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Program Overview

GLENCOE

PHYSICAL SCIENCE

Ease the Transition to Next Generation Science.

Whether your district has already adopted Next Generation Science Standards (NGSS) or is considering adopting them or any other new standards, ***Glencoe Physical Science*** ensures a seamless transition.

The increased pace of change in education in the last few years has created seismic shifts in the delivery and consumption of educational materials. Students want to connect what they learn in the classroom to what they see happening in the real world – today!

We deliver to you the most effective, innovative, and inspiring high school physical science curriculum that meets both NGSS and local science standards. Whether you're looking for a hybrid digital-print or a digital-first program, McGraw-Hill Education is your trusted advisor.

With *Glencoe Physical Science* you are equipped to:

- Meet science standards **Performance Expectations** (PEs).
- Integrate **Science and Engineering Practices** into your science classroom.
- Apply the **Disciplinary Core Ideas** (DCIs).
- Correlate your lessons to **NGSS.**

Glencoe Physical Science: Leveraging technology to drive personalized student success while engaging and motivating students with hands-on, project-based activities and real-world applications.

McGraw-Hill Education: Our tools, platforms, and services are focused on serving the needs of educators and learners through our purposeful technology, proven differentiated pedagogy, and unmatched professional development.

CONTENTS

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When you combine the **science of learning** with the **art of teaching,** there's no limit to what students can achieve.

RAMP UP THE ENGAGEMENT...

To create memorable learning experiences.

To meet you wherever you are on the digital spectrum, *Glencoe Physical Science* interactive learning and teaching resources are easy-to-use, whether you're a technology novice, digital native, or somewhere in the middle.

McGraw Hill connectED

ConnectED is your digital teaching platform making it easy and convenient to customize lessons, review assignments, and communicate with students.

Plan, Teach, and Assess with *ConnectED*.

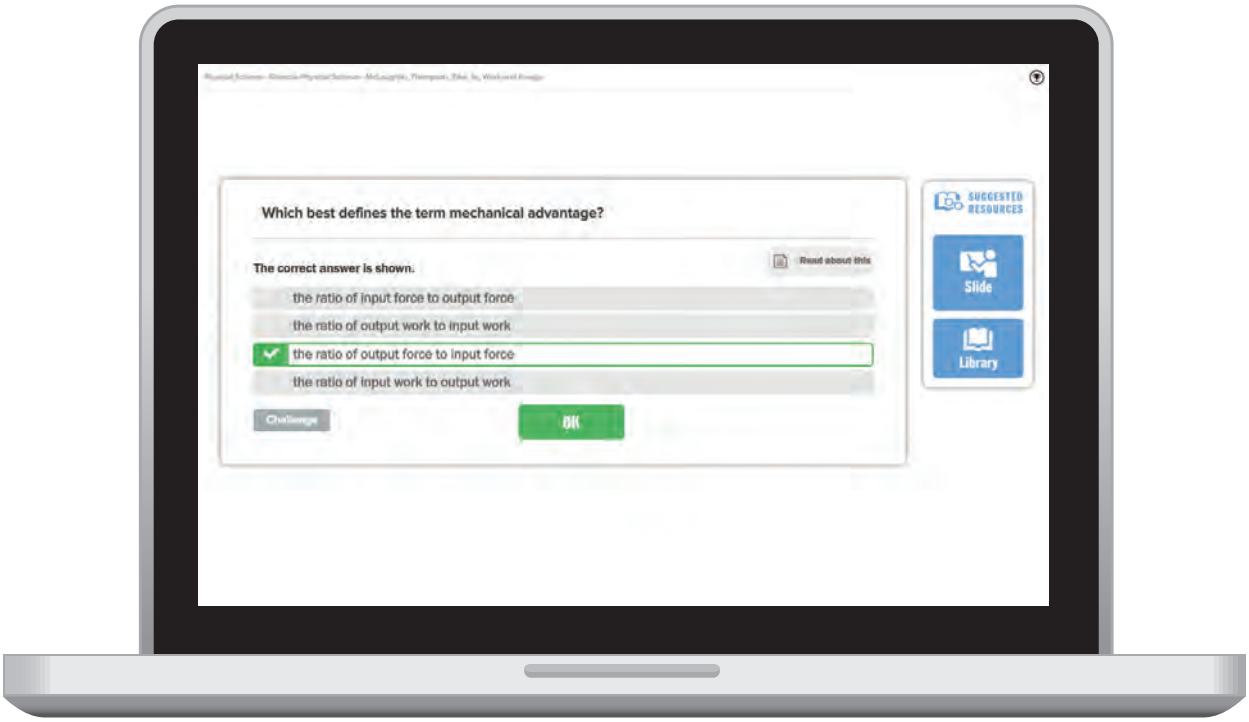
Increase Knowledge Retention with LEARNSMART®.

The ***LearnSmart***® adaptive learning engine with ***SmartBook***® gives every student a unique learning path and every teacher the power to reach all students in class.

SmartBook is an eBook whose text is fully integrated with ***LearnSmart*** technology. As a student reads, this technology determines precisely which learning objectives he/she understands and which ones he/she struggles with, highlighting the most critical content for the student to read next.

Learning Resources close knowledge gaps by immediately clarifying the concepts the student finds most challenging.

The personalized study resources your students need today to master state assessment tomorrow



Pinpoint knowledge gaps for individual students and across classes.

Empower students to personalize their learning experiences with optimal learning paths so they spend more time on what they don't know with ***LearnSmart***.

- Practice of basic physical science concepts to improve recall and application before moving on
- Additional exposure and increased practice to master new concepts
- Presentation of concepts individual students struggle to master

TIME SAVING TECHNOLOGY...

To optimize your productivity

Give your students the resources they need on the go! The *student eBook* helps students turn physical science in the real world into learning moments by giving students access to their program materials and resources anytime and anywhere.

Empower students to learn from physical science as-it-happens with the ***student eBook*** which learners can access anytime and anywhere using the Open eBook icon.

Plan and Prepare On-The-Go

The ***ConnectED Mobile App*** gives access to your Physical Science program including ***student eBook,*** planning tools, reference materials, and other program resources. ***ConnectED Mobile*** is available on select Chromebook, iOS, and Android™ devices.

Use the ConnectED Mobile App to:

- Access all the courses available to you in ConnectED.
- Download ***student eBook*** for use offline, whenever you need it.
- Review lesson plans from the Plan & Present tab from the ***ConnectED Teacher Center*** dashboard.
- Manage the content you download to the app.
- Retrieve a comprehensive list of resources from the Resource tab from the ***ConnectED Teacher Center*** dashboard.

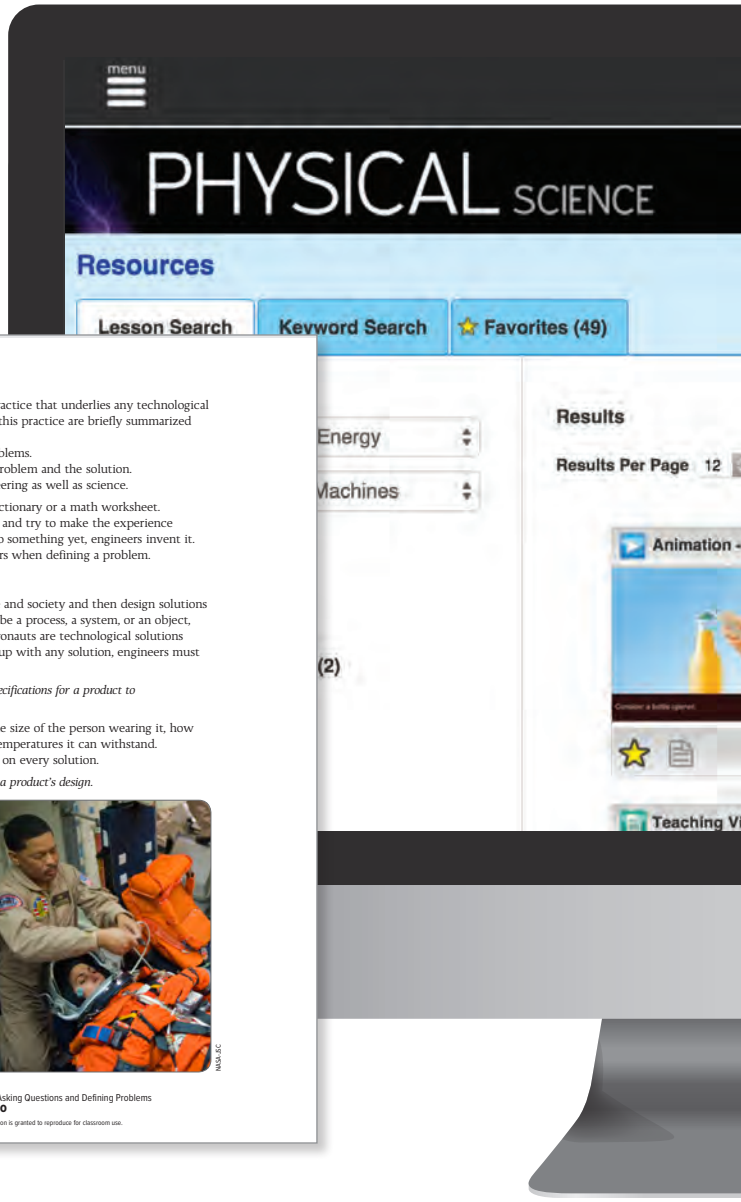
Real-World Connections

Be confident helping students achieve more! Use the ***Science and Engineering Practices Handbook*** to introduce the skills to students and support their scientific investigations and engineering projects.

As a reference book, the ***Science and Engineering Practices Handbook*** provides students with background information, definitions, examples, and Quick Practice activities to stimulate and reinforce learning.

The *Science and Engineering Practices Handbook* is an easy-to-use reference for all eight practices.

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information



Defining Problems

Defining problems is an engineering practice that underlies any technological solution. The different components of this practice are briefly summarized below.

1. Engineers design solutions to problems.
2. Problem statements outline the problem and the solution.
3. Asking questions is part of engineering as well as science.

Defining problems doesn't involve a dictionary or a math worksheet. Engineers study how people do things and try to make the experience better. If people don't have a way to do something yet, engineers invent it. Engineers have to consider many factors when defining a problem.

Seeking a Solution

Engineers identify problems for people and society and then design solutions to those problems. The solution could be a process, a system, or an object, such as a tool. Space suits worn by astronauts are technological solutions designed by engineers. When coming up with any solution, engineers must consider many criteria.

Criteria *are requirements or specifications for a product to be successful.*

Criteria for a space suit may include the size of the person wearing it, how easy it is to move around in, and the temperatures it can withstand. Engineers also have certain constraints on every solution.

Constraints *are limitations on a product's design.*

For example, some materials may not be durable enough or may be too expensive to use. Major constraints include time, energy, space, and the availability of tools and materials. Other important constraints are the number of people working on the project, how much money is available for the project, and what information about the project exists.

Space suits have many criteria for safety and functionality.

NASA JSC

Science and Engineering Practices • Asking Questions and Defining Problems
10

Find the Practices Handbook in your teacher resources.

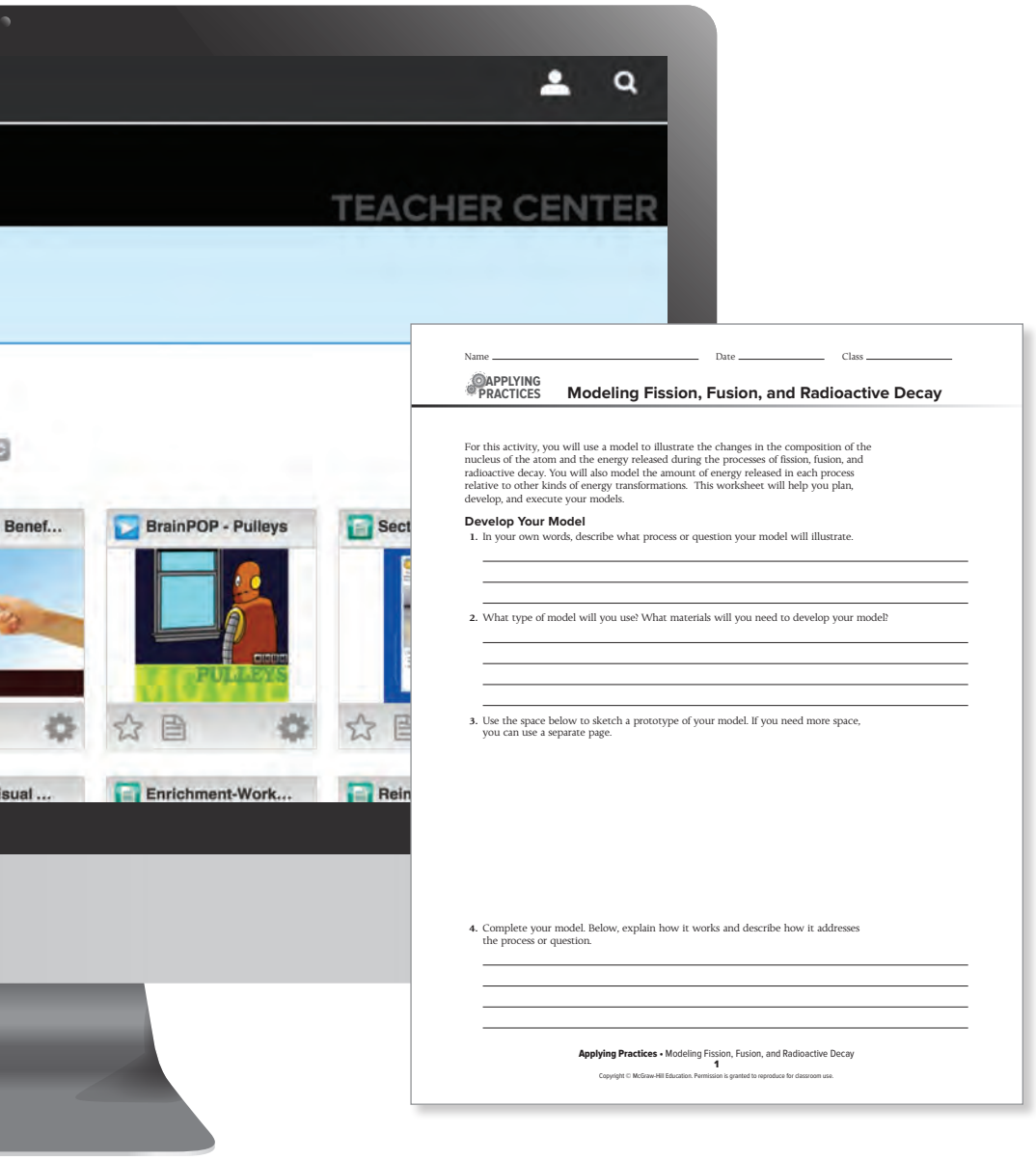
Integrated Student Resources

Written to meet each Next Generation Science Standard (NGSS) performance expectation, **Applying Practices Worksheets** and **Project-Based Learning Activities** (PBLs) challenge your students to solve real problems in the real world. These sheets are editable, downloadable, accessible online, and designed to meet specific performance expectations.

Student resources, learning activities, and worksheets are embedded for point-of-use access. Students can use these dynamic resources immediately to practice new concepts.

Students practice physical science in action with these learning tools.

- **Applying Practices** and **Project-Based Learning Activities** that integrate traditional science content with science and engineering practices
- Design-your-own labs
- Guided laboratory investigations
- Modeling activities
- Research and communicate projects



Name _____ Date _____ Class _____

APPLYING PRACTICES

Modeling Fission, Fusion, and Radioactive Decay

For this activity, you will use a model to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay. You will also model the amount of energy released in each process relative to other kinds of energy transformations. This worksheet will help you plan, develop, and execute your models.

Develop Your Model

1. In your own words, describe what process or question your model will illustrate.

2. What type of model will you use? What materials will you need to develop your model?

3. Use the space below to sketch a prototype of your model. If you need more space, you can use a separate page.

4. Complete your model. Below, explain how it works and describe how it addresses the process or question.

Applying Practices • Modeling Fission, Fusion, and Radioactive Decay
1

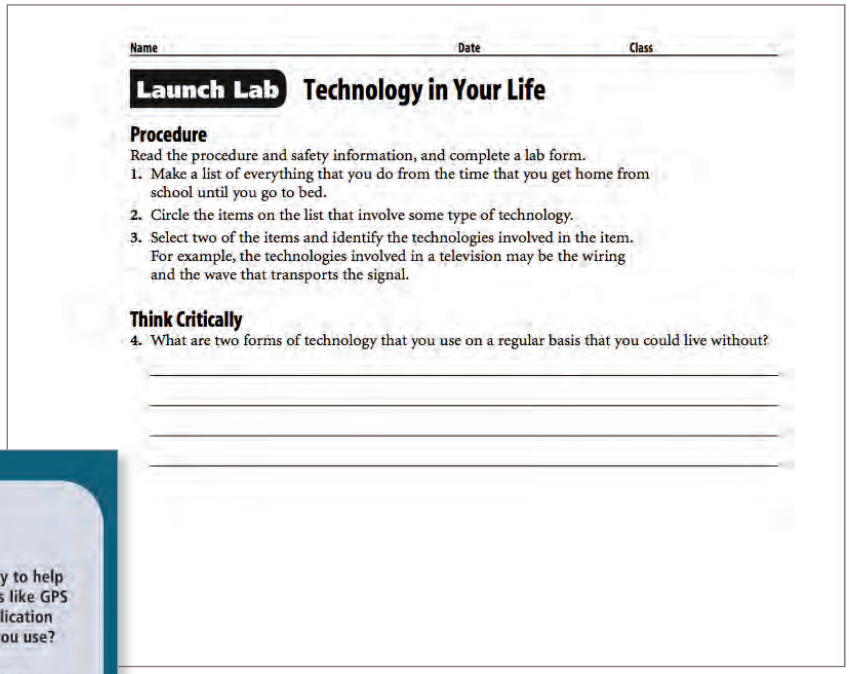
Find Applying Practice Worksheets in your teacher resources and teacher blades. Also accessible at point-of-use in student resources.

Science in Action

Glencoe Physical Science offers you diverse lab opportunities to deepen your students' understanding of science by experiencing it and experimenting with physical science first-hand!

Use these lab activities included in every chapter to bring science to life for your students.

- Launch Labs
- MiniLabs
- Physical Science Labs
- Design Your Own Labs
- Lab Manual
- Virtual Labs
- Video Labs
- Probeware Labs



Name Date Class

Launch Lab **Technology in Your Life**

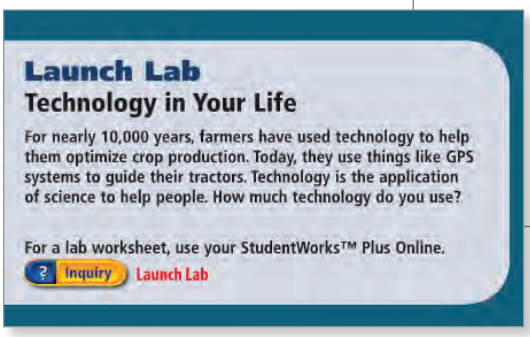
Procedure

Read the procedure and safety information, and complete a lab form.

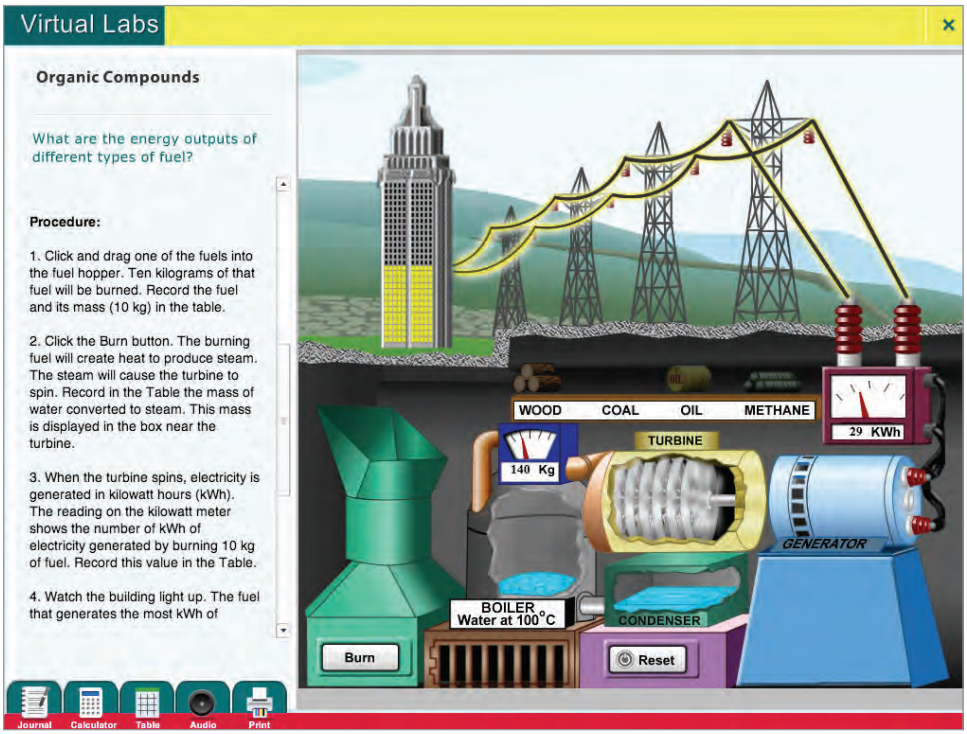
1. Make a list of everything that you do from the time that you get home from school until you go to bed.
2. Circle the items on the list that involve some type of technology.
3. Select two of the items and identify the technologies involved in the item. For example, the technologies involved in a television may be the wiring and the wave that transports the signal.

Think Critically

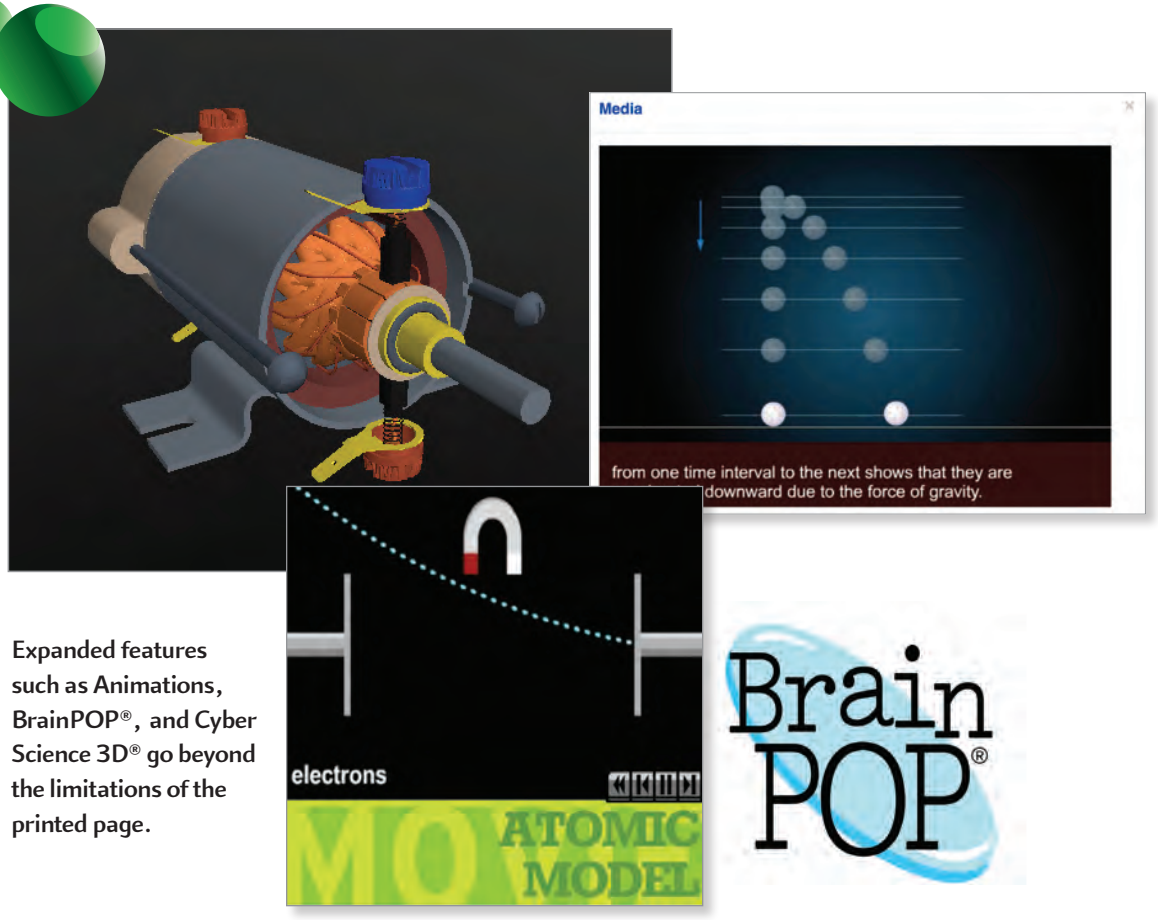
4. What are two forms of technology that you use on a regular basis that you could live without?



Launch Lab is found on the chapter opener.



Cyber Science 3D®



Expanded features such as Animations, BrainPOP®, and Cyber Science 3D® go beyond the limitations of the printed page.

BrainPOP®

Apply Interactive Practice

Students have their own digital learning platform called the ***ConnectED Student Center,*** complete with student worksheets and digital resources. Assignments you create appear in their to-do lists. Students can message you directly and submit their work.

Use expanded Student Center features such as **Animations, BrainPOP®,** and **Cyber Science 3D®** videos to go beyond the limitations of the printed page and bring science into your student's lives like never before.

EFFECTIVE RESULTS...

To support student success

Easy-to-use *eAssessment* with reporting tools equip you with the data you need to make informed instructional decisions and keep students engaged.

- ***eAssessment*** supports diverse types of evaluations and includes online scoring and report generation for digital and/or print distribution.
- **Professional Development** resources including pertinent information on new science standards and implementation best practices are available to you at point-of-use.

Turn Students into Star Performers with eAssessment.

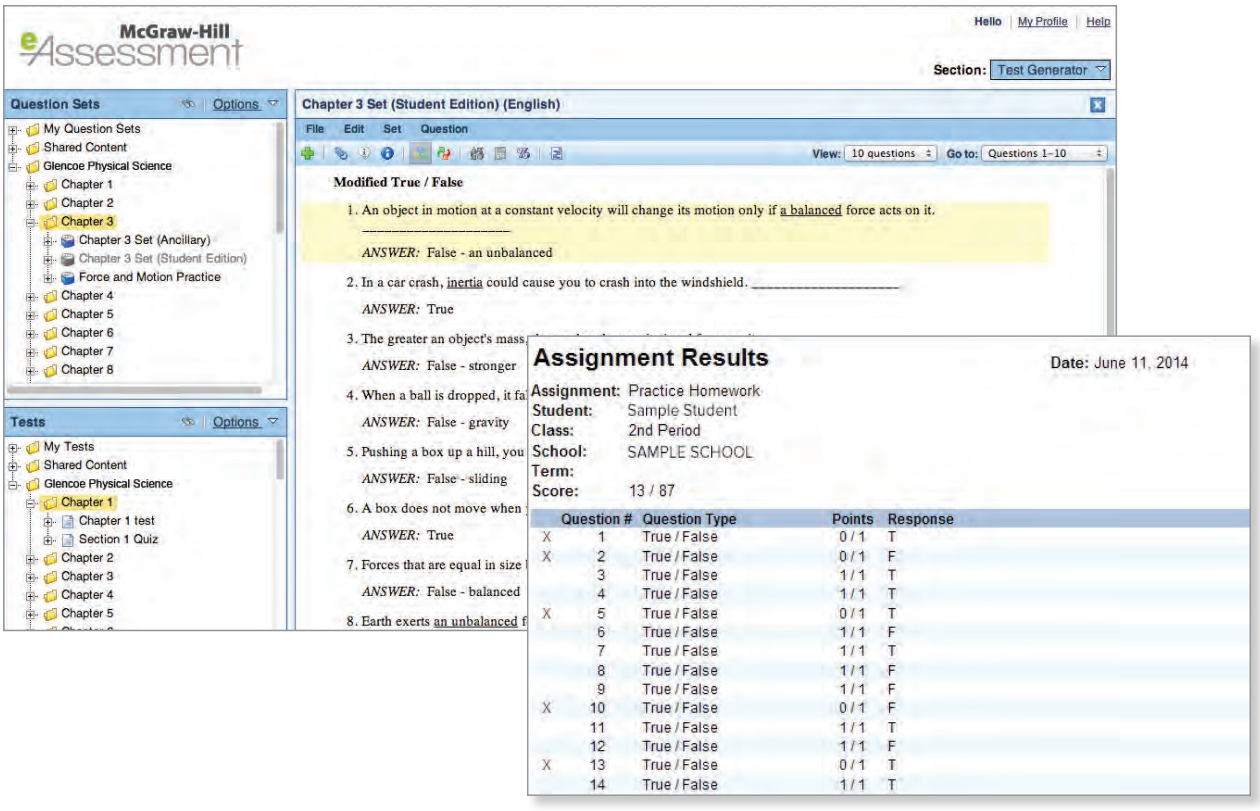
Turn your classroom into a physical science success center with ***eAssessment*** suite – a robust resource – giving you powerful tools to assess student progress and make data-driven instructional decisions.

The ***eAssessment*** reporting feature means you'll always have access to valuable data on individual students and whole classes to help you differentiate and support student mastery of concepts appropriately.

Identify students with knowledge gaps to make data-driven instructional decisions with eAssessment.

Other features of *eAssessment* to help increase your efficiency include:

- Question Bank with questions organized by strand, subject, and lesson.
- Report generation on proficiency and accuracy.
- Create and customize premade diagnostic and summative evaluations .



eAssessment **suite collects valuable data for every student and the class.**

Practical Professional Development

The right tools make all the difference in getting your work done efficiently. Seamlessly embedded digital resources and the convenient print materials of ***Glencoe Physical Science*** gives you everything you need to make science relevant, rigorous, and possible for every student. Designed on the principles of effective professional development (PD), ***Glencoe Physical Science*** PD includes self-paced courses, Foldables® and NGSS videos, and on-demand webinars.

Get Started

Online, self-paced Quick-Start course designed to get teachers and administrators up and running fast.

Learn More

Online Implementation course designed to help teachers connect professional learning to the classroom.

Watch It

Videos from Dinah Zike and on-demand webinars and videos support great instruction in the classroom.

Where and When You Need It

In just a few clicks, you can quickly access relevant, timely, and ongoing **Professional Development** videos and webinars available to you, on-demand.

Directly embedded in ***Glencoe Physical Science*** is your interactive professional learning program. Learn how other science educators have successfully implemented the program and increase your awareness of new science standards.

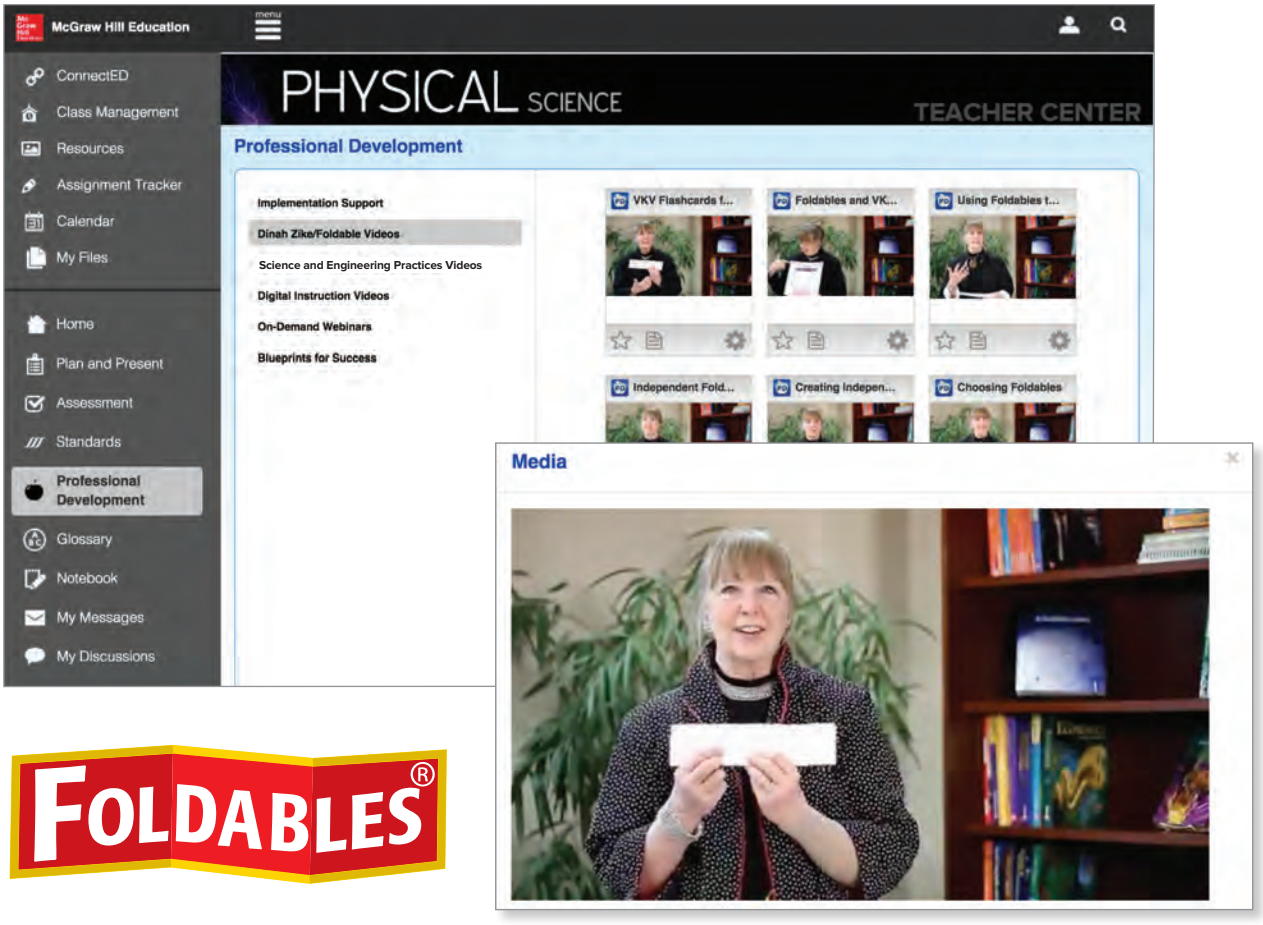
Customized, comprehensive, and expertly-crafted solutions translate into meaningful program success.

Relevant Resources for science educators

Rich, web-based resources include modeled classroom instruction videos, implementation support, technology resource optimization, and professional learning community support.

Use the ConnectED **Professional Development** tab to access on-demand webinars and these free video libraries:

- Dinah Zike/Foldable Videos
- Science and Engineering Practices Videos
- Pedagogical/Instructional Support Videos
- On-Demand Webinars



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PHYSICAL SCIENCE

To learn more about the McGraw-Hill Education *High School Science* program, visit
www.mheducation.asia/high-school-science
or contact your Sales Representative.

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