



CIENCIAS TWIG

DAC/DELAC

21 DE ENERO DE 2025



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SIGLAS

- NGSS: Estándares de ciencias de la próxima generación
- CAST: Examen de ciencias de California

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OBJETIVOS DE HOY

- Programa de estudios y estándares
- Experiencia TWIG de los Estándares de ciencias de la próxima generación (NGSS)
- Rendimiento estudiantil en el examen de ciencias (CAST)



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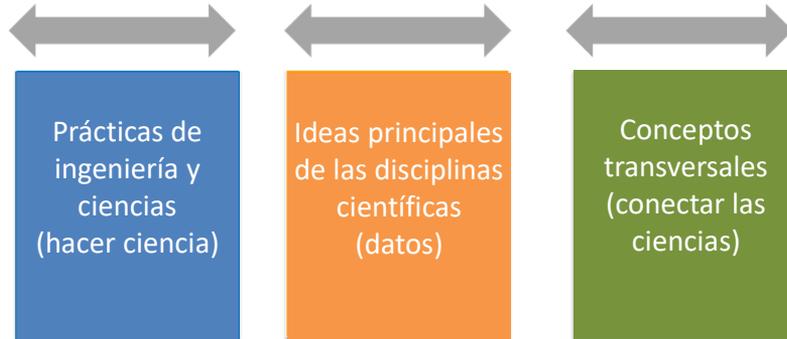
APRENDIZAJE TRIDIMENSIONAL DE LOS NGSS



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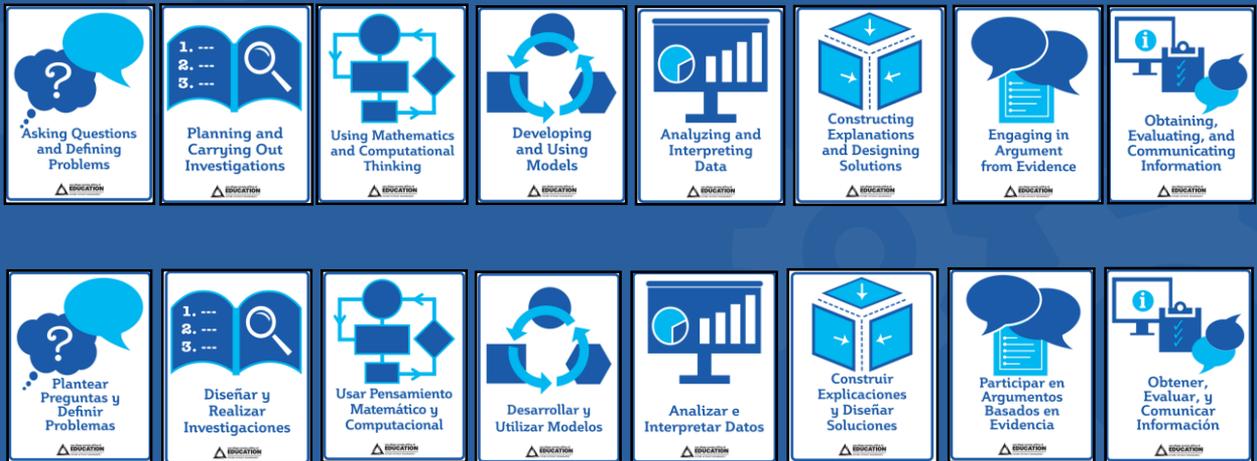
APRENDIZAJE TRIDIMENSIONAL

Estándares de ciencias de la próxima generación (NGSS)



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PRÁCTICAS DE LA CIENCIA Y LA INGENIERÍA



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IDEAS PRINCIPALES DE LAS DISCIPLINAS CIENTÍFICAS

<p>Physical Science</p>  <p>Ciencias físicas</p> <p>Comprender cómo cada sistema y proceso en la Tierra depende de los procesos físicos y químicos.</p> <p>twig SCIENCE</p>	<p>Earth and Space Science</p>  <p>Ciencias de la Tierra y el espacio</p> <p>Investigar la estructura, la composición y la historia del universo, así como el lugar de la Tierra en él.</p> <p>twig SCIENCE</p>	<p>Life Science</p>  <p>Ciencias de la vida</p> <p>Examinar los organismos vivos como parte de sistemas enteros y estudiar cómo interactúan en la biosfera en sus entornos y otros organismos.</p> <p>twig SCIENCE</p>	<p>Engineering, Technology and the Application of Science</p>  <p>Ingeniería, tecnología y la aplicación de las ciencias</p> <p>Descubrir cómo se puede usar el diseño de ingeniería para crear tecnología nueva como respuesta a problemas o para explorar nuevas aplicaciones de la ciencia.</p> <p>twig SCIENCE</p>
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CONCEPTOS TRANSVERSALES (CCC)

 <p>Scale, Proportion, and Quantity</p> <p>EDUCATION</p>	 <p>Patterns</p> <p>EDUCATION</p>	 <p>Structure and Function</p> <p>EDUCATION</p>	 <p>Stability and Change</p> <p>EDUCATION</p>	 <p>Cause and Effect</p> <p>EDUCATION</p>	 <p>Systems and System Models</p> <p>EDUCATION</p>	 <p>Energy and Matter</p> <p>EDUCATION</p>
 <p>Escala, Proporción, y Cantidad</p> <p>EDUCATION</p>	 <p>Patrones</p> <p>EDUCATION</p>	 <p>Estructura y Función</p> <p>EDUCATION</p>	 <p>Estabilidad y Cambio</p> <p>EDUCATION</p>	 <p>Causa y Efecto</p> <p>EDUCATION</p>	 <p>Sistemas y Modelos de Sistemas</p> <p>EDUCATION</p>	 <p>Energía y Materia</p> <p>EDUCATION</p>

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EXPECTATIVAS DE DESEMPEÑO

1-PS4-3-Plan and conduct an investigation to determine the **effect** of placing **objects made with different materials** in the path of a beam of light.

1-PS4-3- Planear y llevar a cabo una **investigación** para determinar **el efecto** de colocar **objetos de diversos materiales** en el trayecto de un rayo de luz.

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CIENCIAS TWIG



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FENÓMENO DE ANCLAJE



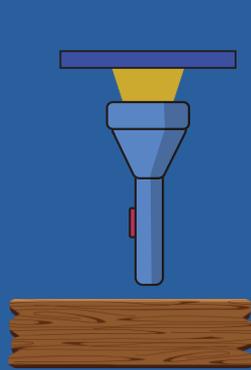
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REPASO DE APRENDIZAJES

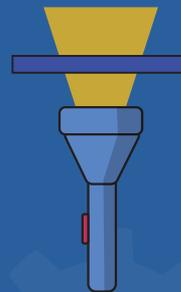
Las sombras se forman cuando un objeto obstaculiza la fuente de luz.



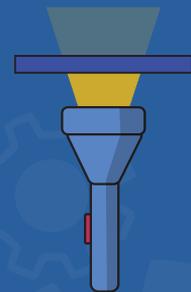
La luz viaja en línea recta



opaque
opaco



transparent
transparente



translucent
translúcido

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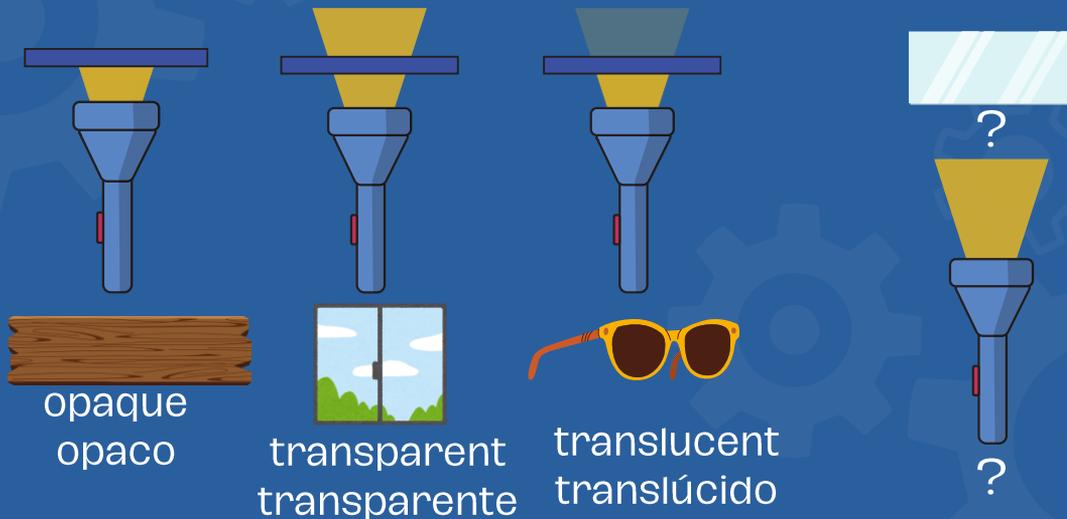
REPASO DE APRENDIZAJES

Hemos descubierto que las montañas opacas que rodean Rjukan obstaculizan que la luz pueda llegar al pueblo. Ahora que entiendes el problema de Rjukan, deberíamos empezar a considerar una solución.



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REPASO DE APRENDIZAJES



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ATÍNALE AL BLANCO



mirror
el espejo

target
el blanco

flashlight
la linterna

15

PREDICCIONES

- ¿Cómo puedes predecir en dónde brillará la luz?
- ¿Cómo puedes predecir en dónde poner el blanco?

16

Hit the Target 5

Do Investigations • Finish the sentences.

I predict the light will

When we turned on the flashlight,

Driving Question 3 | Lesson 5

PREDICCIONES

OBSERVACIONES

Dar en el blanco LECCIÓN 5

Investiga • Completa las oraciones.

Predigo que la luz

Quando prendimos la linterna,

Pregunta guía 3 | Lección 5

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LECCIÓN 5

Share Ideas • Draw your experiment.

www.twigscience.com

Los ejemplos muestran:

- dibujos sencillos
- etiquetas
- flechas
- una explicación

LECCIÓN 5

Comparte ideas • Dibuja tu experimento.

www.twigscience.com

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OBSERVACIONES

- ¿Qué le pasa a la luz cuando llega al espejo?
- Cuando la luz llega al espejo, ¿sigue viajando en línea recta?

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COMPARTIR

- Cuando le atinas al blanco, cómo posicionaste la linterna, el espejo y el papel?
- ¿Cómo puedes adivinar el trayecto de la luz?
- ¿Qué aprendiste de este experimento sobre la luz o los espejos?

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LESSON 5

Reflect

Light travels in

When light is reflected, it travels in

Driving Question 3 | Lesson 5

LECCIÓN 5

Reflexiona

La luz se mueve en

Quando la luz se refleja, se mueve en

Pregunta guía 3 | Lección 5

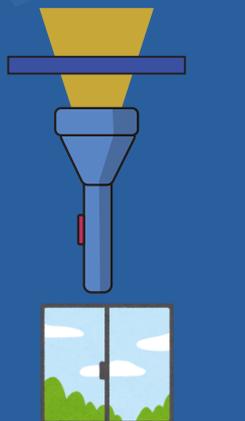
CONCEPTOS CIENTÍFICOS

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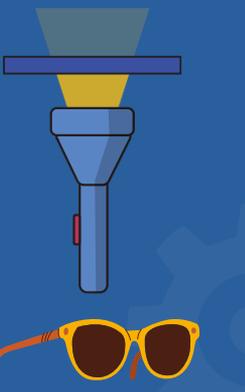
REPASO DE APRENDIZAJES



opaque
opaco



transparent
transparente

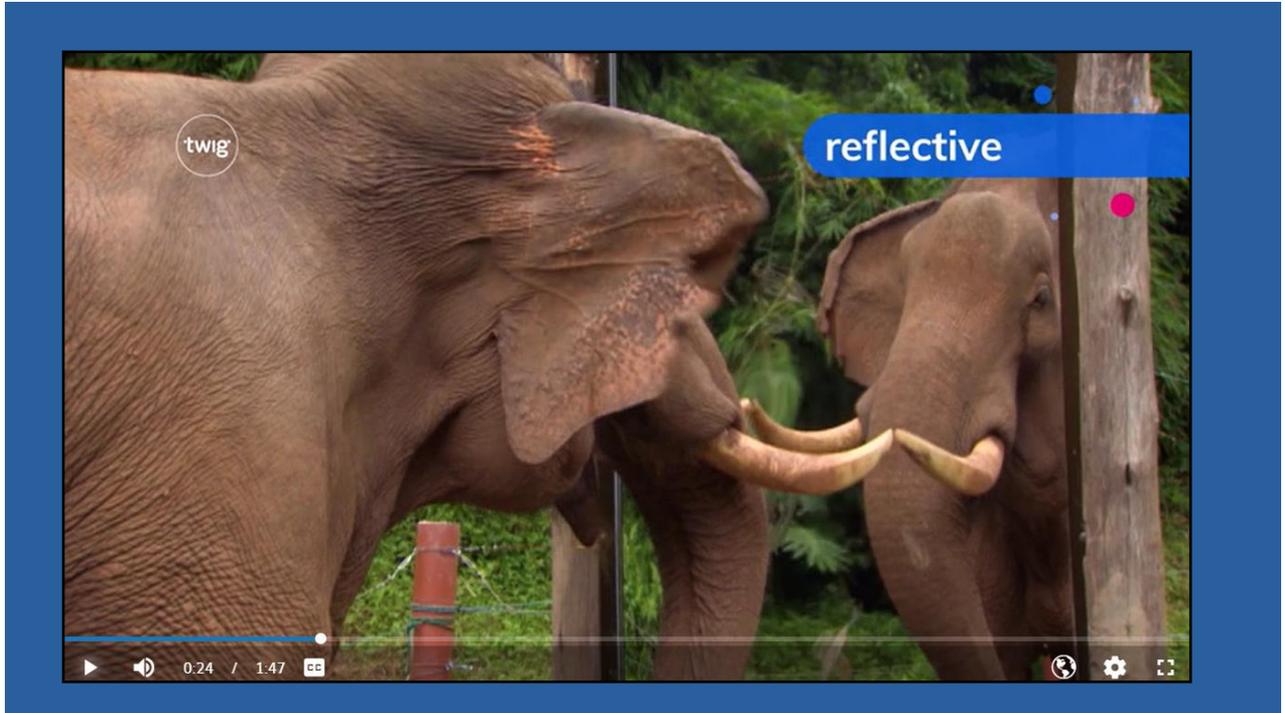


translucent
translúcido



reflective
reflectante

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¿Cómo puedes usar los espejos para dirigir la luz hacia la cueva?

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Getting Light to a Cave LESSON 7

Make Models • Draw and label a model of your cave experiment.

Driving Question 3 | Lesson 7

¿Cómo puedes usar los espejos para dirigir la luz hacia la cueva?

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APRENDIZAJE TRIDIMENSIONAL

¿Qué práctica (s) de ingeniería y ciencias usamos durante esta investigación?

¿Qué concepto (s) transversal (es) exploramos durante esta investigación?

Platíquelo con un compañero



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CIENCIAS TWIG



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COMPONENTES DE TWIG



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INTEGRACIÓN DE LENGUA Y LITERATURA INGLESAS (ELA)

LESSON 3

How Can We Use the Sun's Energy?

Read and analyze the text. As you read, use these close reading strategies:

- Circle key words.
- Underline confusing words or sentences.
- Add drawings or notes to help you remember important facts and ideas.

Have you felt how warm it gets inside a car on a hot day? Have you been woken up by light coming through your window in the morning? The heat and light come from the Sun. The Sun is far away, but it only takes about 8 minutes for energy to travel from the Sun to the Earth. Because light travels at a speed of about 300,000 km/h! If we collected and stored all of the energy we get from the Sun in 3 minutes, we would have enough energy to power everything on Earth for a whole year! However, only a small part of the energy that reaches the Earth can be collected.

All plants and animals rely on energy from the Sun every day, but people have also developed lots of smart ways to use it. One way we can use energy from the Sun is to heat up water. Have you ever noticed that outdoor swimming pools are often built where the Sun shines on them for most of the day? This is so they can get as much energy from the Sun as possible to heat the water. Using energy from the Sun to heat up water can also be useful for people who like to go camping but don't want to use cold outdoor showers! They can hang sturdy bags of water called **solar showers** in direct sunlight and wait for energy from the Sun to heat the water up. Then, when the water is warm, they can open a nozzle at the bottom of the bag and take a warm shower!

NOTES

Lectura

Escritura

LESSON 3 Identifying Acquired Characteristics

Construct Explanations • Which traits seem to have changed during this dog's lifetime? Which traits do you think it will pass on to its offspring? Explain your evidence and reasoning.



First Draft

Second Draft

Third Draft

Final Draft

Challenge

Construct Explanations • Which trait seems to have changed during this deer's lifetime? Which traits do you think it will pass on to its offspring? Explain your evidence and reasoning.



Driving Question | Lesson 3

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APOYO ELD

English Learners

Scaffold for ELs by offering oral sentence frames.

Substantial Support (Emerging Proficiency)

- The volcano _____.
- I saw _____.

Moderate Support (Expanding Proficiency)

- The land changed because _____.
- The changes happened _____ (quickly/slowly).

Light Support (Bridging Proficiency)

- When the volcano _____, the land _____ because _____.
- I observed the _____ (noun) _____ (verb) _____ (when, before, after) the eruption happened.

English Learners

Pull a small group of ELs together for a guided reading of half of the article prior to the whole group lesson, and again for the remaining half during the lesson. Show ELs photos of glaciers to provide visual support, and review the definition of *glacier* in the article glossary. Ensure that ELs understand the meanings of the terms *sculpture* and *carving* by providing visual samples.

As you read together, highlight and list new verbs encountered in the text. Illustrate the meaning of new verbs through gestures and/or visual samples, and have students repeat them chorally. Have ELs circle words that explain how glaciers move, and underline parts of the article that explain what changes made by glaciers can be observed today.

English Learners

Model the photo comparison task for ELs by doing a meta-think-aloud about the first pair of photos in their Twig Books. Briefly write what you are saying on the board to provide additional visual support for ELs.

- In the first photo, I see lots of snow and ice. It looks like a river of ice. I think it's a glacier. I don't see any trees.
- In the second photo, the front part of the river looks like water, not ice. There are trees in the front. The land on the right side sticks way out into the water. That's different than in the first photo.

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LECTORES NIVELADOS

Above-Level Below-Level **English Learners** On-Level

Overview



Leveled Reader Supports

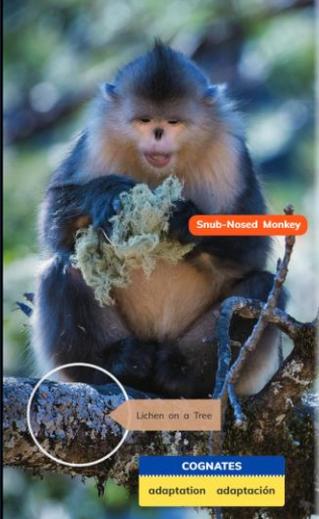
Multiple supports are provided in the text to assist you in helping students access the vocabulary presented.

- **Cognates:** Highlight those words that are similar in Spanish and English to accelerate vocabulary building (e.g., *extinct/extinto*).
- **Define It:** Point out the definitions of key academic words needed for understanding, but are without sufficient context clues.
- **Visual Glossary:** Refer to the visual glossary before, during, and after reading to reinforce key content vocabulary.

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LECTORES NIVELADOS

Unpack It!



It is the only monkey that can live in such a cold place. The reason? It has very thick fur that keeps it warm in winter. It also has, as you might guess, a snub nose. Its short, stubby nose doesn't get frostbite in the freezing cold.

There are no leaves or fruit in winter. So what can it eat? Luckily in winter, the trees are covered in a crunchy, dry-looking plant called lichen. Lichen is actually two living things together. A fungus and a type of plant called algae. Lichen is hard to pull off the trees. But that's no problem for this monkey! Its strong, tiny fingers can easily grab this hard-to-reach plant. The snub-nosed monkey's fingers and warm fur are perfectly suited to help it survive. These are adaptations. Adaptation is the process in which a plant or animal changes to be better suited to its environment.

COGNATES
adaptation adaptación

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VISUAL GLOSSARY

	adaptation the process where a plant or animal changes to become better suited to its environment		extinct no longer any living members
	cilia very thin, hair-like structures		habitat the natural home of a specific plant or animal
	climate the typical weather in a certain place		nutrients the substances a living thing needs to stay alive
	environment the natural world		survive to stay alive

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APOYO EN LAS PRUEBAS ELPAC

MONITORING ENGLISH LANGUAGE PROFICIENCY	
<p>During your leveled reader instruction, engage students in the following tasks to monitor their growing English Language development. These tasks are best administered individually.</p>	
<p>WRITING DOMAIN Have students look at the photos and illustrations on pages 22–23 and write a brief description of what is happening.</p>	<p>READING DOMAIN Use the photos on pages 6–7. Write these sentences: <i>The giraffe has a long neck. The giraffe's tongue is long and dark. The tree has sharp spikes. The giraffe has adapted to its habitat.</i> Have students read each sentence, then match it to the correct photo or part of photo.</p>
<p>LISTENING DOMAIN Describe the illustrations on pages 8–9. Add key details included in the illustrations, but not in the main text (e.g., details in the diagram text). Ask: <i>What is special about the roots of a cactus? What is special about the skin of a cactus? How has a cactus adapted to survive?</i></p>	<p>SPEAKING DOMAIN As students answer the questions in the "Listening Domain" task, record their use of academic vocabulary and ability to summarize the key details.</p>

Assess Conversation

Use the chart to gauge students' progress as they participate in collaborative conversations. Model conversation exchanges to support students' growth.

Bridging 4	Students engage in 5 or more exchanges. They support their ideas with evidence and sufficiently synthesize ideas.
Expanding 3	Students engage in 3-4 exchanges. They ask and answer questions, agree and disagree, and build on each other's ideas.
Early Expanding 2	Students engage in 1 exchange, using only a sentence or two. Sometimes the conversation is extended.
Emerging 1	Students offer 1 short answer. The exchange is often highly structured.
0	Students are silent during the conversation.

EXAMEN DE CIENCIAS DE CA (CAST)



Twig Science K-6

59 assessments



Twig Science K–5 CAST Practice (Education4Equity)

3 assessments

NEW



EXAMEN DE CIENCIAS DE CA (CAST)

- Los estudiantes toman el examen de ciencias de California (CAST) en 5^o, 8^o y en uno de los años de preparatoria (ya sea en el 10^o, 11^o o 12^o grado)
- El examen de ciencias de 5^o grado abarca contenido de 3^o a 5^o, así como las prácticas de ingeniería y los conceptos transversales presentados de kínder a 5^o grado.

Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Student Survey
Discrete Items	Discrete Items	Discrete Items or Performance Task	Performance Task	Performance Task	Performance Task	3-4 questions
G5: 13 items G8: 14 items HS: 16 items	G5: 13 items G8: 14 items HS: 16 items		4-6 items	4-6 items	4-6 items	
 		 	 	 	 	

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EXAMEN DE CIENCIAS DE CA (CAST)

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GUEST Last Saved: 2:58 PM

A student observed that a cactus has long, sharp spines that are painful to touch.

Which claim is **best** supported by the observation?

- Ⓐ The spines attract helpful insects to the cactus.
- Ⓑ The spines keep cold wind away from the cactus.
- Ⓒ The spines make it hard for animals to eat the cactus.
- Ⓓ The spines store water that can be used by the cactus.

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EXAMEN DE CIENCIAS DE CA

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GUEST

Long-eared hedgehogs are small mammals that are kept as pets. Adults can have body lengths that range from 120 to 270 millimeters (mm). This table shows the body lengths of a family of hedgehogs.

Hedgehog	Adult Body Length (mm)
Mother	152
Father	138
Offspring 1	145
Offspring 2	140
Offspring 3	148

Based on this data, select the word or phrase that **best** completes the statement.

The offspring of these two parent hedgehogs have body lengths that are their parents because variation for this trait among members of the same family.

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EXAMEN DE CIENCIAS DE CA (CAST)

Las explicaciones científicas...

- tratan cómo o porqué suceden las cosas;
- introducen temas;
- sustentan ideas con evidencia como datos, definiciones y citas relacionados con el tema en cuestión;
- emplean el lenguaje científico;
- conectan ideas dentro y entre categorías de información mediante palabras, frases y oraciones;
- se dirigen a una audiencia; y
- presentan una declaración o sección de conclusión relacionada con la información o explicación presentada.

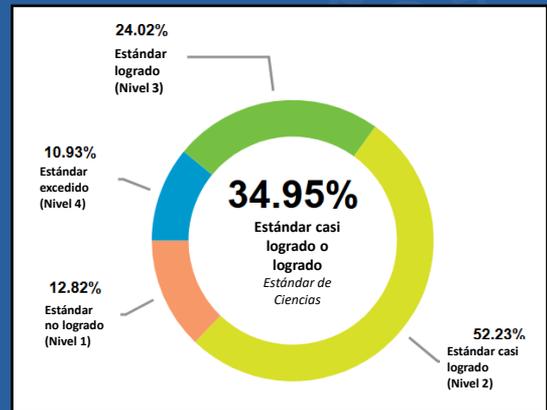
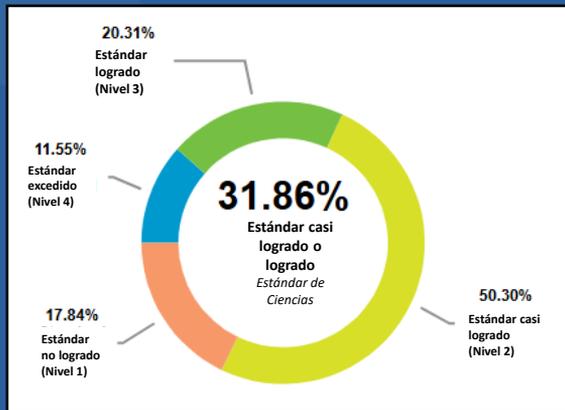
twig



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TODOS LOS ESTUDIANTE DE 5º GRADO NIVEL ESTATAL 2022-2023

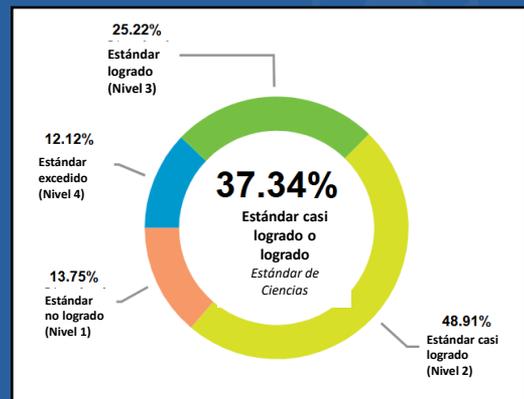
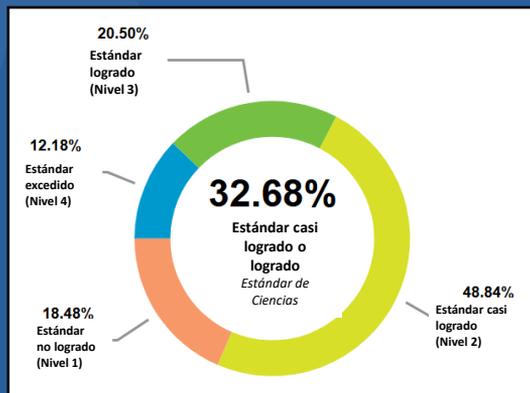
CVESD 2022-2023



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TODOS LOS ESTUDIANTES DE 5º GRADO NIVEL ESTATAL 2023-2024

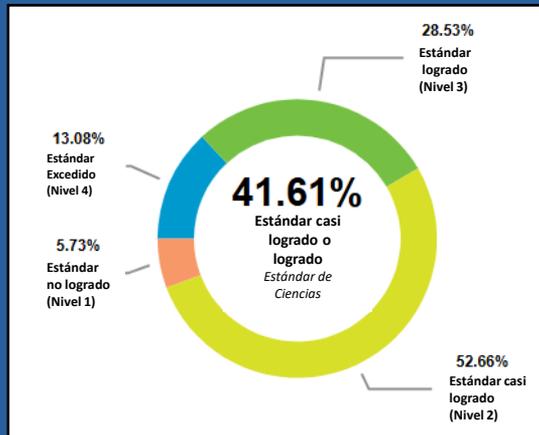
CVESD 2023-2024



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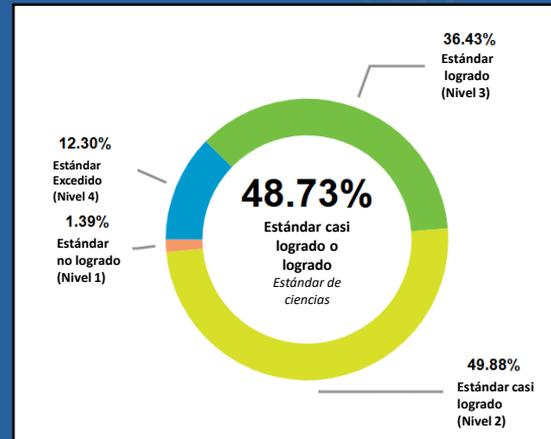
ESTUDIANTES REDESIGNADOS

R-FEP EN EL ESTADO 2023-2024



ESTUDIANTES REDESIGNADOS R-FEP

EN EL CVESD 2023-2024



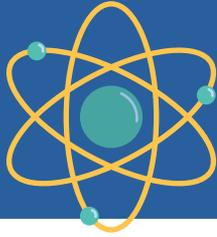
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SIGUIENTES PASOS DE TWIG



- **Capacitación profesional optativa para maestros de 5º grado sobre el CAST después de clases**
 - Enfoque en datos y gráficas
 - Enfoque en respuestas breves elaboradas (CER)
- **Apoyo en el programa de estudios para los planteles escolares**
 - Colaboración
 - Capacitación profesional para el personal
- **Usar el examen CAST de práctica de Twig Science**
- **Usar los exámenes de ciencias intermedios/provisionales de CA**

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INFORMACIÓN DE CONTACTO

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