

**ALSO AVAILABLE IN SPANISH** 

# california elevate science segments

# uDo! uLearn!

Let students experience the wonder of science—the doing, questioning, and digging.

California Elevate Science supports teaching the CA NGSS and Performance Expectations. Students investigate phenomena, engineer solutions, and demonstrate their understanding.

Three-dimensional learning connects science knowledge with science "doing."

#### **ALSO AVAILABLE**

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#### **Three-Dimensional Learning**

California Elevate Science engages students in phenomena through the three dimensions of of the CA NGSS. This coherent K-8 curriculum creates a tight learning progression that ensures student success on the CAST.

California Elevate Science uses relevant local interests to build on what students know, encourages them to ask questions, and challenges them to solve real-world problems. This is illustrated through a series of Instructional Segments called California Spotlights.

# Scientific and Engineering Practices

The SEPs are the driving factor in creating an active learning environment within *California Elevate Science*.

Students answer questions and solve problems through phenomena-based, real-world scenarios. Necessary tools are incorporated for students to experience first-hand open inquiry like a scientist and engineer.

# Crosscutting Concepts

California Elevate Science teaches students to think through crosscutting concepts like a scientist.
Students observe phenomenon and begin to question if it is a single event or part of a larger cycle. This is achieved through numerous experiences within the California storylines, project-based learning activities, and numerous labs found in the program.

#### **Phenomena**

Phenomena is the heart of a student's science experience in *California Elevate Science*. It immerses students in three-dimensional learning through storylines and real-world scenarios.

# Disciplinary Core Ideas

California Elevate Science incorporates the DCIs to better prepare students for college and career readiness. Through the embedded application of DCIs, students develop understanding to the depth and breadth of scientific and engineering experiences.

#### **Strong Vertical Articulation**

Look for the Learning Progressions Chart at the beginning of each topic in the Teacher Edition to see what students should know, what they are learning, and how they will apply skills in the future.

#### **Unpacking an Instructional Segment**

#### **Anchoring Phenomenon**

- Features California phenomena
- Ask Questions
- Identify the Problem
- Investigate Possible Solutions
- Communicate Proposed Solutions

#### **Investigative Phenomenon**

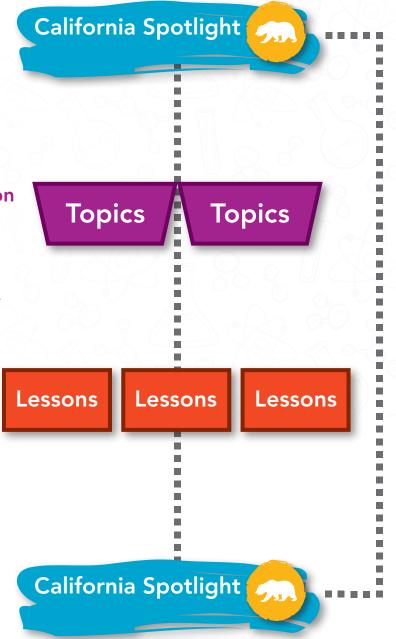
- Bundle of related performance expectations
- Create relevant learning experiences
- Students "figure it out" through problem-based learning experiences

#### **Everyday Phenomenon**

- Reflects the three dimensions of the CA NGSS
- Weaves together content, process, and application
- 5E Lessons
- Hands-on experiences

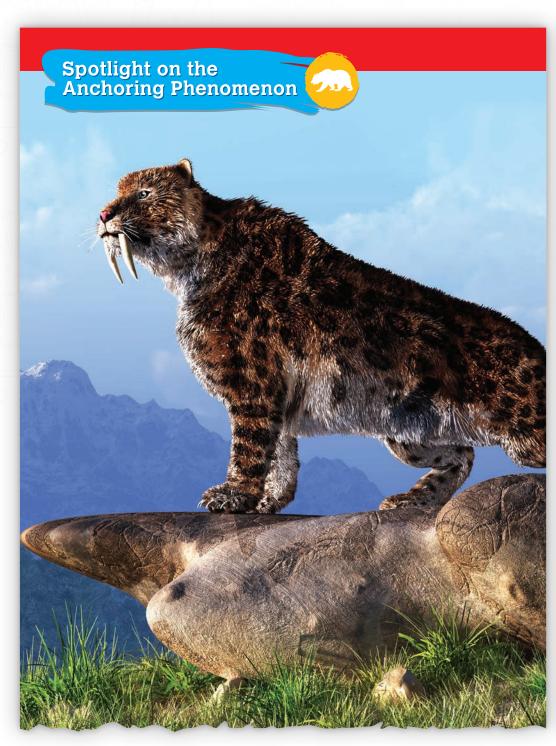
## Revisit the Anchoring Phenomenon

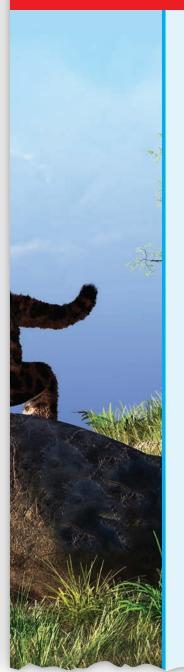
- Present evidence
- · Communicate solutions



#### **Anchoring Phenomenon**

California Elevate Science Segments begin with an Anchoring Phenomenon that's relevant to students' lives.





# How can we learn about animals, plants, and Earth from the past to the present?

#### **Explore It**

Look at the picture. What do you observe? What questions do you have about the phenomenon? Write your observations and questions in the space below.

Teachers can utilize online slide decks and the Spotlight on the Anchoring Phenomonon to introduce the Anchoring Phenomenon while students engage in inquiry.

#### California Spotlight

The **California Spotlights** facilitate the productive struggle students will experience as they identify the problem, conduct an investigation, and communicate a solution.

#### **'**

Identify the Problem based on information provided in the California Spotlight introduction and through student discourse.

#### California Spotlight



**Instructional Segment 3** 

#### 3-LS4-3

#### **Guiding Questions**

- How does the environment affect living organisms?
- How do organisms' traits help them survive in different environments?
- What happens to organisms when the environment changes?

#### **Topics**

4 Adaptations and Survival

Today, Rancho La Brea

is in an area of Los

Angeles, California.

5 Fossil Evidence

Before the Topics / Identify the Problem

# What Happened to California's Big Mammals?

Phenomenon In Hancock Park in Los Angeles, a sticky black material called asphalt forms smelly, bubbling pools on the ground. It is so sticky that insects, worms, and other small animals can become trapped in it on warm days. These pools, called the La Brea tar pits, are what's left of an asphalt mine that occupied this land during the 1800s when it was called Rancho La Brea.

Between 50,000 and 11,000 years ago, asphalt pools trapped many different plants and animals here, preserving their remains.





This is a small bubbling pool of asphalt at the La Brea tar pits in Los Angeles, California.

138 California Spotlight Instructional Segment 3

## Revisit the Anchoring Phenomenon Conduct an Investigation

Now that you have studied the topics in this segment, you can complete the activity.

#### Interactions at the Tar Pits

When saber-toothed cats were alive, this region appeared much different than today. Some mammals, such as the mammoth and ground sloth, ate plants.



Ground sloths found at the tar pits were almost two meters (about six feet) tall.

Other mammals, like the dire wolf and saber-toothed cat, hunted together and ate other animals. Many birds, including the golden eagle, also ate animals.

Revisit the Anchoring Phenomenon and Conduct an Investigation using information learned within Investigative Phenomenon Topics.



**Analyze a Phenomenon** About 90 percent of bone fossils found at the La Brea tar pits came from animals that ate other animals. Why do you think this is true?

#### **Changed Environment**

The fossil record suggests that as the conditions of the region changed, the environment did too. As temperatures warmed, the environment became drier. The California juniper, an ancient plant species, adapted to having less water and is still found in California today. Some animal species, such as the coyote and weasel, were able to adapt. But many animal species, including the mammoth, western horse, and saber-toothed cat could not survive the environmental changes. Some of these extinct species are similar to animals of today. They have slightly different traits that help them survive in the changed environment.

78 California Spotlight Instructional Segment 3

#### **Revisit the Anchoring Phenomenon**

Each Instructional Segment explores different aspects of the **Anchoring Phenomenon** and closes with an opportunity to synthesize evidence and explain ideas.

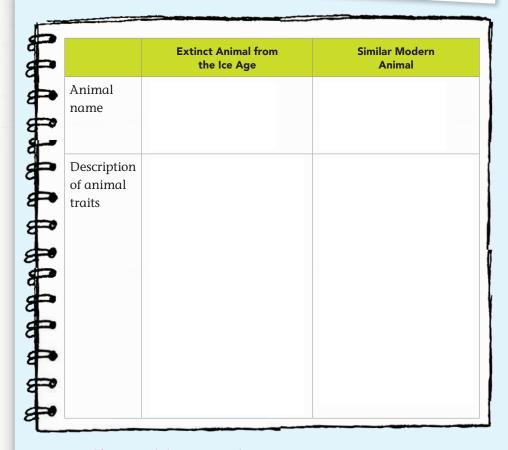
#### Similar Animal Pairs

Research and compare an extinct animal found in the La Brea tar pits and a similar modern animal. Find evidence of why some animals could have survived the change in California's environment after the last Ice Age and others did not.

Use the graphic organizer to record your findings.



This is a model of a Columbian mammoth at the La Brea tar pits in Los Angeles, California.



California Spotlight Instructional Segment 3

Revisit the Anchoring Phenomenon

Communicate a Solution

California Spotlight

**SEP Communicate** Make a poster that describes how differences in one or more traits of similar animals could have led some of them to extinction while others survived. Then, present and compare your poster to those of your classmates. **CCC Patterns** Are there patterns in how the traits of extinct animal species compare to similar traits of species that survived the last ice age? Explain. **CCC Cause and Effect** Why do you think that your extinct animal was not able to survive as the environment changed?

Communicate
a Solution
in response
to data and evidence
collected.

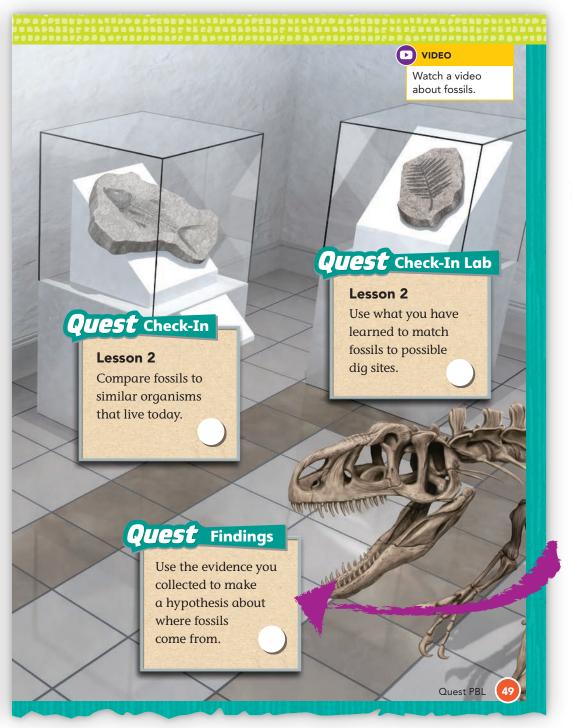
#### **Problem-Based Learning**

The **Quest PBL** challenge supports understanding of the **Investigative Phenomenon** to encourage open-ended inquiry.

#### Quest PBL Written in Stone **Ouest Kickoff** launches the problembased challenge, What can you find out from fossils? engaging the student in the investigative Figure It Out Hello there! I am Tanya Hayden, phenomenon featured paleontologist and fossil hunter. My team in the topic. has collected fossils from different digs. Unfortunately, the labels got mixed up. I need your help to figure out where the fossils came from. Like a paleontologist, you will look at each fossil. Then you will use what you know about fossils to decide where each one came from. Follow this path to learn how you will complete the Quest. The Quest activities will help you complete the Quest successfully. Check off your progress on the path when you complete an activity with a CHECK OFF. Go online for **Ouest** more Quest activity Check-In connects student learning within the lesson to the problem-Quest Check-In based challenge. Lesson 1 Gather clues from fossils.

**3-L54-1** Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.

It opens the door for local to global scaffolded explorations while students present solutions to the original challenge using claim-evidence-reasoning.





Quest Findings
Students present
solutions to the
original challenge
using the evidence
at the end of a topic.

#### The 5E Instructional Model

The consistent, easy-to-follow **5E Instructional Model** ensures success as students explore Everyday Phenomena. Students **do science**, **engage in discourse**, **gather evidence**, **document reasoning**, and **propose solutions**.

#### **ENGAGE**

- Phenomena Interactions
  - Observable
  - Hands-on
  - Digital
- Science Notebooking Activities

#### **EVALUATE**

- Formative Assessments with Remediation Activities
- Rubrics

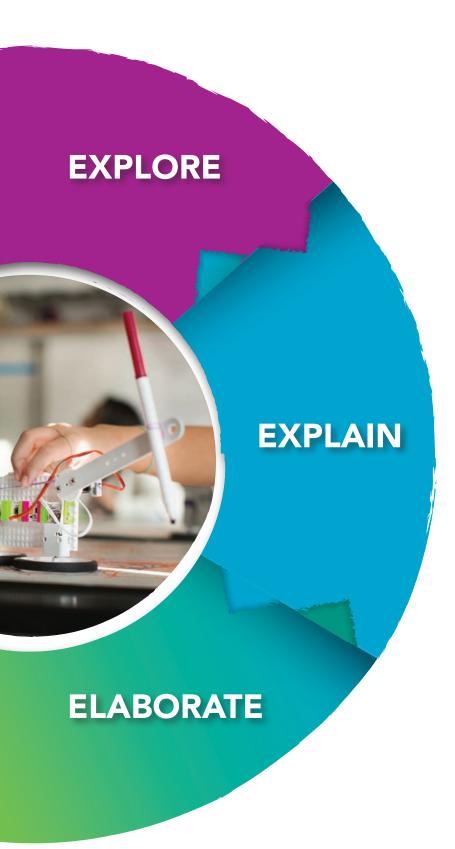
#### **Short on Time?**



No worries! We have built in an alternate route. Just look for the yellow clock in the lesson planner to ensure you teach science content in less time.



**EVALUATE** 



#### **EXPLORE**

- ulnvestigate Labs
- Interactivities
- Virtual Labs
- Science Notebooking Activities
- Visual Literacy Activities

# **EXPLAIN** and **ELABORATE**

- Interactive Model It, Question It, Design It
- Quest Interactivities, Labs, and Check-Ins
- Hands-on Labs
- Focus on Mastery Activities
- Science Notebooking Activities
- Enrichment Activities

#### It's the Science of Doing!

California Elevate Science immerses students in anchoring, investigative, and everyday phenomena to support three-dimensional learning and the science of "doing."

#### Look for these key features:

- Spotlight on the Anchoring Phenomenon
  - Begins each instructional segment
  - Introduces local California Phenomena





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#### 2 Investigative Phenomena

- "Figure out" the Anchoring
   Phenomenon through exploration
- Students connect what they see, what they know, and what questions need answering.

- 3 uConnect Lab
  - Engages students to the Investigative Phenomenon
  - Quick and easy lab set-up





#### **Ouest PBL**

Presents a problem-based learning activity to "Figure it out" with hands-on and digital experiences.







#### **Everyday Phenomena**

- Hands-on open inquiry experiences
- Promotes productive student discourse







#### Engineering and Design

- Engineering and Design Process embedded in each topic
- Extension activities developed in partnership with littleBits



#### **Robust Assessments**

- Formative, Summative, and Performance-based assessments available in each topic
- Evidence-Based Assessment and uDemonstrate PBAs present new scenarios and new settings to apply understanding.





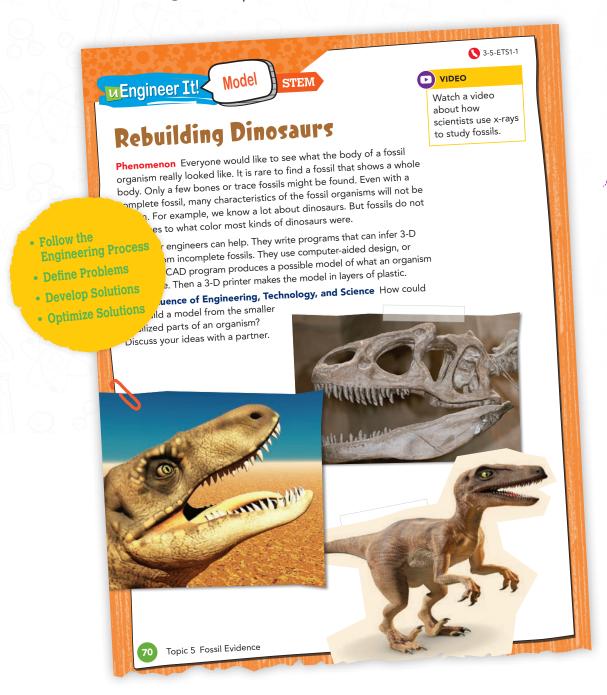
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#### **Revisit the Anchoring Phenomenon**

- Concludes the segment and connecting topics to demonstrate understanding
- Students design a solution to local and relevant phenomenon

#### STEM/STEAM Innovation and Design

**California Elevate Science** engages and empowers all students to be the world's next generation of inventors, explorers, and innovators by inspiring a restless curiosity and craving for exploration.



#### **Exclusive littleBits Partnership**

**littleBits™** has joined forces with *California Elevate Science* to power student engagement with color-coded, electronic bits. Students explore, design, and build innovative ideas. **littleBits** extension activities correlate to *u*Engineer It activities to apply the Engineering Design Process.





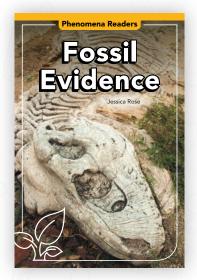
activities further energize STEM/ STEAM innovation and inventiveness.



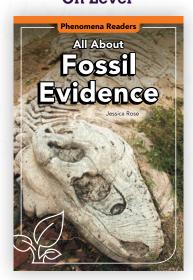
Students channel "inventor" creativity with materials that support the Engineering/Design standards. Each kit includes plenty of reusable materials for ongoing innovation, iteration, and design improvement.

#### **Literacy and Math Integration**

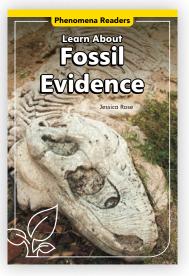
**California Elevate Science** conveniently provides standards connections to ELA, ELD, and Math.



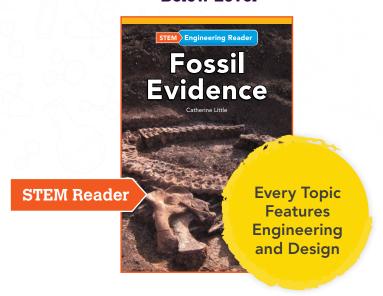
On Level



**Above Level** 

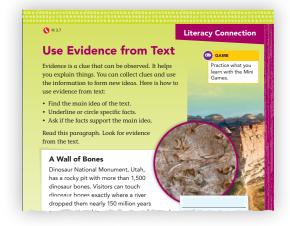


**Below Level** 



#### Leveled Phenomena and STEM Engineering Readers

- Three levels per science topic
- Topic STEM Engineering Reader builds Engineering and Design Skills.
- Available digitally on Savvas Realize  $^{\text{\tiny M}}$  with audio



#### **Literacy Connection Mini-Lessons**

- Introduces Key Literacy Skills and Strategies while working within the Investigative Phenomenon
- Downloadable from SavvasRealize.com



#### **Visual Literacy Connections**

- Presents a visual respresentation of difficult science topics
- Provides a method for students to record their understanding
- Creates a quick study support for students
- Serves as a Formative assessment tool for teachers



#### **Math Connections and Toolboxes**

- Seamlessly integrates math skills and strategies into the Investigative Phenomenon
- Quick practice problems build skills and strategies connected to science content.

#### **Assessment**

California Elevate Science is rich with assessment opportunities to improve learning, ensure success on the CAST, and inform teaching.

#### Examples of Assessments Found in California Elevate Science

#### Diagnostic

- Entry Level
- Readiness

#### **Formative**

- Scaffolded Question Probes
- Checkpoint Questions
- Lesson Checks
- Lesson Quizzes
- Topic Reviews
- ulnvestigate Labs

#### Summative

- Topic Tests
- Evidence-Based Assessments
- Benchmark Assessments
- End-of-Year Assessments

#### Performance Tasks

- Instructional Segment Assessments
- uDemonstrate Labs
- uEngineer It! STEM Labs
- Virtual Labs
- Quests

## Formative Assessment

Scaffolded Questions Help students set a frame for reading by asking them to think of an answer to the following guiding question: Why does a species need to adapt? Then, have them complete the Visual Literacy Connection to see if their answer was correct. When they finish, use the following questions to assess their Depth of Knowledge levels of understanding.

Tell What is an adaptation? DOK1

What part of the reading provides evidence for your answer?

Relate What will happen to a saguaro cactus that has only one arm in comparison to one that has several arms? DOK2

Formulate What might be some other adaptations needed for an individual cactus to survive better than others cactuses in a desert

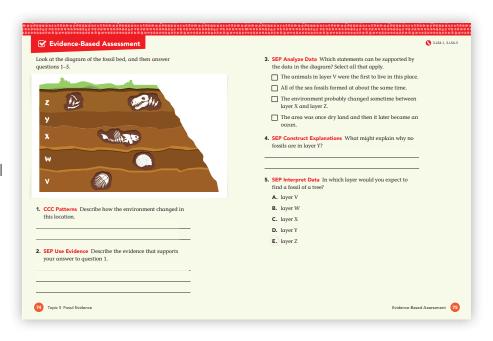


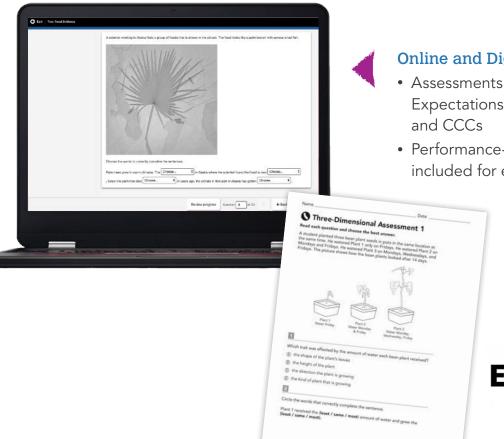
#### **Formative Assessment**

- Probes students' prior knowledge before beginning a topic
- Questions increase in difficulty and complexity.
- Includes a depth of knowledge (DOK) level

## Evidence-Based Assessments

- Scenario-based, multi-component task
- Simultaneously assess multiple practices
- Demonstrate conceptual understanding of the topic's science ideas



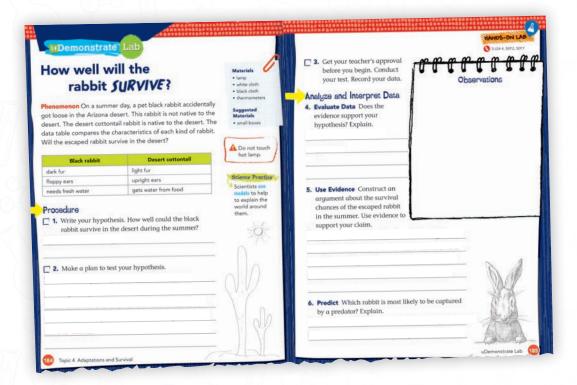


#### **Online and Digital Assessments**

- Assessments aligned to the Performance Expectations through the SEPs, DCls, and CCCs
- Performance-based assessments are included for each topic.
  - ExamView® provides full customization and modification of needed assessments.



#### **Performance-Based Assessment**



#### uDemonstrate Labs



- Provides new scenarios and challenges to help students show what they know
- Integrates all dimensions of the Performance Expectations
- Investigate by building and observing models, designing and engineering solutions
- Rubrics are included online to guide and assess students' work.

#### **Instructional Segment Assessments**



- Students conduct an investigation and analyze data.
- Assess students' mastery of the three dimensions of a Performance Expectation
- Evaluation Rubrics are included online.



## **U** Demonstrate Understanding



#### **Virtual Labs**

- Quick, accessible, efficient digital investigations
- Open-ended with multiple simulations
- Assesses all dimensions of the Performance Expectation



#### Quests

- Check-in tasks separately assess student proficiency in individual dimensions.
- Quest Findings determine students' ability to integrate the 3-dimensions in a specific context.



#### STEM uEngineer It

Focuses on the nature of Science and Engineering Standards, where students apply the topic knowledge to an engineering challenge or problem



#### **Differentiation Support**

**California Elevate Science** provides point-of-use resources to support teachers and the diverse needs of California students.

#### **CONNECT IT**

All living things have characteristics that help them survive in their habitats. If a living thing can survive, it will be able to reproduce. What characteristics might help the frog live long enough to reproduce? **Connect It** activities open discussions around the Everyday Phenomenon and set the stage for hands-on explorations within the lesson.

#### **CONNECT IT**

**Everyday Phenomenon** Have students read about living things in habitats. Ask volunteers to explain how living things survive.

#### Differentiated Instruction

#### **Special Education**

Write a simple definition of *survive* and *adaptation* on flashcards and review both terms before students complete the activity. Have students use the flashcards as they complete the activity.

#### **Below Level**

With students, make a Venn diagram, listing similarities and differences between the two cacti. Then have students draw a conclusion based on the Venn diagram as to which cactus will produce more offspring.

#### **Advanced**

Have students think of other individual plants or animals of a species that have different adaptations to better their chances of survival. Ask students to develop flow charts to show those adaptations and how they help with survival.

#### **©** ELD Support

ELD.PII.3.7

**Reading** Use the "Connect It" paragraph, image of the frog, and the clauses below to help English Language Learners and Non-Standard English Speakers condense clauses in a variety of ways.

**Emerging** Have students condense the following clauses to describe the frog: *It's neon. It's green.* 

**Expanding** Have students condense the following clauses about different animal patterns to create a detailed sentence: They have patterns. They are spots, stripes, or patches.

**Bridging** Have students condense the following clauses about animals to develop a detailed and precise sentence: They have patterns. They are colorful. They are able to hide from predators.

#### **Differentiated Support**

suggests ways to assist students with diverse needs.





**SEP Asking Questions** Scientists question their investigations and question each other to generate explanations about plant adaptations. Have students ask questions about what is shown on the visuals. Display these questions on the board. Refer back to the questions after students have completed the interactivity. Discuss how students can use these questions to validate their scientific knowledge of cactuses.

#### Focus on Mastery!

SEP Constructing Explanations Remind students that communication between scientists is important to the scientific community. No scientist truly works alone and comes to significant scientific conclusions based solely on his or her own investigations. Have students share their procedures with other students and talk about how they formed explanations from the evidence they gathered. Then have the class discuss how the pieces of evidence from different investigations led to similar understandings, or perhaps different understandings.

#### Focus on Masteryl

SEP Engaging in Argument from Evidence Guide students to see that developing and using a model allows them to make observations, form explanations, and use the evidence and their explanations to back up their arguments they make. Have students determine how the paper models represent a flock of flying birds and allows them to construct explanations about how real birds are able to fly so far.

**Focus on Mastery** supports teachers in coaching and guiding them through figuring out the phenomenon.

**Professional Development Videos** preview lessons, strategies, and outcomes.



#### **California Print Resources and Kits**

**California Elevate Science** offers an array of resources for students to investigate phenomena, engineer solutions, and demonstrate their understanding.

#### **Student Edition**

- Print and online interactive worktext
- Four Instructional Segments
- · Local California Phenomena





#### **Teacher Edition**

- Full lesson plans and instructional strategies
- Integrated ELD Support Rubrics
- Integrated Math and ELA standards

#### Leveled Readers

- · Below, On, and Above Level
- 100% Informational Text













#### **STEM Engineering Readers**

- Applies Science and Engineering Practices
- Develops critical thinking and literacy skills
- Engages students in real-world phenomena
- Supports close reading of complex text
- Requires students to compare and synthesize information



#### **Classroom Materials Kit**

- Contains materials to implement the scaffolded labs
- Organized into Topic bags for easy set-up
- Refill kits available for quick and easy replacement





#### **u**Demonstrate Activity Placemats

- 11" x 17" laminated mat
- Organizational tool for lab materials
- Includes activity directions and alternate leveled labs

#### uEngineer It Maker Crates

- Kits span grade levels: K-2 and 3-5
- Contains reusable and consumable materials
- Crate organizes and manages materials
- Perfect for outfitting makerspaces



# littleBits

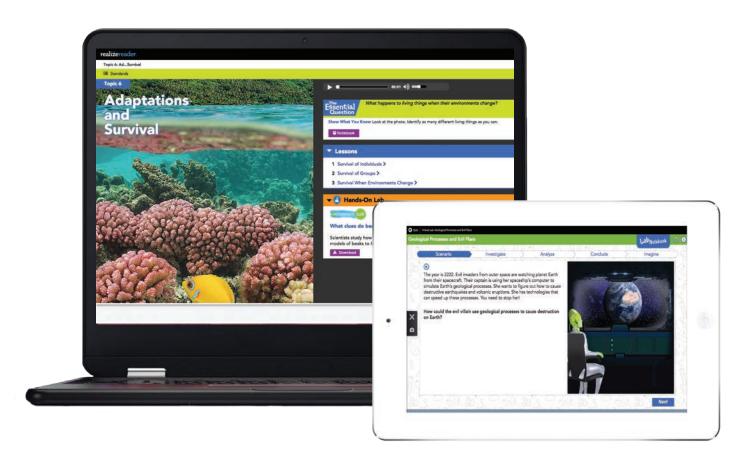
#### STEM Invention Toolbox

- Contains programmable electronic modules
- Enhances engineering and design experiences
- Kits available for Grades 3-8

Also available: Labware Kits and Safety Kits

#### **California Digital Resources**

The Savvas Realize™ digital learning platform is customizable for teachers and students. Google for Education™ Premier Partnership allows for sharing from Savvas Realize to Google Classroom™. OpenEd provides access to thousands of resources that can be shared directly with students. It's as simple as: Click. Teach. Learn.











#### **Digital Resources**

- Realize Reader<sup>™</sup>
   Student eText
- Spanish
   Student Edition
- Interactivities
- Animations
- Games
- Videos
- Virtual Labs
- Lab Worksheets
- Quest Checklists
- Enrichments
- School-to-Home Letters

- Multilingual Glossary
- Assessments
  - Readiness
  - Quizzes
  - Topic Tests
  - Benchmark
  - Performance-Based
  - End-of-topic
  - Three-Dimensional
  - Course Level
  - Rubrics
  - ExamView<sup>®</sup>

- Teacher Edition eText
- Teacher Support
- Reading Strategies
- Target Reading Skills
- Test-Taking Strategies



# Experience IT! It's the Science of Doing.



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