# Component | Strengths | Citations
|---|---|---|
| F1. Presence of Phenomena / Problems. | The materials include phenomena/problems:  
- that have the potential to drive student learning.  
- have the potential to relate across the dimensions. |  
|  | Unit Pages: The Unit Page provides teachers and students direct access to Anchor Phenomena for the unit, as well as Investigative Phenomena for each concept found within the unit. The Unit pages are available both in print and digital, and include additional support for teachers, in the Teacher Guide, on how to launch the anchor phenomenon with students. The anchor phenomenon provides students with real-world instances of phenomena, which serve as the context for the unit project. Students communicate their initial ideas related to the unit project, before engaging with the investigative phenomena in each concept. Investigative phenomena are carefully selected to elicit student scientific questions. As students move through the learning progression, students apply three-dimensional thinking to communicate their ideas about both the anchor phenomenon and each investigative phenomenon, with the intent of constructing explanations to their own questions. | Grade 3: Unit 4: Weather Impacts  
Unit Page: Anchor Phenomenon  
Print:  
| TE Pages | SE Pages |
| Anchor Phenomenon Launch | p. 16 |

Digital: Enter Quick Code: ca3755s
F1. Presence of Phenomena/Problems.

**Examples**
Grade 3 Unit 4
Unit Level Alignment:
In this unit, students work toward designing solutions to mitigate the damage that flooding and mudslides cause. They are presented with an example of flooding that is caused by unusually high rainfall. They investigate this phenomenon by first obtaining information to describe different regional climates around the world, such as drought across the United States. Then, they learn to describe and predict weather conditions, such as an impending hurricane, using data in tables and graphical displays. Finally, they describe the problems that weather-related hazards cause. Using the flooding and mudslides that rain causes as an example, students generate and compare solutions to mitigate the damage weather causes.

**Investigative Phenomenon Examples:**
3rd Grade: Unit 4
Concept 1: Regional Climates: Student learn about different climates around the world to predict weather patterns.

Concept 2: Predicting Weather: Students view weather data to look for patterns and make predictions about future events.

**Investigative Phenomenon**
Grade 3, Unit 4, Concept 4.1
Print:

<table>
<thead>
<tr>
<th>TE Pages</th>
<th>SE Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 2</td>
<td>p. 30-31</td>
</tr>
<tr>
<td>Activity 2</td>
<td>p. 10-11</td>
</tr>
</tbody>
</table>

Digital:
Enter Quick Code: ca3760s
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
</table>
| F1. Presence of Phenomena / Problems.         | **Performance-Based Unit Assessment:** Grade 3: Unit 4: After students have completed the activities within each concept of the unit, teachers can assign students the Performance-Based Assessment (PBA) for that unit. The accompanying Teacher’s Guide outlines the NGSS performance expectations that are the focus of the PBA. In this PBA, students are presented with a storyline driven by the arrival of a thunderstorm in Los Angeles. Students are presented with graphical data describing average precipitation and temperatures over a 12-month period. Students use this information to predict when the precipitation occurs in Los Angeles and to compare the climate in Los Angeles with other cities. Students are then presented with the problems caused by thunderstorms in a reading passage, a video, and an image. Students use this information to think about what criteria should be used to design engineering solutions for this problem, to propose possible engineering solutions, and to evaluate which solution would be the best. | **Performance-Based Unit Assessment**  
Grade 3, Unit 4  
Digital: Enter Quick Code: ca3821s  
Print:  
**Performance-Based Assessment p. 208**  
**Teacher’s Guide:** [https://tinyurl.com/y82mid3o](https://tinyurl.com/y82mid3o) |
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
</table>
| F1. Presence of Phenomena / Problems. | Concept 3: Weather Hazards: Student learn about the causes and outcomes of severe weather events and engineer potential design solutions. | **Phenomenon-Based Unit Project**
Grade 3, Unit 4
**Print:**
- TE Pages
- SE Pages
  - Unit Project: Mudslides and Floods p. 204-207
  - Unit Project: Mudslides and Floods p. 156-161
**Digital:**
Enter Quick Code: ca3820s |
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2. Presence of Three Dimensions.</td>
<td>The materials include the three dimensions, such that:</td>
<td>Course Level Alignments: <a href="https://tinyurl.com/y9xt9nqt">https://tinyurl.com/y9xt9nqt</a></td>
</tr>
<tr>
<td></td>
<td>• the DCIs, SEPs, and CCCs are present and have the potential to support student learning.</td>
<td>Grade 3: Course</td>
</tr>
<tr>
<td></td>
<td>• when engineering design is a learning focus, it is integrated with the appropriate dimensions (i.e., engineering is not isolated).</td>
<td>Unit 4</td>
</tr>
<tr>
<td></td>
<td>Each concept has a multitude of resources and materials to support learning of the DCIs, SEPs and CCCs. Specific examples of California Science Techbook assets include, but are not limited to:</td>
<td>Print:</td>
</tr>
<tr>
<td></td>
<td>Course Level Alignment: The course level development of the Performance Expectations, including the DCIs, SEPs, and CCCs can be found in the Next Generation Science Standards and Three Dimensions at a Glance pages within the Scope &amp; Sequence area of the print Teacher’s Edition.</td>
<td>TE Pages</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scope &amp; Sequence overview p. xxxviii-xli</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Three Dimensions p. 4-5</td>
</tr>
<tr>
<td>Component</td>
<td>Strengths</td>
<td>Citations</td>
</tr>
<tr>
<td>-----------</td>
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</tr>
</tbody>
</table>
| F2. Presence of Three Dimensions. | **Unit Level Alignment:** Unit level three dimensional expectations include the Unit project, tied to the Unit Anchor Phenomenon, as well as the Summative Performance Based Assessment (PBA).

In the unit project, students will demonstrate the SEPs and CCCs to apply their newly acquired DCIs for the unit to both science and engineering-based problems and scenarios.

The three-dimensional PBA expects students to apply the ideas of the unit to a new storyline in order to demonstrate transfer of learning. A Teacher’s Guide for the PBA outlines the evidence students demonstrate across the three dimensions.

Example: Grade 3: Unit 4, Weather Impacts: Students are introduced to the Anchor Phenomenon with an image of a flooded farm. Through the three investigative phenomena in the unit, students explore different climates around the world and climate patterns. They look at weather data and look for patterns to make predictions about future weather conditions. Student also explore the different causes and outcomes of severe weather events, and how engineers design solutions to prevent weather outcome hazards. | |

**Science and Engineering Practices and Cross Cutting Concepts** are integrated as students work on the Unit Project: Mudslides and Floods.

#### Concept Level Alignment:

- Three-dimensional learning objectives drive the design and sequence of the activities within each concept.
- Teacher support for the alignment to the SEP and CCCs is included at the activity level:
  - Bolded text highlights the specific dimension of the PE addressed during each activity.
  - Instructional Focus provides details on the element level of the SEP and CCC students will demonstrate at the completion of the activity.
  - NGSS call-outs highlight for both teachers and students the specific SEP.

### SEPs and CCCs

**Grade 3, Unit 4**

**Digital:**
Enter Quick Code: ca3820s  
Note: Make sure Teacher View On

#### Print:

<table>
<thead>
<tr>
<th>TE Pages</th>
<th>SE Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Project: Mudslides and Floods p. 204-207</td>
<td>Unit Project: Mudslides and Floods p. 156-161</td>
</tr>
</tbody>
</table>

**Grade 3, Unit 4**

**Digital:**
Enter Quick Code: ca3755s

#### Concept Pages:
Within each concept, reference tagged activities in Learn and Share (Explore, Explain, and Elaborate) for additional evidence of three dimensions.

**Digital:**
Enter Quick Code:
- Concept 4.1: ca3758s
- Concept 4.2: ca3776s
- Concept 4.3: ca3796s
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
</table>
| F2. Presence of Three Dimensions.              | o and CCC being addressed within the activity  
|                                               | o Strategies to set up the learning environment for students to demonstrate the SEPs and CCCs related to the concept DCIs  
|                                               | o Teacher notes for each digital activity provide the dimensions addressed along with instructional focus, strategies, misconceptions and other support at point of use.  
|                                               | o Pathways for Learning guidance provides options for students to meet the element level of the SEP and CCC in a variety of technology settings  
<p>|                                               | o Teacher reflection questions encourage reflection on students’ performance across the three dimensions.                                                                                                                                                                   |                         |</p>
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2. Presence of Three Dimensions.</td>
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</tr>
</tbody>
</table>

**Pathways for Learning**  
Grade 3, Unit 4, Concept 4.1  
Print:  
- TE Page  
- Pathways for Learning p. 56

**Teacher Reflection questions**  
Grade 3, Unit 4, Concept 4.1  
Print:  
- TE Page  
- Reflection questions p. 38

### Pathways to Learning

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print</td>
<td>Using the Spotlight on Strategies: Tweet, Tweet, have each student create a tweet of their forecast. Hang the tweets on a global map for students to see how the forecast changes around the world.</td>
</tr>
<tr>
<td>Blended</td>
<td>In small groups, have students create a Studio Board of a “Global Forecast.” Students will work together to create their forecast for the desert and coastal area. Then, individuals will create the forecast for their unique climate.</td>
</tr>
<tr>
<td>Digital</td>
<td>Have each student create a Studio Board that shows the forecast for all three of their climates.</td>
</tr>
</tbody>
</table>

**Teacher Reflection**  
- Based on my class:  
  - What content do my students already know?  
  - What misconceptions do my students have?  
  - Are any of my students ready for extension at this point in the lesson?
## Component

| F2. Presence of Three Dimensions |

### Strengths

**Formative Assessment Items:**
Teachers have the opportunity to gather formative assessment data related to students’ progress of the three dimensions at various points within each concept.

- Technology Enhanced Items (TEIs) have been embedded throughout each concept to uncover what students know and allow students to demonstrate three-dimensional proficiency of the performance expectations. Student responses feed directly to the teacher dashboard, providing instant access to data to inform instruction and drive differentiation strategies. Each TEI has built-in scaffolded feedback for students.

- Summative Concept Assessments, focused on the DCIs, are found at the end of each concept. These assessments can be assigned to students, taken by students on their own as a practice test, or printed and given to students to complete as an assessment or an assignment. The results of these assessments are provided within the teacher dashboard. Teachers are able to identify areas of strength and weakness and adjust pacing of instruction to achieve proficiency for all students.

### Citations

**Formative Assessment**
Grade 3, Unit 4, Concept 4.1
Digital:
Enter Quick Code: ca3766s

**Print:**

<table>
<thead>
<tr>
<th>TE Pages</th>
<th>SE Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 8, Understanding Climate Zones p. 47-49</td>
<td>Activity 8, Understanding Climate Zones p. 24-26</td>
</tr>
</tbody>
</table>

**Summative Concept Assessment**
Grade 3, Unit 4, Concept 4.1
Digital:
Enter Quick Code: ca3774s

**Print:**

<table>
<thead>
<tr>
<th>TE Pages</th>
<th>SE Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 16, Review: Regional Climates p. 84-85</td>
<td>Activity 16, Review: Regional Climates p. 50-51</td>
</tr>
</tbody>
</table>

**Digital:** Summative Concept Assessment
[https://tinyurl.com/ydxsrab4](https://tinyurl.com/ydxsrab4)
Note: Make sure Teacher View On
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
</table>
| F2. Presence of Three Dimensions. | - Record Evidence activity expects students to analyze complex text and authentic data and evaluate information to support a student-generated claim to their own questions or the Can You Explain question for the concept. As students refine their scientific explanations throughout a course, they will refine their understanding of science content as well as their understanding of the nature of science. Students and teachers can review and provide feedback to one another to increase the rigor of the response throughout a concept, unit, or course. These activities have been scaffolded across a course to support students in achieving proficiency for the grade-band expectation. | **Record Evidence activity**  
Grade 3, Unit 4, Concept 4.1  
Digital:  
Enter Quick Code: ca3777s  

Print:  
<table>
<thead>
<tr>
<th>TE Pages</th>
<th>SE Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 14, Droughts p. 64-68</td>
<td>Activity 14, Droughts p. 42-46</td>
</tr>
</tbody>
</table>

- Hands-On Activities (HOAs) provide opportunities for students to demonstrate the science and engineering practices and analyze data to look for evidence of cross cutting concepts. Hands-On Activities contain student sheets that allow students to observe, predict, classify, communicate, and analyze materials and practices from science investigations.  

| Hands-On Investigation |  
Grade 3, Unit 4, Concept 4.2  
Digital:  
Enter Quick Code: ca3783s  

Print:  
<table>
<thead>
<tr>
<th>TE Pages</th>
<th>SE Pages</th>
</tr>
</thead>
</table>

Digital teacher notes and activity video with Teacher View On feature. |
### DISCOVERY EDUCATION NGSS TIME RESPONSE

#### Grade 3

<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>F2. Presence of Three Dimensions.</strong></td>
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</tbody>
</table>

Digital teacher notes and activity video with Teacher View On feature.
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
</table>
| F3. Presence of Environmental Principles & Concepts (EP&Cs). | The materials include (as applicable):  
- instructional content that incorporates the California EP&Cs.  
- opportunities for students to examine the interactions and interdependence of human societies and natural systems.  
- opportunities for students to develop and implement solutions to real-world environmental problems. | EP&Cs - Grade 3: Course level  
Unit 4  
Print:  
- TE Pages  
- Scope & Sequence overview  
p. xxxviii-xli  
Digital: EP&Cs Map [https://tinyurl.com/y9xt9nt](https://tinyurl.com/y9xt9nt) |

The Discovery Education Comprehensive Science Program includes varied resources that identify, include, and authentically align the instructional content to the California EP&Cs. EP&C Map demonstrates specific resources and activities within each course that target the California EP&Cs.

**Concept Level Content:**  
Grade 3, Unit 3, Concept 3.3: Environmental Changes  
In this concept, students explore the **Wonder** question, “How does the environmental change over time?”  
Throughout the **Learn** section, students investigate questions about environmental changes. They construct explanations related to the **Wonder** question by explaining environmental changes over time.

| Digital: EP&Cs – Concept level  
Grade 3, Unit 3, Concept 3.3  
**Digital:**  
Enter Quick Code: ca3586s | Print:  
- TE Pages  
- Learn tab  
p. 201-241  
- SE Pages  
- Learn tab  
p. 148-185 |
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
</table>
| F4. Presence of a Logical Sequence of Learning. | Materials demonstrate appropriate sequencing of three dimensions when:  
- they include a targeted set of DCIs, SEPs, and CCCs within a sequence; the sequence is clear and logical across the DCIs; and the SEPs and CCCs are potentially sufficient and appropriate for students to figure out the phenomena or problems.  
- phenomenon or problems are linked to each other.  

The three dimensions (SEP, DCI, CCC) are sequenced across each course and designed with scaffolds across the grade bands.  

**Unit Level Alignment:**  
Each unit in Grades K-5 aligns to the standard bundles found in the California Framework for Science. Example of building SEPs across the course:  
3rd Grade: Unit 4 – Weather Impacts  

**Concept 4.1 Regional Climates**  
- SEP Constructing Explanations and Designing Solutions  
- SEP Engaging in Argument from Evidence  
- SEP Obtaining, Evaluating, and Communicating Information  

**Concept 4.2 Predicting Weather**  
- SEP Constructing Explanations and Designing |  
**Grade 3: Course**  
Course Level Alignments:  
https://tinyurl.com/y9xt9nqt  
Scope and Sequence and Three Dimensions  
Grade 3, Unit 4  
Print:  
| TE Pages  
Scope & Sequence overview  
p. xxxviii-xl  
Three Dimensions  
p. 4-5 |
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
</table>
| F4. Presence of a Logical Sequence of Learning. | • SEP Analyzing and Interpreting Data  
• SEP Obtaining, Evaluating, and Communicating Information | Grade 3: Course  
Course Level Alignments:  
https://tinyurl.com/y9xt9nqt  
Scope and Sequence and Three Dimensions  
Grade 3, Unit 4  
Print:  
| |
| Concept 4.3 Weather Hazards | • SEP Planning and Carrying Out Investigations  
• SEP Constructing Explanations and Designing Solutions  
• SEP Analyzing and Interpreting Data  
• SEP Engaging in Argument from Evidence  
• SEP Obtaining, Evaluating, and Communicating Information | TE Pages  
Scope & Sequence overview  
p. xxxviii-xli  
Three Dimensions  
p. 4-5 |
**Component** | **Strengths** | **Citations**
--- | --- | ---
F4. Presence of a Logical Sequence of Learning. | **Concept Level Sequence Examples:** Students are introduced to grade appropriate, linked phenomena, that are developmentally scaffolded and in a logical sequence to facilitate engagement in the three dimensions to drive students toward the learning goals.  

Grade 3, Unit 4, Concept 4.2: Predicting Weather  
Students consider patterns in weather and why it is important to be able to predict the weather. They investigate how meteorologists predict the weather and what tools they use. Students construct scientific explanations by providing evidence of how weather data is gathered and used to forecast the weather.

- In activity 6 (Investigate Like a Scientist), students collect weather data, including air temperature, wind direction and precipitation, over a period of at least two weeks.
- In activity 8 (Analyze Like a Scientist), students gather information from text and use it along with other previously obtained information to construct explanations about how different instruments measure weather aspects.
- In activity 14 (Evaluate Like a Scientist), students use models to analyze and interpret weather data and look for patterns to predict future weather conditions.

Within each concept, reference tagged activities in Learn and Share (Explore, Explain, and Elaborate) for additional evidence of three dimensions.

**Grade 3, Unit 4, Concept 4.2**  
**Digital:**  
Enter Quick Code:

- Activity 6: ca3783s
- Activity 8: ca3785s
- Activity 14: ca3792s

**Print:**

<table>
<thead>
<tr>
<th>TE Pages</th>
<th>SE Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 6: p. 97-105</td>
<td>Activity 6: p. 65-71</td>
</tr>
<tr>
<td>Activity 8: p. 108</td>
<td>Activity 8: p. 74-78</td>
</tr>
<tr>
<td>Activity 14: p 123-126</td>
<td>Activity 14: p. 88-91</td>
</tr>
<tr>
<td>Component</td>
<td>Strengths</td>
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</table>

**Activity 6 | Investigate Like a Scientist**

**Hands-On Investigation: Collecting Weather Data**

**Activity 8 | Analyze Like a Scientist**

**Activity 14 | Evaluate Like a Scientist**

**Citations**

- 3-ESS3-1: Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.
- 3-ESS3-2: Generate data to describe the common patterns and variations within and between daily, seasonal, and longer timescales.
- 3-ESS3-3: Generate data to describe how weather patterns and access to water resources vary among different locations on the globe.
### Component

- **SP1. Quality of supports for monitoring 3D learning and EP&Cs integration.**

### Strengths

Assessments are designed to:
- Ensure that students use SEPs integrated with DCIs and CCCs to demonstrate their understanding of phenomena and/or design solutions to problems.
- Connect student learning experiences to the targeted learning goals.
- Elicit observable evidence of students’ knowledge of and ability to use grade-level-appropriate elements of the three dimensions.
- Ensure that students use EP&Cs where applicable to demonstrate their understanding of environmental phenomenon/problem solution.

California Science Techbook fosters a dynamic classroom environment where students interact with printed text, digital resources, and hands-on activities, all which create three-dimensional learning experiences. Each concept in California Science Techbook purposefully layers each dimension of the NGSS, so students can authentically demonstrate the SEPs and CCCs. Student progression against all three of the dimensions can be achieved through a system of assessment opportunities.

### Citations

Student Work Tagged by SEP and CCC throughout the Wonder, Learn and Share instructional activities for both Teacher and Student:

- **Grade 3: Unit 4**
  - **Print:**
    - **TE Pages**
    - **Three Dimensions at a Glance**
      - p. 4-5
  - **Digital:**
    - **Grade 3, Unit 4, Concept 4.1**
    - Learn tab: [https://tinyurl.com/ybkzvqe5](https://tinyurl.com/ybkzvqe5)
    - **Digital:** EP&C Map [https://tinyurl.com/y9xt9nqt](https://tinyurl.com/y9xt9nqt)
## Component

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit Level Alignment:</strong> Performance-Based Assessments (PBA) Students demonstrate three-dimensional learning through multiple three-dimensional prompts associated with a common scenario. Teacher Guides for each PBA describe the multidimensional nature of each item and provide sample student responses.</td>
<td><strong>Performance-Based Unit Assessment</strong> Grade 3, Unit 4 <strong>Digital:</strong> Enter Quick Code: ca3821s</td>
</tr>
<tr>
<td><strong>Concept Level Alignment:</strong> Teacher Dashboard: Real Time Data &amp; Differentiation Each activity is tagged by SEP and CCC designations for both the teacher and the student to help them focus on the evidence of the dimension within the activity.</td>
<td><strong>Print:</strong></td>
</tr>
<tr>
<td>Throughout the learning progression, each tab of each concept includes Technology Enhanced Items that have students connect to what they already know about the topic (Wonder), and then as they progress, to monitor what they do learn as they explore and learn through a variety of multimodal resources (Learn, Share). Students receive feedback on their knowledge, and the teacher has real-time access to this data in the Dashboard. This real-time data allows teachers to remediate, accelerate or reinforce learning as needed, in order to help students develop metacognitive abilities.</td>
<td><strong>Performance Pages</strong> Performance-Based Assessment P. 208</td>
</tr>
<tr>
<td>Based on this real-time data, teachers can then make decisions about the needs of each student and select an appropriate instructional resource within the concept to meet the students' needs. Discovery Education Experience resources deepen the pool of assets that can be assigned to students.</td>
<td><strong>Teacher’s Guide:</strong> <a href="https://tinyurl.com/y82mid3o">https://tinyurl.com/y82mid3o</a></td>
</tr>
<tr>
<td><strong>Technology Enhanced Item examples</strong> Grade 3, Unit 4, Concept 4.1 <strong>Digital:</strong> Activity 8; Evaluate Like a Scientist; Understanding Climate Zones Enter Quick Code: ca3766s</td>
<td><strong>Digital:</strong> Activity 13; Evaluate Like a Scientist; Predicting Regional Climate Enter Quick Code: ca3771s</td>
</tr>
<tr>
<td><strong>Video of Dashboard functionality:</strong> <a href="https://tinyurl.com/y4chmhbz">https://tinyurl.com/y4chmhbz</a></td>
<td></td>
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<tr>
<td>Component</td>
<td>Strengths</td>
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</table>
| SP1. Quality of supports for monitoring 3D learning and EP&Cs integration. | In addition to the full Dashboard, teachers have a Results View for all individual Technology Enhanced items at point of use as well. **Builder Tools:** Assessment Builder and Discovery Studio give teachers flexibility to create customized assessments. **Hands-on Activities and Hands-on Investigations:** Essential to the integration of a majority of science and engineering practices, hands-on activities and labs allow students to design and conduct investigations, develop models, and use the crosscutting concepts to reflect on their learning through the analysis and conclusion questions accompanying each activity. The student investigation sheet in the digital product purposefully does not provide the procedures for the investigation to encourage students to develop their own methods and processes. Scaffolded student sheets are provided in print if students require more scaffolding with the specific SEP or CCC being addressed in the activity. | **Teacher Results Dashboard**
**Discovery Education landing page**
Digital: [https://app.discoveryeducation.com/learn/home](https://app.discoveryeducation.com/learn/home)
**Hands-on Activity**
Grade 3, Unit 3, Concept 3.1
**Digital:** Activity 9; Think Like a Scientist; Where Did I Come From?
Enter Quick Code: ca3518s |
## Discovery Education NGSS Time Response: Grade 3

<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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</thead>
<tbody>
<tr>
<td>SP1. Quality of supports for monitoring 3D learning and EP&amp;Cs integration.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Print:**
- **Activity 9**
  - TE Pages: p. 55-58
  - SE Pages: p. 28-31

**Hands-on Investigation**
- Grade 3, Unit 4, Concept 4.2
- **Digital:** Activity 6; Investigate Like a Scientist; Hands-On Investigation: Weather Data
- Enter Quick Code: ca3783s

**Print:**
- **Activity 6**
  - TE Pages: p. 97-105
  - SE Pages: p. 65-71
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
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<tbody>
<tr>
<td>SP1. Quality of supports for monitoring 3D learning and EP&amp;Cs integration.</td>
<td><strong>Online Interactive Models:</strong> Students have the opportunity to manipulate various online models found in every concept to collect data and test out their ideas. The analysis of the data collected from the interactives serves as an assessment opportunity for teachers and student reflection.</td>
<td><strong>Online Interactive</strong>&lt;br&gt;Grade 3, Unit 4, Concept 4.1&lt;br&gt;<strong>Digital:</strong> Activity 6; Observe Like a Scientist; Exploring Regional Climates&lt;br&gt;Enter Quick Code: ca3764s&lt;br&gt;&lt;br&gt;<strong>Teacher's Guide:</strong> <a href="https://tinyurl.com/y95j5ju6">https://tinyurl.com/y95j5ju6</a>&lt;br&gt;&lt;br&gt;<strong>Print:</strong>&lt;br&gt;Activity 6&lt;br&gt;p. 41-43&lt;br&gt;Activity 6&lt;br&gt;p. 20-21&lt;br&gt;&lt;br&gt;<strong>Beyond tab – Additional Interactives and Resources</strong>&lt;br&gt;<strong>Digital:</strong> <a href="https://tinyurl.com/yaetyzt">https://tinyurl.com/yaetyzt</a></td>
</tr>
<tr>
<td>Component</td>
<td>Strengths</td>
<td>Citations</td>
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</tbody>
</table>
| **SP1. Quality of supports for monitoring 3D learning and EP&Cs integration.** | **STEM in Action and Project Starters:** Options for students to further elaborate on the disciplinary core ideas through the application of various SEPs and CCCs can be found in the STEM Project Starter section under Beyond as well as in the STEM Connect resource within the Science Techbook bundle. Many of the STEM Project Starters allow students the opportunity to dive deeper into the CA EP&C and research related topics or design engineering solutions to problems related to the environment. | **STEM in Action**  
Grade 3, Unit 4, Concept 4.1  
**Digital:** Activity 15; Analyze Like a Scientist; Climatologist  
Enter Quick Code: ca3773s  
**Print:**  
<table>
<thead>
<tr>
<th>TE Pages</th>
<th>SE Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 15</td>
<td>Activity 15</td>
</tr>
<tr>
<td>p. 70-71</td>
<td>p. 47-49</td>
</tr>
</tbody>
</table>
| **STEM Project Starter**  
Grade 3, Unit 4, Concept 4:1  
**Digital:** Extension 2: Design a Dog House  
[https://tinyurl.com/ycl0635m](https://tinyurl.com/ycl0635m) |
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP2. Quality of capturing student progress over time.</td>
<td>Assessments are designed to: • ensure that students use SEPs integrated with DCIs and CCCs to demonstrate their understanding of phenomena and/or design solutions to problems. • connect student learning experiences to the targeted learning goals. • elicit observable evidence of students’ knowledge of and ability to use grade-level-appropriate elements of the three dimensions. • ensure that students use EP&amp;Cs where applicable to demonstrate their understanding of environmental phenomenon/problem solution.</td>
<td>Video of Dashboard functionality: <a href="https://tinyurl.com/y4chmhbz">https://tinyurl.com/y4chmhbz</a></td>
</tr>
</tbody>
</table>

California Science Techbook is an interactive, digital resource designed to provide students with multimodal content to enhance and personalize the learning experience. The entire Wonder, Learn, Share (5E) learning cycle described in previous responses utilizes digital content to construct meaningful, interactive lessons—with embedded assessment. Examples of these formative and summative types of assessments include, but are not limited to:

**Multidimensional Technology Enhanced Items (TEIs)**
TEIs have been embedded throughout each concept to uncover what students know and allow students to demonstrate three-dimensional proficiency of the academic standards. Student responses feed directly to the Teacher Dashboard, providing instant access to data to inform instruction. Each TEI has three distinct features: an evidence statement, instructional feedback, and scoring expectations.

**Technology Enhanced Item examples**
Grade 3, Unit 4, Concept 4.1
**Digital:** Activity 8; Evaluate Like a Scientist; Understanding Climate Zones
Enter Quick Code: ca3766s

**Digital:** Activity 13; Evaluate Like a Scientist; Predicting Regional Climate
Enter Quick Code: ca3771s
Component | Strengths | Citations
---|---|---
SP2. Quality of capturing student progress over time. | **Assessment Builder**
Discovery Education’s Assessment Builder offers a unique opportunity to effectively assess individual student performance, both on the part of the teacher and for student self-assessment. The Assessment Builder tool also provides remediation content suggestions for areas in which students may need further work. Class and individual reports serve as a mechanism to measure performance easily in all content areas, provide feedback, and inform educators how to best support individual student growth and improvement. Teachers can utilize pre-created concept and unit assessments or create their own, including standards-based assessments and teacher-created items.

Because the assessment of students is an ongoing process that occurs throughout each lesson, other formative and self-assessment types are embedded throughout digital and print lessons in order to provide benchmarks that show student progress in preparation for the final measure, the summative assessment. Constructed response items, hands-on lab worksheets, and Scientific Explanation sheets include rubrics for scoring, visible to teacher and student. Online responses are compiled and displayed for teachers in a dashboard. Names can be removed from the dashboard and the response order randomized so that responses can be used for class discussion and the selection of student exemplars. The Teaching Learning Dashboard in California Science Techbook allows teachers to track student progress on assessment items, with easy-to-read color coding, also known as traffic light scoring.

**Step by Step Guide to Assessment Builder:**
https://tinyurl.com/y5r2465q

**Teacher Dashboard**
**Component**

SP2. Quality of capturing student progress over time.

**Strengths**

The Studio tool allows students to collect their evidence and progression throughout the course, as well as serve as a collaborative tool for students to share their work with their classmates and teachers. Templates within Studio, such as the scientific explanation, allow students to document their explanations over time. Students can use this evidence to reflect on their progression with the three dimensions.

**Teacher Reflection Questions:**

Within critical points in the learning sequence, teachers are provided with questions that ask them to reflect on the three-dimensional learning of their students. These reflection questions are found in both the digital and print teacher resources.

**Citations**

**Studio board**

Step by Step Guide to Studio: https://tinyurl.com/y8rt7us2

**Teacher Reflection Questions**

Grade 3, Unit 4, Concept 4.1

**Print:**

<table>
<thead>
<tr>
<th>TE Pages</th>
<th>Activity 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>p. 38</td>
<td></td>
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<tr>
<td>Component</td>
<td>Strengths</td>
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<tr>
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<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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</tbody>
</table>
| SP3. Quality of guidance and tools that use a variety of measures. | Assessments are matched to targeted learning goals and elicit a full range of student thinking by:  
- providing clear expectations (e.g., rubric) to students so they understand how they can demonstrate their knowledge.  
- using a variety of measures (e.g., performance tasks, discussion questions, constructed response questions, project- or problem-based tasks, portfolios, and justified multiple choice).  
- providing set(s) of tasks so that students can demonstrate their understanding of the same learning goals in multiple ways. | Evaluation Criteria (rubric)  
Grade 3, Unit 4, Concept 4.1  
Digital: Activity 14; Record Evidence Like a Scientist; Droughts  
Enter Quick Code: ca3772s |
| Discovery Education Evidence:   | Discovery Education supports students throughout their learning journey, with an end goal of students achieving proficiency in defined learning goals. Within the Discovery Education Comprehensive Science Program, varied formative and summative assessments are embedded into the Wonder, Learn, Share (5E) learning cycle for each concept, along with assessments at the unit level. | Print:  
| Learning Targets:               | Every concept in the Student Edition begins with learning targets written in the form of “I Can” statements. These are used to articulate clear learning expectations for students. | TE Pages | SE Pages |
|                                   |                                                                                                                                         | Activity 14 | Activity 14 |
|                                   |                                                                                                                                         | p. 64-67   | p. 42-46   |

**Grade 3, Unit 4, Concept 4.1 Student Objectives**

- I can explain the pattern of Earth’s climates and the unpredictable changes that occur every year in the climate.  
- I can make a model that describes what things cause Earth’s surfaces to have different climates and how these things can change Earth’s climates over long periods of time.  
- I can use evidence to show that distance from a coast will affect the climate of an area.  
- I can show and scale climate patterns in one state or another location.
### Component

| SP3. Quality of guidance and tools that use a variety of measures. |

### Strengths

**Various Measures:**
There are a variety of measures throughout California Science Techbook that allow students to demonstrate their learning. Examples of these various assessments include, but are not limited to:

**Technology Enhanced Items (TEIs)** in each concept allow students to demonstrate three-dimensional proficiency of the performance expectations. Student responses feed directly to the Teacher Dashboard, providing instant access to data to inform instruction. Each TEI has built-in scaffolded feedback for students, and a variety of TEI types that are aligned to the CAST item types are integrated across each concept.

### Citations

**Technology Enhanced Item**
Grade 3, Unit 4, Concept 1
**Digital:** Activity 8; Evaluate Like a Scientist; Understanding Climate Zones
Enter Quick Code: ca3766s

**Digital:** Activity 13; Evaluate Like a Scientist; Predicting Regional Climate
Enter Quick Code: ca3771s
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
</table>
| SP3. Quality of guidance and tools that use a variety of measures. | **Summative Assessments** are in each concept’s Share section, with their results displayed in the Teacher Dashboard. These assessments include multiple types of TEIs, including drag and drop, select all that apply, and read and highlight items, to name a few. Teachers are able to identify areas of strength and weakness on each assessment for each student and subsequently provide remediation to ensure the achievement of proficiency for all students. **Scientific Explanations:** Scientific Explanations allow students to analyze complex text and authentic data and evaluate information to support a student-generated claim. Following the Claim-Evidence-Reasoning format, students and teachers can review and provide feedback to one another to increase the rigor of the response throughout a concept, unit, or course. | **Summative Concept Assessment**  
Grade 3, Unit 4, Concept 4.1  
**Digital:**  
Enter Quick Code: ca3774s  
**Print:**  
|                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                     | **Digital:** Summative Concept Assessment  
https://tinyurl.com/ydxsrab4  
Note: Make sure Teacher View On  
**Scientific Explanations**  
Grade 3, Unit 4, Concept 4.2  
**Digital:** Activity 6; Investigate Like a Scientist; Hands-On Investigation: Weather Data  
Enter Quick Code: ca3783s  
**Print:**  
|                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                     | **Editable Activity for Students and Teacher’s Guide:**  
https://tinyurl.com/yam5cx57  
Note: Make sure Teacher View On  |
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<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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<tbody>
<tr>
<td>SP3. Quality of guidance and tools that use a variety of measures.</td>
<td></td>
<td>Scientific Explanation Teacher Rubric</td>
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<td><a href="https://tinyurl.com/y6mmlhrz">https://tinyurl.com/y6mmlhrz</a></td>
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<td>Note: Make sure Teacher View On</td>
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**Hands-On Activity: Collecting Weather Data**

In this activity, students will collect weather data including air temperature, wind direction, and precipitation.

- Edit new Activity
- Teacher's Guide

**Scientific Explanations**

**What is a Scientific Explanation?**

Engaging in argument from evidence lies at the core of scientific practice. In science, the production of knowledge depends on a process of reasoning that requires a scientist to make a justified claim about the world (NRC, 2007). This process is modeled in the science classroom when students construct a scientific explanation. Scientific explanations are student responses that provide an explanation of a scientific phenomenon supported by evidence. Students prepare their scientific explanation after a period of exploration and investigation in which they generate, collect, and analyze data and then use it to construct meaning. Student scientific explanations are integrated into the SE (Scientific Explanation) structure of Science Techbook.

In Science Techbook, the scientific explanation is initiated in Engage using the Can You Explain (CYE) question that requires students to answer a question about real-world phenomena. The Explore section is framed to address this question and provide essential focus for their learning (NRC, 2007). In Explain, students construct their scientific explanation. The CYE questions are built around three components: the claim, the evidence, and the reasoning (adapted from MacNeil & Krupka, 2008).

- **Claim**: This is a testable statement or conclusion that answers the question. The claim is often the simplest part of the explanation for students to both identify and formulate.

- **Evidence**: This data helps to answer the question or problem that the students are examining. Data can come from a variety of sources, such as investigations (both numeric and observational data), text, archived data, video, and other media. The key to evidence is that it must be both appropriate and sufficient to support the claim. A good scientific explanation uses only data that supports the claim. The term sufficient in this case refers to whether there is enough data to support the claim.

- **Reasoning**: This is the justification that shows why the data is relevant and supports the claim. Students should try to include details related to the application of scientific principles and accurately incorporate discipline-specific vocabulary in this section.
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<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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</table>
| SP3. Quality of guidance and tools that use a variety of measures. | **Hands-On Activities and Hands-On Labs** (HOAs and HOLs) provide opportunities for students to demonstrate the science and engineering practices and analyze data to look for evidence of crosscutting concepts. Based on the proficiency of the students, teachers can determine the appropriate amount of scaffolding to provide. Analysis and conclusion questions allow students to reflect on their learning. **STEM Connect** projects use an interdisciplinary approach to push students to seek solutions to important real-world challenges such as sustainable farming, water conservation and other environmental critical issues. STEM Connect is built using a 4Cs STEM framework to allow students to develop the 21st-century skills of creativity, critical thinking, communication, and collaboration. Using STEM Connect projects to assess students’ science learning provides the teacher with set(s) of tasks so that students can demonstrate their understanding of the same learning goals in multiple ways. | **Hands-on Activity** Grade 3, Unit 3, Concept 3.1 **Digital**: Activity 9; Think Like a Scientist; Where Did I Come From? Enter Quick Code: ca3518s | **Print**:  
| TE Pages | SE Pages |
| Activity 9 | Activity 9 |
| p. 55-58 | p. 28-31 |
| **Hands-on Investigation** Grade 3, Unit 4, Concept 4.2 **Digital**: Activity 6; Investigate Like a Scientist; Hands-On Investigation: Weather Data Enter Quick Code: ca3783s | **Print**:  
<p>| TE Pages | SE Pages |
| Activity 6 | Activity 6 |
| p. 97-105 | p. 65-71 |</p>
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
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<td>SP3. Quality of guidance and tools that use a variety of measures.</td>
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<td><strong>STEM Connect</strong></td>
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<td>Grade 2-3: Power of the Sun</td>
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<td></td>
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<td><a href="https://tinyurl.com/y8shasf">https://tinyurl.com/y8shasf</a></td>
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<td>STEM Solution Seekers: Power of the Sun</td>
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<td><a href="https://tinyurl.com/y8ebyca5">https://tinyurl.com/y8ebyca5</a></td>
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<tr>
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<td>Citations</td>
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</tbody>
</table>
| SP3. Quality of guidance and tools that use a variety of measures. | **Assessment Tools**, including Discovery Experience Resources, provide teachers and students with ample resources not only to build different types of assessments but also to provide students with a unique set of tools that allows them to demonstrate their learning in unique ways. Tools like Assignment Builder, Assessment Builder, Writing Prompt Builder, and Discovery Studio give teachers flexibility to create customized assessments. Discovery Education’s Studio also provides students with a “digital poster” to make their learning collaborative and public while also using the 200,000 Experience robust digital content assets to build, enhance, and enrich their understanding. | Step by Step Guide to Assessment Builder: https://tinyurl.com/y5r2465g  
Step by Step Guide to Studio: https://tinyurl.com/y8rt7us2 |
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<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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</table>
| SP4. Quality of support and strategies for ensuring equitable access. | Assessments are designed to be:  
- free from bias (e.g., gender, racial, socioeconomic status, cultural).  
- accessible to all students (e.g., reading level, accommodations).  
Assessment items developed for California Science Techbook allow all students the ability to demonstrate their disciplinary core knowledge. Math tools such as the scientific calculator, unit converter, and graphing calculator are available for use at all times by students, including in the unit-level performance-based assessment (PBA). The students do not need to access prior experiences to complete the unit assessments and are provided with all necessary text and factual information needed to meet the intent of each item.  
Summative unit-level performance-based assessments are available in Spanish. For Technology Enhanced Items (TEIs) within each concept, the adaptability of the Discovery Education platform to work with Google Translate allows students to access additional languages beyond Spanish. | Performance-based Unit Assessment  
Grade 3, Unit 4  
Digital:  
Enter Quick Code: ca3821s  
Print:  
TE Pages  
Performance-Based Assessment  
P. 208  
Teacher's Guide: [https://tinyurl.com/y82mid3o](https://tinyurl.com/y82mid3o)  
Math Tools  
TEI translated into simplified Chinese using Google Translate. |
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<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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</table>
| SP5. Quality of use of formative and summative assessments. | The materials provide self- or peer-assessments that allow students to reflect on and monitor their learning over time. Students can monitor their progress across a course using the student level dashboard. The dashboard includes color-coded, or traffic light scoring, for each technology-enhanced item found within a concept. As students progress through concepts, there are many opportunities that are provided for reflection throughout the Student Edition. Teacher embedded notes throughout also guide students to reflect on their new thinking. | Peer Conversation  
Grade 3, Unit 4, Concept 4.1  
**Digital:** Activity 4; Observe Like a Scientist; Global Climate Zones  
Enter Quick Code: ca3762s  
**Print:**  
Activity 4  
TE Pages p. 34-35  
SE Pages Activity 4 p. 15  
**Teacher Embedded Notes** |
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<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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</thead>
</table>
| SP5. Quality of use of formative and summative assessments. | Additionally, students can reflect on their growth in the development of scientific explanations constructed during the Explain portion of each lesson. Students will learn to increase the rigor and relevance of the evidence embedded within their explanations. The “your ideas” item found in Wonder (Engage) under the Can You Explain (CYE) question allows students to record initial ideas or responses to the questions. Students can compare their initial responses after constructing their explanations in Share (Explain). Students can review and provide feedback to one another throughout. | Explain activity  
Grade 3, Unit 4, Concept 4.1  
Digital: Activity 14; Record Evidence Like a Scientist  
Enter Quick Code: ca3772s  
Print:  
<table>
<thead>
<tr>
<th>TE Pages</th>
<th>SE Pages</th>
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<tbody>
<tr>
<td>Activity 14</td>
<td>Activity 14</td>
</tr>
<tr>
<td>p. 64-67</td>
<td>p. 42-46</td>
</tr>
</tbody>
</table>

The Discovery Education Studio creation tool allows students to create portfolios of their work over a course, unit, or concept. Students can collaborate with other students using the Studio tool, as well as share examples of their work with the teacher and their classmates. |
## Component


## Strengths

Teacher materials provide background information about the phenomena or problems included in the learning sequence and across sequences provide:

- an explanation of the role of phenomena or problems in driving student learning.
- rationale for why the unit phenomena or problems were selected for the targeted DCIs, SEPs, CCCs, and EP&Cs (when applicable).

Anchor and Investigative Phenomena were identified for each unit and concept based on their ability to demonstrate the disciplinary core ideas of the required performance expectations of the instructional segment bundles. Writers of California Science Techbook also considered the age appropriateness of topics to select real-world phenomena that would engage students within each grade level.

## Citations

Three Dimensions at a Glance Grade 3, Unit 4

Print:

- TE Pages Three Dimensions p. 4-5
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
</table>
| TS1. Phenomena/problems Driven Three-Dimensional Learning.               | **Unit Level Support:** Within each Unit, a real-world anchor phenomenon piques students’ curiosity and sets a purpose for learning across concepts. A Unit Project, expects students to return to the anchor phenomenon to summarize learning across the Unit Storyline. In the print Teacher Edition, teachers are provided with several options on how to use the anchor phenomenon to engage students with asking questions and defining problems. Print and digital teacher supports also provide Unit Storylines and conceptual maps as resources of how the concepts build upon one another, related to the Anchor Phenomenon and the Unit Project. The Unit Outline digitally also allows teachers to quickly view the PEs associated with the investigative phenomena for each concept. | **Anchor Phenomenon** Grade 3, Unit 4  
Print:  
| TE Pages | SE Pages  
Anchor Phenomenon Launch p. 16  
Digital: Enter Quick Code: ca3755s |
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS1. Phenomena/ problems Driven Three-Dimensional Learning.</td>
<td>Concept-Level Support: Each concept begins with a smaller, real-world investigative phenomenon allowing students to dive into the remainder of content across Wonder, Learn, Share, looking for evidence to explain the investigative phenomenon. Teachers are supported through the use of embedded teacher notes and additional strategies found in the print Teacher Edition. For example, the first teacher note found in Wonder (Engage) provides a strategy to utilize with students. A teacher can use the Can You Explain? question as a frame for learning or can encourage students to develop their own questions to explore within the concept. In California Science Techbook teachers receive additional support through teacher notes. Point-of-use teacher notes within each tab, additional assessments, student misconceptions, background material, and more are visible by turning on the Teacher View toggle. Teacher Notes: Teachers notes found in Wonder (Engage) describe how to set up an experience for students to allow the students to generate questions around the investigative phenomena. Teacher notes found within Unit Project in Share (Elaborate) help the teacher structure small groups or prepare materials needed for design activities. These strategies help both the teacher and student focus on the components of the phenomenon related to the associated DCIs for the concept.</td>
<td>Concept- Investigative Phenomenon Grade 3, Unit 4, Concept 4.1 Print:</td>
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<td>TE Pages</td>
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<td>Activity 2</td>
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<td></td>
<td>p. 30-31</td>
</tr>
<tr>
<td></td>
<td>Digital: Enter Quick Code: ca3760s</td>
<td>Teacher Embedded Note: Wonder (Engage)</td>
</tr>
</tbody>
</table>

### Strengths

**Teacher Guides**
Throughout the entire 5E learning cycle, students will be exposed to activities expecting them to generate explanations or solve problems. For the scientific explanation activity found in Share (Explain), as well as all Hands-on Activities, additional detailed teacher guides support teachers in successfully preparing and carrying out the activity with their class.

**Three-Dimensional Learning Supports:**
California Science Techbook includes several tiers of support to assist teachers with planning three-dimensional learning experiences. Explicit guidance for three-dimensional learning is included throughout the print Teacher Edition and the digital notes.

NGSS standard indicators are noted at both the unit and concept level to guide teacher planning.

**Unit-Level Support**
- Unit Storyline and Outline: includes an overview of the instructional segment
- NGSS Chart: PEs listed by concept
- Three Dimensions at a Glance Chart: SEP, DCI, and CCC by concept
- ELA, ELD, and Mathematics Standards
- California EPCs

### Citations

**Teacher's Guide: Hands-On Investigation**
Grade 3, Unit 4, Concept 4.2

**Digital:** Activity 6: Investigate Like a Scientist, Collecting Weather Data
https://tinyurl.com/ydep2na6
Note: Make sure Teacher View On

**Teacher Hands-On: Hands-On Activity Video**
Digital: Activity 6: Investigate Like a Scientist, Collecting Weather Data
https://tinyurl.com/y9efdavv
Note: Make sure Teacher View On

**Teacher Hands-On Activity Instructional Videos library**
Digital: [https://tinyurl.com/yaaw8bmx](https://tinyurl.com/yaaw8bmx)

**Unit Storyline and Outline**
Grade 3, Unit 4
Print:

<table>
<thead>
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<th>TE Pages</th>
<th>p. 14</th>
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[Image: Discovery Education Science Techbook]
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<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
</table>
| TS1. Phenomena/problems Driven Three-Dimensional Learning. | **Concept-Level Support**  
- Learning Objectives driven by the expectations of the NGSS  
- Days of Instruction:  
  - Bolded text highlights the dimensions of the PE addressed during each activity  
  - Activity-level SEP and CCC integration  
  - Pathways for Learning guidance for a variety of technology settings  
  - Teacher reflection questions encourage reflection on students’ performance across the three dimensions of NGSS  
  - Embedded Teacher Notes describe strategies on how to create a three-dimensional experience for students  
  - Differentiation Strategies to support a variety of learners | **Concept- Investigative Phenomenon**  
Grade 3, Unit 4, Concept 4.2  
Digital: [https://tinyurl.com/y7n6q2fe](https://tinyurl.com/y7n6q2fe)  

Print:  
<table>
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<th>TE Pages</th>
<th>SE Pages</th>
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<tbody>
<tr>
<td>Concept 2: Starts on p. 84</td>
<td>Concept 2: Starts on p. 54</td>
</tr>
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</table>

**Concept Pacing Options**  
Grade 3, Unit 4, Concept 4.1  
Digital: [https://tinyurl.com/ycpm9dx](https://tinyurl.com/ycpm9dx)  
Note: Make sure Teacher View On  

Print:  
<table>
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<tr>
<td>Concept 4.1 p. 24-25</td>
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<tr>
<td>Component</td>
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</tbody>
</table>
| TS2. Coherence.  | Teacher materials describe and provide a rationale for the conceptual framework and sequence of ideas, practices, and learning experiences in the learning sequences and for across sequences:  
- strategies for linking student experiences across lessons to ensure student sense-making and/or problem-solving focused on phenomena or problems is linked to learning across all three dimensions.  
- connections to other science domains, nature of science, engineering, technology, and applications of science, math, ELA, and EP&Cs (when applicable).  
California Science Techbook provides for coherence by:  
- limiting the topics covered to the topics identified in NGSS  
- arranging experiences so that student understanding grows over the course of the unit.  
- connecting concepts over the course of the year and from one year to the next.  
Because the courses in California Science Techbook were designed to address the requirements of NGSS, they include the core ideas, science and engineering practices, and crosscutting concepts that are identified in NGSS for a given grade. California Science Techbook addresses no more and no less than the content specified within NGSS while expanding the time and depth devoted to the core concepts. | Next Generation Science Standards  
Grade 3, Unit 4  
Print:  
TE Pages  
NGSS  
p. 2 |
### Component

<table>
<thead>
<tr>
<th>California Science Techbook provides for coherence by arranging topics so that student understanding grows over the course of a lesson and by connecting ideas from one lesson to another. Each Wonder, Learn, Share (5E) model lesson is designed for multiple sessions. The print Teacher Edition for California Science Techbook supports teachers as they plan their instruction to build upon the appropriate progressions related to all three dimensions of the standards.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TS2. Coherence.</strong></td>
</tr>
</tbody>
</table>

#### Unit Level Support:

**Three Dimensions at a Glance:**

Shows how each concept is aligned to the three-dimensional components of the performance expectations found within the unit.

#### Scope and Sequence:

Includes NGSS learning progression charts indicating the previous and next grade level progression based on the standards for the concept, as well as the unit storylines across the course.

#### NGSS Overviews:

Provides breakdowns of the performance expectations for the concept, as well as the ELA, ELD, and Math Standards, and California Environmental Principles associated with the Performance Expectation.

---

### 5E Model (Wonder, Learn, Share)

**Grade 3**

**Print:**

- **TE Pages**
- **5E Model p. xxviii**

---

### Instructional Flow

**The 5 Es Defined**

- **Wonder (Engage)**
  - Introduces a phenomenon or problem for students to investigate and develop questions.
  - Sometimes used as an activity to activate students’ prior knowledge and suggest questions for inquiry.
  - In the Wonder (5E) model, the Wonder is modified to develop questions around the phenomena presented in the unit.

- **Learn (Explore)**
  - Includes activities to support scientific investigation.
  - Helps students connect ideas with the concept or task.
  - Uses observations, experiments, and other data to build their understanding.
  - In the 5E Model, the Learn is modified to include activities that support student inquiry.

- **Share (Elaborate/Evaluate)**
  - Students analyze their learning within the context of the unit.
  - Helps students connect ideas with the concept or task.
  - In the 5E Model, the Share is modified to include activities that support student inquiry.

---

### Three Dimensions at a Glance

**Grade 3, Unit 4**

**Print:**

- **TE Pages**

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<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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<tbody>
<tr>
<td>TS2. Coherence.</td>
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<td>TE Pages</td>
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<tr>
<td></td>
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<td>Three Dimensions p. 4-5</td>
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<tr>
<td></td>
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<td>Scope and Sequence</td>
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<td></td>
<td></td>
<td>Grade 3, Unit 4</td>
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<td></td>
<td>TE Pages</td>
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<tr>
<td></td>
<td></td>
<td>Scope &amp; Sequence overview p. xxxviii-xli</td>
</tr>
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<td></td>
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<td>California Common Core and ELD Standards and Environmental Principles and Concepts</td>
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<td>Grade 3, Unit 4</td>
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<td>TE Pages</td>
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<td>CCSS, ELD, &amp; EP&amp;Cs p. 6-8</td>
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<td>Component</td>
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<tr>
<td>TS2. Coherence.</td>
<td><strong>Concept Level Support:</strong> Embedded within the teacher strategies for activities, teachers are provided with guidance on appropriate expectations for students’ prior knowledge based on the progression of the DCIs within each course. In Hands-on Investigations, support for teachers on how to support students’ progression with designing and carrying out investigations includes a scaffolded and open-ended approach.</td>
<td><strong>Teacher Strategies</strong>&lt;br&gt;Grade 3, Unit 4&lt;br&gt;<strong>Print:</strong>&lt;br&gt;TE Pages&lt;br&gt;Concept 4.1: Starts on p. 28</td>
</tr>
<tr>
<td>Component</td>
<td>Strengths</td>
<td>Citations</td>
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<tr>
<td>TS3. Effective Teaching.</td>
<td>Teacher materials support the use of and provide a rationale and evidence of effectiveness for strategies that: • support students in learning through authentic and meaningful phenomena or design problems. • support student learning across the three dimensions. • make student thinking visible; promote reasoning, sense-making, and problem-solving; challenge student thinking; and develop metacognitive abilities  California Science Techbook digital and print, was designed and developed to meet the needs of students and to provide guidance and flexibility for teachers to use in a variety of classroom settings.</td>
<td>Concepts at a Glance  Grade 3, Unit 4, Concept 4.1  Digital: <a href="https://tinyurl.com/ydd98h9o">https://tinyurl.com/ydd98h9o</a>  Note: Make sure Teacher View On</td>
</tr>
<tr>
<td></td>
<td>Pacing and At a Glance Guides: The print Teacher Edition includes pacing guides and flexible pathways for optimal instruction in any instructional setting. The “At a Glance” supports, provide teachers with quick overviews as they prepare for instruction ahead of time.</td>
<td>Print:  TE Pages  Concept 4.1  p. 22-23</td>
</tr>
<tr>
<td></td>
<td>Days of Instruction: Instruction is presented in 20-minute segments by day. The NGSS performance expectations for the day are also featured with the specific aspects of each standard covered that day in bold. Daily and Activity Based Instructional Focus statements provide three-dimensional learning targets.</td>
<td>Concept Pacing Options  Grade 3, Unit 4, Concept 4.1  Digital: <a href="https://tinyurl.com/ycpcm9dx">https://tinyurl.com/ycpcm9dx</a>  Note: Make sure Teacher View On</td>
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<td></td>
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<td>Print:  TE Pages  Concept 4.1  p. 24-25</td>
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<tr>
<td>Component</td>
<td>Strengths</td>
<td>Citations</td>
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</table>
| TS3. Effective Teaching. | **Supporting 21st Century Learners:** Through every step of the learning cycle, California Science Techbook features diverse and rich multimedia resources: video, images, audio, interactives, virtual labs, online models, animations, rich informational text, and more. Marquee Discovery Education content, including MythBusters, Street Science, and Outrageous Acts of Science, blend entertainment with education to motivate students to investigate real-world phenomena. Virtual labs and online models allow students to quickly manipulate variables to test out their ideas in an online environment. Pathway to Learning charts provide options for teachers to deliver three-dimensional instruction in a one to one, blended or print based classroom. | **Discovery Education Experience**  
Digital: [https://tinyurl.com/yxms7kjl](https://tinyurl.com/yxms7kjl)  
**Teacher Notes and Strategies**  
Grade 3, Unit 4, Concept 4.1  
Digital: [https://tinyurl.com/y9txt2k4](https://tinyurl.com/y9txt2k4)  
Note: Make sure Teacher View On  
**Print:**  
| TE Pages  
Activity 3  
p. 51 | **Spotlight on Strategies (SOS)**  
Digital: [https://tinyurl.com/y62cg28n](https://tinyurl.com/y62cg28n) |

**Teacher Notes with Strategies:** Detailed teacher notes, for each activity, make the connection between the high-quality digital assets and activities and the SEPs and CCCs explicit for teachers through instructional guidance. Strategies elicit student thinking and guide teachers in how to design a three-dimensional learning environment. Research-based instructional strategies, such as the Discovery Education Spotlight on Strategies (SOS), promote scientific discourse around the investigative and anchor phenomenon. SEP and CCC indicators are included for activities found in each day of instruction in the both print and digital.
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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</thead>
<tbody>
<tr>
<td>TS3. Effective Teaching.</td>
<td><strong>Activities:</strong> Activity Type headers allow teachers and students to quickly identify opportunities for asking questions related to the phenomenon, communicating sensemaking, and solving problems.</td>
<td><strong>Activity Types</strong> Grade 3 Print: TE Pages Activity Types p. xxix</td>
</tr>
<tr>
<td></td>
<td>• <strong>Ask Questions Like a Scientist:</strong> Students are presented with the investigative phenomenon and expected to generate their own questions to drive their learning in Learn/Explore.</td>
<td><strong>Teacher Reflection Questions</strong> Grade 3, Unit 4, Concept 4.1 Print: TE Page Teacher Reflection Questions p. 38</td>
</tr>
<tr>
<td></td>
<td>• <strong>Observe Like a Scientist:</strong> Students utilize scientific discourse around “Talk Together” questions to communicate their sensemaking.</td>
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<td></td>
<td>• <strong>Record Evidence Like a Scientist:</strong> Students reason through the evidence they have collected in Learn/Explore to construct and communicate a scientific explanation to one of their own driving questions or the Can You Explain question.</td>
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<td></td>
<td>• <strong>Design Solutions Like a Scientist:</strong> Students are presented with design challenges and expected to research, design, test and propose solutions.</td>
<td></td>
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<tr>
<td></td>
<td><strong>Teacher Reflection Questions:</strong> Throughout each concept, professional learning questions encourage teachers to consider how activities have developed SEP and CCC proficiency with their students and how they may modify the activity to better meet the needs of their students.</td>
<td></td>
</tr>
</tbody>
</table>
### Component: TS3. Effective Teaching.

#### Quick Digital Access:
Throughout the print Student and Teacher Editions, QR Codes and short links indicate opportunities to deepen learning through rich media and/or allow students to access content in a blended print and digital environment.

#### Professional Learning Center:
The Professional Learning Center in California Science Techbook is an additional deep and rich resource for teachers to participate in interactive courses, see other Discovery Education teachers’ classrooms, and access the online DEN community. The DEN online community is a global platform where teachers can learn, share, and connect with other educators.

### Citations

#### Quick Access from Print
Grade 3, Unit 4, Concept 4.1

<table>
<thead>
<tr>
<th>Print:</th>
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<tbody>
<tr>
<td>TE Pages</td>
<td>SE Pages</td>
</tr>
<tr>
<td>Activity 3</td>
<td>Activity 3</td>
</tr>
<tr>
<td>p. 32</td>
<td>p. 12</td>
</tr>
</tbody>
</table>

#### QR and Quick Code in Student Edition

Professional Learning Center
Digital:
https://teachers.discoveryeducation.com/
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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</table>
| TS4. Support for Students with Diverse Learning Needs. | Teacher materials provide an array of strategies:  
- to support student access to the targeted learning goals, experiences, and performances.  
- that help teachers differentiate instruction.  
California Science Techbook California allows teachers to differentiate instruction, degrees of readiness, and interests and offers resources to help vary content, process, product, and learning environment through the core instructional pathway. | English Language Development Support  
Grade 3, Unit 4, Concept 4.1  
Digital: Activity 7  
Enter Quick Code: ca3765s  
Note: Make sure Teacher View On  
Print:  
TE Pages  
Activity 7  
p. 46 |
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
</tr>
</thead>
</table>
| TS4. Support for Students with Diverse Learning Needs. | **Content-Specific Differentiation Strategies:** Within the Print Teacher Edition and Digital Teacher notes, teachers are provided with differentiation strategies, including scaffolded support for English language learners, struggling students, and advanced students, specific to the concept and that include reference to the use of multimedia assets. These differentiation strategies are provided at point of use. | **Differentiation Strategies**
Grade 3, Unit 4, Concept 4.3
**Digital:** Activity 16
Enter Quick Code: ca3816s
Note: Make sure *Teacher View On*

**Print:**
| Activity 16 |
| p. 187-192 |

**Student Interactive Worktext Tools:**
- Text read-aloud features
- Lexile and language options
- Highlighting and note-taking
- Interactive glossary

**Digital:** Activity 17
Enter Quick Code: ca3817s
Note: Make sure *Teacher View On*
**Approaching and Advance Learners**

**Print:**
| Activity 17 |
| p. 194-197 |

**APPROACHING LEARNERS**
Have students watch the video segment Weather: Preparing a Severe Weather Kit and discuss ideas from the video. Also, give students a specific type of severe storm that they are familiar with to focus on. Have students list all of the dangers associated with that type of storm and list their basic needs to come up with a list of items for their bag.

**ADVANCED LEARNERS**
Have students create a basic bag that has different add-in bags for different types of storms. The base bag would contain the items needed for every type of emergency, i.e., food and water, and each supplementing bag would have items for specific severe weather events (i.e., supplies for a blizzard, a pack for a tornado, etc.).

**DIFFERENTIATION**
Because of cultural, linguistic, and economic differences, not all students may be familiar with the domain-specific words commonly used in science. As a result, some students will encounter difficulty, or show lack of confidence when reporting on their scientific explorations or engaging in scientific argument. Classroom instruction should be adapted to meet the needs of these students. Most importantly, students should be provided with a supportive learning environment that respects the discussion of their ideas.
### Component


### Strengths

- **Predicting Rain**
  - Read the text, then answer the questions.
  - The *climate* of a region helps us predict weather conditions. If you went to the desert, you would see *sunny*! Do you think it would be rainy? Do you think it would be a good day to go for a swim in the ocean? Would the beach be wet or dry? The Amazon River should be very wet at the North Pole, and the Arctic Ocean should be very cold at the South Pole.

- **Forecaster**
  - Forecasters use the history of a region to predict the weather. For example, if the weather in a region is always windy, then forecasters can predict that the next day will be windy. If the weather in a region is always sunny, then forecasters can predict that the next day will be sunny.

### Citations

**Student Misconceptions**

- **Grade 3, Unit 4, Concept 4.2**
  - **Digital:** Activity 12
  - Enter Quick Code: ca5016s
  - Note: Make sure Teacher View On

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>TE Pages</td>
</tr>
<tr>
<td>Activity 12</td>
</tr>
<tr>
<td>p. 116-117</td>
</tr>
</tbody>
</table>

**Interactive Worktext Tools**

- **Grade 3, Unit 4, Concept 4.1**
  - **Digital:** Activity 11
  - Enter Quick Code: ca3769s

**Speak Text, Highlight, and Take Note example**

Enter Quick Code: ca3770s

<table>
<thead>
<tr>
<th>Print:</th>
</tr>
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<tr>
<td>TE Pages</td>
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<tr>
<td>Vocabulary Flash Cards p. R9</td>
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<td>Component</td>
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<tr>
<td>TS4. Support for Students with Diverse Learning Needs.</td>
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</table>

| | Stress the collectivity of interactions as well as individuality: Throughout California Science Techbook, learning experiences are designed for student collaboration and individual exploration. Hands-On Activities, Talk Together and STEM Project Starters provide opportunities for students to work together, while technology enhanced items encourage individual accountability. California Science Techbook seamlessly incorporates Universal Design for Learning (UDL) principles, so students can access and create content and communicate their ideas using multiple means of representation. | Peer Conversation<br>Grade 3, Unit 4, Concept 4.1<br><strong>Digital:</strong> Activity 4; Observe Like a Scientist; Global Climate Zone Enter Quick Code: ca3762s<br><strong>Print:</strong><br>TE Pages Activity 4<br>p. 33-34 SE Pages Activity 4<br>p. 15 |

<p>| | Expansive Content to Reach All Learners: The Beyond tab provides a variety of additional resources that can be used to differentiate by accelerating or remediating as needed. These related resources include the following: videos, Lexile-leveled reading passages, virtual labs, and editable Hands-on Activities/Labs. |  |</p>
<table>
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<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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</table>
| TS4. Support for Students with Diverse Learning Needs. | Discovery Education’s Experience resource, which is also part of the adoption package, provides a repository of K–12, cross-curricular resources that can be used to differentiate and enhance learning for all students in the science classroom. **Assigning Features:** Teachers can tailor instruction and meet the needs of all students by assigning appropriate content based on specific learning preferences or developmental needs. In California Science Techbook teachers can quickly assign and share instructional resources to individual students, groups of students, or the entire class. Using the Share feature, teachers can also use Google Classroom to assign Science Techbook activities and media to students. **Modalities for Learning:** Although many students prefer to consume content in a digital manner, often a print-based experience can be more effective in helping them solidify content knowledge. California Science Techbook provides flexibility for teachers to select the most appropriate mode of delivery of content for students.  
**Print Student Edition:** The student consumable worktext is available for all students, Grades K-8, in both English and authentic Spanish.  
**Print Accessibility:** Within the toolbar in the digital Science Techbook, teachers can print a page or the entire concept with one click of a button.  
**Pathways for Learning:** Suggestions on how to | Discovery Education Experience Digital: [https://tinyurl.com/yxms7kj](https://tinyurl.com/yxms7kj)  
Step by Step Guide for Assigning Content to Students: Digital: [https://tinyurl.com/y7og28g6](https://tinyurl.com/y7og28g6)  
[Share feature](https://app.discoveryeducation.com/learn/player/69B884cb-3e4e-4f)  
Copy Link: https://app.discoveryeducation.com/learn/player/69B884cb-3e4e-4f  
Close |  
| | Literacy and Pathways to Learning Grade 3, Unit 4, Concept 4.1 Digital: [https://tinyurl.com/y9bacnfd](https://tinyurl.com/y9bacnfd)  
Note: Make sure [Teacher View On Print:](https://tinyurl.com/y9bacnfd)  
**TE Pages**  
**Activity 11**  
p. 55-58 |
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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<tbody>
<tr>
<td>TS4. Support for Students with Diverse Learning Needs.</td>
<td>utilize digital assets in a paper-based, blended, and fully digital classroom environment are provided for each concept in the print TE.</td>
<td>Professional Learning Center Digital: <a href="https://teachers.discoveryeducation.com/">https://teachers.discoveryeducation.com/</a></td>
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<td>Professional Learning: Teacher professional learning is bundled in the California Science Techbook program. The face-to-face and job-embedded professional learning sessions focus on getting started with and using the resources to meet the needs of all students through effective, differentiated instruction. These sessions also utilize the Spotlight on Strategies that are available in the Discovery Education Experience. These SOS are created by teachers, for teachers and now also include videos specifically for students on how they, too, can incorporate these strategies into their learning.</td>
<td>Discovery Education Network (DEN) Digital: <a href="http://bit.ly/2PtnYVN">http://bit.ly/2PtnYVN</a></td>
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<tr>
<td>Component</td>
<td>Strengths</td>
<td>Citations</td>
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</table>
| TS5. Support to Monitor Student Progress.             | **Materials provide support for teachers to monitor student learning and progress over time, make decisions about instruction, and provide feedback to students.** Teachers can easily monitor student progress in California Science Techbook through different modalities of instruction, such as Hands-on Investigations, Interactives and Technology Enhanced Items embedded within the Wonder, Learn, Share (5-E) learning cycle at point of use. Teachers can easily view the formative assessment opportunities in each concept by reviewing the Concept at a Glance information in the print Teacher Edition. Summative Unit level Assessments can be located in the digital program under the Unit Resources tab. These assessments are CAST-like in that they mirror the state assessment in format, task type and content, including questions that utilize at a minimum 2 of the 3 dimensions. The assessments items are launched through an engaging real-world application and require students to apply new content understanding. Teachers can access course level assessment results from the Results Navigation bar on the right side.                                                                 | Concept at a Glance Grade 3, Unit 4, Concept 4.1  
Digital: [https://tinyurl.com/ydd98h9o](https://tinyurl.com/ydd98h9o)  
Note: Make sure Teacher View On  
Print:  
- TE Pages  
  Concept 1  
  p. 22-23  
Summative Unit Assessment Grade 3, Unit 4  
Digital: Enter Quick Code: ca3821s  
Print:  
- TE Pages  
  Performance-Based Assessment  
  p. 208  
Teacher's Guide: [https://tinyurl.com/y82mld3o](https://tinyurl.com/y82mld3o) |
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<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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</thead>
</table>
| **Dashboard:** | Teachers are equipped with a Dashboard on the right-hand side of the screen that shows all student answers to responses from the Technology Enhanced Items (TEIs) embedded in the Interactive Student Worktext. Throughout the learning progression, each tab of each concept includes Technology Enhanced Items that have students connect to what they already know about the topic (Wonder), and then as they progress, to monitor what they do learn as they explore and learn through a variety of multimodal resources (Wonder, Learn, Share). Students receive feedback on their knowledge, and the teacher has real-time access to this data in the Dashboard. This real-time data allows teachers to remediate and differentiate as needed in order to help students develop metacognitive abilities. Based on this real-time data, teachers can then make decisions about the needs of each student and select an appropriate instructional resource within the concept to meet the students' needs. Discovery Education Experience resources deepen the pool of assets that can be assigned to students. In addition to the full Dashboard, teachers have a Results View for all individual Technology Enhanced items at point of use as well. | Video of Dashboard functionality: [https://tinyurl.com/y4chmhbz](https://tinyurl.com/y4chmhbz)  
Step by Step Guide to Assessment Builder: [https://tinyurl.com/y5r2465g](https://tinyurl.com/y5r2465g)  
Step by Step Guide to Studio: [https://tinyurl.com/y8rt7us2](https://tinyurl.com/y8rt7us2) |

**Builder Tools:**  
Assessment Builder and Studio give teachers flexibility to create customized assessments.
## Designed for CA NGSS: Student Work

<table>
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<tr>
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<th>Strengths</th>
<th>Citations</th>
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| SW1. Quality of opportunities to explain phenomena/solve problems. | **Materials provide anchoring and investigative phenomena/problems that:**  
- engage students as directly as possible in authentic and relevant experiences.  
- are matched to targeted learning goals.  
- can be figured out/solved using scientifically accurate understandings and abilities.  
- make connections beyond and to their daily lives including to their homes, neighborhoods, communities, local environment, and/or cultures. | **Grade 3: Unit 4: Weather Impacts**  
Unit Page: Anchor Phenomenon  
Print:  
| TE Pages | SE Pages | Anchor Phenomenon: Launch p. 16 | **Digital:**  
Enter Quick Code: ca3755s  

**Investigative Phenomenon**  
Grade 3, Unit 4, Concept 4.1  
Print:  
| TE Pages | SE Pages | Activity 2 p. 30-31 | Activity 2 p. 10-11 | **Digital:**  
Enter Quick Code: ca3760s |

### Phenomena/Problems

The Unit Pages provide students direct access to the real world, relevant, Anchor Phenomena for the unit, as well as Investigative Phenomena for each concept found in the unit. The Unit pages are available both in print and digital. Students are engaged in real-world, often local and relatable phenomena using video, imagery, hands-on experiences, and other modalities.

As students move through the learning progression, the Anchor Phenomenon is connected to concept Investigative Phenomena, which will drive student explorations using the SEPs through the lens of the CCCs and wrap up with a real-world, relevant STEM Unit Project directly related to the anchor phenomenon. Students are encouraged to write their own questions, but phenomena are also paired with guided questions for scaffolding when appropriate.
### Component
**SW1. Quality of opportunities to explain phenomena/solve problems.**

<table>
<thead>
<tr>
<th><strong>Strengths</strong></th>
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<tr>
<td>These questions serve as the purpose for learning in the concept and the prompt for students to construct a formal scientific explanation in Share/Explain using scientifically accurate evidence from the activities in Learn/Explore.</td>
</tr>
<tr>
<td>The Phenomena and the STEM Unit Projects feature real world engaging connections to student’s daily lives, homes and communities and/or culture. Examples of these projects range from noticing water evaporating in a fish bowl to designing a water filtration device to reduce water pollution.</td>
</tr>
<tr>
<td>At the end of each Unit is a performance- based Unit Assessment, found in the Unit Resource tab in the digital program. These CAST-like assessments are rooted in real world, local or relatable anchor phenomena. Students are asked to apply understanding and three-dimensional learning to complete the task items.</td>
</tr>
</tbody>
</table>

### Citations

**Unit Project**
**Grade 3, Unit 4**
**Print:**
- TE Pages
- SE Pages

**Unit Project:** Mudslides and Floods
- p. 204-207
- p. 156-161

**Digital:**
Enter Quick Code: ca3820s

**Performance-Based Unit Assessment**
**Grade 3, Unit 4**
**Digital:**
Enter Quick Code: ca3821s

**Print:**
- TE Pages
- Performance-Based Assessment
  - p. 208

**Teacher's Guide:** [https://tinyurl.com/y82mid3o](https://tinyurl.com/y82mid3o)
<table>
<thead>
<tr>
<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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</thead>
</table>
| SW2. Quality of building a three-dimensional conceptual framework. | Materials include learning experiences that help students build scientifically accurate understandings and abilities through opportunities for students to:  
- Link prior knowledge negotiated new understanding and abilities.  
- Do work that approximates the nature of science  
- Use reasoning to connect grade appropriate SEP, DCI, and CCC elements and EP&C’s (when applicable).  
- Ask and answer questions that link learning over time  
- Negotiate new understandings and abilities by comparing their ideas, their peers’ ideas, and ideas encountered in the learning experience(s).  
- Apply their understandings and abilities in a variety of ways | Wonder: Can You Explain  
Grade 3, Unit 4, Concept 4.1  
Digital: Enter Quick Code: ca3759s  
Print:  
<table>
<thead>
<tr>
<th>TE Pages</th>
<th>SE Pages</th>
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<tbody>
<tr>
<td>Activity 1- Can You Explain p. 28-29</td>
<td>Activity 1- Can You Explain p. 8-9</td>
</tr>
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</table>

**Wonder/Engage:**  
In California Science Techbook, the Wonder (Engage) section provides phenomena-driven or problem-based learning experiences as catalysts for the inquiry process, triggering students’ natural sense of curiosity and wonder.  

Students are challenged to describe real-world phenomena and to develop questions around these phenomena through Can You Explain? questions. Technology Enhanced Items (TEIs) help students show what they already know about a concept, including their preconceptions and misconceptions.
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<th>Component</th>
<th>Strengths</th>
<th>Citations</th>
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</table>
| SW2. Quality of building a three-dimensional conceptual framework. | **Learn/Explore:** Providing the majority of the robust scientific content, the Learn (Explore) section features text and resources that help students test predictions, collect evidence, and record observations and ideas. Learn also contains engaging Interactives and Hands-On Activities that check for understanding and provides opportunities for students to apply what they have learned. | **Learn:** Hands-On Investigation and Online Interactive  
**Hands-On Investigation**  
Grade 3, Unit 4, Concept 4.2  
**Digital:** Activity 6; Investigate Like a Scientist; Hands-On Investigation: Weather Data  
Enter Quick Code: ca3783s  

**Print:**  
- **TE Pages:** Activity 6 p. 97-105  
- **SE Pages:** Activity 6 p. 65-71  

**Online Interactive**  
Grade 3, Unit 4, Concept 4.1  
**Digital:** Activity 6; Observe Like a Scientist; Exploring Regional Climates  
Enter Quick Code: ca3764s  

**Teacher’s Guide:** https://tinyurl.com/y95j5ju6  

**Print:**  
- **TE Pages:** Activity 6 p. 41-43  
- **SE Pages:** Activity 6 p. 20-21  

**Beyond tab – Additional Interactives and Resources**  
**Digital:** https://tinyurl.com/yaeytzyt |
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</table>
| SW2. Quality of building a three-dimensional conceptual framework. | **Share/Explain:** This section encourages students to verbalize and demonstrate their conceptual understanding, new skills, and behaviors by constructing a scientific explanation related to the Can You Explain? question first posed in Wonder. | **Share: Record Evidence**  
Grade 3, Unit 4, Concept 4.1  
**Digital:** Enter Quick Code: ca3777s  
**Print:**  
<table>
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<tr>
<th>Digital</th>
<th>TE Pages</th>
<th>SE Pages</th>
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<tr>
<td>Activity 14, Droughts</td>
<td>Activity 14, Droughts</td>
<td>Activity 14, Droughts</td>
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</table>
| **Share/Elaborate and Evaluate:** By presenting opportunities for critical thinking, exploration, and summative assessments, the Share (Elaborate) section connects STEM skills to real-world problems. Share with STEM is divided into two sections: STEM in Action and STEM Project Starters. Please note that STEM Connect is also part of the Discovery Education Comprehensive Science Program. STEM Connect includes real-world projects through a Challenge, Design, and Solve model of problem-solving. | **Share: STEM Project**  
STEM in Action  
Grade 3, Unit 4, Concept 4.1  
**Digital:** Activity 15; Analyze Like a Scientist; Climatologist  
Enter Quick Code: ca3773s  
**Print:**  
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<tr>
<td>Activity 15</td>
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| **Activity Types**  
There are various activity types, found within the model of Wonder/Learn/Share. These activities help students recognize opportunities to apply specific SEPs with DCI and CCC for three-dimensional learning. | **STEM Project Starter**  
Grade 3, Unit 4, Concept 4:1  
**Digital:** Extension 2; Design a Dog House  
[https://tinyurl.com/yclo635m](https://tinyurl.com/yclo635m)  
**Activity Types**  
Grade 3  
**Print:**  
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<td>Activity Types</td>
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</table>
Materials leverage students’ prior knowledge and experiences to motivate student learning in ways that:

- make visible students’ prior knowledge and experiences related to the anchoring and investigative phenomena/problems and relevant SEPs, DCIs, and CCCs and EP&Cs (when applicable).
- revisit students’ early ideas to see how they have changed (or not) as they figure out phenomena/solve problems.
- make explicit links to new ideas and practices being developed by students.

The Wonder (Engage) section of each concept includes Technology Enhanced Items that have students identify what they already know about the topic. They receive feedback on their current knowledge, and the teacher has real-time access to this data in the Dashboard. Each concept also includes initial thoughts and ideas that might support the guiding question; this will appear at the bottom of the Wonder (Engage) page in the digital Techbook where it says “Can You Explain?”

Students use resources such as hands-on activities, images, songs, interactives, glossary animations, reading passages, and the Core Interactive Text to answer “Can You Explain” questions. They will keep track of their evidence using both print and digital supports in crafting their scientific explanations in each concept and can revisit their answer in their personal dashboard.

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<tr>
<td>SW3. Quality of leveraging student prior knowledge and experiences.</td>
<td>Materials leverage students’ prior knowledge and experiences to motivate student learning in ways that:</td>
<td>Wonder: Activate Prior Knowledge</td>
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<td></td>
<td>make visible students’ prior knowledge and experiences related to the anchoring and investigative phenomena/problems and relevant SEPs, DCIs, and CCCs and EP&amp;Cs (when applicable).</td>
<td>Grade 3, Unit 4, Concept 4.2</td>
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<td></td>
<td>revisit students’ early ideas to see how they have changed (or not) as they figure out phenomena/solve problems.</td>
<td>Digital:</td>
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<td>make explicit links to new ideas and practices being developed by students.</td>
<td>Enter Quick Code: ca3761s</td>
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<td></td>
<td>The Wonder (Engage) section of each concept includes Technology Enhanced Items that have students identify what they already know about the topic. They receive feedback on their current knowledge, and the teacher has real-time access to this data in the Dashboard. Each concept also includes initial thoughts and ideas that might support the guiding question; this will appear at the bottom of the Wonder (Engage) page in the digital Techbook where it says “Can You Explain?”</td>
<td>Print:</td>
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<td>Students use resources such as hands-on activities, images, songs, interactives, glossary animations, reading passages, and the Core Interactive Text to answer “Can You Explain” questions. They will keep track of their evidence using both print and digital supports in crafting their scientific explanations in each concept and can revisit their answer in their personal dashboard.</td>
<td>TE Pages</td>
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<td>Activity 3- Analyze Like a Scientist p. 32-33</td>
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<td>SE Pages</td>
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<td>Activity 3- Analyze Like a Scientist p. 12-14</td>
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<td>Component</td>
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| SW4. Quality of providing experiences that develop metacognition. | Materials include learning experiences for students to:  
- Set and monitor their learning in light of the targeted learning goals  
- Consider, overtime, what and how they have learned across the three dimensions  
- Articulate how the three dimensions helped them figure out anchor and investigative phenomena/solve problems | Concept Level Student Objectives  
Grade 3, Unit 4, Concept 4.1  
Digital:  
Enter Quick Code: ca3758s  
Print:  
| TE Pages | SE Pages |
| Concept Objectives | Student Objectives |
| p. 20 | p. 7 |

**Monitoring Student Progress & Metacognition**

Teachers are equipped with a Dashboard on the right-hand side of the screen that shows all student answers to responses from the Technology Enhanced Items (TEIs) embedded in the Student Interactive Worktext. Throughout the learning progression, each tab of each concept includes Technology Enhanced Items that have students connect to what they already know about the topic (Wonder), and then as they progress, to monitor what they do learn as they explore and learn through a variety of multimodal resources (Wonder, Learn, Share). They receive feedback on their knowledge, and the teacher has real-time access to this data in the Dashboard. This real-time data allows teachers to remediate and differentiate as needed in order to help students develop metacognitive abilities.
### Component

| SW4. Quality of providing experiences that develop metacognition. |

### Strengths

Each Concept includes initial thoughts and ideas that might support the guiding question; this will appear at the bottom of the Wonder (Engage) page in the digital program, “Can You Explain?”. Students are encouraged to think about what they know, how they know it and what they would like to learn more about. They do this by applying their learning across the three dimensions and revisit this learning at the end of the Concept. Their new learning is then linked to confirming or modifying their initial understanding of Anchor Phenomena from the Unit launch.

Students use resources such as hands-on activities, images, songs, interactives, glossary animations, reading passages, and the Core Interactive Text to answer “Can You Explain” questions. They will keep track of their evidence using both print and digital supports in crafting their scientific explanations in each concept and can revisit their answer in their personal dashboard.

**Tools for All Types of Learners:**

Students can annotate text using highlighting and notes. These annotations remain at point of use for students and are automatically populated in a Notebook that students can use for reflections and for reviewing their learning. Studio is an excellent tool that also provides an opportunity for students to demonstrate learning and revisit as they move through learning progression. Templates are provided related to constructing explanations and carrying out investigations.

### Citations

**Video of Dashboard functionality:**

https://tinyurl.com/y4chmhbz

**Interactive Worktext Tools**

Grade 3, Unit 4, Concept 4.1
Digital: Activity 11
Enter Quick Code: ca3769s

**Speak Text, Highlight, and Take Note example**

[Image of example page]

**Step by Step Guide to Studio:**

https://tinyurl.com/y8rt7us2
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<th>Component</th>
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<tr>
<td>SW5. Quality of providing equitable learning opportunities.</td>
<td><strong>Materials ensure that all students, including those from nondominant groups and with diverse learning needs, have access to the targeted learning goals and experiences, including:</strong>&lt;br&gt;• appropriate reading, writing, listening, and/or speaking alternatives for students who are English language learners, have special needs, read below the grade level, or have high interest and have already met the intended learning goals.&lt;br&gt;• culturally relevant contexts and examples that support all students.&lt;br&gt;• opportunities to cultivate interest and confidence as scientists and engineers for all students.</td>
<td><strong>Reading Comprehension</strong>&lt;br&gt;Grade 3, Unit 4, Concept 4.1&lt;br&gt;Digital:&lt;br&gt;Enter Quick Code: ca3769s&lt;br&gt;<strong>Print:</strong>&lt;br&gt;Activity 11 - Analyze Like a Scientist&lt;br&gt;p. 55-58&lt;br&gt;Activity 11 - Analyze Like a Scientist&lt;br&gt;p. 32-37</td>
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California Science Techbook Program offers access to best-in-class content that meets instructional goals, inspires student engagement, and reflects the diversity of the students served. With California Science Techbook all students have full access to a robust science curriculum.

**Reading Comprehension**<br>Students interact with text, produce text, participate in discussions, and engage in research for the primary purpose of building their reading comprehension skills. Discovery Education’s digital resources were expertly crafted with tools and opportunities to support all types of learners to make meaning of informational text. Multiple forms of representation, including language alternatives; dual reading levels; and the

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**Reading Passage – Student Edition**

- **Climate Research**

  Different depending on which hemisphere one is in. When it is summer in one pole, it is winter at the other.
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<tr>
<td>SW5. Quality of providing equitable learning opportunities.</td>
<td>alternatives; dual reading levels; and the complementary use of images, videos, and audio, build students' background knowledge and strengthen their comprehension.</td>
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<tr>
<td>Component</td>
<td>Strengths</td>
<td>Citations</td>
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| SW5. Quality of providing equitable learning opportunities. | California Science Techbook provides a wide array of graphic organizers and visual supports offering non-linguistic opportunities to process content. Hands-on Activities and Investigations provide support for interacting with science concepts making learning visual. Additional, Hands-on Labs and non-fiction Reading Passages are found in the Beyond tab of each Concept providing related content for building students’ scientific understanding and development. The Reading Passages on a concept are written at different Lexiles. These passages offer different text structures such as problem-solution, cause and effect, and compare and contracts. Students not only learn to read these types of texts, but they are also used as mentor texts for writing. | **Graphic Organizers**  
Grade 3, Unit 4, Concept 4.1  
Print:  
- TE Pages  
- Explore Overview p. 40  
**Grade 3 Resources – Graphic Organizers**  
Print:  
- TE Pages  
- Graphic Organizers p. R1-R6  
**Beyond tab – Additional Interactives and Resources**  
Grade 3, Unit 4, Concept 4.1  
Digital: [https://tinyurl.com/yaeotyzt](https://tinyurl.com/yaeotyzt)  
**Literacy Connection Strategies**  
Grade 3, Unit 4, Concept 4.1  
Digital:  
- Benchmark: [https://tinyurl.com/y8e9j2va](https://tinyurl.com/y8e9j2va)  
- Wonders: [https://tinyurl.com/ybye7u6o](https://tinyurl.com/ybye7u6o)  

**Literacy Connections Strategies**  
Literacy Connections Cards are integrated into the digital Techbook to save teachers time and create seamless opportunities to bring literacy into science and science into literacy. These cards, aligned to the Wonders and Benchmark reading programs, provide teachers with resources to make their reading and writing instructional multimodal, and integrate the reading and writing skills and strategies from their literacy curriculum into the science curriculum.
## Component

**SW5. Quality of providing equitable learning opportunities.**

### Multilingual Support

Video, audio, and print text resources are available in a number of languages. Digital search filters help teachers and students identify resources in other languages. Additionally, the program is available digitally and in print in both English and authentically translated Spanish to support dual immersion programs.

To support students in other languages, digital pages in Science Techbook can be translated into any language available in Google Translate.

### English Language Development

California Science Techbook provides access to rich content and academic language in science. Throughout California Science Techbook ELA/ELD Standards and the California NGSS work in tandem to support the English learners. In California Science Techbook students build knowledge about science in variety of different ways, teachers are provided with point of use suggestions for meeting the needs of English Learner students with various levels of language acquisition including, Emerging, Expanding and Bridging. In addition, to the point of use lesson suggestions, tools and supports are embedded within the digital and print components to scaffold and support language and content.

California Science Techbook supports the breadth and depth of students’ vocabulary acquisition through multiple representations. Students will see new academic language highlighted in context of the student edition in both the print and digital program. In the digital offering students can click on the word and several

### Citations

**Spanish Version**

*Grade 3, Unit 4, Concept 4.1*

*Digital: [https://tinyurl.com/y7uo8klf](https://tinyurl.com/y7uo8klf)*

*Example- Science Techbook Video in Spanish*

*Grade 1, Unit 3, Concept 3.2, Activity 5: Shadow Play*

*Digital: [https://tinyurl.com/ycln7yq3](https://tinyurl.com/ycln7yq3)*
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<th>Component</th>
<th>Strengths</th>
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</table>
| SW5. Quality of providing equitable learning opportunities. | additional contextual supports are provided such as seeing the word in context of a sentence, viewing an image and/or video and a traditional definition. | Discovery Education Experience- Additional Videos in Spanish  
Digital:  [https://tinyurl.com/ybgzfl57](https://tinyurl.com/ybgzfl57)  
English Language Development Support  
Grade 3, Unit 4, Concept 4.1  
**Digital**: Activity 7  
Enter Quick Code: ca3765s  
Note: Make sure *Teacher View On*  
Print:  
| TE Pages  
| ELD Support  
| Activity 7  
p. 46 |  
Interactive Glossary, Print Glossary and Flashcards  
Grade 3, Unit 4, Concept 4.1  
**Digital**: Activity 12  
Enter Quick Code: ca3770s  
Print:  
| TE Pages  
| Glossary  
p. R21  
Vocabulary Flash Cards  
p. R9 | SE Pages  
| Glossary  
p. R19  
Vocabulary Flash Cards p. R7 |
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<tr>
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<tbody>
<tr>
<td>SW5. Quality of providing equitable learning opportunities.</td>
<td><strong>Discovery Education Experience</strong>&lt;br&gt;Saving the best for last, in addition to California Science Techbook, all students and teachers will have access to the Discovery Education Experience (formerly known as Streaming) and STEM Connect. Both programs provide access to rich content to extend and deepen students understanding.&lt;br&gt;Through the Discovery Education Experience students have access to over 200,000 media assets to go as deep and wide as preferred. This includes:&lt;br&gt;• appropriate reading, writing, listening, and/or speaking alternatives for students who are English language learners, have special needs, read below the grade level, or have high interest and have already met the intended learning goals;&lt;br&gt;• culturally relevant contexts and examples that support all students; and,&lt;br&gt;• opportunities to cultivate interest and confidence as scientists and engineers for all students.</td>
<td><strong>Discovery Education Experience Digital:</strong> <a href="https://tinyurl.com/yxms7kjl">https://tinyurl.com/yxms7kjl</a>&lt;br&gt;• Check out the Instructional Inspiration Channel which includes ready to go, assignable Studio boards.&lt;br&gt;• Check out real world science with the MLB in The Science of Baseball Channel.&lt;br&gt;• Take your students to the Tundra to see the real world of Polar Bears through a Virtual Field Trip.</td>
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</table>