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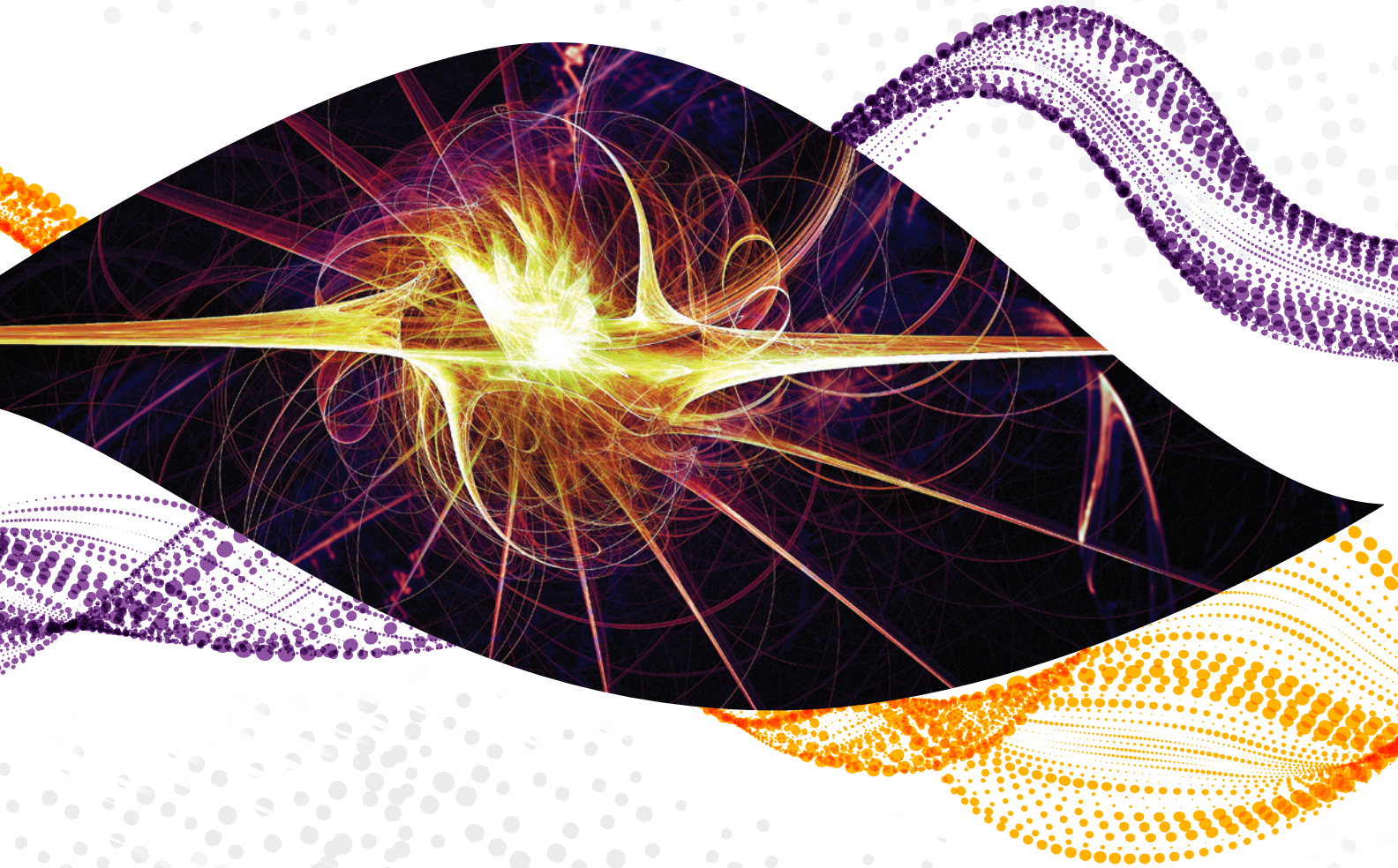
PROGRAM OVERVIEW

Experience Physics®

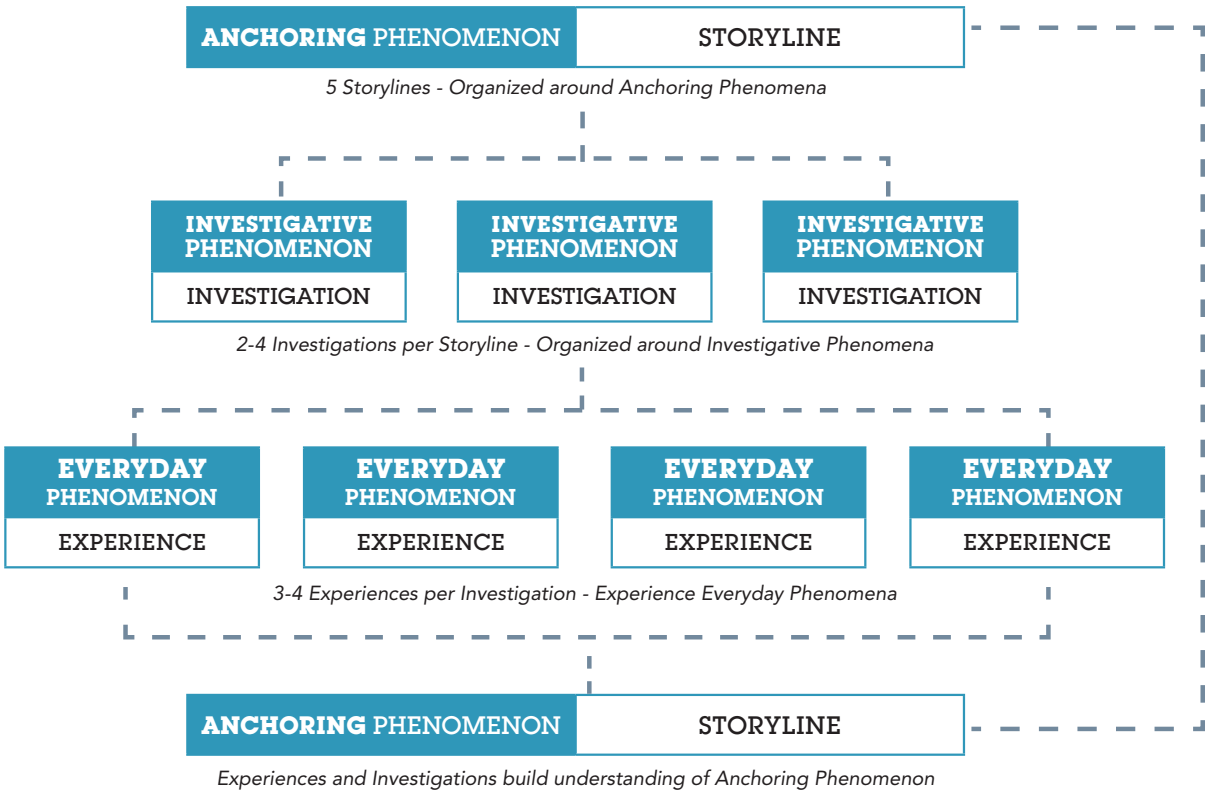


Phenomenal

experiences drive student inquiry.

Exploration begins with phenomena—showing students that physics is relevant to their lives. *Experience Physics®* uses phenomena to engage students in scientific inquiry through its organizational structure and real-world storylines.

Phenomena Organization



Phenomena Launch

Exploration begins with a **phenomenon video** or **class demonstration** that introduces and unifies the physics concepts.

Student Sensemaking

Students gather information, develop arguments over time, and document their understanding using a Claim-Evidence-Reasoning model.

Everyday Phenomena

Engage students in a personal and relatable way. From Flinn Scientific inquiry labs to virtual simulations, students are motivated to figure out why and how a phenomenon happens.

Related Phenomena in the Teacher Guide offer alternative suggestions for every phenomenon.

Revisit

INVESTIGATIVE PHENOMENON

GO ONLINE to revisit your **Investigative Phenomenon CER** with the new information you have learned about Properties of Waves.

These questions will help you apply what you learned in this experience to the Investigative Phenomenon.

18 **SEP Use Mathematics** At the beach, you time the wave crests hitting the shore and determine there is 20 seconds between crests. Determine the frequency of the wave. Would you expect this frequency to change if you made your measurement further out from the shore?

19 **SEP Analyze and Interpret Data** After determining the frequency, you then use a handheld sonar system to determine the ocean depth at 10 m increments from the shore. The data is shown in the table. Complete the table and construct a graph of the wave speed as a function of the depth.

Distance (m)	Depth (m)	Speed (m/s)	Wavelength (m)

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INVESTIGATIVE PHENOMENON DEMONSTRATION

Use a ripple tank or shallow baking pan to demonstrate the interaction between water waves and land. Put sand (or soil) at one end of the tank or pan, sloping down to the center of the pan. Fill the tank or pan with water. Then have a volunteer send waves from one end of the tank to the side that contains the sand. Have students observe how the waves interact with the sand.

Ask "How would increasing the size of the waves affect how the water interacts with the sand?" (Increasing the size of the waves would cause the water to carry away more of the sand.)

Flinn Scientific

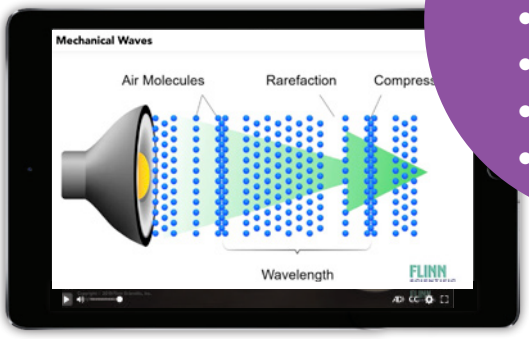
takes inquiry to a higher level.

Experience Physics is the science of doing! An exclusive partnership with Flinn Scientific®, the leading classroom lab solution provider, gives students access to its labs and activities directly in *Experience Physics*.

Hands-on Labs

Every learning experience in *Experience Physics* includes a hands-on inquiry lab. To save you time, each lab is available in four versions and includes video support to meet your diverse classroom needs.

FLINN SCIENTIFIC



4
VERSIONS OF EVERY LAB
- Open-Ended
- Guided
- Shortened
- Advanced

Engineering Workbench

Students design, test, and evaluate solutions that mimic the real-world activities of engineers. Activities are connected to related careers on the ***Using Physics Today Hook & Inspire*** site.

Lab Kits

Simplify set-up with time-saving kits from Flinn Scientific. Foster greater inquiry learning by having readily accessible lab materials.

NAME _____ DATE _____ CLASS _____

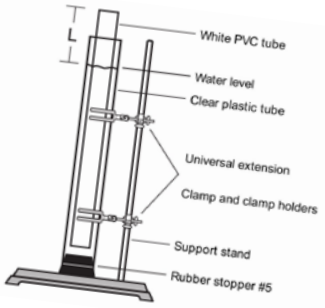
ANALYZING DATA

Refraction—Snell's Law

As light travels from one medium into another, refraction often occurs. Refraction is the bending of a wave that occurs when it enters a new substance as shown in Figure 1. This bending occurs because the speed of light changes when it passes from one substance to another, due to a difference in the densities of the two substances. In 1621, Dutch astronomer and mathematician Willebrord Snellius (1580–1626) came up with which is known today as Snell's law. In this activity

NAME _____ DATE _____ CLASS _____

Figure 1



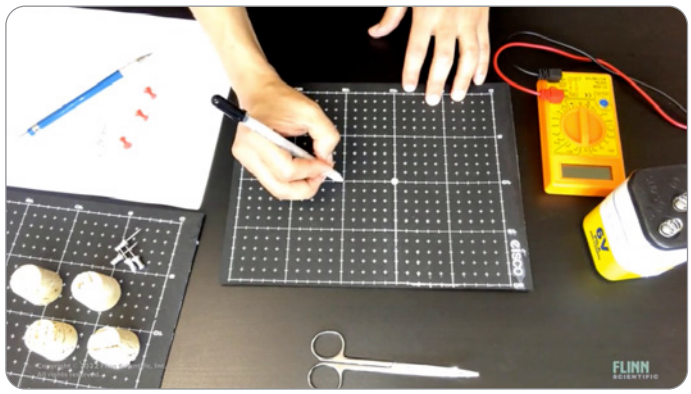
4. Place the white PVC tube inside of the clear plas

Data Set Activities

Students develop mathematical fluency using data sets that connect physics concepts to real-world issues.

Performance Tasks

Students demonstrate standards mastery by applying their understanding to a new situation in a Performance-Based Assessment at the end of every Investigation.



Virtual Explorations

support the understanding of phenomena.

Savvas Realize™ is an award-winning platform that has transformed learning into an active and engaging experience for millions of students. Realize is a **Thin Common Cartridge (TCC) certified provider**, so content runs on all compliant LMS platforms. Access all your digital content, virtual labs, simulations, assessments, and student data in ONE location.

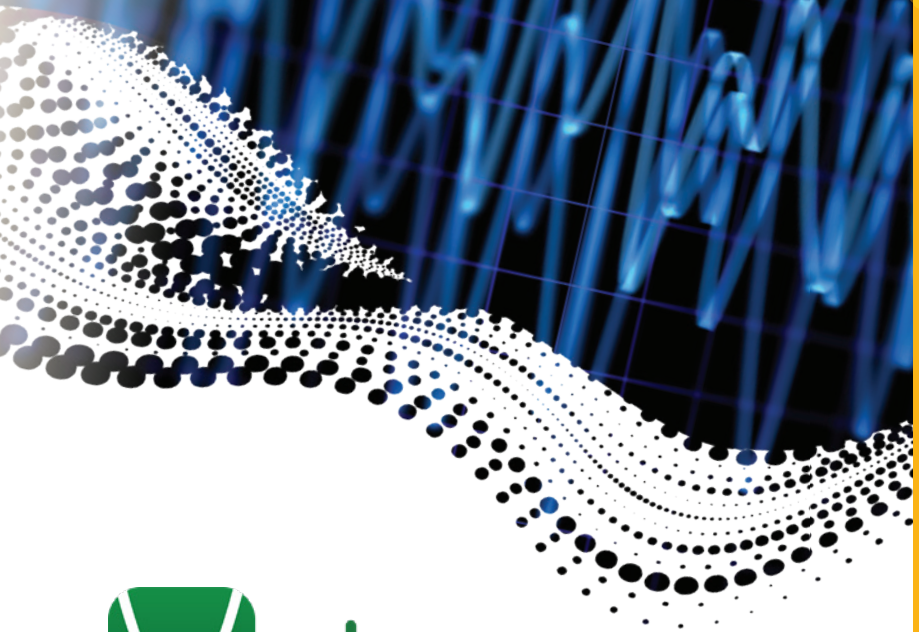
PhET™ Simulations engage students in an intuitive, game-like environment. Accompanying worksheets connect the simulations to the content.

Virtual Labs give all students access to compelling phenomena and advanced scientific equipment.

Boclips® Videos present physics concepts in an easy-to-understand way.

Digital Interactivities simulate real-world problem-solving to increase student interest.

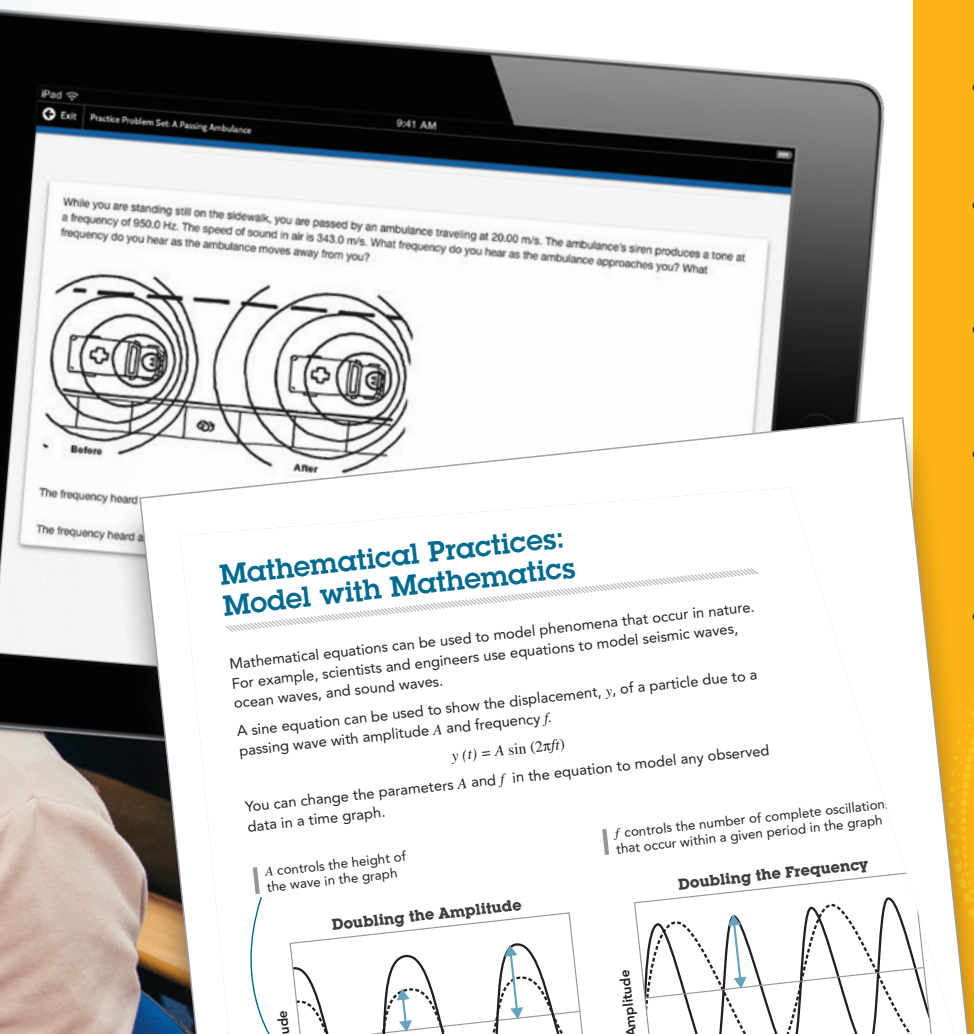
Look for faster integration and enhanced data-fidelity through **LTI-Advantage (LTI-A)**.



desmos

Desmos™ Graphing Calculator on the Savvas Realize™ digital platform supports students in problem solving and mathematics.

Math Tutorial Videos reinforce mathematical processes making them ideal for remediation.



3D Assessment

- **Performance Based-Assessments** measure students' mastery of the science and engineering practices.
- **Problem-Based Learning** projects require students to obtain and evaluate information about a related phenomenon and communicate their findings in a written report.
- **Revisit the Phenomenon** multiple times to help students make sense of the topic.
- **Online Quizzes** that are customizable and interactive conclude every Experience.
- **Assess-on-the-Spot** ideas in the Teacher Guide provide quick formative assessments.
- For a summative assessment of the Investigation, assign customizable **3-Dimensional Assessments** in Realize.
- **End-of-Year Tests** work well for a summative final exam.

Math Support

- **Physics and Math Skills Workbook** includes four pages of review and practice problems for every learning Experience.
- **Stepped-Out Examples** break down sample problems for clarity and process guidance.
- **Problem Banks** provide students with additional problems to build mathematical fluency.
- **Analyzing Data** activities include opportunities for students to apply mathematical concepts in real-world contexts.
- **Math Readiness Test** allows instructors to gauge student understanding before taking the course.

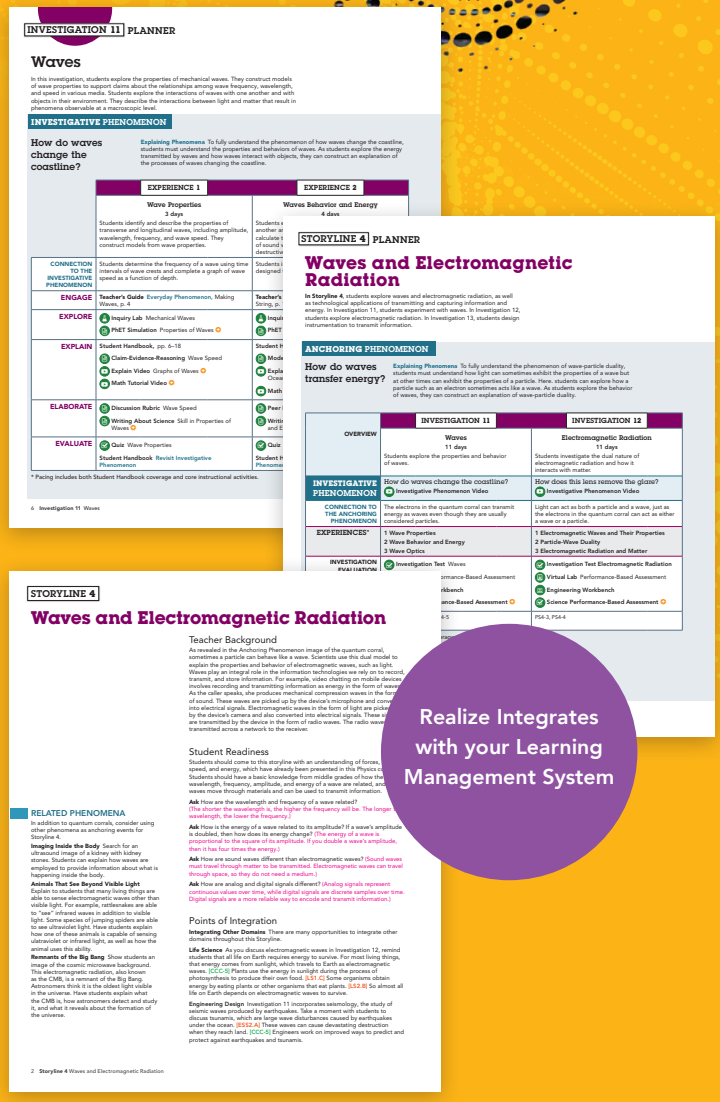
Shift between classroom and remote-learning curriculum with the click of a button.

A phenomenal and flexible teaching experience

The *Experience Physics* Teacher Guide isn't a traditional teacher edition. We put the focus on teacher resources, with teacher background, learning objectives, lab and activity modifications, point-of-use formative assessments, professional learning, and more.

The flexible structure makes it easy to adapt your physics program for any classroom situation, no matter the level of your students or the location of your classroom.

- **"Got More Time?"** activities make it easy to enhance your instruction.
- **Related Phenomena** give you options when you want to make a substitution.
- **Detailed Planners** use the 5E model for an inquiry-based approach.
- **Activities** includes a wide variety of hands-on labs and virtual simulations.



Realize Integrates with your Learning Management System

Images © Getty Images

Experience It for Yourself

Request samples and online demos at **Savvas.com/ExperiencePhysics**

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