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Smithsonian STEAM Readers—Grade K (Spanish)

This sample includes the following:

Smithsonian

STEAM Readers

Science ▪ Technology ▪ Engineering ▪ Arts ▪ Mathematics

Management Guide

Spanish Version

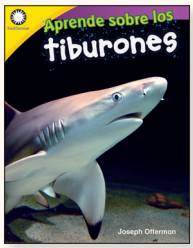
Grade K

Teacher Created Materials

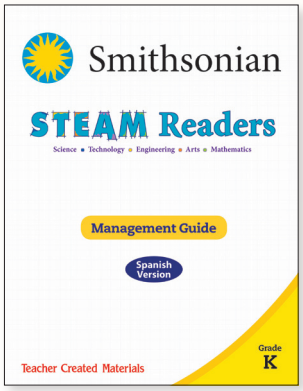
Table of Contents

Kit Components

15 lesson plans with 6 copies of each book



Management Guide



Culminating Activity

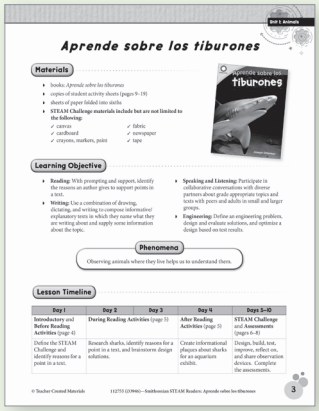
Digital and Audio Resources

Lesson Plan Components

Each 10-day lesson sequence is organized in a consistent format for ease of use.

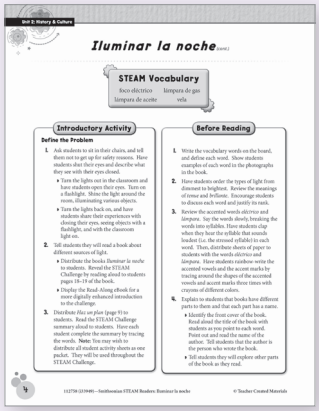
Overview

- The overview page includes learning objectives, a materials list, and a suggested timeline for lessons.



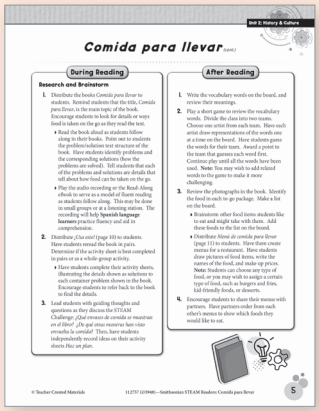
Day 1

- Students are introduced to the STEAM Challenge, vocabulary, and reading skill.



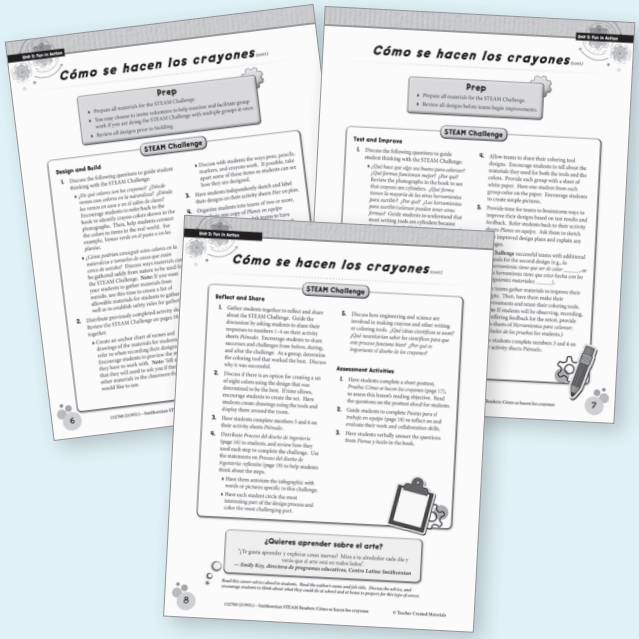
Days 2–4

- Students complete reading and writing activities as they gain knowledge that will help them with the STEAM Challenge.



Days 5–10

- Students take what they've learned and apply it to design, build, test, and improve a solution.
- Students reflect, share work, and take assessments.

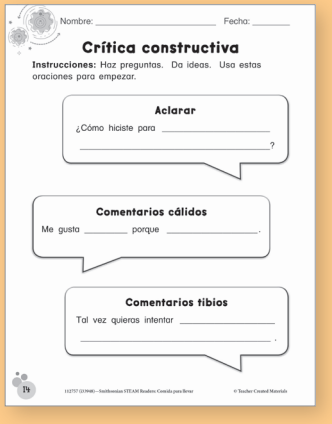


Lesson Plan Components *(cont.)*

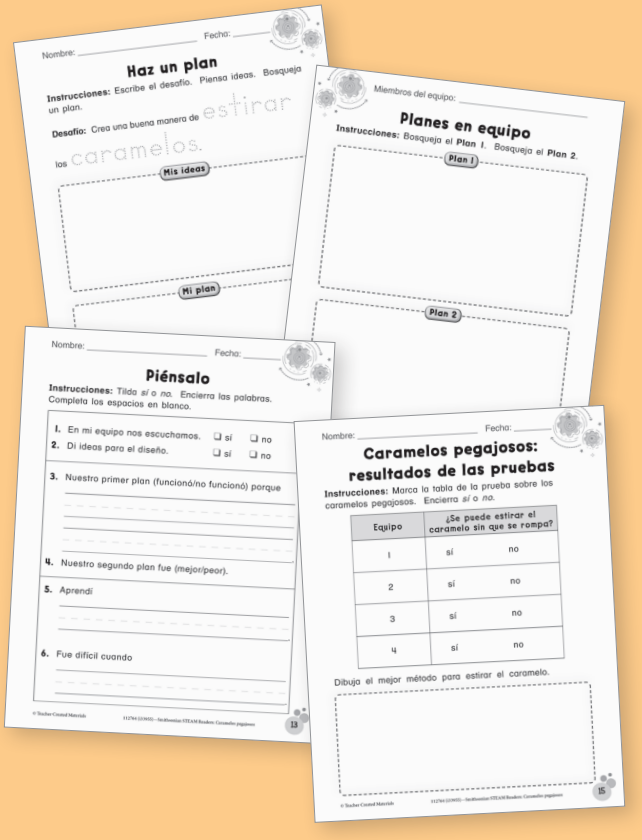
Student Activity Sheets

Literacy skills are supported with meaningful activities that **promote higher-order thinking skills**.

Effective feedback techniques are supported with **sentence frames** to help students provide feedback to peers and to facilitate productive classroom dialogue.



STEAM Challenge activity sheets support students throughout the **engineering design process**.



Appendix B includes quick reference sheets for students and teachers.

Assessments

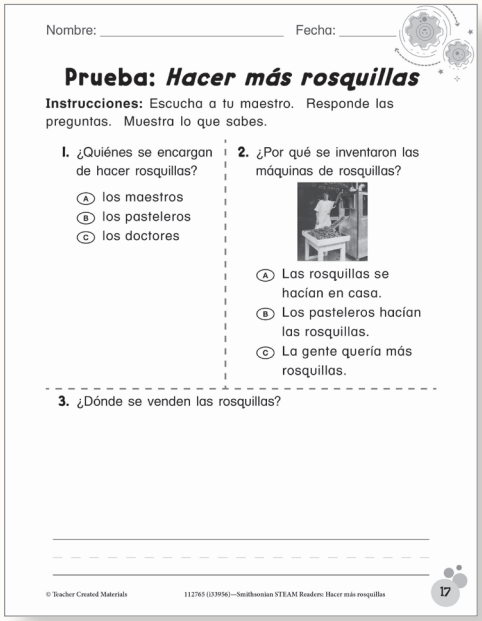
Assessments guide teacher decisions and improve student learning. *Smithsonian STEAM Readers* offers balanced assessment opportunities. Assessments require students to demonstrate analytical thinking, comprehend informational texts, and write evidence-based responses.

Quizzes

Each lesson plan includes a quiz with multiple-choice questions and a short-answer question. These assessments include text-dependent questions and may be used as open-book evaluations. Answer keys are provided on page 2 of each lesson.

STEAM Challenge

STEAM Challenges include a *Teamwork Rubric* and an *Engineering Design Process Checklist*. These guide students to reflect on and evaluate their work and collaboration skills.



Nombre: _____ Fecha: _____

Prueba: *Hacer más rosquillas*

Instrucciones: Escucha a tu maestro. Responde las preguntas. Muestra lo que sabes.

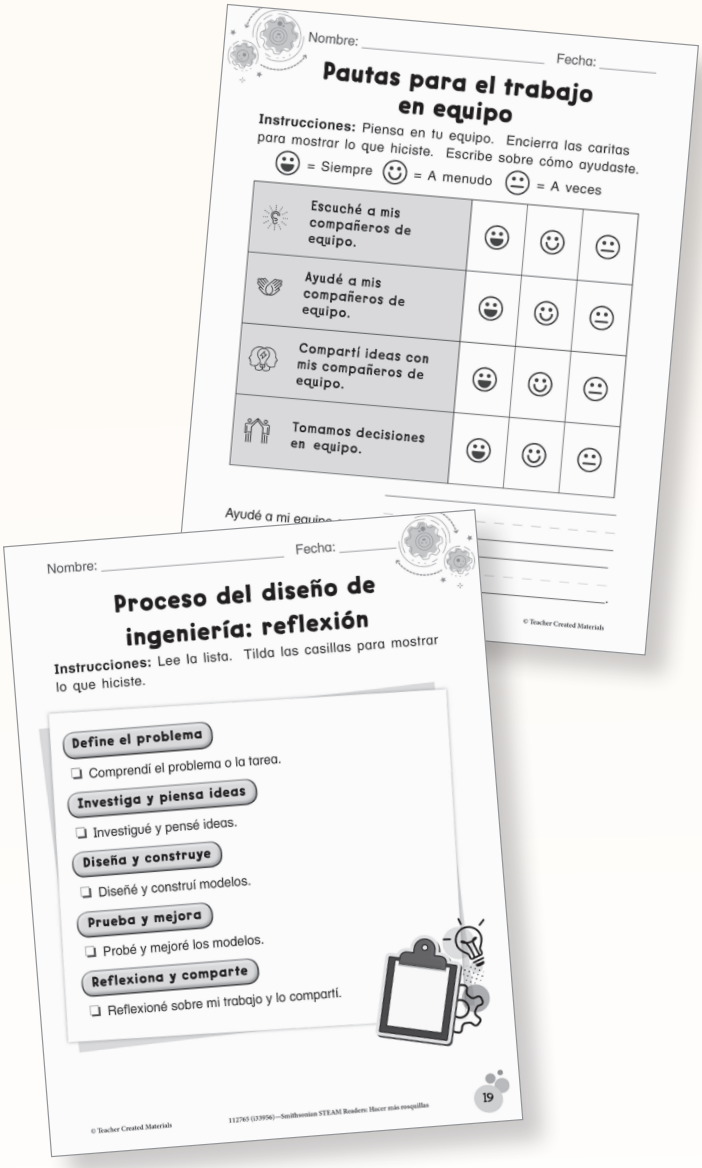
1. ¿Quiénes se encargan de hacer rosquillas?

(A) los maestros
(B) los pasteleros
(C) los doctores

2. ¿Por qué se inventaron las máquinas de rosquillas?

(A) Las rosquillas se hacían en casa.
(B) Los pasteleros hacían las rosquillas.
(C) La gente quería más rosquillas.

3. ¿Dónde se venden las rosquillas?



Nombre: _____ Fecha: _____

Pautas para el trabajo en equipo

Instrucciones: Piensa en tu equipo. Encierra las caritas para mostrar lo que hiciste. Escribe sobre cómo ayudaste.

= Siempre = A menudo = A veces

Escuché a mis compañeros de equipo.			
Ayudé a mis compañeros de equipo.			
Compartí ideas con mis compañeros de equipo.			
Tomamos decisiones en equipo.			

Ayudé a mi equipo

Nombre: _____ Fecha: _____

Proceso del diseño de ingeniería: reflexión

Instrucciones: Lee la lista. Tilda las casillas para mostrar lo que hiciste.

Define el problema
❑ Comprendí el problema o la tarea.

Investiga y piensa ideas
❑ Investigué y pensé ideas.

Diseña y construye
❑ Diseñé y construí modelos.

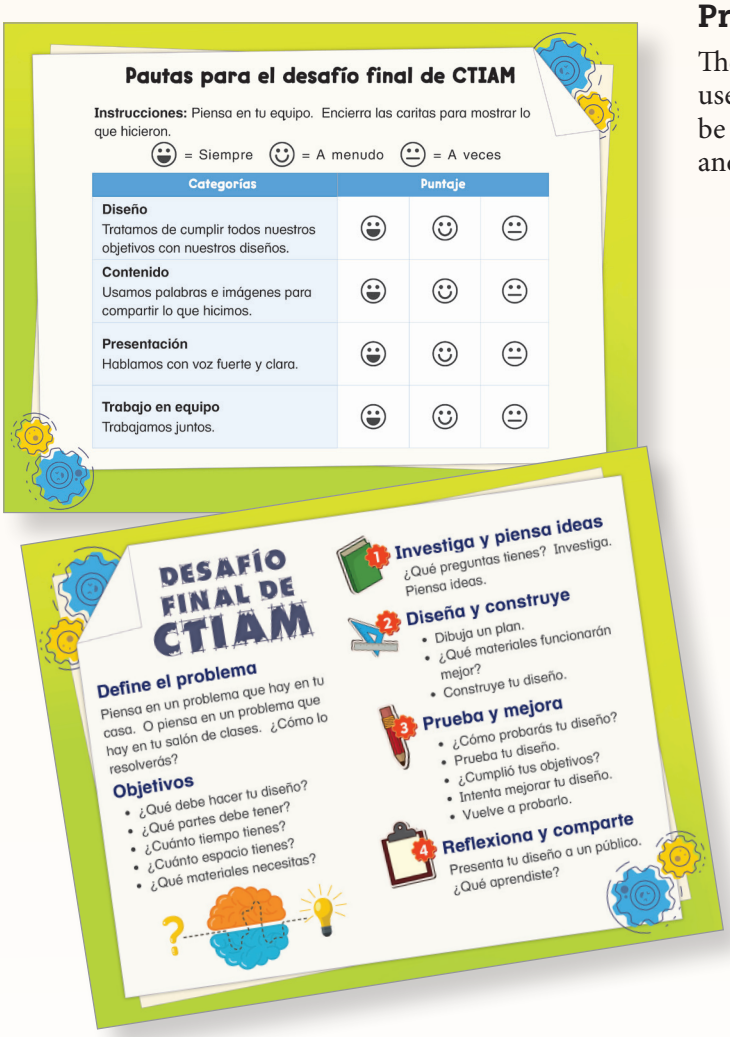
Prueba y mejora
❑ Probé y mejoré los modelos.

Reflexiona y comparte
❑ Reflexioné sobre mi trabajo y lo compartí.

Assessments *(cont.)*

Culminating Activity

The Culminating Activity asks students to apply what they have learned in an engaging and interactive way. Students use what they have learned to solve real-world problems in a final STEAM Challenge.



Pautas para el desafío final de CTIAM

Instrucciones: Piensa en tu equipo. Encierra las caritas para mostrar lo que hicieron.

= Siempre = A menudo = A veces

Categorías	Puntaje		
Diseño Tratamos de cumplir todos nuestros objetivos con nuestros diseños.			
Contenido Usamos palabras e imágenes para compartir lo que hicimos.			
Presentación Hablamos con voz fuerte y clara.			
Trabajo en equipo Trabajamos juntos.			

DESAFÍO FINAL DE CTIAM

Define el problema

Piensa en un problema que hay en tu casa. O piensa en un problema que hay en tu salón de clases. ¿Cómo lo resolverás?

Objetivos

- ¿Qué debe hacer tu diseño?
- ¿Qué partes debe tener?
- ¿Cuánto tiempo tienes?
- ¿Cuánto espacio tienes?
- ¿Qué materiales necesitas?

1 Investiga y piensa ideas

¿Qué preguntas tienes? Investiga. Piensa ideas.

2 Diseña y construye

- Dibuja un plan.
- ¿Qué materiales funcionarán mejor?
- Construye tu diseño.

3 Prueba y mejora

- ¿Cómo probarás tu diseño?
- Prueba tu diseño.
- ¿Cumplió tus objetivos?
- Intenta mejorar tu diseño.
- Vuelve a probarlo.

4 Reflexiona y comparte

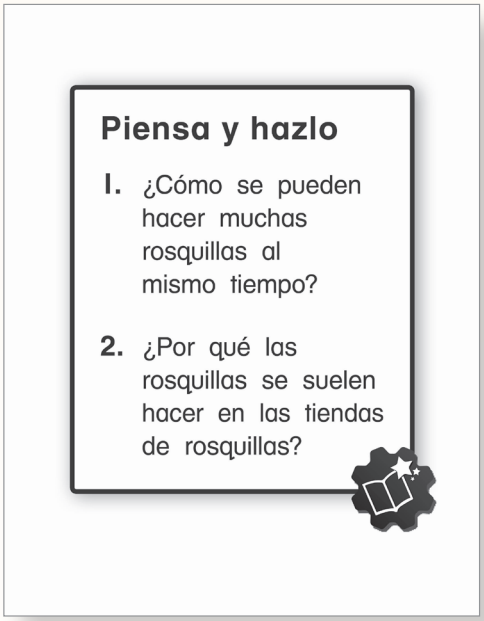
Presenta tu diseño a un público. ¿Qué aprendiste?

Think and Do

Think and Do questions can be found on the inside back covers of the books. Questions require various levels of critical thinking and can be used for instruction or assessment.

Progress Monitoring

There are several points throughout each lesson when useful evaluations can be made. These evaluations can be based on group, paired, and individual discussions and activities.



Piensa y hazlo

1. ¿Cómo se pueden hacer muchas rosquillas al mismo tiempo?
2. ¿Por qué las rosquillas se suelen hacer en las tiendas de rosquillas?

Pacing and Instructional Setting Options

Smithsonian STEAM Readers is flexibly designed and can be used in tandem with a core curriculum within a science/STEAM/STEM block and/or literacy block. It can also be used in makerspaces to integrate literacy with the engineering design process. Teachers should customize pacing according to student need and the teacher's preferred instructional framework, such as Balanced Literacy.

***Smithsonian STEAM Readers* within the Balanced Literacy Framework**	
Modeled and Shared Reading/Writing	The Before, During, and After Reading activities in each lesson of this series offer opportunities for teachers to activate students' prior knowledge, as well as model fluency and metacognition as they read aloud from the text and guide students through reading and writing activities.
Small-Group Reading/Workshop	The During Reading, After Reading, and STEAM Challenge activities in each lesson of this series can be completed during small-group instruction, in centers, or at workstations, depending on students' previous learning experiences and their need for teacher support.
Independent Reading	Professional audio recordings and ebooks are provided to support independent reading at workstations and listening centers.
Assessment	This series offers multiple formative and summative assessment opportunities that can be used to guide instruction and assess learning (see pages 20–21 for details).

The following pacing and instructional setting options show suggestions for how to use this product. Two pacing options are provided.

Option 1 includes both literacy and STEAM Challenge activities. This option spans 10 instructional days and requires approximately 30–45 minutes a day, for a total of 75–112.5 hours over the course of 150 days.

Day 1	Day 2	Day 3	Day 4	Days 5–10
Introductory and **Before Reading Activities**	**During Reading Activity**		**After Reading Activity**	**STEAM Challenge** and **Assessments**

Option 2 includes only literacy activities. This option spans five instructional days and requires approximately 30–45 minutes a day, for a total of 37.5–56.25 hours over the course of 75 days.

Day 1	Day 2	Day 3	Day 4	Day 5
Before Reading Activity	**During Reading Activity**		**After Reading Activity**	**Assessment Activities**

¿Qué hacen los juguetes?

Unit 3
Fun in Action

Lesson Plan

Spanish Version

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Smithsonian **STEAM Readers**

Science ■ Technology ■ Engineering ■ Arts ■ Mathematics

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References to digital components are included for educators who purchased the full kit: *Smithsonian STEAM Readers: Grade K (Spanish)*. Please disregard digital component references if this lesson was purchased in a different product configuration.

Answer Key: *¿Qué hacen los juguetes?*

page 10—Lo que hacen los juguetes

Students should write or draw about four of the following: *ruedan*, *giran*, *se doblan*, *caminan*, *son para construir*, or *son para colorear*.

page 11—¡Hazlo saltar!

Student responses will vary but may include:

1. Toma la manija y hazla girar.
2. Se abre la tapa.
3. El mono salta hacia afuera.

page 17—Prueba: *¿Qué hacen los juguetes?*

1. A
2. B
3. volar

¿Qué hacen los juguetes?

Materials

- books: *¿Qué hacen los juguetes?*
- copies of student activity sheets (pages 9–19)
- **STEAM Challenge materials include but are not limited to the following:**
  - ✓ blocks or pieces of wood
  - ✓ construction paper
  - ✓ markers or crayons
  - ✓ paper bowls/cups
  - ✓ plastic bottles
  - ✓ plastic straws
  - ✓ stapler
  - ✓ tape

Learning Objective

- **Reading:** With prompting and support, identify the reasons an author gives to support points in a text.
- **Writing:** Participate in shared research and writing projects.
- **Speaking and Listening:** Participate in collaborative conversations with diverse partners about grade appropriate topics and texts with peers and adults in small and larger groups.
- **Engineering:** Define an engineering problem, design and evaluate solutions, and optimize a design based on test results.

Phenomena

Toys move in many ways.

Lesson Timeline

Day 1	Day 2	Day 3	Day 4	Days 5–10
Introductory and **Before Reading Activities** (page 4)	**During Reading Activities** (page 5)		**After Reading Activities** (page 5)	**STEAM Challenge** and **Assessments** (pages 6–8)
Define the STEAM Challenge and identify reasons to support the topic.	Research toys, identify reasons to support the topic, and brainstorm design solutions.		Participate in a shared writing project to tell how a toy works.	Design, build, test, improve, reflect on, and share toys. Complete the assessments.

¿Qué hacen los juguetes? (cont.)

STEAM Vocabulary

giran	se apilan
ruedan	se doblan

Introductory Activity

Define the Problem

1. Take a quick survey of students by asking the question, *¿Cuál es tu juguete favorito?* Encourage students to respond to the question in complete sentences and include their reasoning: *Mi juguete favorito es* _____ *porque* _____. Record students' responses on the board and discuss the results.
2. Distribute the books *¿Qué hacen los juguetes?* to students. Reveal the STEAM Challenge by reading aloud to students pages 18–19 of the book.
   - Display the Read-Along eBook for a more digitally enhanced introduction to the challenge.
3. Distribute *Haz un plan* (page 9) to students. Read the STEAM Challenge summary aloud to students. Have each student complete the summary by tracing the words.

   Note: You may wish to distribute all student activity sheets as one packet. They will be used throughout the STEAM Challenge.

Before Reading

1. Write the vocabulary words on the board, and define each word.
2. Add some additional action words from the book to the board if desired: *saltan*, *caminan*, and *colorear*.
   - Work with the group to determine an action to show the meaning of each word.
   - Call out a word, and have students perform the action.
3. Introduce the sentence pattern used throughout the book by writing it on the board: *Algunos juguetes* _____. Practice reading the sentence a few times with students. Then, ask them to complete the sentence with different ways toys can move. Have several students share their ideas.
4. Display the cover of the book, and read the title to students. Tell them that the title tells what the whole book will be about. Explain that as students read the book, they should identify reasons the author gives to support the idea of what toys can do.

¿Qué hacen los juguetes? (cont.)

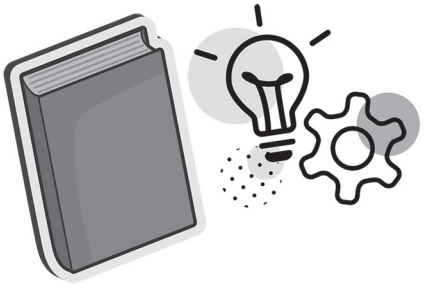
During Reading

Research and Brainstorm

1. Distribute the books *¿Qué hacen los juguetes?* to students. Remind them that the title of the book provides the topic. As students read the book, they should look for ways the author tells more about the topic.
2. Read the book aloud to students as they follow along in their own books. Encourage students to point to each word in their books. Then, reread the book, encouraging students to read along with you.
   - Play the audio recording or the Read-Along eBook to serve as a model of fluent reading as students follow along. This may be done in small groups or at a listening station. The recording will help **Spanish language learners** practice fluency and aid in comprehension.
3. Distribute *Lo que hacen los juguetes* (page 10) to students. Encourage them to return to the text to write or draw ideas the author provides to support the topic of the book. Guide students in this activity as needed. Out of all the author's ideas, have students choose four things the toys can do.
4. Lead students with guiding thoughts and questions as they discuss the STEAM Challenge: *¿Qué hace que los juguetes se muevan? ¿Todos los juguetes tienen partes que se mueven? Explíquenlo. ¿Qué hace que un juguete sea divertido?* Then, have students independently record ideas on their activity sheets *Haz un plan*.

After Reading

1. Write the vocabulary words on the board. Review each word and definition. Reinforce each word by choosing a student to act out a word and having other students guess the word.
2. Distribute *¡Hazlo saltar!* (page 11) to students. Have them draw the steps to make the jack-in-the-box jump. For example:
   - Toma la manija y hazla girar.
   - Se abre la tapa.
   - El mono salta hacia afuera.
3. Gather students together, and have them share their ideas for the three steps to make the toy jump.
4. Work as a group to write directions for making the toy jump.
   - Collectively decide on the three steps.
   - Record a sentence describing each step on chart paper.
   - Have students illustrate the steps.



¿Qué hacen los juguetes? (cont.)

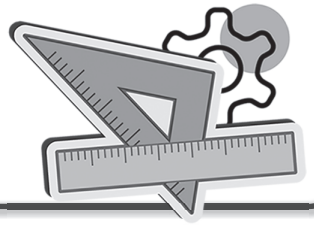
Prep

- Prepare all materials for the STEAM Challenge.
- You may choose to invite volunteers to help monitor and facilitate group work if you are doing the STEAM Challenge with multiple groups at once.
- Review all designs prior to building.

STEAM Challenge

Design and Build

1. Discuss the following questions to guide student thinking with the STEAM Challenge:
   - *¿De qué maneras se mueven los juguetes del libro?* Return to the pages in the book to have students review what toys can do: *ruedan* (pages 2–3), *giran* (pages 4–5), *saltan* (pages 6–7), *se doblan* (pages 8–9), *caminan* (pages 10–11), *se apilan* (pages 13–14), or *son para colorear* (pages 15–16). Encourage students to be specific in their descriptions of how the toys move (e.g., *El robot puede caminar en línea recta.*)
   - *¿De qué otras maneras se puede mover un juguete?* Refer students to pages 16–17 to recall that some toys, such as kites, can fly. Encourage students to use their prior experiences with toys to name other ways toys can move.
2. Distribute previously completed activity sheets. Review the STEAM Challenge on pages 18–19 together. Create an anchor chart of names and drawings of the materials for students to refer to when recording their designs. Encourage students to preview all the materials available.
   - Discuss with students designs that toys have so they can move in specific ways. For example, for a toy to roll, it must be in the shape of a ball, cylinder, cone, or have wheels.
3. Ask students to independently sketch and label their designs on the activity sheets *Haz un plan*.
4. Organize students into teams of two or more. Distribute one copy of *Planes en equipo* (page 12) to each team. Ask teams to have members share their plans. Then, have each team choose, sketch, and label a team plan.
   - **Challenge** students by adding goals (e.g., *el juguete debe rodar*, or *el juguete debe estar construido con los siguientes materiales:* _____).
5. Explain to students that when they build their models, they must follow their design plans. Reassure them they will have an opportunity to change and improve their design plans after they present them. Review classroom expectations for working with materials. Then, give teams time to gather materials and build toys.
   - Digitally record students' processes to share at a later date with students and parents.
6. Distribute *Piénsalo* (page 13) to students. Explain that reflection is an important part of the engineering design process. Read aloud numbers 1 and 2 on the activity sheet, and have students mark their responses. Ask volunteers to share.



¿Qué hacen los juguetes? (cont.)

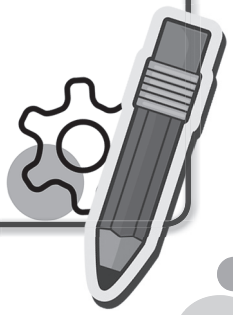
Prep

- Prepare all materials for the STEAM Challenge.
- Review all designs before teams begin improvements.

STEAM Challenge

Test and Improve

1. Discuss the following questions to guide student thinking with the STEAM Challenge:
   - *¿Qué hace que un juguete sea divertido?* Return to each photograph in the book, and discuss what makes each toy fun. For example, *el juguete de la página 3 puede andar por todas partes*, and *la caja de la página 7 nos puede sorprender*. Encourage students to share their experiences with each toy.
   - *¿Qué materiales ayudan a que los juguetes no se rompan?* Return to each photograph in the book, and discuss the material each toy is made out of. For example, *el trompo es de madera* (page 5), *el robot es de metal* (page 11). Make a list of all the materials the toys in the book are made of: *metal*, *madera*, *plástico*, and *cera*. Discuss with students that each toy is made of sturdy material and does not break when it is played with. Ask students how this information will help them choose the materials they use for their toys during the challenge.
2. Gather teams for testing. Explain that teams will offer feedback after the test. Use *Crítica constructiva* (page 14) to review best practices for giving feedback.
3. Distribute *Juguetes: resultados de las pruebas* (page 15) to students, and ask them to record results for each team.
4. Gather students together to test the toys. Have each group share their toy and how to play with it. Then, place the toys in different locations around the room, and encourage students to move throughout the room as they play with the toys. Provide enough time for students to play with all the toys.
5. Provide time for teams to brainstorm ways to improve their designs based on test results and feedback. Refer students back to their activity sheets *Planes en equipo*. Ask them to sketch their improved design plans and explain any changes.
   - **Challenge** successful teams with additional goals for the second design (e.g., *el juguete debe rodar*, or *el juguete debe estar construido con los siguientes materiales:* _____).
6. Have teams gather materials to improve their designs. Then, have them make their improvements and retest their toys. (**Note:** If students will be observing, recording, and offering feedback for the retest, provide extra sheets of *Juguetes: resultados de las pruebas* to students.)
7. Have students complete numbers 3 and 4 on their activity sheets *Piénsalo*.



¿Qué hacen los juguetes? (cont.)

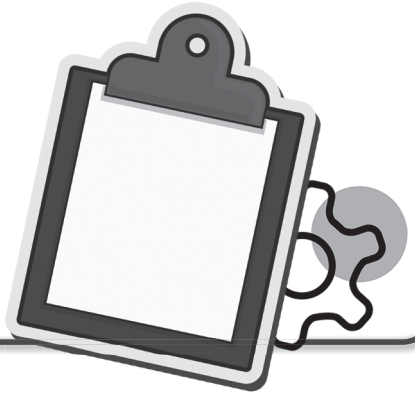
STEAM Challenge

Reflect and Share

1. Gather students together to reflect and share about the STEAM Challenge. Ask students to identify toys that were easy to move. Have students identify toys that were fun. Ask guiding questions to help students reflect on the results: *¿Qué hizo que los juguetes fueran divertidos? ¿Con qué juguetes jugaron más tiempo? ¿Por qué?*
2. Guide students to see if there is a correlation between toys that were easy to move and toys that were fun. *Explíquenlo.*
3. Discuss students' answers to numbers 1–4 on their activity sheets *Piénsalo*. Can the group think of ways to improve some of the toys that were created? If possible, allow time for students to build and test their ideas.
4. Have students complete numbers 5 and 6 on their activity sheets *Piénsalo*.
5. Distribute *Proceso del diseño de ingeniería* (page 16) to students, and review how they used each step to complete the challenge. Use *Proceso del diseño de ingeniería: reflexión* (page 19) to help students think about the steps.
   - Have students annotate the infographic with words or pictures specific to this challenge. Prompt and guide students with questions as needed to help them more fully develop their experiences during each step.
6. Ask students to identify careers related to the book. Guide students to see that even toys need engineers and designers to create them.

Assessment Activities

1. Have students complete a short posttest, *Prueba: ¿Qué hacen los juguetes?* (page 17), to assess this lesson's reading objective. Read the questions on the posttest aloud for students.
2. Guide students to complete *Pautas para el trabajo en equipo* (page 18) to reflect on and evaluate their work and collaboration skills.
3. Have students verbally answer the questions from *Piensa y hazlo* in the book.

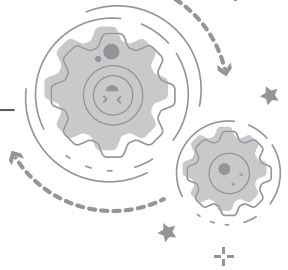


¿Quieres inventar juguetes que se muevan?

"Para inventar un juguete, como un avión, hay que usar conocimientos de matemáticas y ciencias".
— Russ Lee, director, Departamento de Aeronáutica, Museo Nacional del Aire y el Espacio del Smithsonian

Read this career advice aloud to students. Read the author's name and job title. Discuss the advice, and encourage students to think about what they could do at school and at home to prepare for this type of career.

Nombre: _____ Fecha: _____



Haz un plan

Instrucciones: Escribe el desafío. Piensa ideas. Bosqueja un plan.

Desafío: Crea un juguete nuevo que sea divertida.

Mis ideas

Mi plan

Nombre: _____ Fecha: _____

Lo que hacen los juguetes

Instrucciones: Dibuja o escribe sobre cuatro cosas que pueden hacer los juguetes.

Nombre: _____ Fecha: _____

¡Hazlo saltar!

Instrucciones: Dibuja los pasos para que funcione este juguete.

1

2

3

Miembros del equipo: _____

Planes en equipo

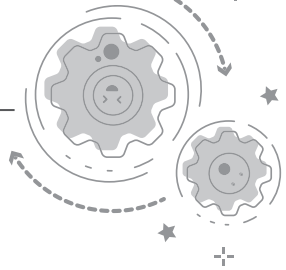
Instrucciones: Bosqueja el **Plan 1**. Bosqueja el **Plan 2**.

Plan 1

Plan 2

112761 (i33952)—Smithsonian STEAM Readers: ¿Qué hacen los juguetes?

Nombre: _____ Fecha: _____



Piénsalo

Instrucciones: Tilda *sí* o *no*. Encierra las palabras. Completa los espacios en blanco.

1. En mi equipo nos escuchamos. ❑ sí ❑ no

2. Di ideas para el diseño. ❑ sí ❑ no

3. Nuestro primer plan (funcionó/no funcionó) porque

_____

_____

_____

_____.

4. Nuestro segundo plan fue (mejor/peor).

5. Aprendí

_____

_____

_____.

6. Fue difícil cuando

_____

_____

_____.

Nombre: _____ Fecha: _____

Crítica constructiva

Instrucciones: Haz preguntas. Da ideas. Usa estas oraciones para empezar.

Aclarar

¿Cómo hiciste para _____

_____?

Comentarios cálidos

Me gusta _____ porque _____.

Comentarios tibios

Tal vez quieras intentar _____

_____ .

Nombre: _____ Fecha: _____

Juguetes: resultados de las pruebas

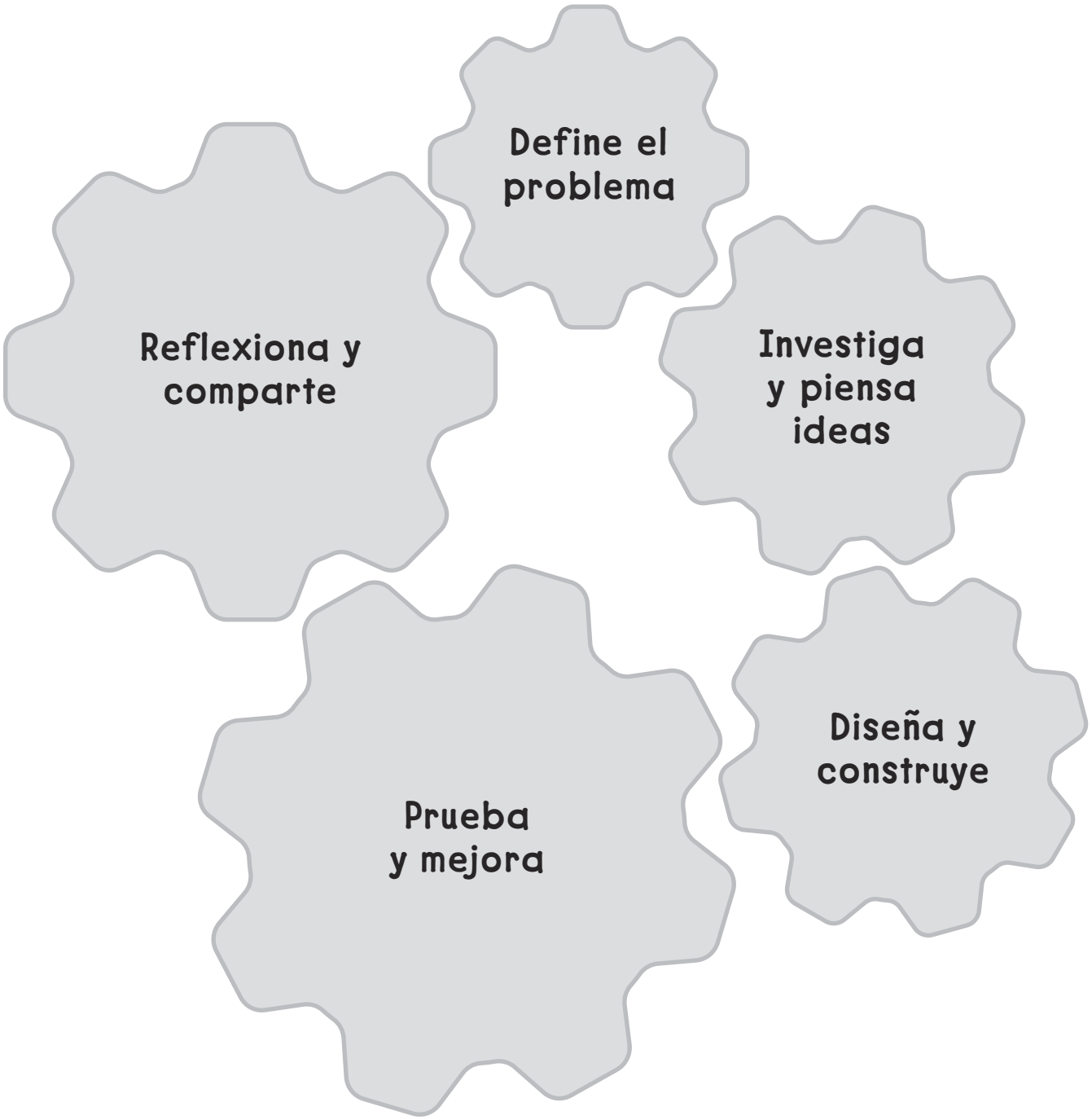
Instrucciones: Marca la tabla de la prueba sobre el juguete. Encierra *sí* o *no*.

Equipo	¿El juguete es fácil de usar?		¿El juguete es divertido?	
1	sí	no	sí	no
2	sí	no	sí	no
3	sí	no	sí	no
4	sí	no	sí	no

Dibuja el mejor juguete.

Nombre: _____ Fecha: _____

Proceso del diseño de ingeniería



Nombre: _____ Fecha: _____

Prueba: *¿Qué hacen los juguetes?*

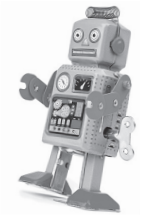
Instrucciones: Escucha a tu maestro. Responde las preguntas. Muestra lo que sabes.

1. ¿Qué juguete puede rodar?

Ⓐ carro

Ⓑ caja sorpresa

Ⓒ robot



2. ¿Cómo se mueve un trompo?

Ⓐ Se dobla.
Ⓑ Gira.
Ⓒ Salta.

3. ¿Qué puede hacer una cometa?

Nombre: _____ Fecha: _____

Pautas para el trabajo en equipo

Instrucciones: Piensa en tu equipo. Encierra las caritas para mostrar lo que hiciste. Escribe sobre cómo ayudaste.

= Siempre = A menudo = A veces

Escuché a mis compañeros de equipo.			
Ayudé a mis compañeros de equipo.			
Compartí ideas con mis compañeros de equipo.			
Tomamos decisiones en equipo.			

_____

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Ayudé a mi equipo cuando _____

_____

_ _

_____.

Nombre: _____ Fecha: _____

Proceso del diseño de ingeniería: reflexión

Instrucciones: Lee la lista. Tilda las casillas para mostrar lo que hiciste.

Define el problema

❑ Comprendí el problema o la tarea.

Investiga y piensa ideas

❑ Investigué y pensé ideas.

Diseña y construye

❑ Diseñé y construí modelos.

Prueba y mejora

❑ Probé y mejoré los modelos.

Reflexiona y comparte

❑ Reflexioné sobre mi trabajo y lo compartí.

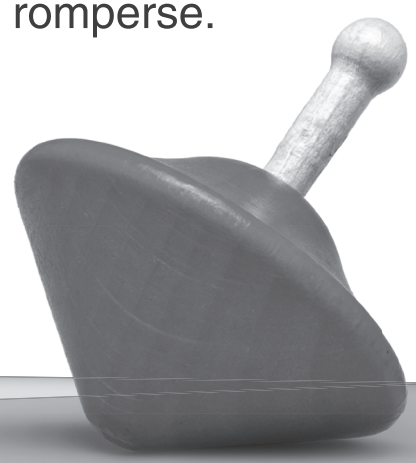
DESAFÍO DE CTIAM

El problema

Hay una nueva juguetería en la ciudad. Necesitan un juguete nuevo y fantástico para vender.

Los objetivos

- Haz un juguete nuevo.
- Puedes hacer tu juguete con cualquier material.
- El juguete debe ser divertido. No debe romperse.



Investiga y piensa ideas

Aprende sobre los juguetes.

Diseña y construye

Dibuja tu plan. ¡Construye tu juguete!

Prueba y mejora

Pide a un amigo que juegue con tu juguete. Luego, trata de mejorar tu juguete.

Reflexiona y comparte

¿Qué aprendiste?

Smithsonian

¿Qué hacen los juguetes?

Dona Herweck Rice

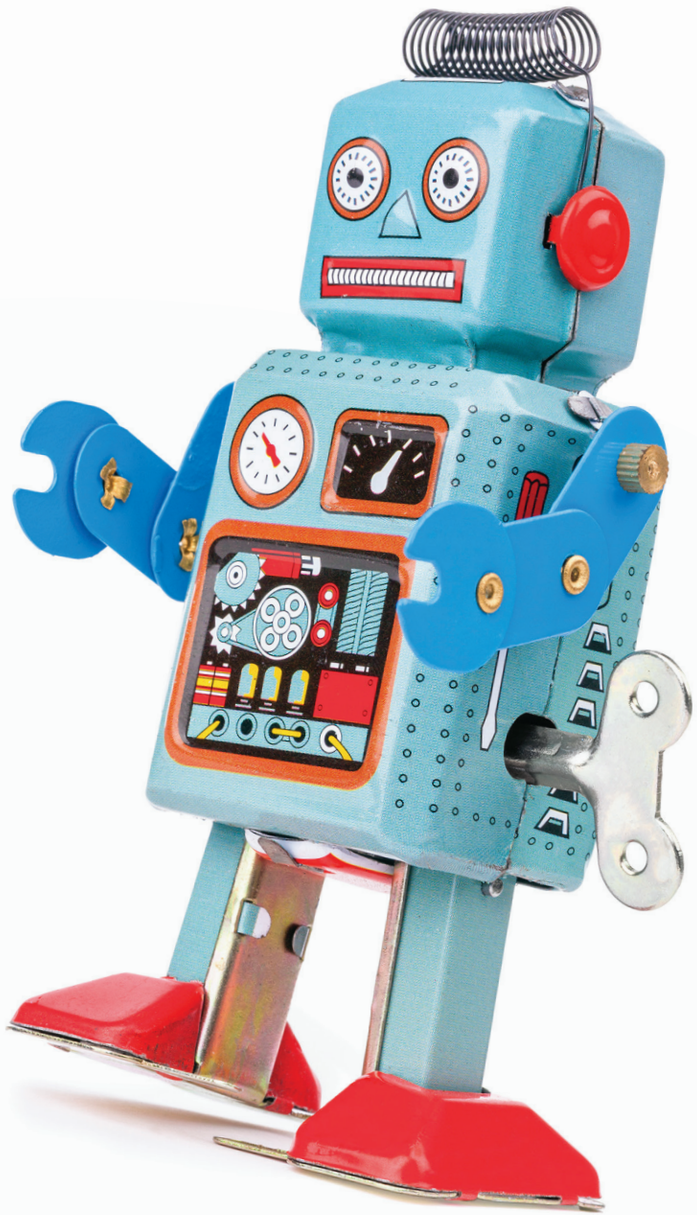
Algunos juguetes ruedan.

Algunos juguetes giran.

Algunos juguetes saltan.

Algunos juguetes se doblan.

Algunos juguetes caminan.



Algunos juguetes se apilan.

Algunos juguetes son para colorear.

¡Todos los juguetes son muy divertidos!

DESAFÍO DE CTIAM

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Reflexiona y comparte

¿Qué aprendiste?

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Piensa y hazlo

1. ¿De qué manera se puede mover un juguete?

2. ¿Qué juguete puede moverse de muchas maneras?