General Science,
Natural History, Nature Lore

Science

Alveary

Alveary

Science
Sample

Science: Grade 7

Grade(s) 7 (suitable 8)

About the Course

Read about nature lore, natural history, physical science, and the history of scientific discovery. Recommendations for labs, special studies, nature study, and object lessons that correlate with the readings are included.

Placement & Combining Tips

Ideally, general science terms are completed in sequence because the ideas and skills are progressive. Teachers should read the lab book thoroughly to understand what concepts might need to be supplemented should they chose a different sequence or a substitution. Natural science elements are not in a particular sequence within the Form beyond reading level, however. Therefore, teachers are encouraged to adjust the sequence to accommodate the interest of their students, any learning differences in their schoolroom, and the need to combine students.

Scheduling

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GRADE	MIN.	xWK	MORN.	TEACH.	TOPIC (S)	BOOK(S)
G7	30	2	*	◪	General Science	Aristotle Lead the Way
G7	30	2	*	◪	Natural History	Breakthrough!
G7	30	1	_	☐	Nature Lore	Wild Animals I Have Known

_ = afternoon

* = morning

T = full teacher attention

◪ = half teacher attention

☐ = little teacher attention

Weekly View

Day 1	Day 2	Day 3	Day 4	Day 5
General Science	Natural History	General Science	Natural History	Nature Lore

Planning & Prep

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.

☐ Read through the labs and purchase supplies for the year or term. Note that Term 2 requires the purchase of live specimens, which will need to be purchased at the appropriate time for your location and supplier.

☐ Print Lab Book PDF.

☐ Preview afternoon walks; plan where you will go to learn "by the way."

☐ Study Handbook of Nature Study assignments for object lessons.

☐ Print online labs for lab book.

Books & Resources

☐ Wild Animals I Have Known

☐ Aristotle Leads the Way

☐ Alveary Grade 7 Lab Book

☐ Breakthrough!

Quick Links

- Sample Lab Book (Grades 4, 5, 6, 7, & 8)

Click THIS text or scan the QR code for links.

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How To Teach - Lessons

Recap

If the student is beginning a new book, then this is simply a moment to consider the title and any ideas about what the book might be about. For most lessons, recall ideas from the previous section. If the student thought of any questions or points of discussion, those should be considered before continuing.

Read

Read the passage indicated in the lesson plans.

Narrate

Tell about the passage by recalling events in sequence, explaining an idea, describing a setting, connecting consequence to cause, etc, depending on the nature of the passage.

Discuss

Consider together any thoughts, confusion, or concerns about the passage. Questions/topics are often provided in the lesson plans (or even lab books) to help. Alternatively, many of these can be used for composition, depending on the needs of the student and the instructional goals of the teacher. Remind the student to mark any pages with quotes or dates that they want to keep for Commonplace/Book of Centuries.

Connect

Follow any extra links or examine any side bars in the text, depending on student interest.

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How To Teach - Labs

Introduce

On the first day of a new lab, the activity is introduced. This "prelab" instruction is provided as a reading in the lab book.

Narrate

Students consider how the prelab instruction relates to what they have read, any previous knowledge and experience, and what they will learn from the lab. This is analogous to the conversation we might have when we begin something new in any subject, but students may need to dialogue as they extend these skills, if they are new to the laboratory. The process can be simplified to the questions "What do I know about this?" and "What do I plan to find out?" Once they have had a chance to think, students compose an introductory narration in their notebooks. These can be simple and may even seem incomplete at first while they learn to apply narration and composition skills to the laboratory notebook. Support students as needed. Over time, students learn to articulate their hypothesis in this narration.

Prepare

Students collect indicated supplies, copy any figures or diagrams indicated, and review the procedure. Some labs instruct them to use their remaining lesson time for this preparation and then take a break before beginning the procedure. Some labs instruct them to begin the laboratory activity on the same day as their introduction.

Lab Procedure

Complete the procedure as indicated in the lab book, including the creation of any tables or figures. Do not allow math, writing, or computer use to become an obstacle. It is okay to support the student, as they build notebook skills. For example, they may record data directly in their lab book and then cut out and tape these records into their lab notebook; they may work with a scribe; they may consider keeping an electronic notebook.

Analysis & Conclusions

Data and/or observations are analyzed as guided by the lab book. Students consider what they learned from the lab and what they could learn more about, *if* they were to continue. Depending on the interest of the student and the priorities of the teacher, the student may 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.

Narrate

Once they have had time to analyze and think, a concluding/"postlab" narration is composed. Similar to the introductory narration, the concluding narration is a chance to articulate ideas into words: "What did I find out?" and "What now?" Support students, as needed.

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Click THIS text or scan the QR code for links.

Term 1

WEEK 1
Lesson 01

☐ 01 Aristotle: Birthing a Universe

➜ INTRO
This book tells the story of how modern science developed beginning with the ideas of the ancient Greeks. Most of them wondered and learned from the heavens and from mathematics, eventually defining science.

➜ READ, NARRATE, & DISCUSS

Aristotle Leads the Way Ch.1 p.1-8
"The universe" - "to have them."

• HISTORY CHARTS
Sumerian Empire (c.3100 B.C.-c.2000 B.C.), Egyptian Civilization (c.3100 B.C.-332 B.C.)

WEEK 1
Lesson 02

☐ 02 Breakthrough!: Intro. to Life Science

ALERT: Sensitive content Intro and Lab

➜ SET UP AFTERNOON LAB
☐ Lab Book Resource: Lab 1: Breakthrough! "Classification"

➜ INTRO
Before we begin the story we need to better understand how and why scientists compare different forms of life.

➜ READ, NARRATE, & DISCUSS

Lab Book: Term 1 Intro

• LEARNING IN THE LAB
Lab Book: Breakthrough!
"Lab 1: Classification"

WEEK 1
Lesson 03

☐ 03 Aristotle: Creation Myths

ALERT: Sensitive content p.11-12

➜ READ, NARRATE, & DISCUSS

Aristotle Leads the Way Ch.2 p.9-14
"Once, or so" - "makes us human."

WEEK 1
Lesson 04

☐ 04 Breakthrough!: Vivien Thomas

➜ INTRO
This is a story where learning about animals helped scientists care for humans.

➜ READ, NARRATE, & DISCUSS

Breakthrough! Ch.1 p.1-9
"Vivien Thomas" - "swift and brutal."

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Click THIS text or scan the QR code for links.

Term 1

WEEK 1
Lesson 05

☐ 05 Wild Animals: Lobo, the King of Currumpaw

➜ INTRO
This story takes place in northeastern New Mexico. Find Corrumpa Creek on the map. This is probably the Currupaw River Seton writes of. Look at the Economy Symbol key. What is the primary industry in this area?
⍐ Map Resource: NG United States Atlas "New Mexico" p.121

➜ READ, NARRATE, & DISCUSS

Wild Animals I Have Known
"Lobo: King of Currumpaw" p.15-21
"Currumpaw" - "had been poisoned."

• TAKE A NATURE WALK - Record observations
What wild canines live near you? Look and listen for evidence of them during your walks.
∞ Image Link: Tracking the Gray Wolf

WEEK 2
Lesson 06

☐ 06 Aristotle: Creation Myths (cont.)

➜ READ, NARRATE, & DISCUSS

Aristotle Leads the Way Ch.2 p.14-19
"We've learned" - "to be born."

WEEK 2
Lesson 07

☐ 07 Breakthrough!: Prejudice

➜ SET UP AFTERNOON LAB
⍐ Lab Book Resource: Lab 1: Breakthrough! "Classification"

➜ READ, NARRATE, & DISCUSS

Breakthrough! Ch.1 p.10-15
"Thomas was" - "uncompromising energy."

• LEARNING IN THE LAB
Lab Book: Breakthrough!
"Lab 1: Classification"

WEEK 2
Lesson 08

☐ 08 Aristotle: Calendars

ALERT: Sensitive content p.21

➜ READ, NARRATE, & DISCUSS

Aristotle Leads the Way Ch.3 p.20-25
"Perhaps it was" - "around the globe."

• COMPOSITION - Compare/Contrast
Explain the similarities and differences between the lunar calendar and the solar calendar. Which is closer to the calendar we use?

• HISTORY CHARTS
Egyptian Solar Calendar (c.4th century B.C.)

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Term 1

WEEK 2 **Lesson 09**	☐ 09 Breakthrough!: Catch-up day ➜ Use this time to work on your lab notebook.	
WEEK 2 **Lesson 10**	☐ 10 Wild Animals: Tannerary ➜ READ, NARRATE, & DISCUSS Wild Animals I Have Known "Lobo: King of Currumpaw" p.21-24 "The dread of" - "fool to him."	• TAKE A NATURE WALK - Record observations Look and listen for evidence of wild and domesticated canines.
WEEK 3 **Lesson 11**	☐ 11 Aristotle: The Moon ➜ READ, NARRATE, & DISCUSS Aristotle Leads the Way Ch.3 p.26-27 "For a long time," - "facing the sun."	
WEEK 3 **Lesson 12**	☐ 12 Breakthrough!: Thomas and Blalock ➜ SET UP AFTERNOON LAB ☐ Lab Book Resource: Lab 2: Breakthrough! "Modeling the Skin" ➜ READ, NARRATE, & DISCUSS Breakthrough! Ch.2 p.16-21 "When Alfred" - "sixteen years old."	• LEARNING IN THE LAB Lab Book: Breakthrough! "Lab 2: Modeling the Skin"
WEEK 3 **Lesson 13**	☐ 13 Aristotle: Calendars (cont.) ➜ READ, NARRATE, & DISCUSS Aristotle Leads the Way Ch.3 p.28-31 "Palenque," - "our solar system."	
WEEK 3 **Lesson 14**	☐ 14 Breakthrough!: Thomas in the Lab ➜ READ, NARRATE, & DISCUSS Breakthrough! Ch.2 p.21-26 "Thomas was" - "Helen B. Taussig."	

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Term 1

WEEK 3
Lesson 15

☐ 15 Wild Animals: Poison

➜ READ, NARRATE, & DISCUSS

Wild Animals I Have Known
"Lobo: King of Currumpaw" p.25-31
"This history" - "two days ago."

• TAKE A NATURE WALK - Record observations
Look and listen for evidence of wild and domesticated canines.

WEEK 4
Lesson 16

☐ 16 Aristotle: Number Systems

➜ READ, NARRATE, & DISCUSS

Aristotle Leads the Way Ch.3 p.32-33
"When did people" - "closely guarded secret."

WEEK 4
Lesson 17

☐ 17 Breakthrough!: The Heart Doctor

➜ SET UP AFTERNOON LAB
☐ Lab Book Resource: Lab 2: Breakthrough! "Modeling the Skin"

➜ READ, NARRATE, & DISCUSS

Breakthrough! Ch.3 p.27-31
"If you look" - "practice medicine."

• LEARNING IN THE LAB
Lab Book: Breakthrough!
"Lab 2: Modeling the Skin"

WEEK 4
Lesson 18

☐ 18 Aristotle: Ionia

➜ READ, NARRATE, & DISCUSS

Aristotle Leads the Way Ch.4 p.34-38
"Does where we live" - "scientific approach."

• COMPOSITION - Written Narration

• HISTORY CHARTS
Thales (c.636 B.C.-546 B.C.)

WEEK 4
Lesson 19

☐ 19 Breakthrough!: Blue Babies

➜ NOTE
On p.34 the author says that “deoxygenated blood is blue.” This is a common misconception because the oxygen-depleted veins lie very close to the surface of the skin. They appear bluish because of other pigments in the skin and the reflection of light. The color of blood comes from a pigment in your red blood cells, which is always some shade of red.

➜ READ, NARRATE, & DISCUSS

Breakthrough! Ch.3 p.31-36
"Taussig applied" - "to be seen."

• COMPOSITION
Think about the different ways that people respond to adversity. Some, like Vivien Thomas and Helen Taussig, become stronger and more compassionate. Others become angry and resentful. Why do you think people respond differently? Can we change the way we respond?

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Click THIS text or scan the QR code for links.

Term 1

WEEK 4
Lesson 20

⬚ 20 Wild Animals: Wolf Trap

ALERT: Sensitive content p.36

➜ READ, NARRATE, & DISCUSS

Wild Animals I Have Known
"Lobo: King of Currumpaw" p.31-36
"At length" - "the Currumpaw pack."

• COMPOSITION - Persuasive
Do you think it was right for them to kill Blanca? Why or why not? Give at least three reasons, citing evidence from the story.

• TAKE A NATURE WALK - Record observations
Look and listen for evidence of wild and domesticated canines.

WEEK 5
Lesson 21

⬚ 21 Aristotle: Ionia (cont.)

➜ SET UP AFTERNOON LAB
∞ Lab Link: Lab 1: Aristotle
"Lab 1: Changing Constellations"

ALERT: Sensitive content

➜ READ, NARRATE, & DISCUSS

Aristotle Leads the Way
Ch.4 p.38-41
"We don't know" - "is heating up."

• LEARNING IN THE LAB
Lab: Aristotle Leads the Way
"Lab 1: Changing Constellations"

WEEK 5
Lesson 22

⬚ 22 Breakthrough!: Compassionate or Objective?

➜ SET UP AFTERNOON LAB
⍐ Lab Book Resource: Lab 3: Breakthrough! "Modeling the Heart"

➜ READ, NARRATE, & DISCUSS

Breakthrough! Ch.4 p.37-41
"Early one" - "be so insistent."

➜ DISCUSS
How does feeling compassion help and hinder doctors and scientists? Do you think being compassionate is a personality trait, a choice, or both?

• LEARNING IN THE LAB
Lab Book: Breakthrough!
"Lab 3: Modeling the Heart"

Refer to this link if this is your first dissection.
∞ Link: Dissection FAQs

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WEEK 5 **Lesson 23**	☐ 23 Aristotle: Calculating Measurement ➜ READ, NARRATE, & DISCUSS Aristotle Leads the Way Ch.4 p.42-43 "The eye can" - "about 350 paces."	
WEEK 5 **Lesson 24**	☐ 24 Breakthrough!: Animal Research ➜ READ, NARRATE, & DISCUSS Breakthrough! Ch.4 p.41-46 "Once Thomas" - "to be resolved."	• COMPOSITION Thomas tried to understand both the ideas of animal rights activists and medical researchers before forming his own opinion. Explain both of these perspectives.
WEEK 5 **Lesson 25**	☐ 25 Wild Animals: Lobo is Trapped ➜ READ, NARRATE, & DISCUSS Wild Animals I Have Known "Lobo: King of Currumpaw" p.36-41 "At intervals during" - "at his hands."	• TAKE A NATURE WALK - Record observations Look and listen for evidence of wild and domesticated canines.
WEEK 6 **Lesson 26**	☐ 26 Aristotle: The "A" Team ➜ SET UP AFTERNOON LAB ☐ Lab Book Resource: Lab: Aristotle Leads the Way "Lab 2: Anaximander's Earth" ALERT: Sensitive content p.44 ➜ READ, NARRATE, & DISCUSS Aristotle Leads the Way Ch.5 p.44-49 "Thales did" - "started so well."	• LEARNING IN THE LAB Lab: Aristotle Leads the Way "Lab 2: Anaximander's Earth" • HISTORY CHARTS Anaximander (c.611 B.C.-c.547 B.C.), Anaximenes (c.570-500 B.C.), Anaxagoras (c.500-428 B.C.)

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WEEK 6 **Lesson 27**	⬚ 27 Breakthrough!: Modeling ➜ SET UP AFTERNOON LAB ⍞ Lab Book Resource: ☆ Lab 3: Breakthrough! "Modeling the Heart" ➜ READ, NARRATE, & DISCUSS Breakthrough! Ch.5 p.47-51 "Vivien Thomas" - "Lord has made."	
WEEK 6 **Lesson 28**	⬚ 28 Aristotle: Origins of Numerals ➜ READ, NARRATE, & DISCUSS Aristotle Leads the Way Ch.5 p.50-53 "It was the" - "in Egyptian tombs."	• COMPOSITION - Cause & Effect Tell how the concept of zero changed mathematics.
WEEK 6 **Lesson 29**	⬚ 29 Breakthrough!: Research ➜ READ, NARRATE, & DISCUSS Breakthrough! Ch.5 p.51-54 "Besides perfecting" - "rearrange the pipes."	• COMPOSITION Write a story about a time that you learned from a failure.
WEEK 6 **Lesson 30**	⬚ 30 Wild Animals: King Wolf ➜ READ, NARRATE, & DISCUSS Wild Animals I Have Known "Lobo: King of Currumpaw" p.41-44 "Grand old outlaw" - "are together again."	• TAKE A NATURE WALK - Record observations Look and listen for evidence of wild and domesticated canines. • SCIENCE NOTEBOOK Draw a food chain or web that includes Lobo. Wild Animals I Have Known "Lobo" p.15-44

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Examination

Term 1

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- Explain at least two examples of how careful record-keeping and/or measurement advanced science in the ancient world OR What were some cultural obstacles for the earliest scientists and what urged them forward? (Aristotle Leads the Way)

- Explain how you did one astronomy investigation this term and what you learned from it. (Aristotle Leads the Way)

- Describe how our system of classification in biology helps us to make sense of living things and how it helps us to understand ourselves OR Tell how the doctors in our book solved their problem using animal models. (Breakthrough!)

- Explain how you did one anatomy investigation this term and what you learned from it. (Breakthrough!)

- Tell all you know about the behavior of crows. (Wild Animals I Have Known)

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Extra Helpings

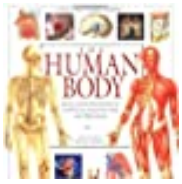
Projects & Activities

For students with a high level of interest.

Term 1

- ☐ Video: Finding Summer Constellations (after Lesson 2 of Aristotle Leads the Way.)
- ☐ Video: Is Math Invented or Discovered? (after Lesson 3 of Aristotle Leads the Way.)
- ☐ Find someone who raises livestock in your area. What predators do they contend with? What do they do to protect their herds?
- ☐ Plan a field trip to a science museum that has a human body exhibit.
- ☐ VIDEO: Human Body 101 (after Lesson 9) ALERT: Sensitive Content

Books, Games, and More

RESOURCE	INFORMATION	SCOPE	BUY/FREE
	Phineas Gage: A Gruesome but True Story About Brain Science by John Fleischman ISBN/ASIN 978-0618494781 ➜ The story of a railroad foreman who ended up with a hole in his head and the contributions his case made to brain science.	Term 1	$10.00
	The Human Body by Charles Clayman ISBN/ASIN 978-1564589927 ➜ A colorful and complete body atlas with an emphasis on how the systems work together and copious references to medical problems and treatments.	Term 1	$29.00
	The Call of the Wild by Jack London ISBN/ASIN 978-0486434230	Term 1	$4.00
	White Fang by Jack London ISBN/ASIN 979-8611586020		$7.00