

 SCHOLASTIC

Digital Science
Resource

Grades
5–10



ScienceFlix[®]

Powered by Grolier Online

Implementation Guide



Welcome to



ScienceFlix®

Powered by Grolier Online

ScienceFlix is the mobile-ready science resource that is transforming the way students access science topics, acquire scientific knowledge, and build a lasting interest in science, technology, and engineering. Offering more than 65 complete units of study with over 9,500 science-related assets in a variety of media, **ScienceFlix** provides students with a better understanding of science concepts and ideas through hands-on projects, videos, multiple text types, interactive features and more.

The content in **ScienceFlix** has been organized into units, each aligning to science curriculum standards. All of the articles in the units have been written at three levels, so content is accessible to all students. This curriculum-driven leveled content is integrated with a wealth of further resources, including videos, career information, a Science Lab with projects and experiments, and quizzes to provide opportunities for self-assessment and progress monitoring.

ScienceFlix works on any Web-enabled device and can be the basis for whole-group, small-group, and individual instruction, or independent learning. With its emphasis on the latest STEM thinking and the Next Generation Science Standards, **ScienceFlix** is a highly engaging supplement to science core curriculum that can be used in the library, the classroom, or at home.









About This Guide

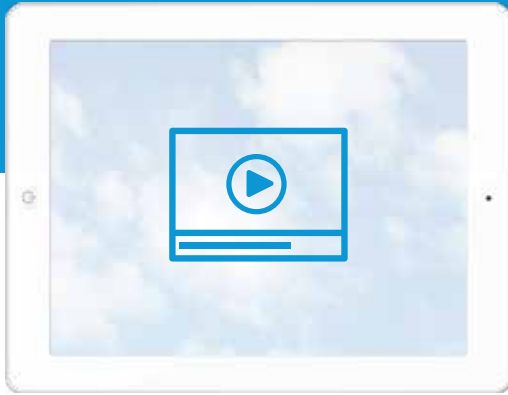
This guide provides an overview of the **ScienceFlix** program and detailed information about incorporating it into your classroom. Use it to familiarize yourself with the program's structure, content, and pedagogical features, as well as the navigation and interactive features of the website.

ScienceFlix is extremely adaptable to any science curriculum. This guide offers general instructional strategies and activities, as well as recommendations for pacing the lessons and an instructional approach that reflects best practices.

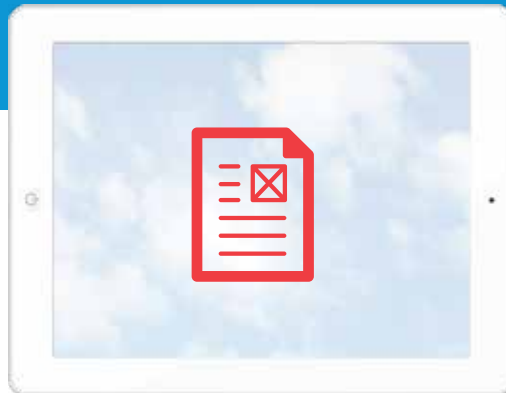
The purpose of **ScienceFlix** is to help students:

-  Practice hands-on scientific study
-  Develop inquiry-based learning skills
-  Build STEM content knowledge
-  Use technology and digital media strategically and capably

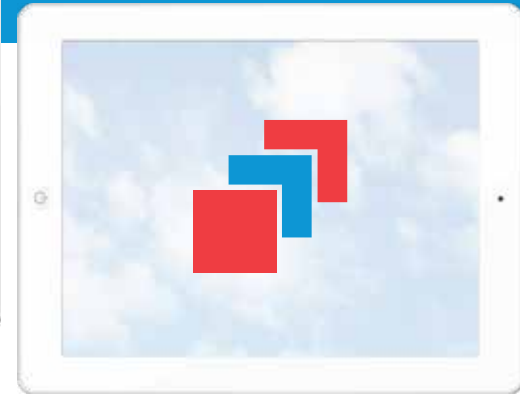
Program Overview



Introductory Video



Articles at three reading levels



Related Content

Key Instructional Components

Each **ScienceFlix** unit includes the following elements, accessible from the left-hand navigation on each topic page:

INTRODUCTORY VIDEO

Click “Watch It” to view a streaming video that engages the student and provides a brief introduction to the topic.



Why Use Video?

Instructional research supports the use of video to introduce a topic. Viewing a video independently or with the whole class is a powerful way to draw in and engage students, particularly visual learners, ELLs, and others with different learning styles. Students who are interested and engaged in a topic have been shown to understand concepts more readily—and retain them longer.

Watching a relevant video helps build background knowledge on a topic. This is critical for reading comprehension, especially for understanding informational texts.

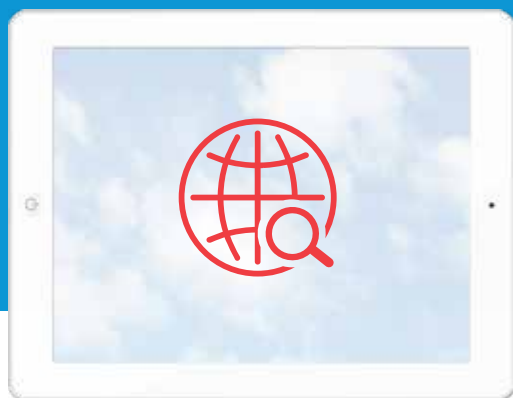
ScienceFlix videos are custom-created to serve this purpose. They incorporate ideas, images, and key vocabulary that the student will encounter while reading.

LEVELED SURVEY ARTICLE

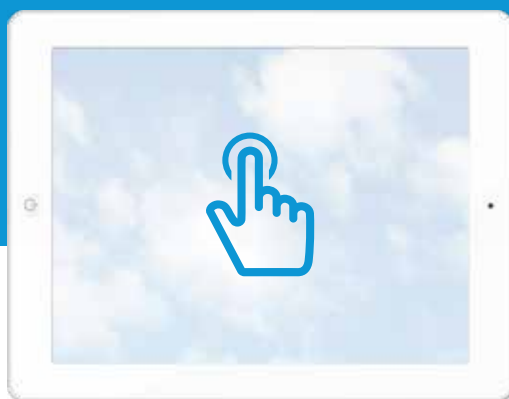
Click “Read It” to go to the unit’s full survey article. The default reading level of the survey article is 2. Click the reading level buttons at the top of the article to change level. The survey article provides a detailed overview of the unit topic, touching on information that is elaborated on in the subtopics. The article can be accessed in Spanish by clicking on *Cambiar a español*.

RELATED CONTENT

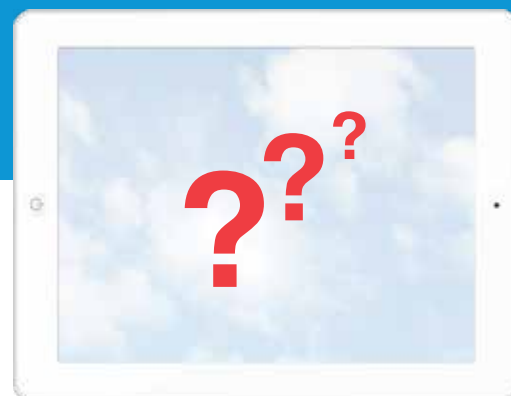
Click Dive Deeper to explore three curriculum-driven paths integrally related to the unit topic. Each of the three Dive Deeper topics contains three subtopics. Of the nine subtopics, most are leveled articles and at least two are multimedia features such as videos, slideshows, timelines, and interactive animations. All provide in-depth looks at key aspects of the unit topic.



Internet Links



Project Idea



Quiz

FURTHER READING

Click “Explore More” to access a comprehensive list of articles that provide further avenues for exploring the unit topic. The Explore More page presents as four bars carrying the title of the survey article and the names of the three Dive Deeper topics. Click either the topic title or the plus sign next to the title to see the related articles. Articles are listed by their Lexile levels to assist in choosing the correct reading level.

INTERNET LINKS

Click “Related Web Sites” to access editorially vetted Web links associated with each article and multimedia feature in the unit, sorted by reading level. Sites have been carefully selected to extend learning, broaden the content area, and promote further research.

PROJECTS AND EXPERIMENTS

Click on “Science Lab” to find four projects and in many cases an experiment. The unit project challenges students to demonstrate an understanding of the material in the entire unit and to apply that knowledge to a new situation. Each of the three other projects addresses a Dive Deeper topic, providing a project goal and a list of questions that will help in the creation and completion of the project deliverable.

Each experiment includes a detailed description of the experiment’s objectives, materials needed, and procedure to follow. Accompanying the description is a custom video that walks students through the experimental procedure. A worksheet is provided for students to print out and use to record their hypothesis, observations, and findings.

DISCUSSION QUESTIONS

Click “What Do You Think” to access three open-ended questions to inform reading or spark a class discussion. Each unit also displays an Essential Question that ties to the unit project to inspire an inquiry path.

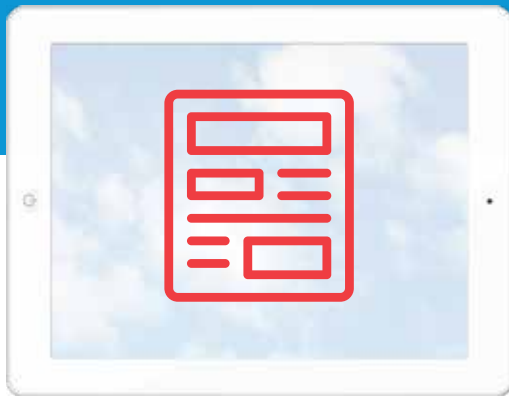
QUIZ

Click “Show What You Know” to access 12 assessment questions that test the acquisition of content-area knowledge, as well as critical thinking skills and critical research skills and strategies. There are three questions for the survey article and one for each of the nine subtopics. Immediate correct/incorrect feedback is provided; a rationale (“Here’s why”) displays when a question is answered incorrectly. A printable PDF of the quiz can be found within the teacher resources section.

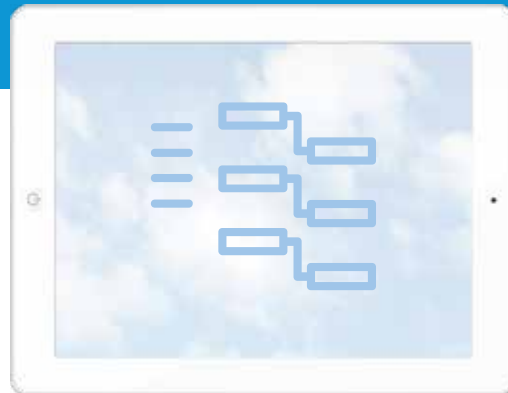
CAREERS

Click “Careers” to read an article on a career closely related to the unit topic. Each article includes statistical information about the career, including education requirements, median pay, and job outlook.

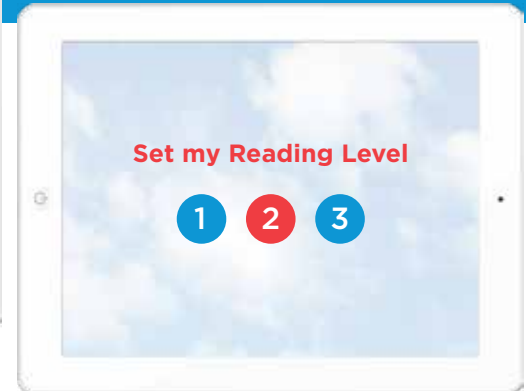
Teacher Tools and Resources



Lesson Plans



Curriculum Correlations



Lexiles

LESSON PLANS

Every **ScienceFlix** unit is accompanied by a lesson plan with teaching activities that are tied to the specific content of that unit. Lesson plans are standards-aligned and include learning objectives and lists of academic and content vocabulary. Each includes whole-class activities to introduce the topic, including previewing key vocabulary and using the anchor video to build background. Also included are small-group classroom activities to build interest in the topic and guidelines for assigning projects, assessing understanding, and sharing research. A detailed printable rubric is available for assessing the unit project. An answer key for the unit quiz can be accessed from the end of the lesson plan. The complete library of lesson plans can be browsed from the Teacher Resources screen.

CURRICULUM CORRELATIONS

All lesson plans are aligned to state and national science standards. From the lesson plan page for any **ScienceFlix** topic, click "Correlations." This will open a popup window displaying a list of that lesson plan's correlations to the standards document selected. The user's home state is pre-selected. The standard may be changed by selecting a different standard from the drop-down menu and clicking "Go."

LEXILES

All English-language articles in **ScienceFlix** are assigned a Lexile level based on vocabulary and sentence length and structure. Based on their Lexiles, articles have been assigned to one of three reading levels in **ScienceFlix**. Articles with Lexiles of under 800 are in Level 1; articles that Lexile between 801 to 1000 are in Level 2; and articles that Lexile between 1001 and 1200 are in Level 3. The Lexile Framework® for Reading, developed by MetaMetrics, Inc., provides a common scale for matching reader ability and text difficulty, allowing easy monitoring of student progress and ensuring reading comprehension. Recognized as the most widely adopted reading measure in use today, Lexiles are part of reading and testing programs at the district, state, and federal levels.

CONTENT OVERVIEW CHART

68 units in 6 areas of study (including 2 Math units) | More than 9,500 science-related assets | Read-Aloud with word highlighting to support beginning readers and ELL students | Videos for each topic | Three reading levels for every Anchor and Dive Deeper article | Spanish articles for every unit | Experiments | Science News | Science Careers
 More than 15,000 curated and vetted web links

EARTH SCIENCE	Geologic Time	Stars
Archaeology	Pregeologic Time	Stellar Life Cycles
Sources from the Past	Age Analysis	Star Groupings
Digging into the Past	Earth through Time	Systems of Stars
Archaeology Today	Landforms	Time and Space
Atmosphere and Weather	Mechanisms of Formation	Defining Time
Atmospheric Dynamics	Landform Overview	Infinite Space
Air in Motion	Human Dimension	Intersecting Concepts
Atmospheric Conditions	Oceans of the World	Universe
Climates of the World	The Ocean Realm	Components of the Universe
Weather and Climate	Oceans in Motion	Eyes on the Universe
Climates of the Past	Plumbing the Depths	Mysteries of the Universe
Climate Modification	Rocks and Minerals	LIFE SCIENCE
Climate Change	Kinds of Rocks	Animal Behavior
Environmental Concerns	Rocks Reordered	Basic Instincts
Consequences of a Warming World	Digging Deeper	Learning and Behavior
Finding Solutions	Volcanoes	Animal Communication
Continental Drift	Inside a Volcano	Animal Kingdom
Ancient Continents	Shapes and Sizes	Animal Diversity
Dynamic Processes	Hot Spots	Animal Distribution
Enduring Evidence	SPACE SCIENCE	The Human Factor
Earth's Interior	Planet Earth	Biomes
Anatomy of a Planet	Planetary Characteristics	The Biosphere
Movements and Forces	In Earth's Orbit	Inside the Biome
Exploring the Interior	Solar and Lunar Effects	Biomes in Flux
Earthquakes	Solar System	Cells
Anatomy of an Earthquake	The Sun and Planets	Sorting Out the Cells
Earthquake Aftermath	Other Objects in Orbit	Inner Workings
Predicting and Preparing	Searching for Answers	Cell Division
Extreme Weather	Space Exploration	Conservation
Weather Makers	Uncrewed Space Exploration	Conservation Challenges
Predicting and Tracking	Humans in Space	Resource Management
Extreme-Weather Aftermath	Survival in Space	Conservation Programs

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 More than 15,000 curated and vetted web links

LIFE SCIENCE cont.

Endangered Species

Near the Brink
 Causes of Endangerment
 What's Being Done?

Life Cycles

Life Begins
 Growth and Development
 The End of Life

Marine Life

Marine Ecosystems
 Species Galore
 Bounty of the Sea

Microbes

The Microbial World
 Microbes Good and Bad
 The Study of Microbes

Plant Kingdom

Plant Diversity
 People and Plants
 Plantlike Organisms

Plant Science

Plant Processes
 Specialized Structures
 Plants in the Environment

Prehistoric Animals

Terrible Lizards
 Mammals and Flying Reptiles
 Seeking Clues

HEALTH & HUMAN BODY

Disease

Disorders of the Body
 Diagnosis and Treatment
 The Art of Healing

Exercise and Fitness

Exercise and the Body
 Fitness Regimens
 Approaches to Fitness

Food Science

Food Production
 Food Processing
 Food and Society

Genetics and Heredity

The Elements of Genetics
 The Science of Heredity
 Genetic Technology

Human Behavior

Theories and Behaviors
 Behavioral Disorders
 Behavioral Therapies

Medical Technology

Assessing and Diagnosing
 Advancing Technologies
 An Industry Innovating

Memory and Learning

Information Processing
 Learning Skills
 Evaluation and Intelligence

Nutrition

Nutritional Guidelines
 Upsetting the Balance
 Diet and Lifestyle

Senses

Head Senses
 Skin and Deep Senses
 Additional Senses

Systems of the Body

Systems and Structure
 The Essential Cores
 Human Metabolism

PHYSICAL SCIENCE

Alternative Energy

Traditional Energy Sources
 Water and Energy
 Energy from the Sun

Atoms and Molecules

Atomic Structure
 Characteristics of Atoms
 Atomic and Molecular Behavior

Chemical Reactions

Common Chemical Reactions
 Expressing Reactions
 Powerful Transformations

Elements

Meet the Elements
 The Families of Elements
 Element Formation and Transformation

Force and Motion

The Science of Mechanics
 Objects in Motion
 Types of Forces

CONTENT OVERVIEW CHART

68 units in 6 areas of study (including 2 Math units) | More than 9,500 science-related assets | Read-Aloud with word highlighting to support beginning readers and ELL students | Videos for each topic | Three reading levels for every Anchor and Dive Deeper article | Spanish articles for every unit | Experiments | Science News | Science Careers
 More than 15,000 curated and vetted web links

PHYSICAL SCIENCE cont.

Fossil Fuels

Oil
 Other Fossil Fuels
 Energy Today

Gravity and Gravitation

Evolving Theories
 Gravity and the Universe
 Microgravity

Light

The Nature of Light
 Light Perception
 Applications of Light

Magnets and Magnetism

Magnetism in our World
 Electromagnetic Waves
 Electromagnetism at Work

Sound

Producing Sound
 Perceiving Sound
 Using Sound

States of Matter

Common States
 Changes of State
 Uncommon States

Water

Water as a Compound
 Water in the Environment
 Water in our Lives

TECH, MATH, & ENGINEERING

Building and Construction

Materials of Construction
 Techniques of Building
 BuildingDesign

Coding

The Basics
 Coding in Action
 In the Real World

Communication Tech

Personal Communication
 Mass Communication
 Online Communication

Computer Technology

Hardware
 Software and Coding
 Our Digital World

Engineering Design

Criteria and Constraints
 Modeling and Testing
 Real-World Applications

Forensic Science

Forensic Call to Action
 Forensic Laboratories
 Forensic Analysis

Inventors and Inventions

Great Inventions
 Inventors and Their Processes
 Keys to Success

MakerSpaces

MakerSpace Learning
 Inside a MakerSpace
 Beyond the MakerSpace

Modern Manufacturing

Industrial Evolution
 Process Overview
 Advanced Techniques

Numbers

Number Representation
 Working with Numbers
 Using Numbers

Robotics

Robot Technology
 Current Applications
 The Robots of Tomorrow

Simple Machines

Force and Work
 Making Connections
 Complex Machines

Shapes and Solids

Basic Shapes
 Working with Shapes
 Shapes in Our Lives

Tools of the Scientist

Instrumentation
 Systems of Measurement
 Data Analysis

Transportation

The Automobile
 Ground, Sea, and Air Transport
 Transportation Trends

The Benefits of



Today more than ever, it is vital for students to acquire the knowledge and skills needed to succeed in our increasingly complex world. A key component in this learning path is the study of science, technology, engineering, and math—the subjects collectively known as STEM. These disciplines equip students with content knowledge that is increasingly essential for many of today’s careers. They also instill an approach to learning through inquiry, problem solving, and collaboration that will serve students throughout their educational and professional lives.

ScienceFlix provides the perfect environment to practice these higher-level skills while reading widely and deeply in the content area. Inquiry is at the heart of science, and **ScienceFlix** combines

compelling content with tools and resources that encourage independent explorations. Science experiments with instructional videos encourage hands-on learning. Thought-provoking project ideas provide a variety of goals and deliverables, from creating a game or poster to engaging in full-unit inquiry paths.

Students can draw information from a variety of media and sources and in the process will encounter texts at a range of complexities. Quizzes, project ideas, and writing prompts provide ample opportunities for students to demonstrate understanding of science concepts and to complete writing and research products in response to a topic.

Tabbed Sections On Every **ScienceFlix** Screen:



Experiments

All of the **ScienceFlix** experiments are collected in this section, where they can be easily browsed. Students can also read an introductory article about experiments and watch a video on the scientific method. This section also provides information about working in a scientific laboratory as well as a collection of related Web links.

Careers in Science

In this section students can read an article and watch a video to receive an overview and general information about working in the sciences. They can also browse all of the **ScienceFlix** articles on specific careers and explore a large collection of Web sites to find a wealth of information on careers in math, science, and technology.

Science News

The Science News section features science-related current events stories from Scholastic magazines, Scholastic *GO!*, and other sources. The stories cover a broad range of science topics in engaging, age-appropriate text. Links embedded in the text take students to in-depth articles on relevant topics. Each news story includes a study guide with comprehension questions, key vocabulary words, and discussion questions. Selected stories include a MakerSpace option to foster hands-on learning.

and Your Instruction

Use **ScienceFlix** to supplement your science core curriculum, and to provide practice building literacy skills.

ScienceFlix can be used effectively in a range of settings, including:



WHOLE-GROUP INSTRUCTION
with an interactive whiteboard



SMALL-GROUP INSTRUCTION
using digital tablets



INDIVIDUAL INSTRUCTION
on a desktop or laptop computer

FLEXIBLE PACING

As a supplemental resource, **ScienceFlix** can be used flexibly to suit a variety of classroom and home/school-connection needs. Use **ScienceFlix** on consecutive days, or on alternating days throughout the week, as best suits the needs of your classroom.

You have options! Here are some features you can use, depending on available time, and on how deeply and intensively you wish to explore the topic with students:

Leveled survey articles — Science texts at three reading levels and in Spanish

Dive Deeper — Leveled articles and multimedia related to the unit topic

Explore More — Related articles for further exploration

Related Websites — Broaden and deepen content knowledge and build research skills

Science News — Current event connection texts from **Scholastic GO!** and **Science World**, including study guides and MakerSpace activity ideas

Science Lab Projects — Projects and experiments to develop students' ability to follow multistep procedures

Careers — Job profile connections for each topic that help students explore the wide range of roles scientists play in our world

Students can also use **ScienceFlix** during independent reading or choice time in your classroom. This allows learners time to engage in supported yet independent learning with high-leverage, high-interest science topics—and frees you up to provide individual coaching, formative assessments, or small-group instruction.



Option A: CONSECUTIVE DAYS

Complete a **ScienceFlix** Unit across **4-5 consecutive days every other week**.

Advantages: Using **ScienceFlix** for 20-40 minutes a day over 4-5 consecutive days allows students to focus intensively on exploring science topics through watching the video, engaging in academic discussion, reading as a group and independently, and doing related activities. It also allows you time in alternating weeks to engage students exploring other science topics and activities you want or need to include in your curriculum.

M	T	W	TH	F
<ul style="list-style-type: none"> Introduce the topic <ul style="list-style-type: none"> Intro video Vocabulary preview Build background Discuss the Essential Question 	<ul style="list-style-type: none"> Review the topic Introduce the survey article Read the survey article Discussion Questions <i>Optional (10–20 min.):</i> Explore More interactive texts; Dive Deeper lesson; Career Profile 	<ul style="list-style-type: none"> Review the topic Re-read the article Discussion Questions <i>Optional (10–20 min.):</i> Leveled survey articles; Dive Deeper lesson; Related Websites Share out 	<ul style="list-style-type: none"> Assessment (Show What You Know quiz) <i>Optional (10–20 min.):</i> Science News and MakerSpace Activities, share out; Science Lab Project preview Wrap-up discussion: Revisit the Essential Question 	<p><i>Optional (20–40 min.):</i></p> <ul style="list-style-type: none"> Science Lab Project Science News and MakerSpace Activities Share out



- **Watch the introductory video.** Engage students and support their comprehension by showing a high-interest video.
- **Vocabulary preview**
- **Build Background:** Activate prior knowledge by asking questions that invite students to share what they might know about the topic.
- **Essential Question:** Introduce the Essential Question for the unit, and invite students' ideas and questions. Tell them you will revisit the Essential Question each day to see how their ideas and questions may change.



- **Review the topic:** Invite students to share what they remember about the video.
- **Introduce the survey article,** and invite inquiry. Encourage learners to articulate their interest and curiosity in questions and "I want to know" statements.
- **Read the article.** Read the article with the whole class, pausing as needed to support comprehension of concepts and terms.
- **Discussion Questions:** Click "What do you think?" and pose a discussion question. Invite students' ideas and questions. Then revisit the Essential Question briefly to see how students' ideas and questions may have changed.
- **Optional:** Dive Deeper, Related Websites



- **Review the topic:** Review key concepts and vocabulary.
- **Re-read the article.** Invite students to re-read the article individually or in small groups.
- **Discussion Questions:** Click "What do you think?" and pose a discussion question. Invite students' ideas and questions. Then revisit the Essential Question briefly to see how students'
- **Optional:** Depending on the learning style and needs of your students and on available time, you may want to explore Science News and MakerSpace Activities to provide opportunities for students to engage in creative activities related to the topic.
- **Share out.** Have students work with a partner, small group, or with the class to review and summarize their learning on this topic. If they did a MakerSpace Activity, invite students to share out by discussing what they created and how it expanded their learning on the topic.

DAY 4
20–40
min.

- **Assess learning:** Use the Show What You Know quiz and Word Match game that accompanies each unit to gauge student comprehension and vocabulary acquisition.
- **Optional:** Depending on the learning style and needs of your students and on available time, you may want to explore Science News and MakerSpace Activities to provide opportunities for students to engage in creative activities related to the topic. Facilitate a share out after the activity.
- **Optional:** Choose a MakerSpace Activity or one of the four Science Lab projects for the unit to give students an opportunity for hands-on application of learning. Preview the activity, project, or experiment students will work on the next time. Tell students they can draw on the video, e-book, any Dive Deeper articles they may have read, and the class discussions you’ve all had as you have explored this topic together. Encourage students to ask clarifying questions about the project.
- **Wrap Up discussion:** Review the topic and revisit the Essential Question. Invite an open-ended discussion of the topic.

DAY 5
20–40
min.

Optional

- **Optional**—Depending on the learning style and needs of your students and on available time, you may want to explore Science News and MakerSpace Activities to provide opportunities for students to engage in creative activities related to the topic. Facilitate a share out after the activity.
- **Optional—Science Lab Project time:** You may wish to have students work on a Science Lab experiment or a project in class, or assign a project as homework.
- **Share out.** Invite students to share their work with you and other students.

Option B: ALTERNATING DAYS

Complete a **ScienceFlix** Unit in **four or five 20–40 minute sessions per week, across two weeks.**

Advantages: Interaction with a thematic topic is integrated evenly throughout the school week. This model allows you time each week on alternating days to engage students in exploring other science topics and activities you want or need to include in your curriculum.

M	T	W	TH	F
	<ul style="list-style-type: none"> • Introduce the topic <ul style="list-style-type: none"> – Intro video – Vocabulary preview – Build background • Discuss the Essential Question • <i>Optional (10–20 min.):</i> Dive Deeper; Related Websites 		<ul style="list-style-type: none"> • Review the topic • Introduce the article • Read the article • Discussion Questions • <i>Optional (10–20 min.):</i> Explore More interactive texts; Dive Deeper lesson; Career Profile 	
	<ul style="list-style-type: none"> • Review the topic • Re-read the article • <i>Discussion Questions</i> • <i>Optional (10–20 min.):</i> Dive Deeper; Related Websites • Share out 		<ul style="list-style-type: none"> • Assessment (Show What You Know quiz) • <i>Optional (10–20 min.):</i> Science News and MakerSpace Activities, share out; Science Lab Project preview • Wrap-up discussion: Revisit the Essential Question 	<ul style="list-style-type: none"> • <i>Optional (20–40 min.):</i> Science Lab Project • Science News and MakerSpace Activities • Share out

Option A or B

Students can follow **Option A** or **Option B** above, or use **ScienceFlix** during independent or small group work time in your classroom. This engages learners in enriching science inquiries and frees you up to provide individual or small-group coaching and instruction, or formatively assess students. Note: If you assign any of the optional activities for independent or small group work, plan on spending a few minutes to introduce the activities and to provide guidance as students work.

General Instructional Plan



- A general instructional plan for teaching with **ScienceFlix** units is given below.
- Use the Content Overview Chart on pages 5–7 of this Guide to choose a unit.
- Review the lesson plan that accompanies each unit as a starting point for ideas.
- Determine how much time is needed to cover each session below.
- The general strategies and activities listed are appropriate for use with any unit.

INTRODUCE THE TOPIC

- Build background knowledge by talking with students about the topic you will be teaching. Activate prior knowledge by asking students questions or having them fill in a KWL chart. Where applicable, explain key phrases and concepts that they will encounter in the video and later in the **ScienceFlix** unit.
- Show the video to the class, encouraging students to take notes and jot down questions as they watch. When finished, ask students to recount the video in their own words, making sure they state the main ideas. Discuss with students what they already know about the topic. Then have students list at least five more things they think they will learn when they explore the topic more deeply.
- Preview the academic and content vocabulary listed in the lesson plan. Pronounce each word and discuss its definition. Have students take turns pronouncing each of the words and restating their definitions. If you have ELL students, make sure you introduce the vocabulary words to them a few days before the lesson.
- Introduce the focus questions contained in the lesson plan for the topic. Use them to initiate a class discussion, recording student responses and adding additional questions as they arise.

EXPLORE THE SCIENCEFLIX UNIT

- Have students read the survey article independently; alternatively, divide the class into groups to read the survey and explore one or all of the Dive Deeper topics. Show students how to set their reading levels, activate the read-aloud option, and look up a word using the tools at the top of the screen. Allow three class periods to complete the reading.

- To ensure that every student in a group is an active participant, assign group roles on the first day, such as moderator, note-taker, and reporter. Have students switch these roles during each day's work.
- Emphasize that students in each group are to work together to answer each of the focus questions and any other questions that were added during the class discussion. Remind them also to check the vocabulary list as they go through the references and to include the new vocabulary terms in their notes and responses.
- During the last 10 minutes of each day's class, regroup as a class to share learning. Ask the reporter from each group to share its major findings and answers to the questions posed earlier. Record student responses to all of the questions you've displayed on the board and correct any misstatements that may have been recorded earlier.

STUDENT ASSESSMENT

- Use the Show What You Know quiz that accompanies each unit to gauge student comprehension.
- Assign the projects to foster inquiry-based skills. The unit project asks students to distill the information they have acquired through their reading and research to respond to the unit's Essential Question. The three Dive Deeper projects focus on narrower topics of inquiry. Use the guidelines and rubrics in the lesson plan to evaluate student work.
- Use the What Do You Think questions that accompany the unit as discussion starters or writing prompts.

Activities to Promote Higher-Order Skills



ScienceFlix can be a valuable part of instructional strategies that target specific STEM and literacy skills. General ideas and strategies are provided below. Be sure to consult the lesson plan for each unit to find activities tailored to each topic.

HANDS-ON SCIENTIFIC LEARNING

- Show an experiment video to the class. Walk through the objectives, materials, and procedures provided in the experiment description. Then have students conduct their own experiment independently or in pairs. Be sure to show students how to access the worksheet on which to record their observations, hypothesis, results, and conclusions.
- Encourage students to pursue the MakerSpace activity ideas that accompany selected Science News stories. Have them share their results with the class.
- Assign one of the Science Lab projects for the topic that the class is exploring. Ask students to work individually or collaboratively on the project. Allow time in class for students to present their work or share their findings.

LITERACY SKILLS AND STEM CONTENT KNOWLEDGE

- Model comprehension strategies such as activating prior knowledge, making predictions, asking questions, and summarizing. Then have students practice and share the strategies they use when reading independently.
- Have students participate in classroom discussions or debates on their reading. Make sure they can state the main themes and key details from the text and respond logically to other student's comments.
- Encourage students to read across a range of text complexity on a topic by accessing the related content in the Explore More and Web links. Challenge students to "stretch" by reading at least one of the higher-level texts. Gauge comprehension via classroom discussions or writing assignments.
- Have students use the Science News module to connect science to our world. Direct them to the Study Guide that accompanies each story. There they will find questions to guide their reading, as well as key vocabulary words and open-ended questions for further research and discussion.
- Have students visit the Careers section to find real-world applications of the topic they are studying. Ask them to speak or write about how what they are learning relates to a potential job opportunity.

VOCABULARY

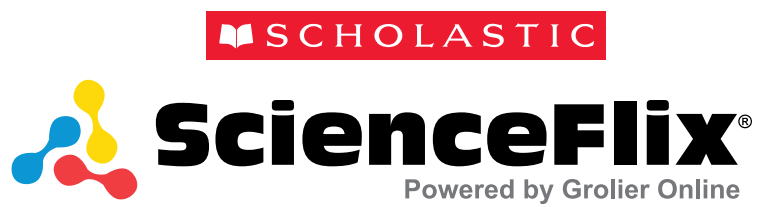
- Encourage students to use new vocabulary words in other contexts.
- Have students brainstorm lists of synonyms and antonyms for the new vocabulary words.
- Ask students to use the words in sentences, in a short passage, or create an illustrated glossary.
- Encourage students to use context clues to figure out unknown words. Remind them to decode unknown words by using what they already know about word structure, syllables, and affixes.

WRITING PRACTICE

- Have students use the Essential Question (on the topic home page) as a focus for reading. After reading is completed, ask them to prepare an extended written response to the question, citing evidence from the text to support their conclusions.
- Direct students to write brief essays in response to the What Do You Think questions, using examples from their reading to support their points. Emphasize the importance of using correct spelling and grammar and logical organization of ideas.
- Use the project ideas to encourage students to practice writing opinion, informative/ explanatory, and narrative pieces in response to a topic.

INQUIRY

- Divide students into small groups to dive deeper into an element from the unit. For example, point them to one of the related Web sites to read about a related career or choose an article from the Explore More collection; or ask them to examine an interactive feature from the Dive Deeper. Have each group discuss and prepare a brief review to present to the class.
- Encourage students to choose a topic or related resource from **ScienceFlix** that excites their interest. Have them craft an inquiry question to define and communicate their project. Use the Essential Questions as models for strong open-ended questions.
- Have students use the resources in **ScienceFlix** as a springboard to research, create, and present their project. Encourage them to draw evidence from a variety of sources—fiction, primary sources, and media as well as informational texts—to support analysis, reflection, and research.



For more information, please contact:

Phone: (800) 387-1437

Email: digitalinfo@scholastic.com

Visit: scholastic.com/scienceflix

