

Boots on the Ground for Knowledge Building: Roping Together Reading and Science

Scan the QR Code or visit bit.ly/de-tcea-2025 for more sessions!



Session Goal

Use strategies grounded in research on vocabulary, comprehension and content acquisition to explore how integrating science and reading supports student learning in both areas.

Literacy: A domain in search of content

Science: A domain in search of conversation

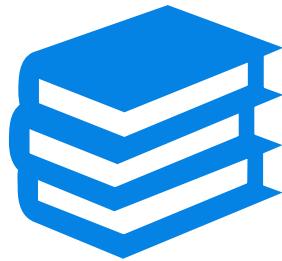


Background knowledge and language skills contribute to reading comprehension and the ability to learn science content.

Literacy Focus



Background knowledge



Vocabulary



Verbal reasoning

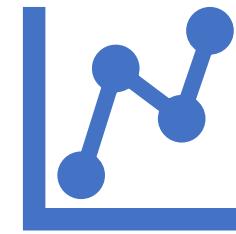
Scientific Focus



Observation



Inquiry



Analysis

Observation



What do you notice?



Stem Completion

I noticed _____

I think _____ because _____

I am curious about _____

This reminds me of _____



SOS Instructional Strategy

Stem Completion Reference Guide

1. I observed _____.
2. I noticed _____.
3. I think _____ because _____.
4. I am curious about _____.
5. The similarities between _____ and _____ are _____.
6. The differences between _____ and _____ are _____.
7. These images are connected to our current unit of study because _____.
8. This reminds me of _____.
9. _____ is important because _____.

NAME: _____

Select three sentence stems from the **Stem Completion Reference Guide** and add them to the left column. Use the right column to record your response to each statement.

Stem #1	Response:
Stem #2	Response:
Stem #3	Response:

Inquiry





Let your compass be your guide!

Take out your phones.

Select your compass app.

Walk around the room with your compass to see what happens.

Make observations about the compass.

Generate your own questions as you explore the compass.



Analysis



Claims, Evidence, Reasoning

What is your claim?

What evidence is presented in the media to support your claim?

What reasoning can you use to tie the evidence to the claim?

Explicit Instruction



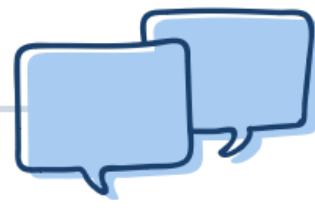
Segmenting complex skills into smaller manageable tasks



Modeling or thinking-aloud to address the important features of the content



Promoting successful engagement using fading supports and prompts



Providing feedback



Creating purposeful practice opportunities

Read, Write and Think Like a Scientist:

Inferring with Images

An author doesn't always tell you everything you need to know. To make an **INFERENCE**, you refer to the text and combine it with **YOUR** prior knowledge as well as evidence from the image.

What scientific information can you infer from reading the images?

1
2

Picture #	Clues from the Picture (I See...)	My Prior Knowledge (I Know...)	Inference (So I Think...)





Meet the albino squirrels of Olney.

What challenges do you face when trying
to teach complex science vocabulary to
your students, and how have you tried to
overcome them?

Vocabulary Development



Vocabulary Development



Definition

a pull or push that is applied to an object

Key Context

What is the difference between a bowling ball and a soccer ball? A bowling ball is much heavier. It takes a lot of force to move a bowling ball. Force is a push or a pull on an object. In this case, the object is the bowling ball.



LESSON 1



How Do Different Forces Affect Objects?

In this lesson, students will make observations about the forces affecting an object and access prior knowledge to make an initial claim about...

Real-World Phenomenon

⌚ 20 mins



LESSON 2



Play Ball

In this lesson, students will investigate how forces cause an object to change position and direction and describe how energy is...

Hands-On Activity

⌚ 40 mins



LESSON 3



Monster Truck Pull

In this lesson, students will investigate and explain how unequal pulling forces acting on an object in opposite directions can cause motion...

Interactive

⌚ 20 mins



LESSON 4



The Rhythm of Push and Pull

In this lesson, students will explain the effects of equal forces acting on an object and the effects of unequal forces acting on an object.

Video

⌚ 20 mins



LESSON 5



Changing the Speed of Motion

In this lesson, students will explain how energy transfers and demonstrate the effects of unequal forces on objects in motion.

Interactive

⌚ 20 mins



LESSON 6



Energy and Forces

In this lesson, students will explain how energy is transferred through equal and unequal forces.

Literacy

⌚ 20 mins



Literacy is the domain in search of content, and science is the domain in search of conversation.

P. David Pearson

Lawrence Hall of Science, UC Berkeley





Content Channels



Take a peek into a few of Discovery Education's dynamic channels that support the Pillars of the Science of Reading.

Sesame Learning

Instructional Activities

English Language Arts

Reading: Decoding

Literacy

Writing Process

Audio and Video Books

Vooks

Cram Jams

Language Learner Center

Best of Interactives

Virtual Field Trips

DEmystified Science

Need to Know Social Studies

The Week Jr.

Science News

Background Builders

Texas History

Science Channel

Social Studies Channel

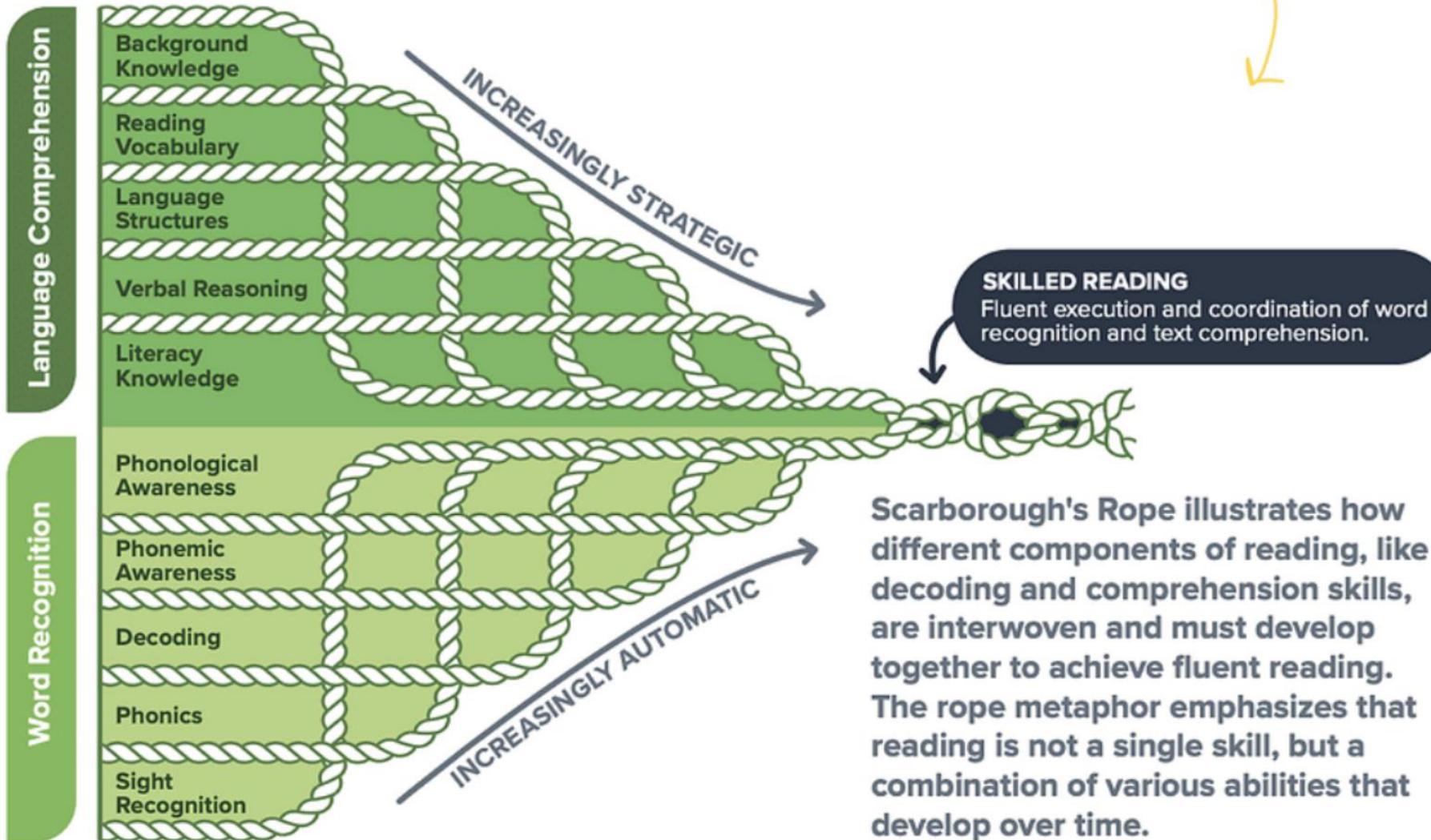


Math Channel

STEM Careers

Home

Scarborough's Reading Rope



Explore how Discovery Education's dynamic resources support the 5 Pillars of Literacy

Phonemic Awareness

Phonics

Fluency

Vocabulary Development

Reading Comprehension

Ready to use Slideshows

Educator Microlearnings

Literacy Supports

Content Channels

SOS

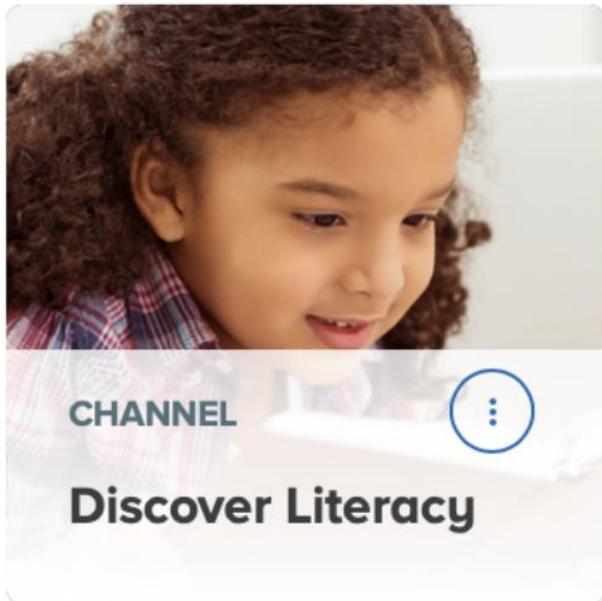
Quiz Tool

Studio Tool



Phonological and Phonemic Awareness

The ability to identify and play with individual sounds (phonemes) in spoken words.



Find the words that rhyme with **snake**.

- nine
- lake
- coat
- cake

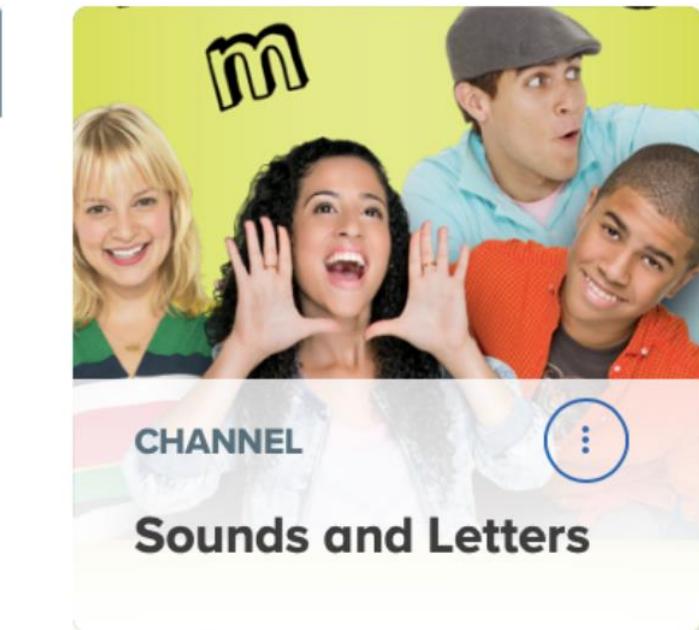
EXPLORATION

Rhyming Words



SONG

Rhyming Word
Rule



From fun interactive skill games, to engaging videos, ready-to-use lessons, and embedded literacy supports, Discovery Education has a variety of options to assist students with developing phonemic awareness skills.

Home

Phonics



Instruction focuses on how letters and groups of letters link to sounds to form letter sound relationships and spelling patterns.

CHANNEL

Discover Literacy

CHANNEL

Sounds and Letters

FULL VIDEO

F Is for Fox

EXPLORATION

Sorting Initial...

CHANNEL

English/Lar Arts...

VIDEO SEGMENT

Ash's Phonics -...

Enrich phonics lessons with our dynamic collection of videos series such as Ash's Phonics and Sesame Learning Letter Time, that also provide supporting lesson plans. Students will enjoy practicing and developing various phonics skills with skill builders and explorations. Reading Park will personalize the phonics journey for students to meet them where they are at.

Home



Fluency

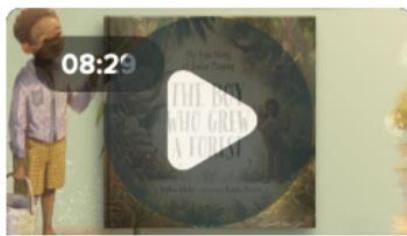
The ability to read words, phrases, sentences, and stories with enough speed and expression



CHANNEL



Discover
Literacy



FULL VIDEO



**The Boy Who
Grew a Forest**



PDF
ACTIVITY



**The Boy
Who Grew ...**



READING
PASSAGE



**Let's Learn
about Sharks**



PDF
ACTIVITY



**Spotlight on
Strategies...**

**DE Quiz
Tool**

**DE Studio
Tool**

Students will love reading with our content, tools, and strategies designed to strengthen fluency and ELA skills. Rich vocabulary and engaging text in read-alouds enhance fluency, while multimodal content offers built-in supports like read-aloud features, highlighting, reading rulers, and page masks. Tools like our Quiz tool and SOS strategies, such as Quick Writes, provide additional opportunities to practice and develop fluency.

Home

dreambox®
READING PARK
By Discovery Education



dreambox®
READING PLUS
By Discovery Education



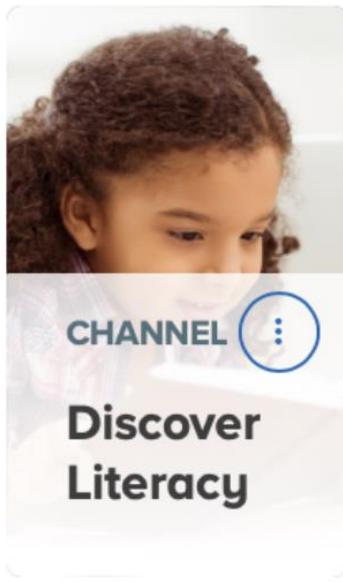
Vocabulary Development

Knowing what words mean and how to say and use them correctly

Science Techbook
Elementary

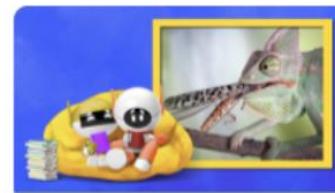
Science Techbook
Middle School

Social Studies
Techbook Lesson



CHANNEL 

Discover
Literacy



LESSON 

Exotic
Pets:...



SKILL
BUILDER 

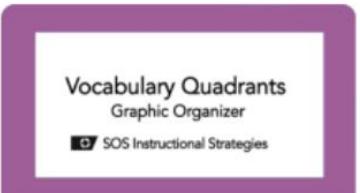
Solar
System...



23:01 

FULL
VIDEO 

WordGirl:
WordGirl...



GRAPHIC
ORGANIZER 

Vocabulary
Quadrant...

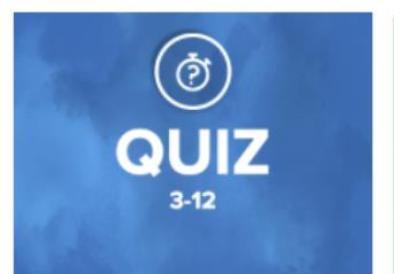
Discovery Education offers a variety of vocabulary development resources. Students can expand their vocabulary through the interactive glossary, skill-building challenges, engaging video series with writing prompts, and graphic organizers that support lessons and readings.

Home

Reading Comprehension



The ability to process written text, understand its meaning, and to integrate with what the reader already knows.



Smart Mouthguard...

Evaluate the author's purpose and use of...

Causes of the American...

Learn about events that caused the...

Background Builder: Cel...

Students will learn how to define a cell an...

Daily Fix-It: October (3-5)

Establish a daily classroom routine that combines...

STANDARD QUIZ

Exit Ticket: Learn, Connect, Question

Number of Questions: 3

Students list two things they learned today, connect the concept to...

Using our ready to use cross curricular interactive lessons or *Techbooks* with questions, reading passages, interactives, and constructed responses, students will be able to build background knowledge and apply learning in a variety of tasks.

Home



Ready-To-Use Slideshows

Students will enjoy learning with our interactive ready to deliver slideshow lessons complete with teacher supports, handouts, and immersive reader.

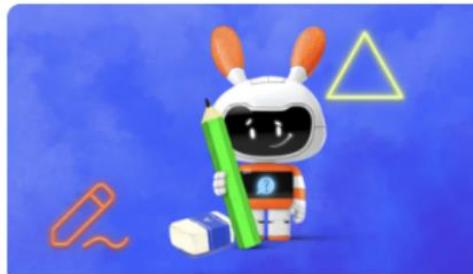


SLIDESHOW



Sound Sequence: Phonological...

Use this activity to support phonological awareness by...

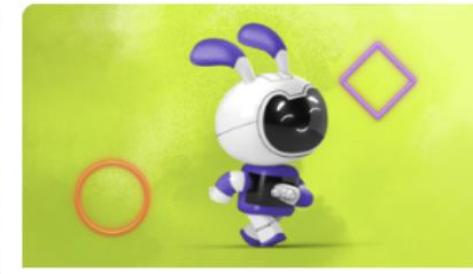


SLIDESHOW



Decoding: Phonics Studen...

Use this activity to support phonics instructions by...

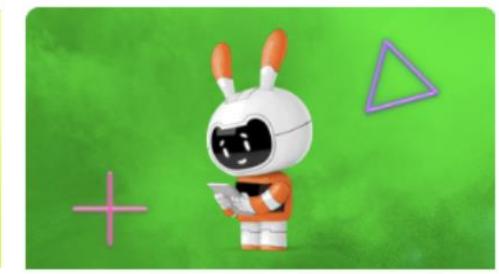


SLIDESHOW



Automaticity: Fluency Stude...

Use this activity to support fluency by having students rea...



SLIDESHOW



Tier 1 Vocabulary...

Use this activity to support vocabulary development by...



SLIDESHOW



Text Structures: Comprehensi...

Use this activity to support comprehension by...

Home

LOG IN NOW!



Username: **DE_TCEA25**
Password: **Discovery**

1. Scan or visit **discoveryeducation.com**
2. Click "Log In"
3. Type in the credentials above!

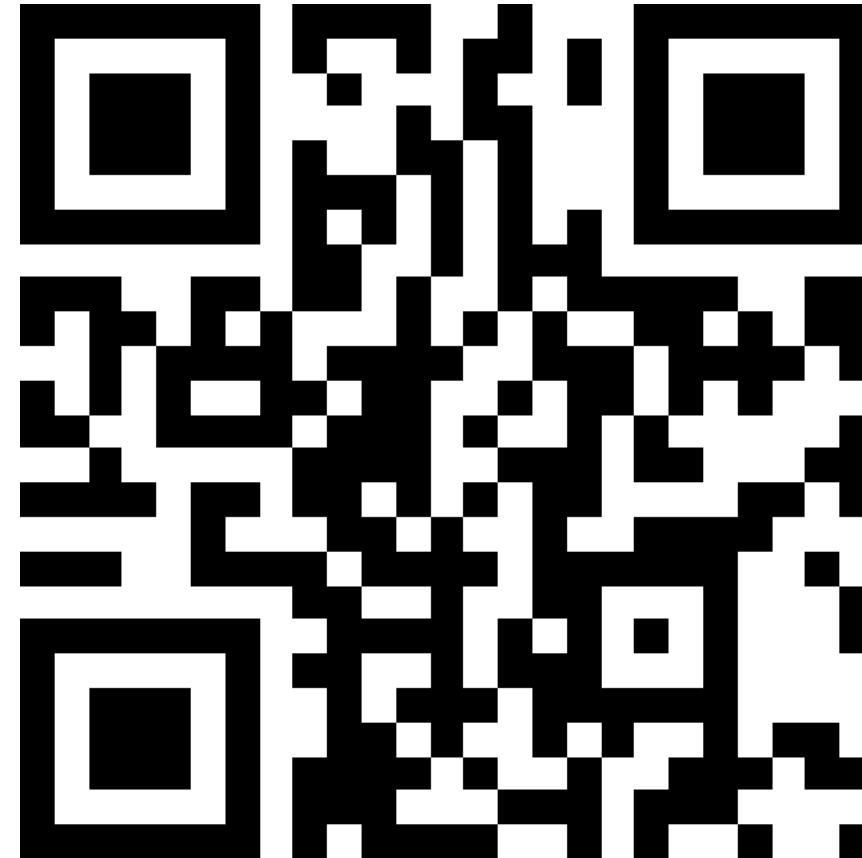


Science for Texas - Grade 5

SCIENCE FOR TEXAS - GRADE 5
Welcome Back, Emily!



Your Turn to Explore



<https://tinyurl.com/TCEADE25>

LOG IN NOW!



Username: **DE_TCEA25**
Password: **Discovery**

1. Scan or visit **discoveryeducation.com**
2. Click "Log In"
3. Type in the credentials above!



Science for Texas - Grade 5

SCIENCE FOR TEXAS - GRADE 5
Welcome Back, Emily!





Thank you for joining us today!

