Category 2 - Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

1. Provides content that is correlated to the Oregon State Core and Content Standards and Essential Skills, which promote scientific inquiry, use of evidence, critical thinking, making connections, and communication at each grade level K-5/6.

Core Standard	K	1	2	3	4	5
Structure and Function	√	√	√	√	√	√
Interaction and Change	√	√	√	√	√	√
Scientific Inquiry	√	√	√	√	√	√
Engineering Design	√	√	√	√	√	√

Discovery Education Science for Elementary provides content in multiple digital formats for teachers and students to use in mastering the 2009 Oregon State Standards.

Core 1 and 2 content strands (Structure and Function and Interaction and Change) are fully addressed. The specific content organization of Discovery Education Science divides each topic into two strands: structure and function and interaction and change. All content standards for physical, life, and earth and space science are supported by digital media resources.

Example: the topic of Plants is organized into Plants and Their Parts and How Plants Grow; and the topic of Energy is organized into About Energy and Changing Energy.

Core 3 content strand (Scientific Inquiry) is fully addressed with unique attention to investigative design. Virtual Labs are designed specifically to allow students to practice designing and conducting their own virtual investigations as practice for designing and conducting their own hands-on investigations. Other interactive resources allow students to explore concepts at their own pace following unique pathways.

Example: Students determine the best conditions for growing tomato and pea plants by testing a variety of variables. The Virtual Lab speeds up time, allowing them to conduct multiple tests with different variable settings.

Core 4 content strand (Engineering Design) standards are addressed. Unique Discovery video, text, and interactive content provides students with examples of engineering purpose and design, and Virtual Labs allow students to test, measure, and record changes in design.

Example: Students are challenged to determine the best design for a windmill by making design changes and testing the new configuration.

In addition, all of the more than 6,000 digital elementary science resources (video segments, reading passages, eBooks, interactive explorations, Virtual Labs, etc.) are searchable by Oregon State Content Standard. Teachers can quickly identify and access the exact resources that address a specific standard and use the resource with students. Teachers can also use the standards search feature to choose and assign appropriate resources that have formats best matching the learning needs of their students.

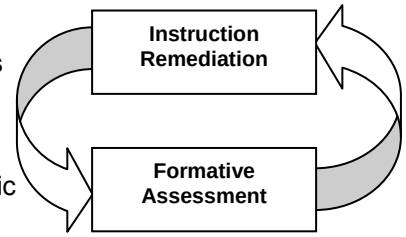
Category 2 – Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

2. Provides instructional strategies, reading selections, and instructional support materials to ensure that students acquire the necessary skills and knowledge to achieve the Oregon State Core and Content Standards at grades K-5/6.

Discovery Education Science includes an organized teaching guide to help teachers use the service to target specific resources for presentation or for student use. Teacher guides are provided for resources and are organized by science topic and concept. Student worksheets, planning sheets, and record sheets are provided, appropriate to the type of the instructional content.

A guide to the selection and use of each type of digital resource in instruction is also included. Two pathways take teachers through the recommended steps needed to identify the state standard(s) for the lesson(s), locate appropriate digital resources, and organize them for instruction. The first pathway explains how to use the variety of digital media to engage students using a computer teaching station and limited student access to computers. The second pathway explains how to teach with and assign individual digital resources for students to use in a setting where students have access to a computer at least three times a week. Example lessons for both pathways are included.

A standards-based formative assessment and teacher-directed remediation system is built into the design of the service. Teachers develop on-demand brief assessments using state standards to select appropriate items. Students take these assessments online, and the results are immediately made available to teachers. Assessments can also be printed out for student use. Teachers can use class and individual data to guide instruction. In addition, digital resources are keyed to each item, so that teachers can assign a specific resource to students to fill in knowledge gaps identified on the assessment.



Over 450 concept-specific leveled reading passages are available for student use. Each concept within the service has three different reading passages that make connections between the student and the concept, the concept and the world, and among concepts. Reading passages are appropriate for reading skills instruction so that students can continue to acquire science content while gaining skills in reading in the content areas.

In addition, each reading passage has an eBook version so that struggling readers are not locked out of science content delivered through text. eBooks highlight each word as it is read aloud and can also serve as a reading skills resource in small group instruction. Providing an eBook version of a passage in advance to a struggling reader enables that student to be on par with classmates when discussing the content of the passage with the whole class.


Animal Parents

Think about when you were a baby. You could not feed yourself, dress yourself, walk, or run. An adult had to be there to help you. The adult had to make sure you had food. He or she had to dress you and carry you.

Just like you, some other **animals** need food, protection, and help from an adult when they are young. Mammals, such as elephants and hamsters, care for their babies. Female mammal parents can produce milk inside their bodies. They feed their young with this milk.

An interactive glossary with over 500 key science terms uses animation, video, images, and text to ensure that students grasp the meaning of these terms. Understanding of key science terms is a strong contributor to success on state assessments.

Category 2 - Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

3. Provides factual student materials aligned to Oregon State Core and Content Standards at grades K-5/6, that address a wide range of learning styles and abilities and are engaging and scientifically accurate, including print materials, graphics, art, and technology tools and applications.

Discovery Education Science is a digital technology science resource designed to address different learning styles of students. A major advantage of digital media is the variety of formats in which content can be delivered. Text, auditory, and visual support, as well as interactive experiences provide similar content through different media. Digital video is available for the visual learner who responds to sound, color, and action. Leveled reading passages and articles are available for students who grasp concepts best through the written word. Virtual Labs and Explorations allow students to participate, make choices, and then ask and test questions. eBook versions of the passages and on-demand audio support for all on-screen text open the content to struggling readers and English Language Learners and reinforce the content for auditory learners. An interactive glossary supports systematic vocabulary instruction.

In addition to addressing a variety of learning styles, all students improve their conceptual understanding by experiencing the content through multiple learning modalities. Each digital experience reinforces the concept in a different way, resulting in a stronger likelihood that students will retain and be able to apply the knowledge.

Videos are selected from trusted developers including Discovery Channel and over one hundred well-known educational media publishers. Full video programs are organized into concept-sized segments of no more than five minutes so that specific science content can be viewed without going through the entire video program.

Content in reading passages and interactive Explorations and Virtual Labs was developed by Discovery Education, a trusted name in science. All content was reviewed by practicing science teachers and science content experts to ensure alignment with standards, appropriateness for students, and content accuracy.

The nature of digital media is such that, as science knowledge changes and new things are discovered, resources are continuously updated.

Discovery Education Science Digital Media Resource Type	Number
Full Video Programs	370+
Video Segments	2700+
Animations	526
Constructed Response Assessments	140
Interactive Explorations	141
Interactive Fun-damentals	19
Interactive Science Glossary Terms	517
Science Images	1177
Reading Passages	470
eBooks	470
Virtual Labs	19
Science Sleuths Labs	24

Category 2 - Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

4. Provides analysis of readability using the Lexile Framework for reading. Provide materials written at grade level Lexile for intended audience and provide for struggling readers at lower Lexiles.

All Discovery Education Science content text was written using guidelines by Fountas and Pinnell. More than 470 reading passages and all on-screen text was leveled using the Lexile Framework and the Lexile Analysis Tool. All text was editorially adjusted to ensure that it conforms with Lexile characteristics appropriate to the specific level.

Reading passages were developed for independent reading levels Grades 3, 4, and 5. Each reading passage has an eBook version so that struggling readers are able to access critical science content delivered through text. eBooks highlight each word as it is read aloud and can also serve as a reading skills resource in small group instruction. Providing an eBook version of a passage in advance to a struggling reader enables that student to be on par with classmates when discussing the content of the passage with the whole class.

Primary level teachers are able to utilize the science text on-screen. Teachers can provide guided reading support for primary level readers as they present the text to students or have students utilize the built-in audio text support resources.

In this way, the science content of interactives such as Fun-damentals provides reading skills practice as well as teaching or reinforcing the science content.

Excerpts from reading passages in Discovery Education Science Elementary

Independent Reading Level	Excerpt from Passage	Lexile Score
Grade 3 from "How to Make A Root Beer Float"	Have you ever had a root beer **float**? If not, it's easy to make. Put a scoop of vanilla ice cream into a tall glass. Then fill it with root beer. Enjoy! There is also another way to make root beer float. All you have to do is fill a tub with water. Then take two cans of root beer. One must be regular root beer. The other must be a diet root beer. Place both cans in the **water.** The regular root beer **sinks**, while the diet root beer **floats**. You just made another root beer float!	570L
Grade 4 from "Animals with Backbones"	All **mammals** are **warmblooded**. Their bodies can keep a certain temperature even when the air around them changes. That's one reason some **mammals** can live in cold places. This polar bear and her cub can keep warm even in the snow. **Mammals** also give birth to their young and produce milk to feed them.	740L
Grade 5 from "It's Only Water"	The **water cycle** doesn't work the same everywhere. For example, water may remain frozen in the **Antarctic** for thousands of years. With such cold temperatures, very little **evaporation** occurs. As a result, **evaporation** is a very slow process in the **Antarctic**. On the other hand, water may remain as a **liquid** for only a few minutes in a **desert** because of the sun's heat. As a result, **evaporation** is a very quick process in the desert.	830L

Category 2 – Science, Grades *K-5/6*
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5. Provides support materials that promote interdisciplinary instruction.

Reading in the content areas is a critical skill for all students. However, teachers have difficulty linking reading to science. Through its reading passages and eBooks, Discovery Education Science provides reading skill development aligned with all science topics. Skills such as use of contextual clues or derivation of main ideas can be taught using the same content that provides science conceptual understanding to students during the same unit during which those concepts are being taught. eBooks allow struggling readers to stay on par with their peers in science while practicing and improving reading skills. Teachers can use eBooks as an instructional tool or as a way to preview text with struggling readers before the class reads and discusses it.

Mastery of key science vocabulary is also a critical skill. In support of systematic vocabulary instruction, the Interactive Glossary utilizes animation, video, text, and images to ensure that students associate key terms with meaning. “Key context” statements link each term to familiar experiences and are supported in the animation.

Literacy skill components supported:

word attack skills	reading comprehension	fluency skills	critical reading

Reading skills supported:

main idea	context clues	cause and effect	fact and opinion	sequencing	summarization	multiple word meanings

Key mathematics skills are best retained by students when they apply the mathematics to real world problems. Virtual Labs and Explorations provide mathematical experiences in which students can practice applying skills. Numerical data provided within the service utilize “realizable” numbers so that students can visualize the values, analyze the results, and develop graphs. Students practice number and operation skills as they compare values and use calculation to solve problems. Measurement units include those of mass, volume, and length as well as science measures such as force and distance over time.

Oregon State Standards (2007) Mathematics skills addressed by Discovery Education Science:

Mathematics Content Standard	Example Discovery Education Science Resource
Number and Operations	Virtual Lab: “Racing RC Cars” - students calculate the amount of money that their car design will cost, working to keep the total cost under $100.00.
Number and Operations and Algebra	Virtual Lab: “Amazing Algae” - students graph data and seek out patterns to determine the best combination of water temperature, sunlight, nutrients, and algae-eating fish that will keep a fish tank clean.
Measurement	Fun-damental: “What’s the Matter?” - students compare the mass in kg of different objects and compare it with the volume of those objects. Students subtract the volume and mass of a container to determine liquid volume and mass.

Category 2 - Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

6. Incorporates scientific inquiry and engineering design in student learning and assessment, which includes use of hands-on materials.

Discovery Education Science provides a rich opportunity for students to practice science investigative design and connect this experience to hands-on investigations.

Inquiry Skills Addressed

- Developing testable questions
- Evaluating and designing a fair test
- Observing and measuring
- Gathering and interpreting data
- Repeating trials
- Developing explanations from data
- Evaluating evidence
- Communicating science
- Using mathematics in inquiry

Engineering Skills Addressed

- Observing and analyzing designed structures
- Defining a problem
- Identifying a potential solution
- Identifying factors of cost and safety
- Designing a solution
- Building the solution
- Testing the designed solution
- Collecting and analyzing data
- Adjusting the design based on results

To understand science and engineering design processes, students need practice with science investigation and exploration of design solutions. Virtual Labs use the power of interactive media to give students practice in designing and conducting virtual investigations and in developing and testing design changes. This process is a powerful preparation for designing and conducting students' own hands-on investigations and design solutions. Each lab begins with a real world problem. Students play the role of a specific type of scientist or engineer as they work toward a solution.

In Virtual Labs, students may work to determine which combination of conditions best help a tropical frog species to survive, or test the design of a racing car to meet racing specifications, or even determine what factors will produce a planet that can support life.

The advantage of a virtual investigation is that parameters are controlled, allowing students to focus their attention on the logic of the design and the results. Virtual investigations can be repeated quickly and can provide investigative experiences that are not available through hands-on due to constraints of time, resources, or safety. Teachers are guided to use the investigative design model to help students develop their own science investigations and designs. Typical of science research and good engineering design, students are directed to test one variable at a time. The class then collects all the data and analyzes all the variables together.

In addition, students are challenged to critique other designs. A carefully selected and edited set of *MythBusters* programs, 15 minutes each, is provided. Students are asked to view and critique the investigation or design solution, collection of data, results, and conclusion and determine if the process was scientifically sound.

Finally, a series of interactive experiences called Science Sleuths engages students to use their inquiry skills to solve a mystery. Students "interview" witnesses, conduct experiments, and read information in order to solve the case, then propose their solution and receive feedback.

Category 2 – Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

7. Provides instructional material for practice, remediation, and enrichment to support multiple learning styles and learning levels including all subgroups (i.e. ELL, SPED, and TAG) that are age- and grade-level appropriate.

Discovery Education Science provides a wide range of digital content resources organized into conceptual levels. All resources include language support.

Reading passages for all topic areas in science are leveled through Lexile analysis and are available at independent reading levels 3, 4 and 5. Within each of the 141 concept areas, a Spanish version of a reading passage is available to support the transition of students to English competency. eBook versions of all passages allow students to hear the spoken word as they follow the highlighted text. Also within eBooks, an on-demand English-to-Spanish word translation is available. This feature is especially helpful for ELL students in adding key science terms to their vocabulary and in learning how English words are placed within the context of sentences.

An interactive glossary with over 500 key science terms uses animation, video, images, and text to illustrate the meaning of each term in the context of science. The glossary differentiates for students by allowing them to attach contextual meaning to words using the learning modality through which they best attain and retain meaning. Recognition of key science terms is a critical skill that helps students to excel on assessments.

Within interactive Explorations, Fun-damentals and Virtual Labs, on-screen text is supported with audio on-demand to provide additional support for struggling readers and English Language Learners. As in eBooks, each word is highlighted as it is read aloud, so that students can match text to spoken word.

Fun-damentals are interactive experiences for younger students that provide basic science concept development using animation, text, and audio. Students interact with the animation, make choices, view results, and respond to questions on Check-In and Check-Out worksheets. Teachers can use a Fun-damental as a whole class conceptual exercise or as a whole class review for older students at the beginning of a unit. As with all the resources in Discovery Education Science, Fun-damentals can also be assigned to individual students to use independently.

Video segments and programs are designated with appropriate grade levels within each concept page. Over half of the video segments targeted to science concepts are close-captioned, supporting students needing auditory support as well as ELL students.

Perhaps the most powerful feature of Discovery Education Science in support of differentiated instruction is that teachers are able to identify, choose, and assign specific resources based on the needs of students to individuals. Students access assigned resources upon logging in to their individual student accounts. Similar science content is presented in multiple formats to engage students based on their learning styles and to reinforce concepts through multiple modalities. Teachers preview and choose the content or they can use online assessment to determine needs and assign specific resources.

Category 2 - Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

8. Provides formative and summative assessment materials which align in content to the Oregon Science Core and Content Standards at grades K-5/6.

Discovery Education Science supports the cycle of formative assessment and instruction by providing a simple but efficient means for teachers to quickly assess students, review data, and assign resources based on the results. This enables teachers to monitor student learning and use data to plan instruction.

An Assessment Manager enables teachers to develop an online assessment from a bank of over 2,100 items appropriate to specific Oregon State Science Standards. Items may be selected by choosing a specific Oregon State Science Standard or by keyword search. The search return lists all the appropriate items and allows the teacher to add any or all to the assessment. Teachers may assign the assessment to students who access it through their individual login accounts. Teachers may view the results of the assessment by individual student or by class and examine data to the item level. In this way, teachers can monitor individual students or identify strengths and weaknesses of the whole class in order to prioritize instruction and direct instructional resources to groups or individuals.

In addition, the Assessment Manager tool offers a remediation option. Each item in the Discovery Education Science item bank is linked to specific resources that provide related content information. The report option allows teachers to select specific assessment items and view recommended remedial resources that reinforce the content for that item. Selected resources can be assigned to specific students or groups of students who missed those items. Because students can access their login from any location with an internet connection, students can use the remedial materials in class, after school, or even at home.

Teachers can assign different remedial resources to different students, based on their learning styles as well as their content needs. Students who learn best through reading can be assigned reading passages. Students who need visual support view videos on the same content. Students who require audio support can be assigned videos, eBook versions of passages, or interactive resources with on-demand audio.

In addition, Discovery Education Science provides brief constructed response assessments (BCRs) at the concept level. These worksheet assessments enable students to explain their thinking about the concept in words and graphics. Included is a scoring tool (rubric) for teachers to use in gauging students' comprehension.

The combination of results from immediate online formative assessment and the concept level constructed response ensures that teachers have a clear picture of student conceptualization and allow teachers to monitor student progress toward concept mastery. Connecting these assessments to Oregon State Science Standards allows teachers to know where to place emphasis on instruction and where to assign individual remedial materials for students to access on their own.

Inquiry and engineering skills are typically harder to assess. However, using the process found in Discovery Education Science Virtual Labs, teachers can monitor and assess how well students are able to carry out science investigative design and engineering design testing, analysis, and design change.

Category 2 - Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

9. Provides technology to support the instructional needs of students and/or teachers.

Discovery Education Science is unique in that it delivers all of its resources through technology. The powerful Internet streaming ability of Discovery Education ensures that flash, text, and video resources can be accessed quickly and easily by students as well as teachers.

Teachers can seek out video, reading passages, eBooks, interactive glossary terms, and interactive experiences through keyword or Oregon State Science Standard searches. Resources can be demonstrated by the teacher at a teaching station, or assigned directly to students for use on individual or shared classroom computers. Each student receives an individual login and password.

The Teacher Center allows teachers to set up classes, quickly assign individual resources, build assignments with multiple resources, build assessments, and monitor student progress. Logging onto the service, students see a Student Center which contains the resources, assessments, and assignments that the teacher has assigned to them.

Moreover, digital resources on the site are purposefully used. Videos are segmented so that teachers and students use only the portion of the video that pertains to what they are currently studying. While the whole program is available, teachers most often utilize individual 3–5 minute segments to help students remain focused, as opposed to showing a full program.

Reading passages, delivered as full color PDF files, are leveled for readability, and an eBook version provides auditory support for struggling readers and ELL students. Content delivery that combines text, auditory, and visual reinforcement engages students and increases the likelihood of student concept mastery.

Equally engaging are interactive experiences that allow students to explore ideas through guided inquiry. Fun-damentals, aimed at primary grades, introduce students to a topic area using animation and gives them choices along the way. Explorations allow students to explore a concept by setting variables and choosing from among options on the screen, then viewing the results of their choices. Virtual Labs allow students to role play as scientists to solve a problem by designing and conducting their own investigations, collecting data, and analyzing results.

Technology also supports formative assessment and instructional planning. Teachers can quickly build brief quizzes from the large item bank, assign them to students, and get results in a data table, all in the same day. Furthermore, the internal structure of the service connects individual items to digital resources that can serve as remediation. Thus a student who misses key items on an assessment can quickly be assigned a resource that will help fill in the knowledge gap. The bank of items is extensive enough that additional quizzes with different questions can be developed to retest students.

Finally, the technology is used to support elementary teachers. In addition to an online interactive training, complete with teacher assessment, the service offers “5-Minute Preps.” These consist of PowerPoint presentations that explain the key understandings within a concept. Each presentation is hyperlinked to key resources in the service that will help a teacher “brush up” on the topic to raise their comfort level. The presentation is also available as a Flash file with audio.

Category 2 - Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

10. Visually focused and uncluttered with clearly defined lesson objectives, and formatted for efficient student and teacher use.

More than a searchable library of digital resources, Discovery Education Science is structured around science content as well as science process and engineering skills. The opening browse screen displays common elementary science topics under the categories of earth, life, and physical science. Active navigation allows teachers and students to delve deeper into each topic, eventually reaching the individual concept level.

Also available is a Science Process Skills Library which contains Virtual Labs, Science Sleuths, and specially edited *MythBusters* episodes. These resources give students practice designing and conducting science investigations and choosing engineering design options as well as critiquing the designs of the *MythBusters*.

The design and functionality of the service is consistent with the on-screen technology needs of elementary students. Large buttons, clear interactive elements, and simple navigation schemes help children feel comfortable accessing these materials. Functionality and information specific to teachers is hidden from the student user interface. In addition, the teacher controls which resources are available to students in their individual Student Centers to help maintain focus. Students are able access the entire content and process browse area through a doorway in the Student Center.

Teachers can organize multiple selected resources into online assignments complete with instructions, questions, and online assessment measures. Students also receive these in their Student Center. A model of how assignments are built and an example of a lesson plan is included in the teacher guide materials for the service.

Within the browse, each concept page is organized into an instructional pathway of Learn > Explore > Demonstrate > Extend. In Learn, teachers and students can access reading passages, eBooks, and video segments specifically chosen to inform students about that concept. Explore allows students to try out ideas for themselves, interacting with Explorations and Virtual Labs that relate to the concept. Demonstrate is a place where students demonstrate their understanding through pre-made online selected response quizzes and constructed response items. Extend contains resources that extend the concept to the middle school level. Teacher guides and student worksheets are provided for interactive experiences including Fundamentals that introduce a topic to younger students.

Because Discovery Education Science is an online digital media service, all of the digital resources can be hyperlinked from district and state documents. Any scope and sequence or instructional document can be adjusted to link to video, text, or interactives that support a specific science concept.

Any concept or science process can also be located by an Oregon State Science Standard search. Locating the correct state standard through the Curriculum Standards Search feature, teachers click on the standard and an entire list of all digital resources related to that standard appears. Teachers can add those resources to their content folders, assign them directly to students, or add them to a multiple resource assignment.

Category 2 - Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

11. Provides accurate and compelling background information that enriches the knowledge base of students and teachers.

Discovery Education Science provides an extensive collection of resources that enrich what students know and are able to do in science. Over 6,000 individual assets using text, audio, visual, and interactive experiences are accessible. Discovery Education quality science content ensures that students are engaged and excited about learning science.

The 141 concept pages contain digital media that address all topics in science required by the Oregon State Science Standards for the elementary grades. In addition, the service draws on science content from the middle school in the Extend section for each concept. Each concept area contains video, reading passages, eBooks, Explorations, and interactive glossary terms. Each of the 19 topic areas also contains Fun-damentals for younger students and Virtual Labs that allow students to practice science investigation and test engineering designs.

Featured videos, such as *PLANET EARTH, MythBusters* and *Backyard Habitat* are among the hundreds of different video programs that teachers and students can quickly and easily access. Full video programs are chaptered and segmented into “bite size” chunks that can be accessed using state standards or keyword searches to deliver precise content as it is needed.

Reading passages and eBook versions of those passages provide students and teachers with essential science content while providing reading skill development. The 471 passages written at three independent reading levels address all the topics in science required by Oregon State Science Standards for elementary grades. Glossary terms specific to each concept are found on that concept page. Students click on a glossary term to bring it alive with animation, video, images, and text that illustrate the term within the science context.

Concept pages in the service contain Explorations that allow children to try things for themselves. Explorations can be open-ended, in which students explore and compare different outcomes; multiple pathways, in which students compare parallel experiences; or directed feedback, in which students identify correct relationships by trying different options. Students record their findings on student worksheets for the teacher to review.

Fun-damentals provide basic information about a topic to younger students. Inquiry-based, they take students along a learning pathway, allowing them to try different options as they progress while providing feedback. Again, students record their ideas on worksheets provided. Also, Virtual Labs take students and teachers through the process of investigative design. Many of the labs are based on engineering challenges, allowing students to adjust the design and find a solution to a real world problem.

Elementary teachers are supported by a Professional Development area in which content background for the teacher is broken into concept level. Each concept in the service has its own “5-Minute Prep.” These PowerPoint presentations provide essential knowledge about a science concept including key ideas, common student misconceptions, and some suggested resources the teacher can review to get ready for teaching a concept. These resources are hyperlinked from the presentation so that teachers can point and click to get to the resource. Also included is a version of the presentation with audio explanation from a practicing teacher.

Category 2 - Science, Grades *K-5/6*
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Instructional Materials

12. Includes vocabulary presented in context. Vocabulary is accessible, introduced, reinforced and continuously reviewed. Similar terms and/or synonyms are presented when appropriate. Visual representations augment vocabulary when appropriate.

Discovery Education Science is designed to support the systematic instruction of vocabulary. Knowing that students must develop a broad-based, academic vocabulary in order to meet the rigorous requirements set forth in the Oregon State Science Standards, the service provides a glossary of over 500 key science terms. Each term is presented along with any related terms (e.g. acid and acidic).

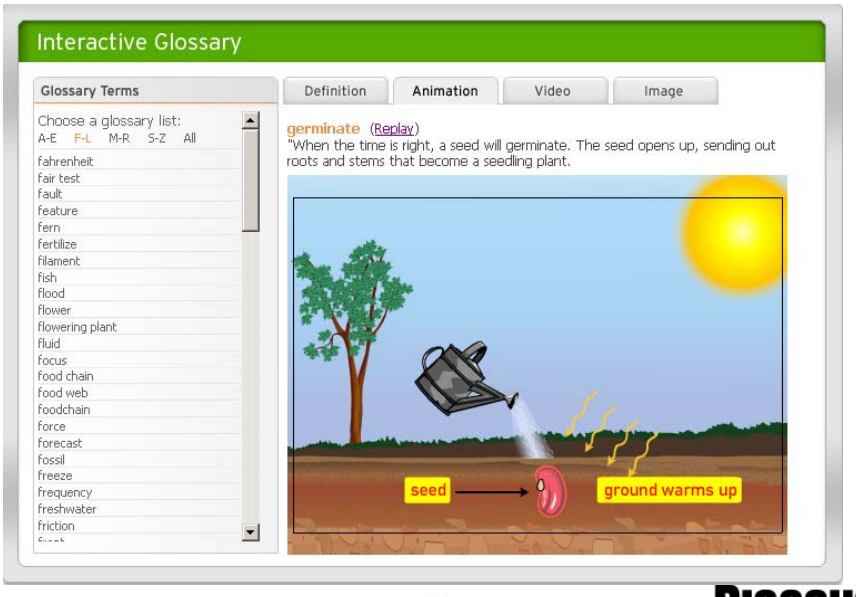
Recognizing that students learn vocabulary in different ways, each interactive glossary term presents the term's meaning in three modalities: animation provides a visual reinforcement of the term's meaning within the science context; text is provided that defines the term and gives a key context for why the term is important; video is provided that brings the audio and visual together, often using video techniques such as time-lapse photography to make the term meaningful and provide a memorable impression; still images are provided so that students and teachers can utilize them in their own explanations.

Each concept page contains a list of related key science vocabulary. Clicking on any of the terms brings up the interactive glossary window showcasing that term. All of the other more than 500 terms are available in alphabetical order within the window, so that students can easily search out other terms on their own.

As with all Discovery Education Science resources, glossary terms can be located by keyword search and assigned to students to view on their own either as individual resources or as part of a multi-resource assignment. Students searching on a related term (e.g. move for motion) will be taken to the basic noun form which explains the relationship between the two terms.

eBook reading passages provide vocabulary support by pronouncing terms out loud for students. Any sentence can be heard repeatedly to reinforce the contextual use and pronunciation of a science term. In addition, a dictionary link allows any word to be highlighted and will present the definition for the term. Teachers can use the highlighter option on the eBook player to emphasize specific words or phrases in large or small group instruction.

For all interactive experiences, worksheets are provided that allow students to use the language of science to explain their thinking. The worksheets use open-ended, high level questions that require students to synthesize ideas to form the response. Key vocabulary terms are emphasized to ensure that students know and can use them correctly.



Category 2 - Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

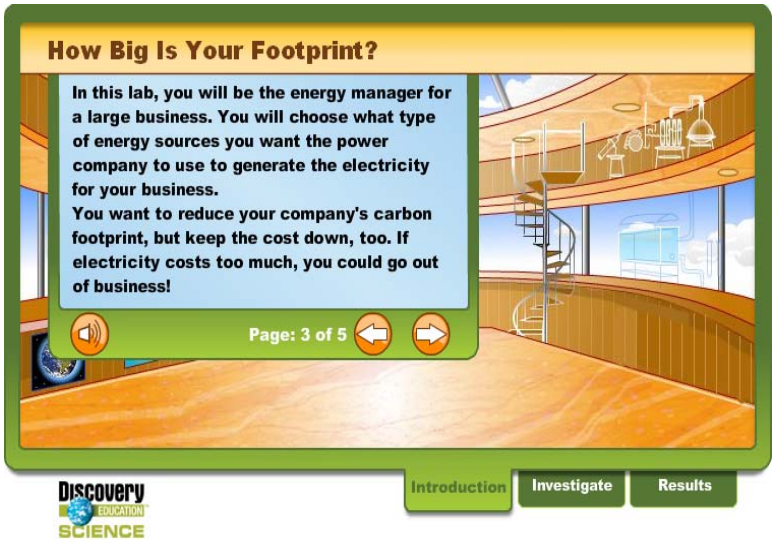
13. Provides relevant applications for students to relate scientific knowledge to the world around them and to build an awareness of science in life, home, school, and various careers

Discovery Education Science takes full advantage of the power of digital media to help students relate science concepts and processes to the world around them. Text, video, and interactive resources reveal connections to scientists and everyday life. Representations of scientists and engineers are balanced in terms of gender and ethnic background. eBook versions of science content intentionally use both male and female voices to express science content.

Discovery Education video brings science to life with engaging images and story lines from *PLANET EARTH* to *Backyard Habitat*. Drawing from its own extensive video collection as well as dozens of other trusted educational video publishers, Discovery Education video brings students to places and events that allow them to see science in action. Demonstrations of science experiments that are not easily conducted in an elementary classroom are available as well as video-photography that utilizes effects such as slow motion, time-lapse photography, and multiple camera views. Interviews with practicing scientists and engineers and observations of them at work help children to overcome the stereotypes they encounter in popular media.

Custom-developed science reading passages were specifically written to connect students' experiences with science content in meaningful ways. Written at different levels of readability, these passages present text and images that help students to see that science is all around them in their everyday life. Science and engineering achievements, such as the study of active volcanoes and high speed maglev trains are shown in images and described in text to help students see how science is applied to answer questions and solve problems in the real world. eBook versions of the reading passages allow all students access to this critical content.

Virtual Labs are designed to place the student in the role of the scientist or engineer. Each Virtual Lab begins with a problem or question and opens the investigation by telling students that when they conduct the investigation, they will act as a particular type of scientist or engineer (e.g. agronomist, zoologist, or marine engineer). Students develop testable questions or design ideas, plan the investigation or design challenge, conduct the trials, collect data, and analyze it to report results. The labs are specially designed so that students work in collaborative teams and share out their results with the entire class.



As they become more aware of what constitutes good science practice, students are challenged to watch the *MythBusters* crew as they use science to debunk common myths. Students critique the investigative and engineering designs to see if proper scientific and engineering process was used to gather data and draw conclusions. Often the *MythBusters* team must engineer a design as the means to answer a question or solve a problem.

Category 2 - Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

14. Provides professional development and ongoing support including materials specifically designed for use by the teacher to implement the science program.

Professional development using Discovery Education Science is unique in several ways. First, the site itself contains an online professional development area. This includes an interactive course that familiarizes teachers with each type of resource and its instructional uses. The course requires about 40 minutes of seat time and, because teachers are registered on the site, can be taken in several sittings. As teachers move through the content, they try out different digital resources and take an online assessment to demonstrate mastery. For teachers who demonstrate mastery, the course includes a certificate of completion that can be used to assign professional development credit to teachers.

Second, in the elementary online professional development area is found science content support in the form of 141 "5-Minute Preps." These interactive presentations allow teachers to brush up on a specific concept, such as electric circuits, before they begin teaching it. True to their name, each presentation is only five minutes long, but contains hyperlinks to specific resources within the site that teachers can use to familiarize themselves with the content. The presentations can be viewed as a video or teachers can page through them at their own pace.

Third, Discovery Education Science links teachers to an extensive professional community called the Discovery Educator Network. Over 40,000 strong, this online network among teachers is used for training, sharing, and collaboration. Led by experienced professional Discovery Education staff, this network actively involves teachers in growing as professionals who use technology to teach themselves and their students. Webinars, blogs, RSS feeds, and other technological connections are an integral part of this learning community.

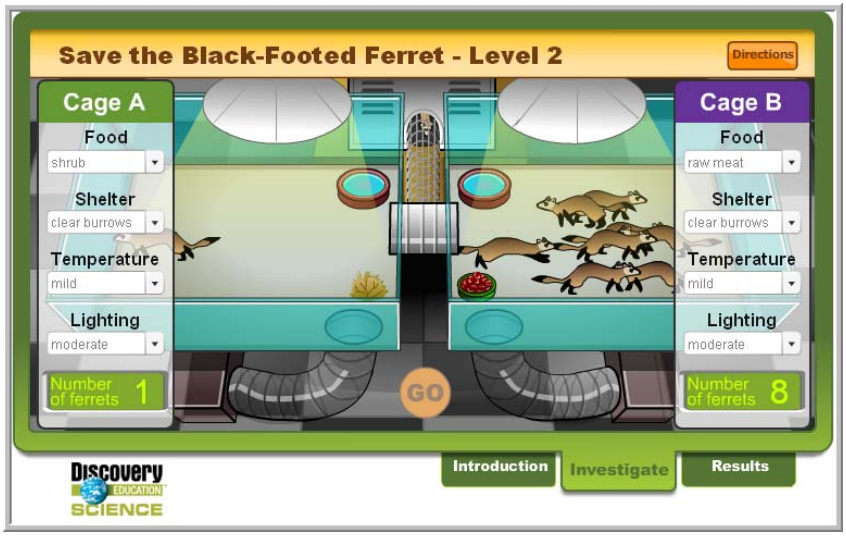
Finally, Discovery Education offers direct on-site science program training that incorporates science concepts, science practice, and the use of educational technology to improve achievement by differentiating instruction and monitoring student learning. With the support of seasoned professional development staff, teachers move through the process of first familiarizing themselves with the different digital resources, then choosing resources to differentiate instruction, and next to building classes and assigning resources to students. Teachers learn to build multiple resource assignments and to create and use ongoing formative assessment so that they can monitor student learning and assign remediation materials as needed.

Category 2 - Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

15. Emphasizes the importance of safety in science.

Discovery Education Science provides students with a safe but engaging way to view science. Video demonstrations emphasize proper safety techniques and allow children to see science experiments that are not safely done in most elementary settings. Video also takes students to places where they would not safely be able to go.

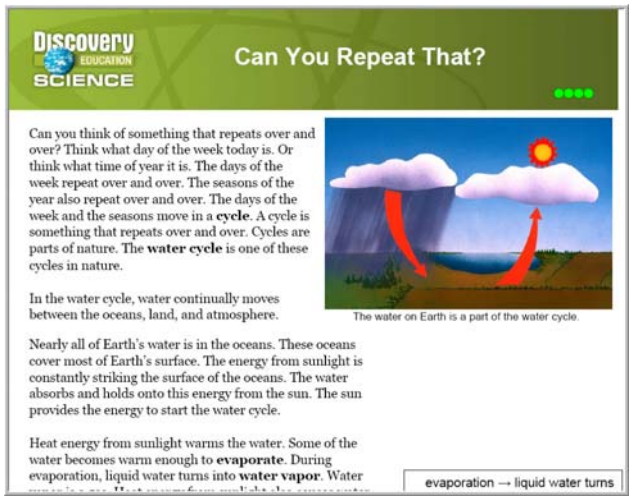
Videos on the service demonstrate safety precautions for common occurrences. An emphasis is placed on topics such as using electricity safely, the dangers of combustion and other chemical reactions, and preparation and practices for different types of severe weather. The video series *How It's Made* shows students the design features of safety devices including safety goggles, fabrics, and floatation devices.

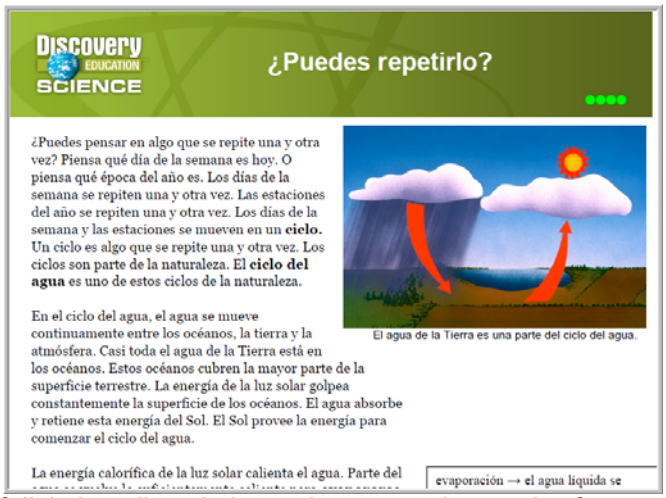


Virtual Labs provide an opportunity to practice science investigation in a safe environment. As a result, students come to understand the proper science process. As with video, Virtual Labs enable students to conduct experiments that are not possible in the classroom due to restraints of time, resources, or safety.

Category 2 - Science, Grades *K-5/6*
II. *EVALUATIVE CRITERIA SECTION*
Instructional Materials

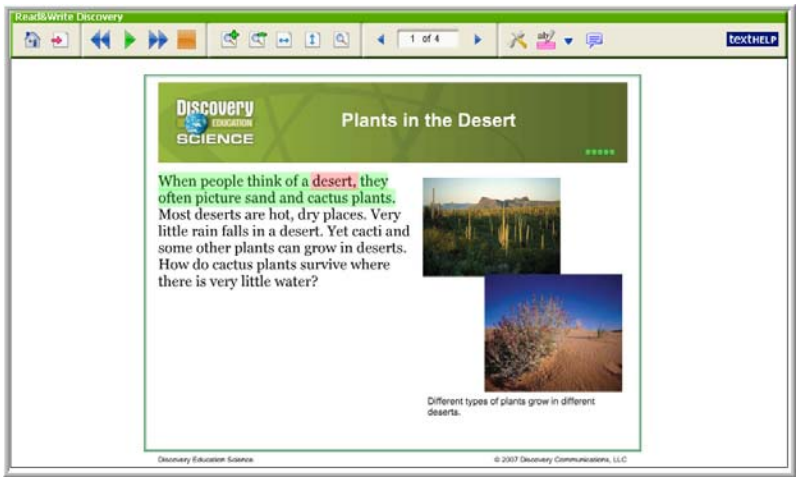
16. Provides materials in multiple language formats.





Discovery Education Science utilizes the advantage of digital media to help teachers meet the needs of English Language Learners. Over 150 of the reading passages have been translated into Spanish in order to provide a supportive measure for students who are fluent in Spanish but who are new to learning English.

Audio support is provided through eBook versions of all reading passages that read the passage aloud in English, highlighting each word as it is spoken so that students can make the connection between text to spoken word. The same technique is used in digital interactive experiences where all on-screen text is read aloud on demand.



The use of animation and video to support the learning of science concepts is also of high value to children learning English. Over a third of the videos on the service have been closed-captioned to support the connection between written and spoken English. Animations in glossary terms and in interactive experiences support understanding of the associated terminology and concepts.