Labs

Alveary

About the Course

This is the required lab component for level 7 General Science. This course includes our custom laboratory book which will build foundational and progressive skills and habits.

This topic is included in the following course(s): Science: Grade 7

About Science: Grade 7
In level 7, learners extend their relationship with science in a new direction (time), situating science in its historical, political, and cultural context, and beginning to understand that science is an ever-changing process rather than a static body of knowledge. Reading level and expectation increase from previous levels.

Science: Grade 7
The Big Picture:
To accomplish the goal of supporting a relationship with the Things of the Universe, a Mason science program consists of nature lore, natural history, and general science. Nature immersion, inquiry, community connection, and supportive literature are woven into each of these three parts. In Form 1, students became acquainted with this area of knowledge, science. Form 2 students extended their scope and began to encounter science as an active part of society. Form 3 students extend their relationship with science in a new direction (time) and consider science as a process by which man seeks Truth within Creation. They begin to situate science in its historical, political, and cultural context with all of the complexities of man's own story. In this way, students are prepared to think about science with a complete and holistic perspective.

Nature lore is timeless knowledge that is passed through a community, much like a grandmother passes on how to make that special bread when the dough just "feels right." Like Mason, we strive to pass on this knowledge primarily through outdoor work. Group nature walks, seasonal readings, and topics in scouting are provided as an Outdoor Work resource in the Quick Links. If desired, literature suggestions to support lore can be found in the Community Read Alouds resource (in Citizenship Grades 4+).

Placement & Combining Tips

About Science: Grade 7
In level 7, learners extend their relationship with science in a new direction (time), situating science in its historical, political, and cultural context, and begin to understand that science is an ever-changing process rather than a static body of knowledge. Reading level and expectations increase from previous levels.

Labs: Grade 7
The ideas and skills in this component are progressive, like math or grammar. Teachers should read the lab book thoroughly to understand what concepts might need to be supplemented should they choose a different sequence or a substitution.

Scheduling

GRADE	SCHEDULE INFO.	BOOKS
7	Labs: Grade 7 1 time/week 45 min	Science: Grade 7 Lab Book

Sample Weekly View

Day 1	Day 2	Day 3	Day 4	Day 5
Science: Grade 7				
Natural History: Grade 7	General Science: Grade 7	General Science: Grade 7	Nature Notebook: Grade 7	Labs: Grade 7 Nature Walks & Scouting: Grades 1-8

Planning & Prep

Permission to print for non-commercial use. See Alveary group use policy to use lessons in a group context.

LINKS: Click text or scan the QR code in the top corner of the lesson plan pages to view online resources associated with the lessons.

Responsibility for previewing all links rests with the teacher. All links were checked at the time of publication; however, websites change frequently and may contain objectionable content. Please report broken links by contacting us through our website.

Science: Grade 7
☐ Obtain any supplies indicated on the science or grade-level supply lists.
☐ Download any apps and shortcut any desired links.

Nature Lore:
☐ Bookmark your Outdoor Work Quick Link, so that you have it available on your weekly outing. Outdoor Work is generally flexible for your location and season and can be moved around in the schedule to incorporate or substitute Natural History Club outings, except where the suggestion is to collect some Thing for a lesson.
☐ Print or bookmark grade-specific nature notebook suggestions to support natural history and general science. Notebooking can be done on a walk, during occupations, or as a field trip, as appropriate.

Special Topics & Field Trips

Science: Grade 7
Encourage students to choose their own special topic and to notice its ecological relationships. What or who are they curious about or interested in getting to know better? Teachers can choose their own special study, too!

☐ Learn a few of your local species or varieties in connection with special topics.

Books & Resources

For book rationales and purchase options, click the Book List link or scan the QR code below.
∞ View Book List Details

Labs: Grade 7

Science: Grade 7 Lab Book

Supplies

For supply list details and basic supplies helpful to have on hand, click the links or scan the QR code below.
∞ View Basic Supplies
(No Subject Supplies Assigned)

Quick Links

Click THIS text or scan the QR code for links.

Labs: Grade 7

- Grade 7 Lab Book
- Lab Notebook Examples

Related Course Quick Links

- Foundations (See Section 13: Science)
- Alternate One Year Physical Science Lesson Plans
- Outdoor Work
- Seek app from iNaturalist
- SkyView Lite for Android
- SkyView Lite for iOS

Labs: Grade 7

How To Teach Labs

Introduce

Regardless of how many days are required to complete a particular activity, every science lab has the same flow, which follows the scientific method and is guided by the lab book.

• On day 1, learners read an introduction in their lab book. How does this lab activity relate to what they have learned so far, as well as any previous experience? What will they learn from the lab? This is analogous to the conversation we might have when we begin something new in any subject, but they may need to dialogue as they learn to extend these skills to the laboratory.

• Once they have had a chance to think, they will compose a prelab narration to put these introductory ideas into their notebooks. The prompt in the lab is generalized and consistent, so they learn the habit. Eventually, they will learn to formulate this as a hypothesis. For example, a learner preparing for a lab about the use of insect repellent might write:

"I have read about some diseases that are spread by insects, like Lyme disease. I also know that my sister is allergic to some insect bites. Insect repellent contains pesticides to keep insects away. Some scientists worry about how pesticides affect wildlife. I am going to compare some different insect repellants in this lab to see if they really work."

• Written narration and composition are skills that they will build over time. These prelab narrations may seem short and even incomplete at first, but that is okay. If learners have difficulty or are easily frustrated, then provide them with support. Teachers may act as scribes or allow students to keep a digital notebook to type or use assistive technology, as appropriate.

• After they complete their prelab narration, the listed materials are collected. This gives the learner some responsibility to let the teacher know if something is missing or to remind the teacher if something needs to be purchased at the store.

• If these activities on day 1 do not fill the scheduled time, that is fine. They might use the additional time to familiarize themselves with the procedure, draw a picture from their book, or catch up on any other work. Some labs may instruct the student to begin on the same day.

Lab Procedure

• Then, students begin and follow the procedure (whenever prompted by the lab book). Note that the lesson plans guide teachers as to which sections are completed each week, and the lab book instructs learners when to take a break.

• The lab gives instructions for using their notebooks to create tables and figures, as needed. Do not allow this to become an obstacle. Do it with them, first having them watch and then having them copy or help when ready.

• If teachers choose to have learners record directly in the lab book or on a photocopy, then cut out and tape these into their lab books, so that they can see how the record is built.

• Learners may feel unsatisfied with their results. This is often part of the process. Come alongside, help them learn to be okay with uncertainty and questions, and teach them what to do with it in the next step.

Analysis & Conclusions

• The last step in the lab is to analyze the data and observations and draw conclusions from them. For some simpler labs, learners will complete their analysis and concluding (or postlab) narration on the last day of the lab procedure. For labs that are more involved, a separate day has been built in to allow adequate time for this.

• Similar to the prelab narration, the concluding narration is a chance to think about and put into

words (or questions). This time, they are considering what they learned from the lab, what they could learn more about if they were to continue, and possibly how they would pursue that learning. Again, they might need support in the form of dialogue, a scribe, etc. For example, the above learner might write:

“It was clear that the Off and black pepper essential oil worked against ants because they would not even touch the line of repellent, but I wasn’t sure about the Skin So Soft because it ran all over the place. I could test this one again with different insects or on a different surface.”

• Depending on the interest of the learner and the priorities of the teacher, the student might be encouraged to spend more time on those ideas of what more they could learn, or it might be time to move on. Either way, it is an important part of the scientific method to reflect on what we could or would do next - our practice should help to clarify our thinking and teach that there is always more to be learned.

• Teachers should engage learners with this reflection by reviewing their lab notebooks with them, discussing the science used in the lab, and demonstrating curiosity about the lab themselves.

Labs: Grade 7

Click THIS text or scan the QR code for links.

Term 1

WEEK 1

45m Labs: Grade 7 - Lesson 1
Changing Constellations

Materials: Grade 7 Lab Book and materials listed within

PREP: Read Teacher Tip

→ LAB DAY
Complete day 1 of Changing Constellations, as directed in the Lab Book.

Suggested day 1: Students read the Introduction. Then compose the prelab narration in the lab notebook. These need not be more than 1-3 sentences at first, and teachers should feel free to scribe for students, as necessary. Spend the remaining time gathering materials for next week. If time permits, students may want to copy any helpful diagrams into their notebooks.

★ TEACHER TIP
Students study sky charts over different time periods to notice how observed movement of stars changes. Remember the most important objective is always building skills and habits. Pacing is only a suggestion. Students should engage with lab at a pace that is appropriate for their abilities and interest.

WEEK 2

45m Labs: Grade 7 - Lesson 2
Changing Constellations

Materials: Grade 7 Lab Book and materials listed within

→ LAB DAY
Complete day 2 of Changing Constellations, as directed in the Lab Book.

Suggested day 2: Students conduct the Procedure today, using the website in the lab book.

WEEK 3

45m Labs: Grade 7 - Lesson 3
Changing Constellations

Materials: Grade 7 Lab Book and materials listed within

PREP: Read Teacher Tip

→ LAB DAY
Complete day 3 of Changing Constellations, as directed in the Lab Book. Be sure to narrate the lab to your teacher by showing them your lab notebook.

Suggested day 3: Students complete the Analysis and Conclusion.

★ TEACHER TIP
Inviting students to share their lab notebooks is a great way to engage in discussion and keep up with their learning! They should be able to discuss the science and explain what they did.