF WORK THUS FAR

Throughout the unit, learners have worked in inquiry circles to investigate various plant groups. They have also conducted science investigations on various groups of plants. By this point, teams have already completed their Inquiry Charts and practiced writing synthesis statements and evidence-based claims. They also have useful information in their science notebooks and “Plant Observations” booklets.

Now the inquiry teams will prepare for a “science conference” where they will present a digital informational book to share what they have learned about two big ideas: (1) the relationship between plants and their environments, and (2) how adaptations allowed some plant populations to survive in changing environments. This will serve as the culminating activity for the unit.

You might anticipate learners spending two days working on their books and making connections between their text-based inquiry and science investigation. We suggest about 90 minutes for each of the two days of preparation, but you can decide how much time to allow based on schedule and learner need. After the two days of preparation, you will need to plan one day for presentations of the books.

BACKGROUND INFORMATION ON REPORTING LIKE A SCIENTIST

Scientists often present their expertise in the topic they have been studying by writing books for other scientists. There are several things that the scientific community expects—these are things to note and talk about with children as they prepare for the culminating activity, including the use of academic vocabulary, writing informational texts, and presenting findings at a science conference.

Using science language: When scientists write informational texts, they use science language, which is often more formal than everyday speech. Although valuable, the language we use in everyday interactions and communications is not specific enough to accurately explain scientific concepts. When reading, writing, and talking to other scientists, scientists expect each other to read, write, and speak

using academic vocabulary specific to their group. Children are going to practice using academic vocabulary in their informational books.

Informational texts: Informational texts play a major role in sharing information. Scientists consult texts written by other scientists as part of their own investigations, and they expect scientific books to include claims that have been proven true and evidence that supports those claims. Scientific books are not stories with a beginning, middle, and end. Instead, these types of texts are typically organized in five ways: chronological, simple description, compare/contrast, cause/effect, or problem/solution. Scientists write books that sequence events in order (chronological), describe a scientific topic in detail (simple description), compare and contrast multiple scientific topics, explain the causes and effects of natural phenomena, and present solutions to scientific problems. **Learners will select one of these five ways as the structure for their informational books.**

Science conferences: It is important for scientists to report their findings in science conferences so that new information can be shared across the scientific community. In these meetings, scientists summarize their findings in an oral presentation. These conferences are usually organized by professional organizations (state and national). You might be familiar with the National Science Teachers Association (NSTA), Science Teachers Association of Texas (STAT), National Council of Teachers of English (NCTE), or International Literacy Association (ILA). Scientists can also be members of professional organizations like the American Geophysical Union (AGU), and they may attend science conferences like the International Ocean Science Meeting. Scientists come to these conferences ready (and excited) to share their findings with their colleagues (other scientists) to build and test theories, and to learn from each other. Learners are going to present their digital informational books on the last day of this unit, simulating a science conference. Ideally, they will each read their books in their entirety, but if time doesn't allow, each team will read their favorite page (or two) and share why it is their favorite.

GUIDING QUESTIONS FOR THE CULMINATING PROJECT

Here are some guiding questions you might want to pose for the teams to respond to:

- What claim (or claims) have we made based on our observations and investigations?
- What evidence do we have to support the claim(s)?
- How will we present our evidence?
- How does our investigation of one representative plant demonstrate how adaptations allowed some plant populations to survive in changing environments?

MATERIALS NEEDED

Each team needs:

- science notebooks with all documents, notes, etc.
- team Inquiry Chart
- team "Plant Observations" booklet
- access to a digital platform that supports the writing of a book
- access to bags of representative plant images and fact sheets

SETUP

- Designate a digital platform that learners will use to create their digital book. Consider using platforms that are already familiar to your learners (for example, Google Slides or PowerPoint). Make sure to choose a program that will allow you to download digital book products as a .docx, .pptx, or .pdf file.

- When using technology, ensure that each team has access to information as needed.

OVERVIEW OF THE CULMINATING PROJECT

- Tell learners the purpose of this activity: to create a book that other scientists can use to learn about their topic. Remind them that this is an informational book and not a book of fiction. The book will show their expertise in the topic of their choice.
- Explain that each team will create one book (digitally). The book will contain two sections:
 - The first section is the main content of the book. All members of the group will work as a team to complete this part.
 - The second part of the book is the biographical section in which each team member will create their own individual page telling their readers about the author (themselves).
- Tell learners that they have some decisions to make as they start their book:
 - What information will they include in the book?
 - How will the book be structured (e.g., chronological, simple description, compare/contrast, cause/effect, or problem/solution)?
 - How will they present their information, and where in the book will they place their information?
 - Their audience (fellow scientists) will expect them to use academic vocabulary. What technical words and phrases might they need to include in their books?
 - What graphic features of informational texts will they include in their books (e.g., table of content, index, glossary, headings, bold words, sidebars, pictures and captions, and labeled diagrams)?
 - Who is going to do what for each group?
- Remind them that they can turn to some of the texts they have used in their inquiry circles (text-based investigations) as models for their own creation.
- Invite learners to create a graphic organizer to help them organize the information they will include in their books. While these are similar to storyboards that are used when planning a narrative book, these “boards” will differ slightly. Rather than a simple beginning-middle-end structure, learners will plan the organization of their books according to one of five types of informational text (e.g., chronological/sequential, simple description, compare/contrast, cause/effect, or problem/solution). The “Plant Resources” spreadsheet provides model texts for three of the five types of text structures (there is one eBook and one print book suggested for simple description, compare/contrast, and chronological/sequential). These model books may be reviewed so learners can use them as a mentor text in their writing.
- Encourage learners to think in terms of claims as they move toward the writing of their book.

GETTING LEARNERS STARTED ON THE CULMINATING PROJECT

After the project has been explained and questions have been answered, children will begin the project. During the time remaining, children should be working on their digital books. Ideally, children should work on a draft of their book, but if time doesn’t allow them to do so before they present their final version, they will be presenting their draft as a book.

During this work time, remind children to do the following:

- Organize their book using the data they collected during their inquiry circles and science investigations. They should be synthesizing the information to address the two ideas:
 - the relationship between their plant and its environment; and
 - how adaptations allowed some plant populations to survive in changing environments.

- Structure their book using one of the five ways informational texts are organized (model texts are available for three of these in the “Plant Resources” document):
 - sequential/chronological
 - simple description
 - compare and contrast
 - cause and effect
 - problem and solution
- Include graphic features of informational texts in their books (e.g., table of contents, index, glossary, headings, bold words, sidebars, pictures and captions, and labeled diagrams).
- Include (in their book) a biography, telling their readers information about themselves. Each group member will create a biography page about themselves, and these pages will be added at the end of their book. Information they might want to address in their biographies includes the following:
 - Who are you as a scientist?
 - What was your role in your group?
 - Which group members did you work with?
 - How did you work as part of a team?
 - What do you think about science?
 - What part of the scientific process did you enjoy most?

Role of the teacher: the teacher moves around, supporting the teams, offering guidance as needed, and asking questions about their work.

Science Language

- A **claim** is a statement of what you think is true based on observations and evidence.
- **Evidence** is data collected during an investigation to support (back up) explanations and answers.
- **Reasoning** means thinking about and explaining **how** the evidence supports a claim.
- **Data** are facts and information (such as images, words, and measurements) collected during an investigation.

Expanded Standards

Reading TEKS

4.9D: Recognize characteristics and structures of informational text, including: **(iii)** [recognize] organizational patterns such as compare and contrast. **4.12B:** Compose informational texts, including brief compositions that convey information about a topic, using a clear central idea and genre characteristics and craft. **4.13E:** Demonstrate understanding of information gathered.

CCSS

RI.4.5: Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text. **SL.4.1:** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly. (a) Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. **W.4.2:** Write informative/explanatory texts to examine a topic and convey ideas and information clearly. (b) Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. (d) Use precise language and domain-specific vocabulary to inform about or explain the topic.

NGSS

4-ESS2-1: Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. **4-ESS2-2:** Analyze and interpret data to make sense of phenomena using logical reasoning. **4-LS1-1:** Construct an argument with evidence, data, and/or a model.

Science TEKS

2018–19: 4.2F: Communicate valid, oral, and written results supported by data.

2024–25: 4.3B: Communicate explanations and solutions individually and collaboratively in a variety of settings and formats.