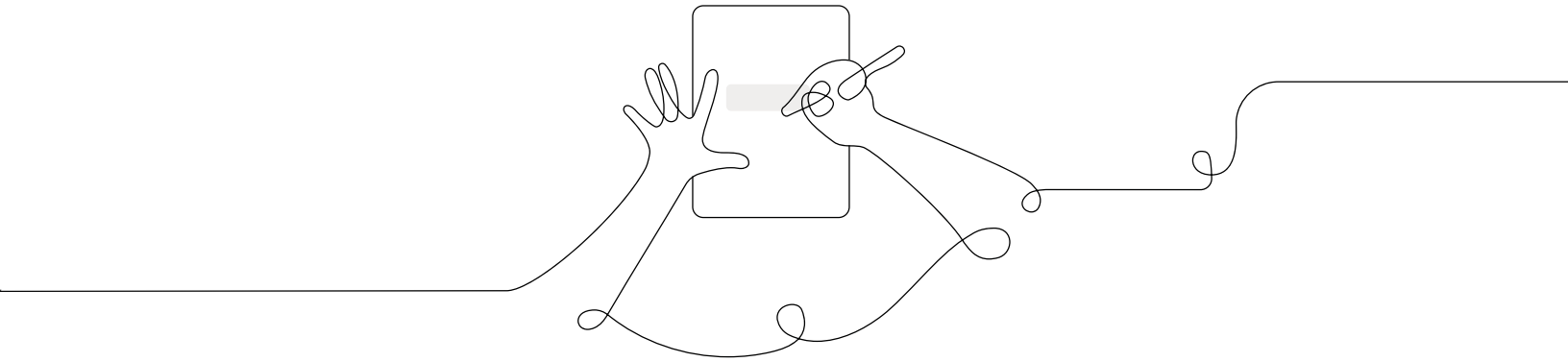
AmplifyScience

Participant Notebook

Supporting All Learners with Complex Texts
Grades K-5



Reference: Reading across K-5 in Amplify Science

Reading in Amplify Science is approached from an inquiry stance – students ask questions, make connections, evaluate information, search for evidence, and clarify difficult concepts as they read. This approach reflects the ways scientists obtain, evaluate, and communicate information. Reading and discussing texts in these ways builds students' capacity to read strategically while simultaneously building their understanding of science content. In order to support students' engagement with complex text, the program provides the following scaffolds:

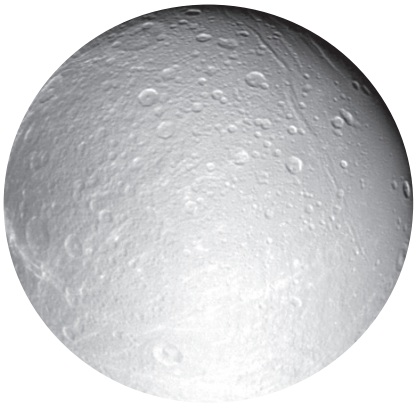
- Explicit instruction for accessing text by leveraging specific sense-making strategies that are appropriate to the task, purpose, and grade level
- Support through teacher modeling of linking information in text to investigations
- Partner reading and support for discussions about text with peers
- Multiple opportunities to engage with the same text

Additional K-5 developmental considerations and supports

	Kindergarten - Grade 1	Grades 2-5
Books in the unit	5 custom-written informational texts, including one reference book	5 custom-written informational texts, including one reference book
Modes of reading	Each unit book is designated as either a Read-Aloud, a shared read, or a partner read for the first read with subsequent readings of the same book as partners.	All unit books are designated as partner reading books. Students often return to the books multiple times. Students are supported through discourse routines and investigation notebook pages.
Text of design for accessibility	Readability levels for each book are based on the initial mode of reading. For example, a read-aloud book has a higher readability level than others because in the read-aloud, the teacher takes full responsibility for recognizing and decoding the words. Visual representations are selected and designed to convey information and support accessibility.	The five books in each unit are written to reflect reading expectations for the particular grade level in which they are used, and to provide appropriately complex science texts for students that support, link to, and expand their firsthand science learning. Visual representations are selected and designed to convey information and support accessibility.
Examples of additional experiences with reading	Investigation notebooks Classroom wall Co-constructed charts • "What we know about ___ " Mini books (student-completed) Language frames Word rings (grade 1)	Investigation notebooks Classroom wall Co-constructed charts Evidence cards

The Shape of a Moon's Orbit

Dione, a moon of Saturn

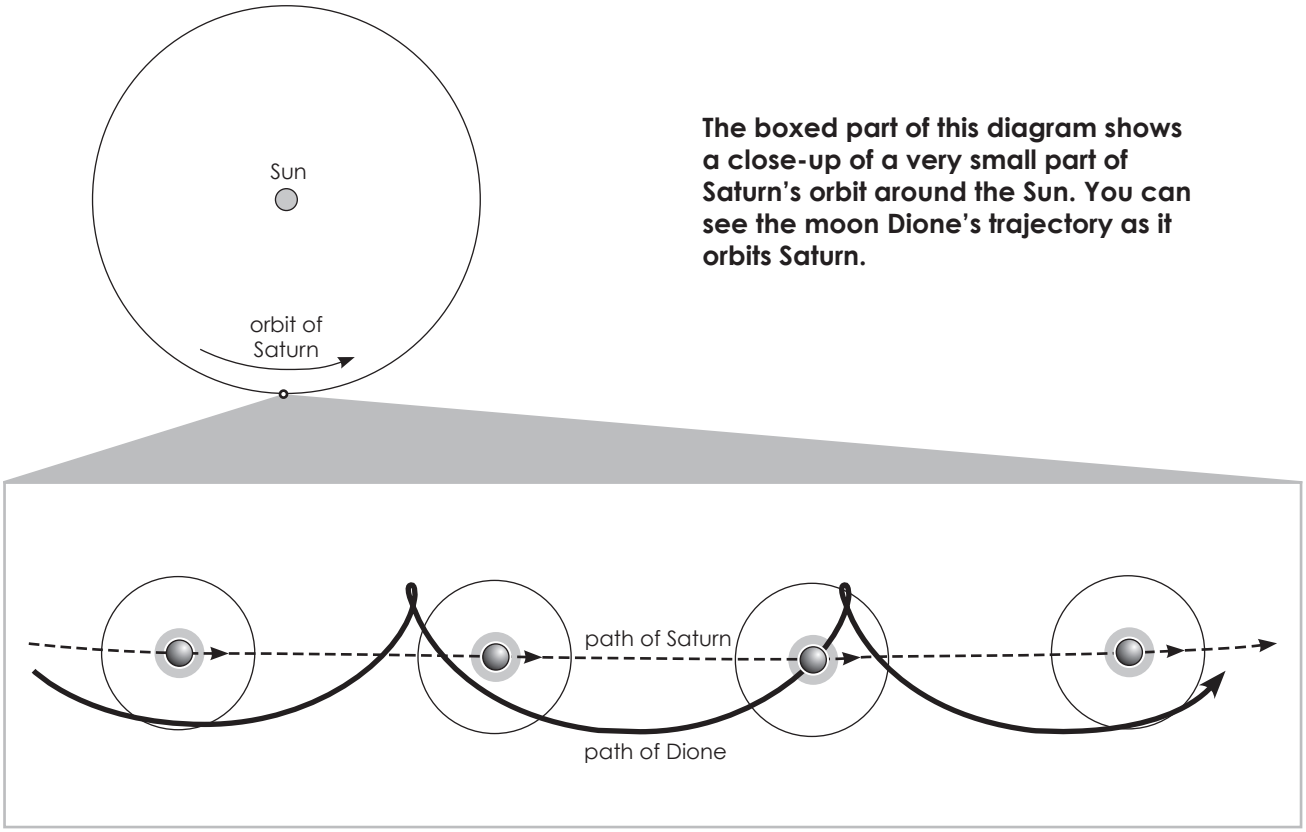


NASA

When is a circle not a circle? Many objects in the Solar System move in orbits that are very circular. For instance, Dione is a moon that moves around the planet Saturn in an orbit that is almost a perfect circle. It seems perfectly logical to say that the trajectory of Dione is circular. But is it really?

While Dione is circling around Saturn, Saturn is not sitting still. Saturn is moving around the Sun. The gravitational pull of the Sun affects Saturn and all its moons, so they all move around the Sun together. Saturn moves in an orbit that is almost a perfect circle, but what kind of trajectory does a moon like Dione follow?

The path of a moon around the Sun can be quite complicated. It depends on how fast the planet is moving, how fast the moon is orbiting, and how far away the moon is from the planet. Dione moves around the Sun in a wavy path that makes a little loop every time it orbits around Saturn. Every time Saturn orbits the Sun once, Dione orbits Saturn about 3,931 times, so the trajectory that Dione follows is an intricate path with thousands of waves and loops.



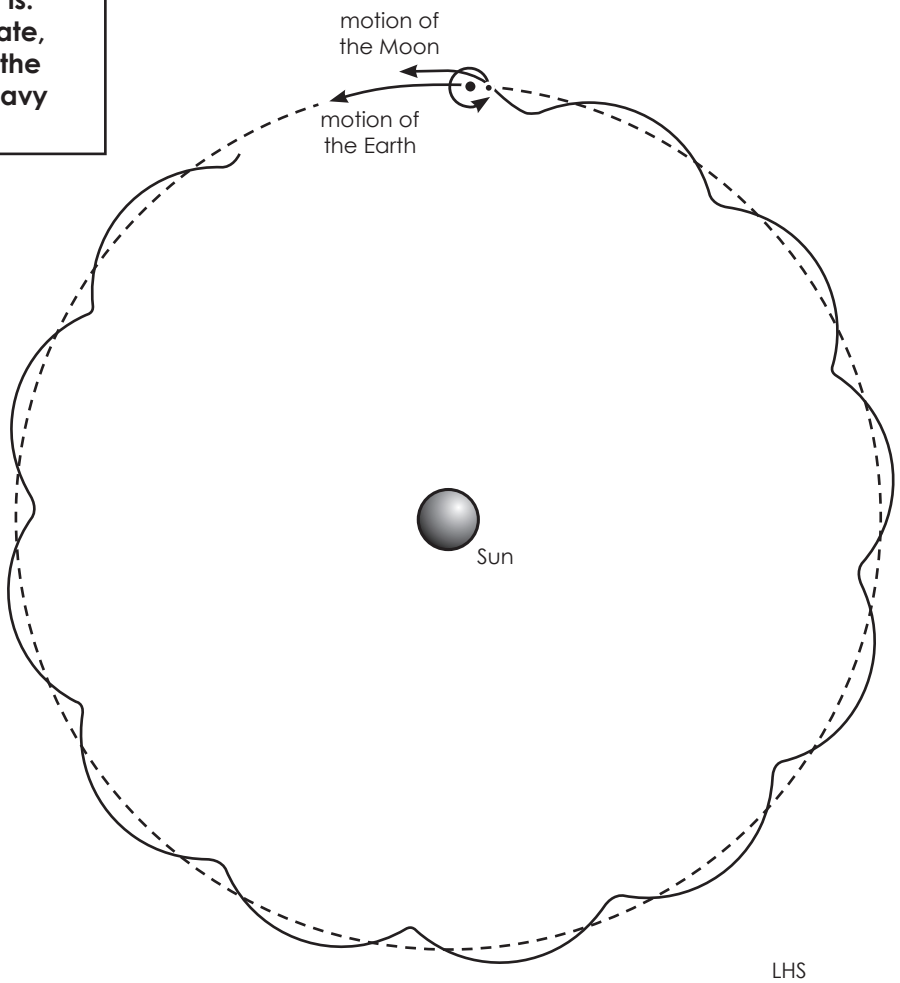
The boxed part of this diagram shows a close-up of a very small part of Saturn's orbit around the Sun. You can see the moon Dione's trajectory as it orbits Saturn.

Earth's Moon is like Dione in some ways, and different in some ways. Our Moon orbits the Earth in very much the same way that Dione orbits Saturn. The orbits are even about the same size. What is different are the speeds. The Earth orbits the Sun much more quickly than Saturn does, and the Moon orbits the Earth much more slowly than Dione orbits Saturn. While Dione orbits Saturn thousands of times on each orbit around the Sun, the Moon orbits the Earth only about a dozen times. The Moon does follow a slightly wavy path around the Sun, but the waves are very stretched out, and they do not have loops in them.

Earth's Moon

NASA

This diagram is exaggerated: it makes the path of the Moon around the Sun look wavier than it really is. If the diagram were more accurate, you wouldn't be able to tell that the Moon's path around the Sun is wavy at all!



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Unit essentials reference

Unit essential	Description of unit essential
Student role	In each Amplify Science unit, students embody the role of a different professional scientist or engineer.
Unit type	There are four types of units, and each one emphasizes a particular science and engineering practice: Investigation, Modeling, Design, and Argumentation. Within each unit, there is a focus on a particular aspect of the unit's practice. For example, in a Modeling unit, students might focus specifically on developing evidence-based models to represent unobserved processes. While each unit emphasizes a particular practice, students engage in a variety of practices throughout each unit.
Focal crosscutting concept	Amplify Science units provide explicit instruction around crosscutting concepts, with supported opportunities for students to practice making meaning of science ideas with a crosscutting concept lens. While each unit has a focal crosscutting concept, students engage with a variety of crosscutting concepts throughout each unit.
Sense-making strategy	Each unit equips students with a strategy for making meaning of what they learn. Students practice using this strategy in reading-focused and science-focused activities.
Writing genre	The curriculum develops students' skills in two writing genres: explanation and argumentation. Each unit provides explicit instruction on one of those two genres, and opportunities for practice.

Grade	Unit	Student role	Unit type	Focal crosscutting concept	Sense-making strategy	Writing genre
K	Needs of Plants and Animals	scientist	investigation	systems	setting a purpose	explanation
	Pushes and Pulls	pinball engineer	design	cause and effect	visualizing	explanation
	Sunlight and Weather	weather scientist	modeling	cause and effect	making predictions	explanation
1	Animal and Plant Defenses	aquarium scientist	modeling	structure and function	visualizing	explanation
	Light and Sound	light and sound engineer	design	cause and effect	asking questions	explanation
	Spinning Earth	sky scientist	investigation	patterns	making predictions	explanation
2	Plant and Animal Relationships	plant scientist	investigation	systems	setting a purpose	explanation
	Properties of Materials	glue engineer	design	cause and effect	making predictions	design argument
	Changing Landforms	geologist	modeling	scale, proportion, and quantity	visualizing	explanation
3	Balancing Forces	scientist	modeling	stability and change	setting a purpose	explanation
	Inheritance and Traits	wildlife biologist	investigation	patterns	asking questions	explanation
	Environments and Survival	biomimicry engineer	design	structure and function	making inferences	explanation
	Weather and Climate	meteorologist	argumentation	patterns	visualizing	scientific argument
4	Energy Conversions	systems engineer	design	systems	synthesizing	design argument
	Vision and Light	conservation biologist	investigation	structure and function	asking questions	explanation
	Earth's Features	geologist	argumentation	stability and change	making inferences	scientific argument
	Waves, Energy, and Information	marine scientist	modeling	patterns	visualizing	explanation
5	Patterns of Earth and Sky	astronomer	investigation	patterns	visualizing	explanation
	Modeling Matter	food scientist	modeling	scale, proportion, and quantity	making inferences	explanation
	The Earth System	water resource engineer	design	systems	synthesizing	explanation
	Ecosystem Restoration	ecologist	argumentation	energy and matter	making inference and synthesizing	scientific argument

Reference: Text roles in Amplify Science

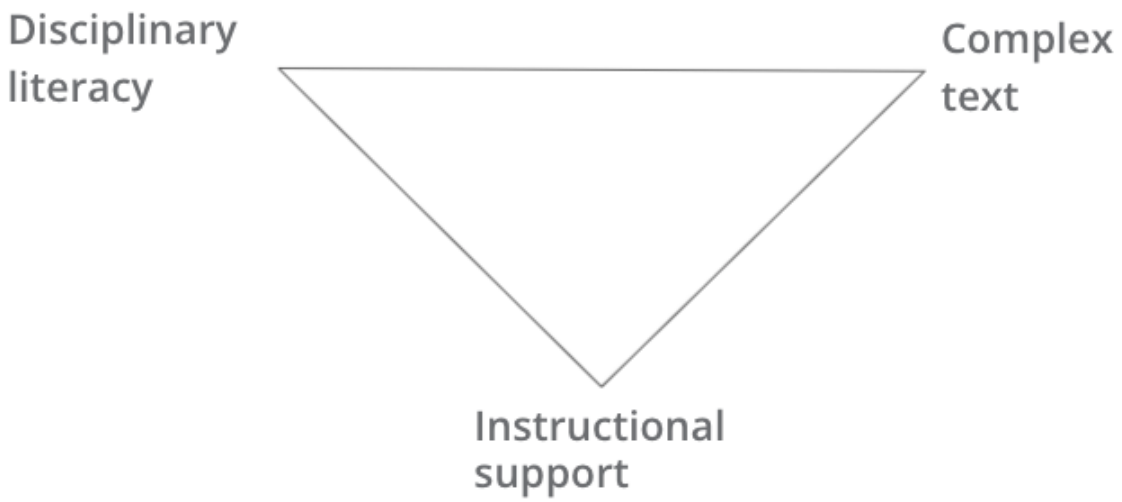
Texts in Amplify Science play different roles, depending upon the format and content of the texts themselves, the purpose for reading within a lesson, and the ways students work with them.

Providing context	• Share an unfamiliar aspect of the natural world • Connect investigations to big ideas in science or to the work of professional scientists • Highlight scientific connection to everyday experiences
Modeling scientific processes	• Model an inquiry process such as observing, planning investigations, or analyzing data • Model scientific dispositions such as posing questions, exploring, and testing • Depict scientists and their work
Supporting firsthand inquiry	• Provide science information to supplement evidence students have gathered in firsthand investigation • Provide information to help students design investigations
Supporting secondhand inquiry	• Provide visual or quantitative data for students to interpret
Delivering content	• Provide information that would be impossible to observe firsthand in a classroom • Present conceptual information or facts

Adapted from Cervetti, G. N. & Barber, J. (2009). *Text in hands-on science*. In Hiebert, E. H. & Sailors, M. (Eds.) Finding the Right Texts: What Works for Beginning and Struggling Readers. New York: The Guilford Press.

Explaining the connections among concepts in Amplify Science

Use this page to reflect upon the connections among the focal concepts in this workshop, and how this will impact your instructional practice.



Notes

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Additional Amplify resources

Program Guide

Additional insight into the program's structure, intent, philosophies, supports, and flexibility.

https://my.amplify.com/programguide

California Edition:
http://amplify.com/science/california/review

Louisiana Edition:
https://my.amplify.com/programguide/content/louisiana/welcome/elementary-school/

Amplify Help

Frequently updated compilation of articles with advice and answers from the Amplify team.

my.amplify.com/help

Caregivers Site

https://amplify.com/amplify-science-family-resource-intro/

Amplify Support

Contact the Amplify support team for information specific to enrollment and rosters, technical support, materials and kits, and teaching support, weekdays 7AM-10PM EST and weekends 10AM-6PM EST.

Email: help@amplify.com

Email: edsupport@amplify.com (pedagogical questions)

Phone: 800-823-1969

Or, reach Amplify Chat by clicking the icon at the bottom right of the digital Teacher's Guide.

When contacting the support team:

- Identify yourself as an Amplify Science user.
- Note the unit you are teaching.
- Note the type of device you are using (Chromebook, iPad, Windows, laptop).
- Note the web browser you are using (Chrome or Safari).
- Include a screenshot of the problem, if possible. Copy your district or site IT contact on emails.

Amplify Science