

Mc
Graw
Hill

FLORIDA Science

PROGRAM OVERVIEW

GRADES K–5





Unlimited Potential

McGraw Hill Florida Science was built to empower students to ask questions, pose hypotheses, conduct hands-on investigations, and communicate their findings.

Drawing on feedback from Florida teachers, we set forth to create a program where inquiry lays the foundation for deep understanding of science, where a spirit of discovery improves students' reading and writing skills, and where the ultimate goal is Florida State Academic Standards for Science (FSAS) mastery and a lifelong love of learning.

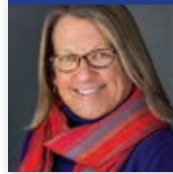
Guided by Experts

Our author and contributor collection is made up of experts committed to engaging students throughout their learning experience:



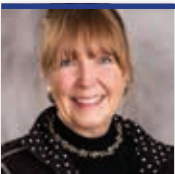
Julie Jackson, Ph.D.

Creator of Interactive Word Walls, Dr. Jackson draws on expertise in vocabulary, language acquisition, and FSAS knowledge to facilitate student understanding and acquisition of science vocabulary.



Page Keeley

Page Keeley's internationally known probes put students at the center of the lesson to focus content on their current understandings and challenge their preconceptions.



Dinah Zike

Creator of NEW! Foldables and interactive notebooking, Dinah Zike focuses on helping students understand difficult new concepts and facilitating engagement.



Cindy Guerrero, Ph.D.

Dr. Guerrero utilizes her expertise in English-language development to maximize the program's EB/EL support.



Felicia Mensah, Ph.D.

A scholar in science teacher education and teacher professional development, Dr. Mensah provides expertise on life science as well as diversity and inclusion in all science experiences.



Doug Fisher, Ph.D.

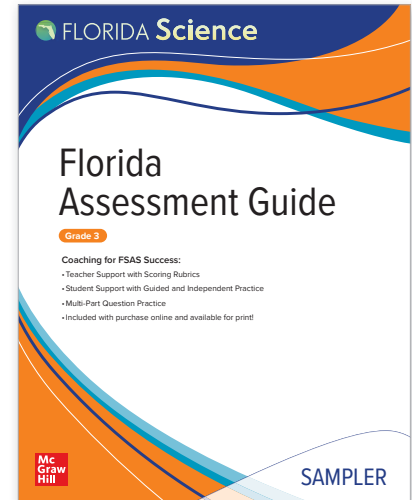
A renowned reading expert, Dr. Fisher helped create our new and improved Science Literacy Essentials to foster reading comprehension.

A Program Built for the FSAS

Explicitly designed for the FSAS standards and the modern Florida science classroom, *McGraw Hill Florida Science* combines the FSAS with feedback from our most trusted collaborators—Florida teachers and administrators—and offers the tools to help every student achieve success in science.

FSAS Assessment Guide

Online and printable guided practice tests help students prepare for state assessments. Each practice test includes rigorous, high-level thinking questions and answers so students can check their work.



TEACHER FAVORITE!

Chapter 2 Earth in Space

Chapter Overview

What is Earth's place in space?

Big Idea Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the Solar System, and Earth.

FSAS Progression

FSAS Refresh Use this chart to review what your students have already learned and to help guide their learning. If students need support on the prior standards or background knowledge, refer to FSAS Refresh for reteaching resources or assign LearnSmart review assignments.

Grade 4	Grade 5	Grade 6
<p>SC.4.E.5.1 Observe that the patterns of stars in the sky stay the same although they appear to shift across the sky nightly, and different stars can be seen in different seasons.</p> <p>SC.4.E.5.3 Recognize that Earth revolves around the Sun in a year and rotates on its axis in a 24-hour day.</p>	<p>SC.5.E.5.1 Recognize that a galaxy consists of gas, dust, and many stars, including any objects orbiting the stars.</p> <p>SC.5.E.5.2 Recognize the major common characteristics of all planets and compare/contrast the properties of inner and outer planets.</p> <p>SC.5.E.5.3 Distinguish among the following objects of the Solar System—Sun, planets, moons, asteroids, comets—and identify Earth's position in it, solar system.</p>	<p>SC.6.E.5 Humans continue to explore Earth's place in space. Gravity and energy influence the formation of galaxies, including our own Milky Way galaxy, stars, the solar system, and Earth. Humankind's need to explore continues to lead the development of knowledge and understanding of our solar system.</p>

Chapter Assessment

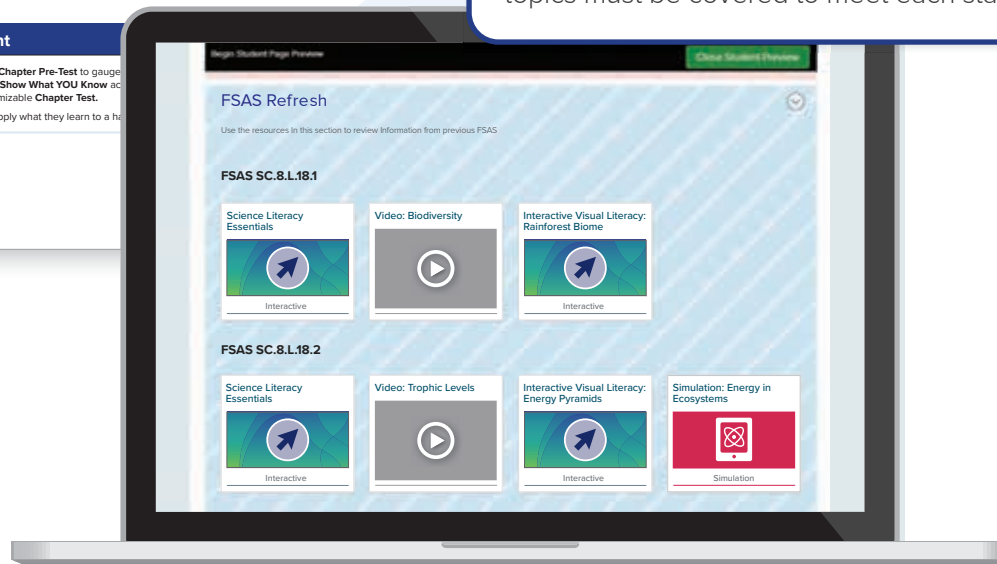
Chapter assessment includes a **Chapter Pre-Test** to gauge student readiness; a variety of questions; a **Show What YOU Know** assessment; and an online, customizable **Chapter Test**.

For this chapter, students also apply what they learn to a hands-on activity.

238 Chapter 2 Earth in Space

FSAS Progression Breakdown

Every lesson in the *Florida Science* program begins by using prerequisite FSAS as a launch pad—seamlessly building up to the lesson-level FSAS concepts. Each lesson comes with resources to pre-assess and remediate students as needed. Cognitive verbs (investigate, distinguish, evaluate, etc.) help unpack complex concepts, clearly defining the extent to which topics must be covered to meet each standard.



Inspiring New Teacher Confidence

Built to support the influx of new teachers across the state, *Florida Science* provides a clear path to cover the FSAS. Supports throughout the Teacher’s Edition deliver additional tools to ensure teacher success and student content mastery.

Aligned to the research-based **5Es**, *Florida Science* lesson plans plug easily into the plans you already use.

Key Moment call-outs help guide instruction, saving you time when you need it without compromising critical concepts.

Text Complexity Support by Dr. Doug Fisher clues you in to the details of the text, allowing you to help all students prepare to read.

Lesson 1 The Milky Way

Plan Your Lesson

Pacing: 45 min per day

KEY MOMENT
Short on time? Look for Key Moments throughout the lesson to guide instruction.

Have 15 minutes? Start with the Page Keeley Science Probe.

Interactive Word Wall
 Look for places to implement your Interactive Word Wall.


Text Complexity	
EXPLAIN Day 2	Galaxies Lexile: 740L
Graphics	Graphics are essential
Vocabulary	Frequent use of academic vocabulary
EXPLAIN Day 3	Matter in Galaxies Lexile: 750L
Graphics	Graphics are essential to understanding and have information not in text
Organization	Largely straightforward but some pacing shifts

To address Text Complexity:
 Use Science Literacy Essentials for students that need text at a lower Lexile.
 Review Dr. Fisher’s Text Complexity Strategies found online.

DAY 1	DAY 2
ENGAGE / EXPLORE 45 min KEY MOMENT 20–30 min	EXPLAIN 45 min KEY MOMENT 20–30 min
GET READY	GET READY
<ul style="list-style-type: none"> Before Day 1, build the Interactive Word Wall frame. Plan for the Hands-On Investigation. Cue up <i>What Is Earth’s Place in Space?</i> Download the necessary routines and graphic organizers. 	<ul style="list-style-type: none"> Assign Science Literacy Essentials (optional). Gather word cards for the Interactive Word Wall. Cue up <i>The Milky Way</i> Download the necessary routines and graphic organizers.
TEACH 35 min	TEACH 35 min
Introduce the Essential Question. 2 min Observe the photo and video of the Milky way 2 min Facilitate discussion and notebooking. 3 min Review the Nature of Science and post the word cards on the Interactive Word Wall. 3 min Hands On Investigation Get to Know Galaxies 25 min	Claim, Evidence, Reasoning Introduce Step 2: Gather evidence. 5 min Read <i>Galaxies</i> , pp. 28-29. 10 min Add words, students’ work, and artifacts to the Interactive Word Wall. 10 min
ASSESS	
Claim, Evidence, Reasoning Introduce Step 1: Make a claim. 5 min Connect the Nature of Science to investigation and post related items to Interactive Word Wall. 5 min	

DIGITAL FEATURE!

Teacher eBook
 No need to carry around a textbook—the *Florida Science* Teacher eBook has every feature of the print version!



Flexible For Busy Days

Key Moment Lesson Planning Tabs allows teacher flexibility to address the Florida Science Standards in the time they have available for Science.

Focus on the Key Moments in each lesson to cover the *Florida Science* standards in as little as 60 minutes per week.

“Investigate” “Read and Connect” and “Assess”


Each Weekly Lesson is set up in an easy to follow three step process: First, students Investigate the Chapter Question with a fun, hands-on or virtual Investigation. Next, students practice reading visuals and informational text while they gather evidence to support the claim from their investigation. Lastly, students apply what they’ve learned in a quick lesson review.

FLEXIBLE FEATURE!

Key Moment Snap-In Tabs

Durable cardstock bookmarks snap in to your print Teacher’s Edition to provide flexible planning all in one place.

Chapter 8 **Force and Motion**

Focus on the Key Moments in each lesson to cover the standards in 60–90 minutes a week.
 **Have an extra 15 minutes?** Start with the Page Keeley probe in each lesson.

Lesson 1 Equal and Unequal Forces

KEY MOMENTS

Essential Question
How do forces transfer energy and cause patterns of motion?

Investigate 20–30 min

- Observe the photo and video of the Soap Box Derby Car **2 min** pp. 270–271
- Toy Car Crashes** Explore how collisions result in transfer of energy **25 min** pp. 272A–272D

Read and Connect 30–45 min

- Read Equal and Unequal Forces **20 min** pp. 272–273
- Read Measuring Forces **5 min** pp. 274–275
- Visual Literacy **Read the Photo** **10 min** p. 275
- Investigation Connection** **10 min** pp. 280–281

Assess 10–20 min

- Lesson Review **20 min** pp. 280–281

Lesson 2 Effects of Forces

KEY MOMENTS

Essential Question
How can you test the effect a force has on an object in a system?

Investigate 20–30 min

- Observe the photo and video of a toy car. **2 min** pp. 282–283
- Balloon Rocket** Plan and carry out an investigation to test the effect of force on a balloon **25 min** pp. 284A–272D

Read and Connect 30–45 min

- Read Investigating Forces **5 min** pp. 284–285
- Read Testing Variables **5 min** pp. 286–287
- Visual Literacy **Read the Infographic** **10 min** p. 286
- Investigation Connection** **10 min** p. 286

Assess 10–20 min

- Lesson Review **20 min** pp. 289–290

Lesson 3 FPO

KEY MOMENTS

Essential Question
How do forces transfer energy and cause patterns of motion?

Investigate 20–30 min

- Observe the photo and video of the Soap Box Derby Car **2 min** pp. 270–271
- Toy Car Crashes** Explore how collisions result in transfer of energy **25 min** pp. 272A–272D


72–273

74–275

p. 275

80–281

80–281



KEY MOMENTS Chapter 8

FLORIDA SCIENCE

Florida Science is Full STEAM Ahead

When students see people who look like them excelling in STEAM, they envision their own present and future as scientists and engineers. Profiles dispersed throughout the program showcase diverse figures in wide-ranging STEAM careers.

With the aid of abundant STEAM support found in *Florida Science*, students can explore every dimension of science, technology, engineering, arts, and math:

- **STEM Stations** integrate STEAM into busy classrooms, allowing teachers to quickly print bundled teacher support materials and differentiated student activity pages.
- **STEM Connections** expose students to interviews and articles about real STEM professionals.
- **STEM Projects** put students in the shoes of scientists and engineers, tasking them with designing a solution to a real-world STEM problem.
- **STEM Biographies** cut to the heart of discovery—introducing students to the pioneers who made STEM research and exploration a reality.
- **STEM Investigator** articles discuss high-interest STEAM topics at three different Lexile levels.



IF/THEN® seeks to further advance women in STEM by empowering current innovators and inspiring the next generation of pioneers. *Florida Science* highlights IF/THEN women throughout to depict positive role models using science in the workplace.

- STEM Connections tie in-depth profiles of scientists to lesson content.
- Videos and interviews with IF/THEN scientists provide engaging, real-world examples of women in science and engineering-based careers.

STEM Connection **IF/THEN**
This Is What A Scientist Looks Like®



Meet a Spaceflight Engineer
When Dana Bolles was young, she wanted to be an astronaut. She grew up without arms and legs, so she learned to use technology to help herself. Technology helps her in many ways. She has artificial arms. She uses an electric wheelchair. She drives a special van.

42 Chapter 2 Earth and Space • ELABORATE

STEM Connection

STEM Connection **IF/THEN**
THIS IS WHAT A SCIENTIST LOOKS LIKE®

Meet a Fossil Preparator:
Myria Perez

Myria Perez is a dinosaur-loving, fossil-hunting, paleontologist! She grew up with a love of dinosaurs that never faded. Myria works as a fossil preparator in the Smithsonian National Museum of Natural History.

What is a fossil preparator?

There are different career paths you can take as a paleontologist, and a fossil preparator is one of them. When fossils are found in the field, they are excavated with rock (or as we call it, matrix) surrounding it. The delicate work of removing the matrix is done by preparators and can span from a few hours to years. We prepare and conserve specimens for research, display, and collections. The goal is to preserve the integrity of the specimen for future generations of scientists.

Can you describe a day in the life of a fossil preparator?

What I love about fossil prep is that each day is different! Preparators need artistic skills when working with fossils, especially when molding and casting 3D copies from the original fossils. When preparators work to remove the surrounding rock, they use anatomy and geology to read the rocks and bones to estimate where the bone is inside the rock. We use math to take measurements and to create special glue mixtures, plaster, silicone mixes, and resins. We engineer long-term storage solutions for complexly shaped and heavy fossils.

Are you ready to dig in?
Watch Cool Tools with Myria Perez.

340 Chapter 10 Energy Flow within Ecosystems • ELABORATE



SCIENCE TECHNOLOGY ENGINEERING ART MATH

STEAM Stations allow students to extend and apply their learning beyond the scope of the textbook as they work independently to complete engaging STEAM-aligned activities.

Reinforce

Use stations to provide practice and cross-curricular connections to FSAS-aligned content.

Extend

Stretch students' minds with open-ended, accelerated station activities.

Chapter 7 Energy



Station Options

Designed to differentiate and integrate STEAM into busy classrooms, these stations are truly "set it and forget it." Gather materials and go online to print the bundled teacher support and student activity pages. Then it's full STEAM ahead!

Science | I-Spy Mechanical Engineering

REINFORCE | Use to Intervene Build on what students have learned about mechanical energy. Students observe examples of mechanical energy in the classroom. Which activities require more mechanical energy?

EXTEND | Use to Accelerate Students list each energy source. Students order the examples from least mechanical energy used to greatest. **SC.3.N.13**

Technology | See Under the Sea

EXTEND | Use to Accelerate It's time to dive in! Students research how scientists use light energy to observe plants and animals in the deep ocean. They write a paragraph about what they learn. **SC.35.CS.PC.3.2**



Engineering | Musical Sounds

EXTEND | Use to Accelerate Inspire innovation. Students use their knowledge of sound to design a musical instrument and sketch a diagram of their design. **SC.3.N.3.2**



Art | Electricity Magazine Cut-Out

REINFORCE | Use to Intervene Students identify examples of electricity in magazines. Students cut out the examples to create a collage. **(VISUAL ARTS) VA.3.5.3.1**



Math | Ski Trip Problem

EXTEND | Use to Accelerate Tap into math skills. Students solve a problem to determine the number of objects in each group when a set of objects is shared equally. **(MATH) MA.K.12.MTR.2.1**



Notebooking with FOLDABLES

Use this station for students to catch up or work ahead in their notebooks or get hands on with these Dinah Zike Foldables:

- PHOTostart / PHOTofinish
- Visual-Kinesthetic-Vocabulary Cards
- Energy Accordion with Pockets
- Light Travels: Top-Tab Booklet
- Notebook Foldables
- Instructions, Activities, and Ideas pages



Light Travels: Top-Tab Booklet

Notebooking Foldables

Use stations for students to work ahead in their notebooks with Dinah Zike Foldables.

Hands-On Labs, Real-World Investigations

Real scientists get their hands dirty. By conducting hands-on investigations, students can apply their scientific knowledge to exciting real-world contexts. Accessible materials and engaging instructional videos prepare teachers and students alike to get the most out of each investigation.

- **Claim, Evidence, Reasoning (CER)** writing prompts help students make meaning from their investigation.
- **Anytime Investigations Videos** provide student-friendly videos showing lab work in action.
- **STEM Projects** aligned to each strand of the multi-dimensional learning model allow students to utilize their own creativity and design solutions for science and engineering challenges and investigate their world.
- **Ready-to-use notebook activity sheets** allow students to record their investigations quickly and simply.

FPO
Need to replace with
purchased high resolution
licensed image
(Gettyimages
Stock#: 1265151608)

Name: _____ Date: _____

LESSON 1 • EXPLORE
Investigation: Moving Objects

Materials

- modeling clay
- 2 toy cars

Make a Prediction
Think of the photo of the children using pushes to jump on the trampoline. What happens when you push toy cars and modeling clay together?

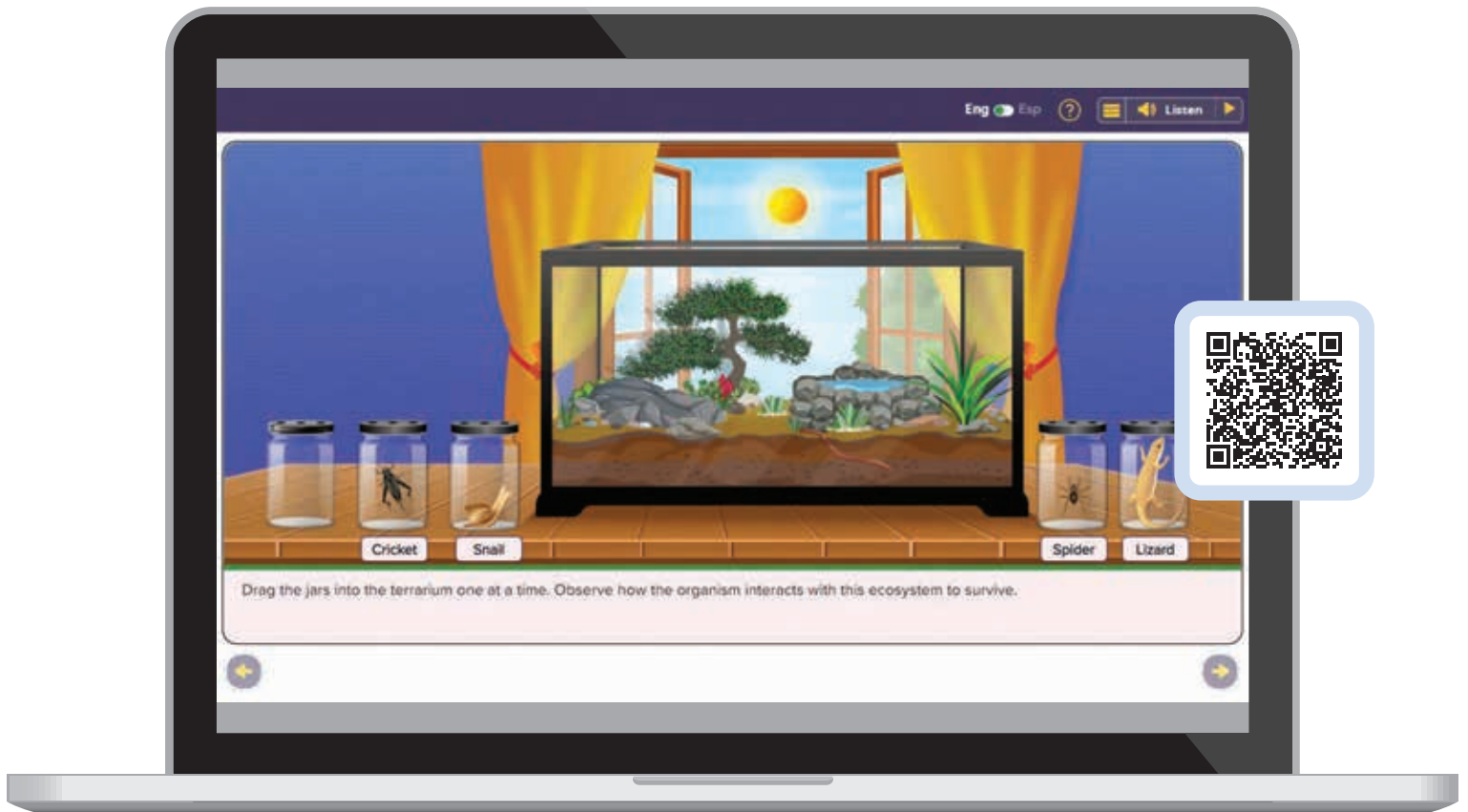
Conduct an Investigation

1. Roll the modeling clay into a ball.
2. Push a toy car into the modeling clay.
3. **Record Data:** Record your observations.
4. Push the toy car into the modeling clay.
5. **Record Data:** Record your observations.
6. Break the modeling clay into two pieces.
7. Push the two pieces of modeling clay together.
8. **Record Data:** Record your observations.

Copyright 2020 McGraw Hill cannot assume any liability for any reproduction or warranty of instructions, as set forth in the applicable user agreement.



Hands-On Investigation



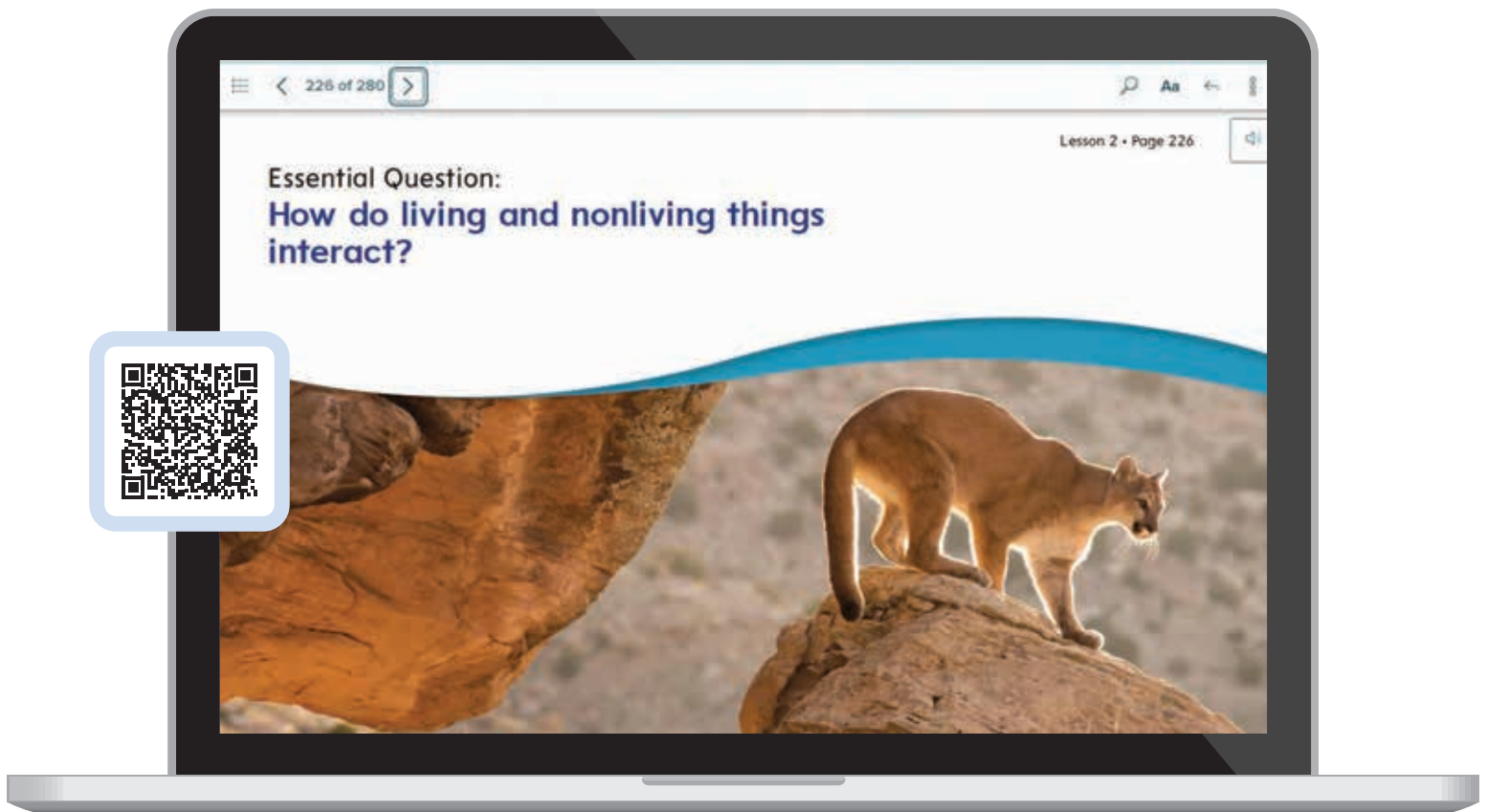
Explore Simulation

Whether jotting down lab notes or clicking through digital investigations, students have access to an array of rigorous hands-on activities through *Florida Science*. The program prompts every student to dive deep into the lesson content and observe new concepts in action.

- **Hands-On Investigations** immerse students in the real-world applications of science.
- **Explore Labs** give students the opportunity to lead their own investigation from start to finish, alongside the explanation of the content.
- **Explore Simulations** allow students to explore content beyond the limits of the classroom and as representations of real-world experiences.
- **Quick Labs** provide a additional hands-on activity to some lessons so students can practice their Nature of Science skills.

Unlock a New Era of Exploration: The Digital Student Experience

In today's digital age, students have greater access to technology than ever before—all available at their fingertips. With that comes new tools, videos, activities, simulations, and more to take their learning and engagement to the next level. *Florida Science* boasts an array of digital resources for students, pushing the limits of science learning beyond the four walls of the classroom.



Student eBook

- **The Student eBook** includes built-in comprehension questions and vocabulary definitions at the point of use.
- Text content is available at **multiple reading levels**, so students can adjust as needed.
- With the **K-12 Portal app by McGraw Hill**, students can access their content anywhere, any time, on any device, with or without internet access.
- **Embedded Videos and ReadSpeaker** in the eBook allow students to learn in a variety of modalities.



Word Labs give flashcards a modern twist with flexible, student-driven, scientific word exploration.



Explore Simulations allow students to manipulate variables in a scenario beyond the limits of the classroom.

Interactive Visual Literacy features prepare students to identify visual representations of scientific phenomena.

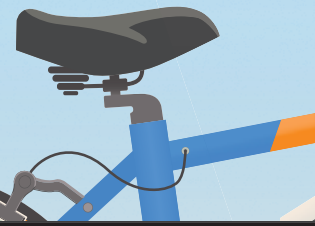


Energy and Machines

A bicycle is an example of a machine with several moving parts, and they are all connected. The mechanical energy from one part's motion or position affects the other parts of the bicycle. This makes the bicycle move.

Read the Infographic Identify examples of mechanical energy on a bicycle!

... of the pedals
... mechanical
... comes from the
... of the chain.



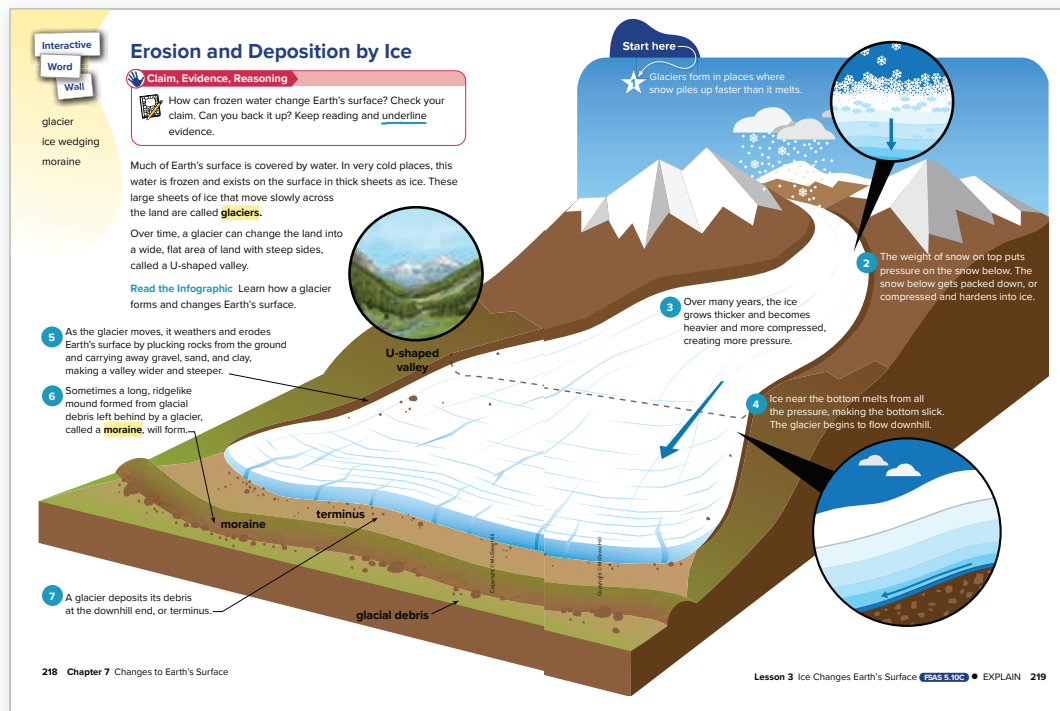
Virtual Field Trips use engaging questions, pictures, and videos to explore diverse locations and show the connection to STEM fields.

Read About It and Write About It

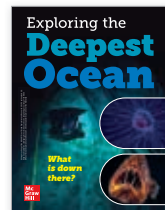
Rich, varied imagery and interactive diagrams prepare students to observe and identify science in the real world, not just in the pages of their textbook. *Florida Science* leverages multiple modes of visual learning in every unit, module, and lesson. Guided by experts Dr. Julie Jackson and Dr. Cindy Guerrero, *Florida Science* provides equitable literacy support for students of all backgrounds.

To support literacy acquisition and growth for all students, *Florida Science* incorporates several reading and writing tools:

- **Text Complexity Support by Dr. Doug Fisher** clues students into the details of a text, helping them prepare to read.
- **Sentence Stems, Notebooking templates, and Foldables** give students opportunities to write in every class.
- **Write About It! Graphic Organizers** use visuals to help students organize their thinking.



STEAM Investigator articles discuss high-interest STEAM topics at two different Lexile levels (Approaching and On).



Patterns of Friction

ESSENTIAL QUESTION

What patterns of friction do you see in objects?

Start here

As you read, underline evidence to answer the Essential Question.

Friction

When you use the brakes on a bicycle, the bike stops. Do you know why? It's all about **force**, a push or pull. The brakes use **friction** by pushing the brake pads against the wheels. This force stops the turning movement of the wheels.

- What is a force?** A force (fórs) is a push or pull.
- What is friction?** Friction (FRIC-tion) is a force between surfaces.
- What is a contact force?** A contact force (CON-tact fórs) is a force between two touching objects.



Friction is a **contact force**. Friction acts to oppose motion. It slows a moving object or stops the object entirely.



There is friction between the grass and the moving soccer ball. Friction slows down the ball's motion. The rougher the grass, the greater the friction.

Think About It: Have I heard the word *friction* used in everyday life?

Different surfaces apply different amounts of friction. Hard, smooth surfaces produce less friction. Rough surfaces produce more friction.

A wooden floor is hard and smooth. A carpet is soft and less smooth. A cardboard box will slide more easily across a wooden floor because there is less friction.



Ice is hard and smooth, so it applies very little friction. Skates and hockey pucks slide easily. They slow down gradually, not suddenly.



less friction

Sand has a rough surface, so it applies a lot of friction. When a golf ball rolls into sand, it slows down and stops very quickly.



more friction

Think About It: How would differences among carpets, such as a fluffier carpet or a flatter carpet, affect the movement of an object?

Would a gravel road or a paved road apply more friction on a moving object? Why?

Quick Check: Why is friction called a contact force?

Science Literacy Essentials for Grades 3–12 offer leveled text with enhanced visuals to give students an alternative way to access grade-level content.

Name _____

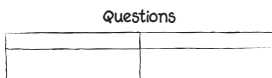
Guided Write About It!

Read the prompts in your Student Edition. Then follow the steps below.

Use your notebook or a separate sheet of paper to complete your writing.

Plan Your Writing First Prompt

- Consider the following:
 - how many toothpicks you used in your tower
 - your chances of building the same size tower with half as many toothpicks
 - how using fewer toothpicks will affect your tower's stability
- Use a T-chart to organize your information. Put the questions at the end of the prompt at the top of your Problem and Solution chart.



Plan Your Writing Second Prompt

- Consider the following:
 - how wind might affect your tower
 - the complete list of materials
 - which two materials would build the strongest tower and why
- Use a T-chart to organize your information. Put the questions at the end of the prompt at the top of your Problem and Solution chart.

Questions



Write

- You can start your response like this:

I'm going to use ... and ... to build a tower for a very windy city.
- Explain your process and the materials that you will use. You can use the following sentence stems.

... is a good material for this project because it is ...
- End by writing about the stability of your tower.

The two materials I chose will make my tower sturdy because ...
- Remember to use vocabulary words.

Guided Write About It!

activity pages use scaffolding supports to help students write about their discoveries.

Vocabulary Expertise

Strengthening Science Vocabulary and Communication with Dr. Julie Jackson's Word Walls



From renowned author and educator Dr. Julie Jackson, Interactive Word Walls bring science vocabulary to life so that students can build meaningful relationships to FSAS concepts rather than simply memorize them. Throughout the Teacher's Edition, embedded supports describe how to build Interactive Word Walls that maximize learning by sparking curiosity, promoting engagement, and contextualizing new terms and concepts.

Dr. Jackson's *Florida Science* innovations include:

- **Science language information** in every chapter that highlights target vocabulary, including:
 - Prior-knowledge words
 - Lesson words
 - Academic vocabulary support
 - Nature of Science words
- **Pre-made Interactive Word Wall Guides** and Word Cards in English and Spanish with images.
- **Professional development videos** to help teachers practice powerful instructional strategies.

Innovative Word Labs allow students to study science vocabulary at their own pace using visuals and embedded word strategies.

WORD LAB GO ONLINE

Do you need practice?

Interactive Word Wall

Update your graphic organizer!

Abiotic: Learn

Define

Word Parts: abiotic starts with the prefix *abi-* and has the root *bios*.

- *bi-* sometimes means text.
- *bios* means life.

Definition: nonliving parts of an ecosystem

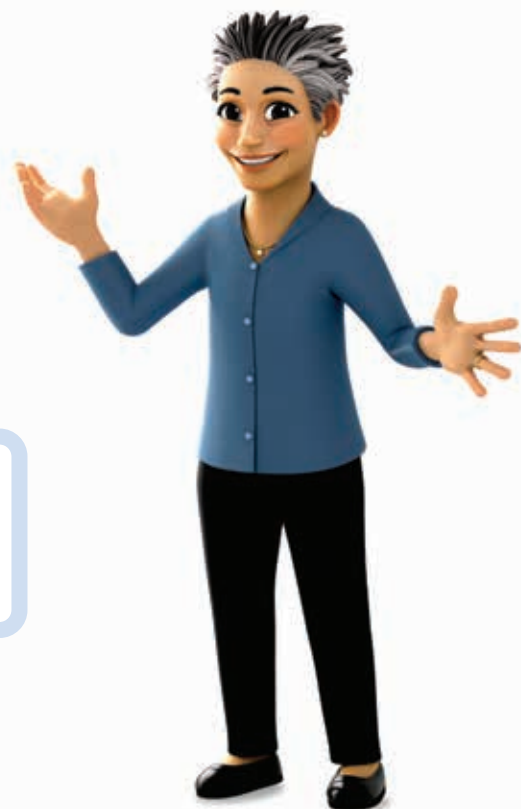
Sentence: Plants are affected by abiotic factors like sunlight.

Seleccione para expandir o colapsar:

▼ **Español**

abiótico

Definición: todo factor inanimado en el ambiente de un organismo, como el suelo, el agua, la temperatura del agua y la disponibilidad de luz.



Chapter 4 Plants and Environment

Science Language and Content

Provide rich and varied experiences with science vocabulary to bolster confidence and help students develop scientific language.

Chapter Vocabulary

Use the Interactive Word Wall to help students gain an understanding of the target vocabulary throughout the chapter. You can find support and suggestions for each lesson in the lesson planner. Note: Some words repeat over grades to build complexity.

Interactive Word Wall

Check out Dr. Jackson's professional development videos. *Interactive Word Walls are not an additional instructional task. They enhance what you are already doing.*
— Dr. Julie Jackson



Target Vocabulary

Prior Knowledge	Lesson Vocabulary	Supporting Vocabulary	Nature of Science and Science Tools
flower leaf plant stem	fruit living things root structure	Lesson 1 Plants flower seed fruit stem structure survive	<ul style="list-style-type: none"> • keep records of investigations • empirical evidence is information • empirical evidence validates explanations SCIENCE TOOLS structure and function
		2 Plants Make Food dioxide photosynthesis	<ul style="list-style-type: none"> • communication among scientists is important • scientists question and discuss evidence SCIENCE TOOLS energy and matter
summer winter	temperature	Lesson 3 Plants Respond to Their Environment dormancy response	<ul style="list-style-type: none"> • keep records of investigations • infer based on observation SCIENCE TOOLS cause and effect

Target Vocabulary combines new words with familiar ones to determine essential vocabulary.

Word-Learning Strategies

Cognates

galaxy/galaxia

Word Origins

galaxy comes from Late Latin *galaxias*, meaning "the Milky Way" or Greek *galaxias kyklos* meaning "milky circle."

Word Parts

The suffix *-al* changes a noun to an adjective and means "having the character of"

Spiral means "having the character of a spire."

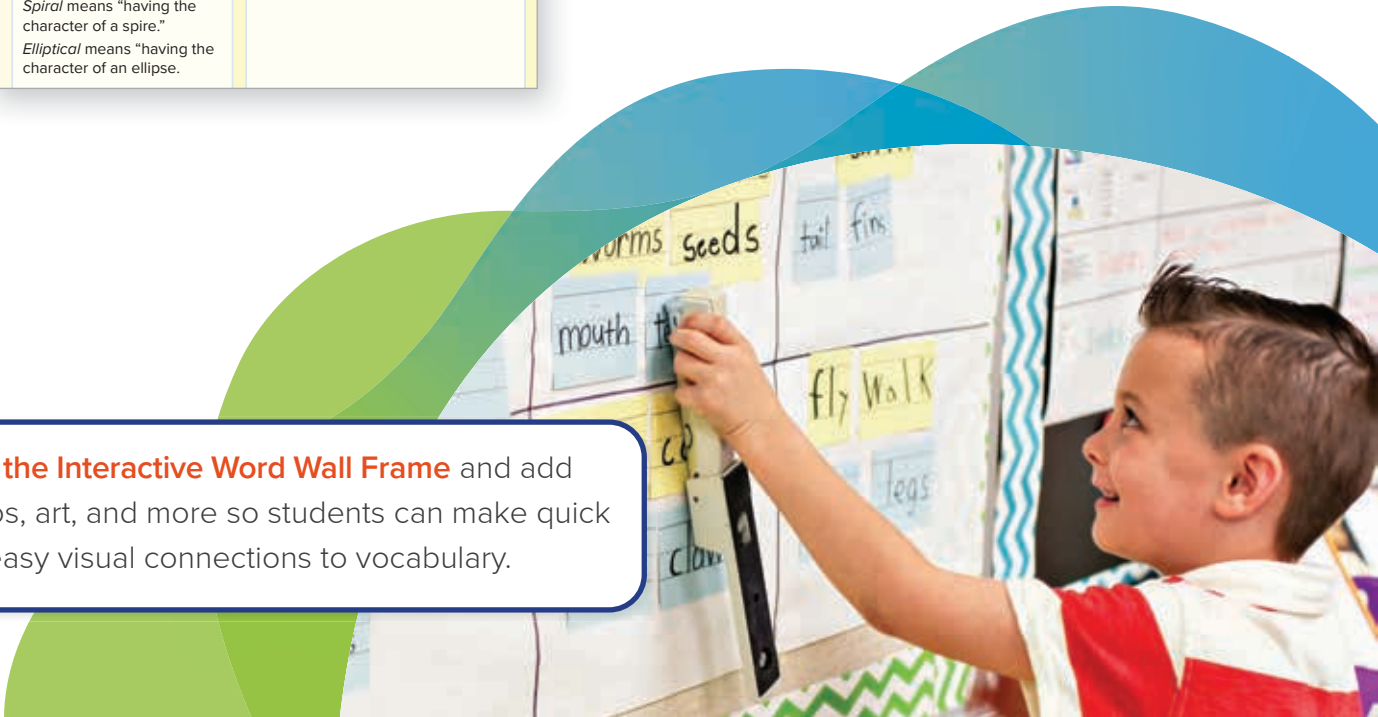
Elliptical means "having the character of an ellipse."

Context

A *galaxy* is a vast collection of stars, gases, and dust that are all held together by gravity

Word Learning Strategies support word learning during instruction by fostering thoughtful connections.

Build the Interactive Word Wall Frame and add photos, art, and more so students can make quick and easy visual connections to vocabulary.

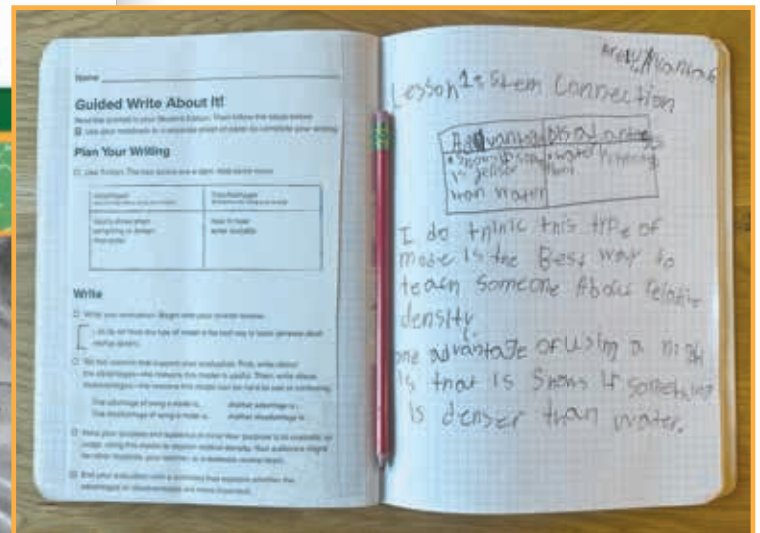
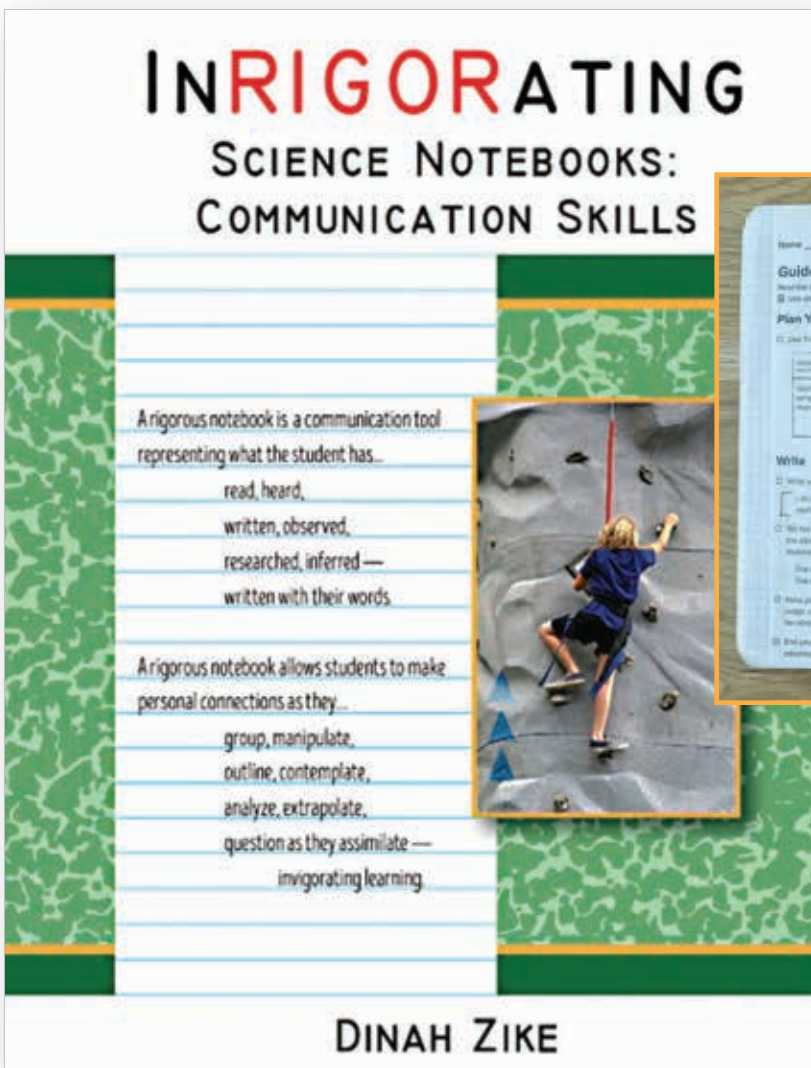


Notebooking Expertise

Documenting Discoveries with Dinah Zike's Notebooking Strategies



With carefully designed, intuitive notebook activities created by award-winning author, educator, and inventor Dinah Zike, students join generations of researchers documenting their findings—all while improving writing skills, deepening scientific understanding, and preparing for success on standardized tests.



Dinah's new book, *InRIGORating Science Notebooking*

Formative Assessment Expertise



One of the most effective ways to support conceptual learning is through formative assessment. That's why *McGraw Hill Florida Science* begins every lesson with a Page Keeley Science Probe and productive discussion strategy. Each probe uses real-world phenomena to promote student thinking and discussion, revealing the preconceptions and initial ideas students bring to their learning so you can best inform your instruction.

Water Moves Earth's Materials Lesson 3

PAGE KEELEY SCIENCE PROBES

Moving Water

Careful! The raft moves a little when you step in!

Noah
I do not think water can move rocks or soil.

Callie
I think water can move rocks and soil.

Trevor
I think water just moves rocks.

Amanda
I think water can only move soil.
Let's move!

DIRECTIONS Who do you agree with? Circle their picture or name.
Talk About It Who did you circle? Explain your thinking to a partner.

Lesson 3 Water Moves Earth's Materials • BEFORE YOU EXPLORE 81

Living and Nonliving Things Lesson 1

PAGE KEELEY SCIENCE PROBES

Living Things

dog manatee tree
flowers

DIRECTIONS Circle the photos of the living things.
Talk About It What did you circle? Why?

The Solar System LESSON 2

PAGE KEELEY SCIENCE PROBES

Order of the Planets

Tabitha I have the supplies to build a model of the solar system. Let's do this! I think we can put the planets in order from closest to the Sun to the farthest.

Amir Thanks for gathering the supplies. Don't we need to know the time of the year when building a model of the solar system?

Tabitha What do you mean?

Amir The order of the planets changes because their distance from the Sun changes throughout the year.

Who do you agree with? Explain your thinking.

Lesson 2 The Solar System • BEFORE YOU EXPLORE 35

Science Literacy Expertise

A renowned reading expert, Dr. Doug Fisher helped create our new and improved Science Literacy Essentials to foster reading comprehension.

Dr. Doug Fisher, Ph.D.



Florida Science empowers all students to succeed in science—no matter their starting point. The new Science Literacy Essentials provide reading and writing support for students in need of a little extra help, including:

- **Content written two Lexile levels lower** than the on-level content
- **Teacher tips** to provide ample student support
- **Writing space** for students to practice explaining their understanding
- **Print, digital, and Spanish-language versions** of the text

Text Complexity in Science

Douglas Fisher, Ph.D., San Diego State University

What's a Teacher to Do?

When we know what makes a given text complex, there are actions we can take to support students. In some cases, these are teaching points that need to be integrated into our lessons; in other cases, they involve support for learners. Consider the following factors and the sample actions that can help students unlock the meanings of complex texts.

If ...	Then ...	Monitor ...
Graphics are complex or necessary for understanding but students are not tracking the information	<ul style="list-style-type: none"> • Model extracting information from graphics. • Focus questions on specific aspects of information to reduce the distractions of all the data. • Have students construct data tables and graphics so they see how these are developed. 	<ul style="list-style-type: none"> • Students' correct use of information from graphics • Students' comparing information in the text to the visual information
Vocabulary is interfering with understanding	<ul style="list-style-type: none"> • Identify words that require pre-teaching and focus on pronunciation and meaning. • Identify words that can be solved using context or word parts and focus on word-solving skills. • Develop a conceptual word bank so that students track their understanding of new terminology. 	<ul style="list-style-type: none"> • Students' expanding vocabulary as they use the target terms in their speaking and writing • Students' word-solving skills as they use context and word parts to determine word meanings

Text Complexity Support clues you in to the details of the text, allowing you to help all students prepare to read.

PROGRAM FEATURE!

Sentence Stems help all students communicate their ideas.

Science Literacy Essentials are also available in Spanish!

Patterns of Friction

ESSENTIAL QUESTION
What patterns of friction do you see in objects?

Start here As you read, underline evidence to answer the Essential Question.

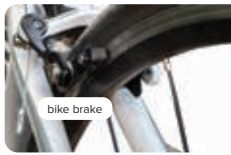
Friction

When you use the brakes on a bicycle, the bike stops. Do you know why? It's all about **force**, a push or pull. The brakes use **friction** by pushing the brake pads against the wheels. This force stops the turning movement of the wheels.

What is a force? A force (fórs) is a push or pull.

What is friction? Friction (FRIC-tion) is a force between surfaces.

What is a contact force? A contact force (CON-tact fórs) is a force between two touching objects.



This material is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike license.

Friction is a **contact force**. Friction acts to oppose motion. It slows a moving object or stops the object entirely.



There is friction between the grass and the moving soccer ball. Friction slows down the ball's motion. The rougher the grass, the greater the friction.

Think About It! Have I heard the word *friction* used in everyday life?

Copyright © McGraw-Hill Education

Different surfaces apply different amounts of friction. Hard, smooth surfaces produce less friction. Rough surfaces produce more friction.

A wooden floor is hard and smooth. A carpet is soft and less smooth. A cardboard box will slide more easily across a wooden floor because there is less friction.



Ice is hard and smooth, so it applies very little friction. Skates and hockey pucks slide easily. They slow down gradually, not suddenly.



Sand has a rough surface, so it applies a lot of friction. When a golf ball rolls into sand, it slows down and stops very quickly.



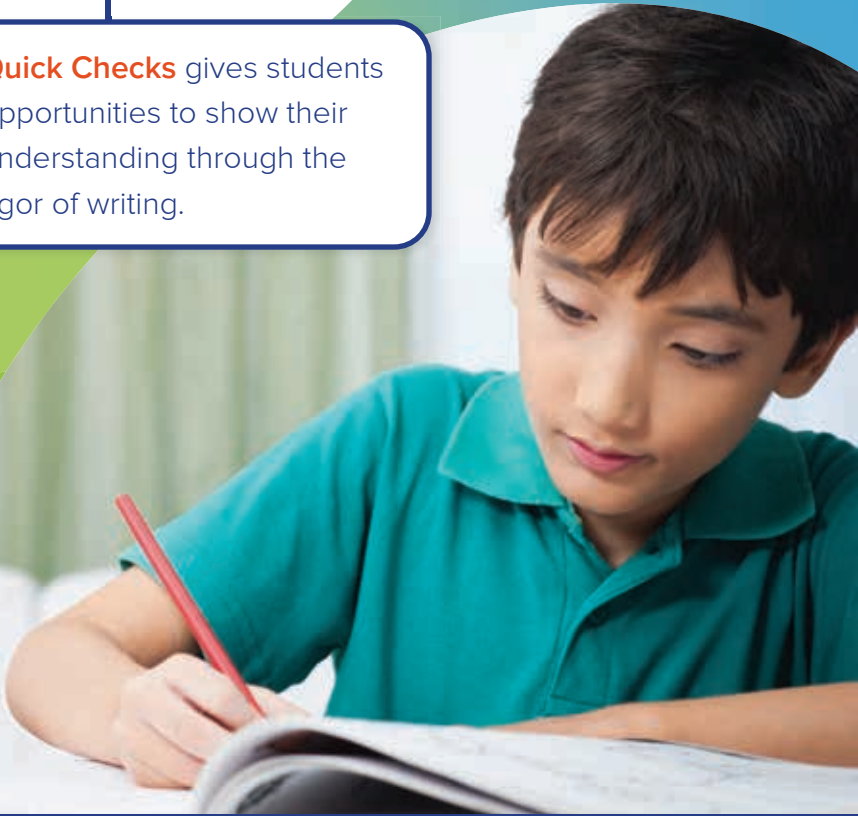
Think About It! How would differences among carpets, such as a fluffier carpet or a flatter carpet, affect the movement of an object?

Quick Check: Would a gravel road or a paved road apply more friction on a moving object? Why?

Quick Check: Why is friction called a contact force?

Think About It! tips provide support for students at point of use.

Quick Checks gives students opportunities to show their understanding through the rigor of writing.



LearnSmart®

LearnSmart for Grades 3-5 uses smart, adaptive technology and multiple-choice questions to help gauge student understanding. To ensure Florida assessment success, LearnSmart focuses solely on questions covering the FSAS.

Teachers can assign LearnSmart questions tailored to individual FSAS standards, ensuring students master the content needed.

**PROGRAM
FEATURE!**

Unique personalized
learning experience.

When students answer a question incorrectly, they can access built-in supports to review relevant material in different formats:

- **Short and focused texts, articles, and examples**
- **Lesson Opener Videos, Content Videos, Science Videos, and more**
- **Quick interactives and manipulatives**

Foster Multilingual Connections

Every student deserves access to a rich, robust, and challenging science curriculum leveled to their needs and abilities. *Florida Science* applies the best pedagogical practices for teaching emergent bilinguals, complete with authentically translated print and digital.

Activate Prior Knowledge

prepares all EB students with content-specific strategies.

Spanish Language Transfer

gives teachers information to better support emergent bilingual students.

ELL English Language Learner Support

Help English Language Learner (ELL) students activate their prior knowledge about the vocabulary in this chapter and introduce them to new words using the following activity.

Entering/Emerging	Developing/Expanding	Bridging/Reaching
<p>Activate Prior Knowledge scan the chapter for familiar and unfamiliar plant names, differentiating the activity as needed.</p> <p>Provide students with writing materials. Ask yes/no and "or" questions to help them write two things they know about plants. Ask: <i>Do you know any names of plants?</i> Then help them write two they want to know. Again, ask yes/no and "or" questions to help them. Ask: <i>Do you know what plants need to live?</i> Sample answer: water, light When they've finished the lesson, help them add two things they learned.</p>	<p>Provide students with writing materials. Ask questions to help them write three things they know about plants. Ask: <i>Do you know the names of any plants?</i> Then help them write three they want to know. Again, ask questions to help them. Ask: <i>What do plants need in order to survive?</i> Sample answer: water, light When they've finished the lesson, help them add three things they learned.</p>	<p>Provide students with writing materials. Ask questions to help them write four things they know about plants. Ask: <i>What plant names do you know?</i> Then help them write four they want to know. Again, ask questions to help them. Ask: <i>Do you know what plants need in order to survive?</i> Sample answer: water, light When they've finished the lesson, help them add four things they learned.</p>

Spanish Language Transfer

Transferable Skills	Non-Transferable Skills
<p>Many English words that end in -tion (<i>function, precipitation</i>) have Spanish equivalents ending in -ción (<i>función, precipitación</i>).</p>	<p>Many words in English begin with s-clusters (<i>structure, school, Spanish</i>). Spanish cognates of these words tend to place the vowel e before a similar s-cluster sound (<i>estructura, escuela, español</i>).</p>

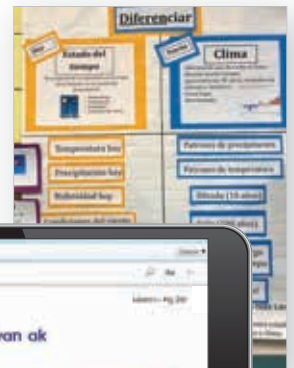
Cognates	False Cognates						
<p>For students whose first language shares cognates with English, have them use the knowledge of their first language to learn English. Examples of English/Spanish cognates in this chapter:</p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">fruit / fruta</td> <td style="border: none;">energy / energía</td> </tr> <tr> <td style="border: none;">structure / estructura</td> <td style="border: none;">natural / natural</td> </tr> <tr> <td style="border: none;">plant / planta</td> <td style="border: none;">flower / flor</td> </tr> </table>	fruit / fruta	energy / energía	structure / estructura	natural / natural	plant / planta	flower / flor	<p>Point out false cognates to help students avoid errors.</p> <p>English: root (sp. raíz) Spanish: ruta (en. route, path)</p>
fruit / fruta	energy / energía						
structure / estructura	natural / natural						
plant / planta	flower / flor						

Reading Comprehension and Multilingual Support

Florida Science supports reading comprehension and English learners using a variety of innovative tools and scaffolds:

- Both the core text and Science Literacy Essentials are **available in Spanish** online in a printable format.
- **Google Translate** is available for students where needed.
- The **Multilingual Glossary** offers key vocabulary definitions in over 10 different languages.

Spanish
Interactive
Word Wall



Google Translate

Assess and Address Learning Needs

Chart the path to FSAS mastery with a suite of easy-access tools aimed at gauging student understanding, identifying learning gaps, and targeting misconceptions throughout each lesson and chapter. Formal exam practice, personalized and adaptive study tools, and a curated selection of learning assets ensure Florida state science assessment success and deep comprehension for all students.

Formative Assessment Tools

- **Chapter pre-tests** are available online to kick off lessons by evaluating current student understanding.
- **FSAS Refresh** allows teachers to assign students LearnSmart problems to help close foundational knowledge gaps.
- Throughout the Student Edition, **Talk About It, Investigation Connections and Visual Literacy Questions** provide guidance to help teachers track student comprehension.
- **Kahoot!** uses fun, game show-like quizzes to help students review important material in an engaging way.

LearnSmart gives students a chance to take learning into their own hands while granting teachers insight into students' knowledge and abilities. (for Grades 3-5.)

Summative Assessment Tools

- **Quick Checks and Essential Question Check-Ins** serve as exit tickets which quiz students at the end of every lesson to assess understanding—available in print and digital formats.
- **Am I Ready? Routine** gives students the tools to check their own understanding as they prepare for upcoming tests.
- **The Florida Assessment Guide** provides Florida state science assessment-aligned questions to prepare students for the Grade 5 state science test.
- **Chapter tests** are available for assignment online, as are chapter review assignments to help students prepare.
- **STEM Projects** allow students to demonstrate their understanding through creative, hands-on applications of the material.

Am I Ready? Assessment Routine

for the Lesson Review. Complete these
Check them off as you go!

Word Wall Review your vocabulary words
their connections. Can you use each word in a
ce? Can you explain each word to a partner?

1, Evidence, Reasoning How did the lesson
es help you write your claim, cite evidence,
upport your claim with reasoning?

**KEELEY
SCIENCE
JOBES** Revisit your response. Make a
note on the probe to show how
inking has changed.

view your work. Can you answer the
ential Question?

Your Understanding

I'm confused. I'm still learning. I understand. I can teach someone else.

— — —

The image shows a tablet displaying a multiple-choice question from the McGraw-Hill Education platform. The question asks about energy transformations in a cell phone. The options are: light energy to sound energy, thermal energy to light energy, electrical energy to motion energy, and electrical energy to light energy. Below the question are links for 'Need help? Review these concept resources' and 'Assignment Resources'. The background is a worksheet titled 'Am I Ready? Assessment Routine' with various prompts and a progress indicator at the bottom.

FLORIDA Science

UNLIMITED POTENTIAL



Scan to try the digital
sampling experience, or visit:
mheonline.com/FLScience