STORYTIME INVENTING

Invent an Adaptive Skateboard

KINDERGARTEN | TEACHER LESSON PLAN

Overview

In this lesson, students will strengthen their literacy and STEM skills as they participate in a read-aloud of *Skater Cielo* by Rachel Katstaller, explore how adaptive skateboards help people with different needs ride safely, and use Kid Spark engineering materials to create their own model of an adaptive skateboard.

Learning Objectives

- I can build a model of an adaptive skateboard with the important parts that help someone ride safely.
- I can tell about my model and how it would help someone move and stay balanced on a skateboard.

Curriculum Connections

- **Literacy:** Students explore the /s/ sound and build early reading skills through vocabulary and story-based activities.
- **Language Development:** Students learn and use new words, describe ideas, and participate in conversations related to skateboarding, movement, and adaptation.
- **Engineering:** Students plan and build a model of an adaptive skateboard using Kid Spark materials, applying problem-solving and creativity.
- **Collaboration:** Students work together, share ideas, and reflect on their building experience through guided discussion.

Next Generation Science Standards (NGSS)

K-2-ETS1-2: Develop a simple sketch, drawing or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

International Society for Technology in Education (ISTE) Standards

1.4 Innovative Designer

Common Core State Standards (CCSS)

RF.K.2: Demonstrate understanding of spoken words, syllables, and sounds (phonemes).

L.K.4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on kindergarten reading and content.

SL.K.1: Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

SEL Competencies (CASEL Framework)

2 Self-management, 3 Social awareness, 4 Relationship skills

Activity Details

- **Activity Time:** 35 - 40 Minutes
- **Target Grade Level:** Kindergarten
- **Grouping and Setup:** The read-aloud and discussion can be done as a whole group. Students can build independently or with a partner, based on your class structure.

Materials

- **Kid Spark Early Inventors STEM Lab**
- ***Skater Cielo* by Rachel Katstaller**
- **"Invent an Adaptive Skateboard" Activity Guide**
  Print one per student or pair, or display it

Invent an Adaptive Skateboard

Lesson Vocabulary

The following key terms will be used throughout this lesson.

Skateboard: A skateboard is a flat board with four wheels that people can stand on to ride and do cool tricks. The front is the nose, and the back is the tail.

Adaptive skateboard: An adaptive skateboard is made to help someone ride safely and feel steady. It gives extra help so more people can enjoy skateboarding.

Handlebars: The handlebars on an adaptive skateboard help the rider hold on and stay balanced. A helper can use them to give a gentle push.

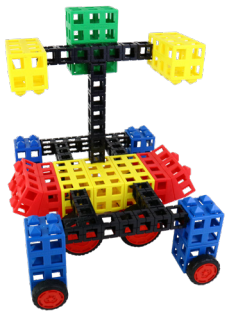
Support frame: The support frame of an adaptive skateboard goes around the rider. It helps them stand and hold on to feel safe.

Support wheels: The support wheels are extra wheels on the frame to help the skateboard stay steady and not tip over.

Balance: Balance means staying steady so your body doesn't tip or fall.

Pre-Lesson Preparation

- Review the "Invent an Adaptive Skateboard" Teacher Lesson Plan to become familiar with the lesson flow and key prompts.
- Prepare the adaptive skateboard design from Step 03 of the activity guide to use as a model.
- Consider laminating the activity guides for durability and repeated use in future lessons.



Plan for All Learners: *Every student deserves access to STEM learning. Before teaching, consider how you might adapt this lesson to meet the needs of students using assistive technology, accessible materials, or other support services. Collaborate with special education staff as needed to align with IEPs or 504 Plans.*

Anticipatory Set (5 MINUTES)

1. **Engage students:** "Have you ever felt wobbly riding a bike or scooter? If you're able, stand up and try something with me!"

   "Can you stand on one foot without tipping over? Now try the other foot? Wiggle a little—can you still stay steady? If so, that's called balancing! It means staying steady so you don't fall." Allow students a few opportunities to try to balance on one foot.

   "Some people's bodies move in different ways, and balancing can be tricky. But they can still ride! Today, we'll read a story about a skater who keeps going, even when things are hard. Then, you'll get to build a special kind of skateboard that helps someone ride safely and have fun!"

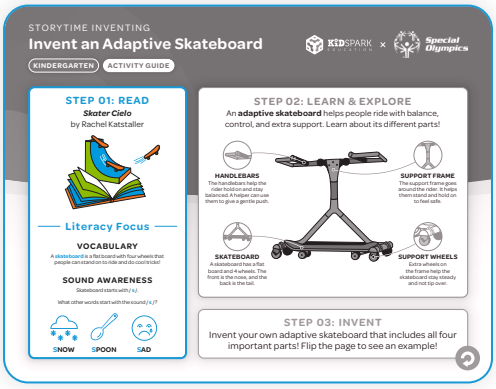
2. **Introduce the essential question:** "What are the parts of an adaptive skateboard, and how can I build a model of my own?"

3. **State the learning objectives:** "We're going to read a book called *Skater Cielo*. Then, you'll get to build an adaptive skateboard! By the end of our lesson, you will be able to say:
   - 'I can build a model of an adaptive skateboard with the important parts that help someone ride safely and have fun.'
   - 'I can tell about my model and how it would help someone move and stay balanced on a skateboard.'"

Invent an Adaptive Skateboard

Instruction (25-30 MINUTES)

Step 01: Read



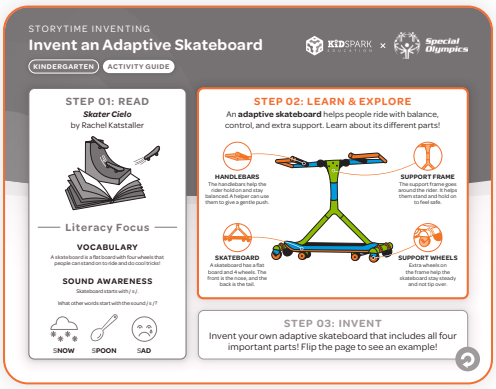
1. Using the "Invent an Adaptive Skateboard" Activity Guide, introduce the word ***skateboard*** using simple language: "A skateboard is a flat board with four wheels that people can stand on to ride and do cool tricks!"
2. Emphasize the /**s**/ sound at the beginning of skateboard. Ask:
   - "What sound do you hear at the start of skateboard?"
   - "Can you think of other words that start with /s/?"

   Show *snow*, *spoon*, and *sad* from the activity guide. Say each word and have students repeat. Invite students to share their own words that begin with /s/.
4. Show the cover of ***Skater Cielo***. Ask:
   - "What do you see on the cover?"
   - "What do you think this story will be about?"

> ***Teacher Tip:*** *Consider introducing storytime by prompting students to prepare for active listening. Review expectations such as:*
> - *Eyes watching*
> - *Voices off*
> - *Body still*
> - *Minds focused on the story*

5. Read ***Skater Cielo*** aloud. Before you begin, provide a listening focus: "As we read, listen for how Cielo feels when she falls—and what helps her keep trying. Think about how we can help other people keep going too, even if something is hard, like riding a skateboard."

Step 02: Learn & Explore



1. Using the "Invent an Adaptive Skateboard" Activity Guide provided to students, introduce the idea that some people might need help to ride a skateboard safely.
2. Say: "Some people's bodies move in different ways, and balancing on a regular skateboard can be tricky. But they can still ride! An adaptive skateboard has special parts that help someone stay steady and have fun."
3. Review the four main parts of adaptive skateboards shown in the guide: Handlebars, skateboard, support wheels, and support frame.

   Ask guiding questions to spark conversation:
   - "What does it feel like when your body is balanced?"
   - "Why is it a good idea to build skateboards that help everyone ride?"
   - "How does the support frame help someone feel safe?"
   - "If you were riding this skateboard, where would you hold on?"
   - "What would happen if the skateboard didn't have support wheels?"

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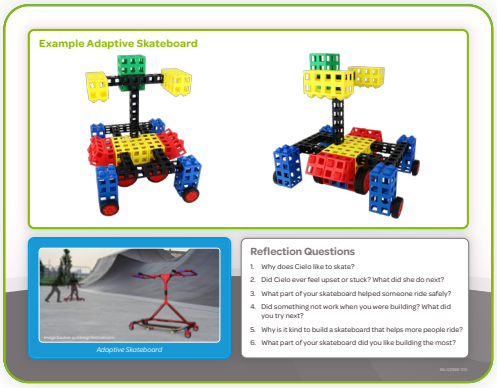
Step 03: Invent



1. Students will build an adaptive skateboard using Kid Spark engineering materials. This can be done individually or with a partner, based on teacher discretion or class setup. If students need help getting started, display the **Example Adaptive Skateboard build plans** from the Google Slide Companion or have them check the example in the activity guide.

   Say: "Cielo was brave and kept trying, even when she fell. Some people need extra help to ride a skateboard—and that's okay! Today, we'll build adaptive skateboards with the four main parts we learned about that help everyone ride safely and have fun, just like Cielo."

   > ***Teacher Tip:*** *Awareness of self and others is an important part of working with a partner. If students choose to work in pairs, consider introducing simple community agreements before building, such as:*
   >
   > - *Inventors share.*
   > - *Inventors listen.*
   > - *Inventors build together.*
   >
   > *You can also support conversations with sentence stems like:*
   >
   > - *Sharing an Idea: "I have an idea."*
   > - *Taking Turns: "Your turn, then my turn."*
   > - *Asking a Partner: "What do you think?"*
   > - *If You Don't Agree: "Let's try something else!"*

2. Before building, ask students questions to help them plan. Partners can talk together; ask individual students directly.
   - "What part will you build first?"
   - "What blocks could you use to help the skateboard roll?"
   - "What blocks could you use to build a strong support frame?"
   - "Where will you put the handlebars so someone can hold on and stay balanced?"

   Let students know: "After we build, we'll share our adaptive skateboards with the group–so be ready to tell us about your design!"

3. Whether students are working with a partner or on their own, support their thinking by encouraging conversation, observation, and expression.

   Provide flexible ways for students to express their thinking:
   - Talk with their partner or teacher about what they are building
   - Point to or describe materials
   - Use hand motions or build something to show their idea

4. Support students based on what you observe:

   If a student builds something that doesn't look like an adaptive skateboard: "That's a cool idea! What could you add to make it more like an adaptive skateboard?"
   Prompt: *"What will you do next when I walk away?"*

   If a student is copying the example exactly: "That's a great start! What could you add or change to make it your own?"
   Prompt: *"How can you make this adaptive skateboard even better?"*

   If a student doesn't know how to start: Pick up a few blocks and begin building something simple.
   Say: "Watch what I make—you can try it too, then add something to it."
   Prompt: *"What will you add next?"*
   Prompt: *"What might you do when I go help someone else?"*

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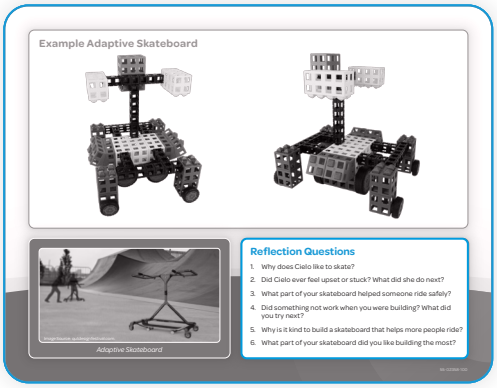
Closure & Reflection Questions (5 MINUTES)



1. Let students know they will share their adaptive skateboards and talk about what they learned. Say: "Now we're going to share what we built and what we learned today!"
2. Have students talk about their design before sharing with the whole class. If they worked with a partner, they can discuss their build together. If they worked alone, ask them to explain their design to you. Use the prompts below to guide the conversation.

   Prompts to support sharing:

   - "What did you make first?"
   - "What blocks did you use to build your adaptive skateboard?"
   - "What parts of your adaptive skateboard help someone stay balanced and safe?"
3. Invite students to share their adaptive skateboards with the whole class. Consider using a simple show-and-tell format, in which students hold up their adaptive skateboards and describe them, or point to parts while you help narrate their ideas.

   If a student is quiet or unsure, help them share by describing their adaptive skateboard based on what you've seen or talked about together.
4. Use the following discussion questions, grouped by focus, to guide the whole-group reflection. Choose 2–3 based on your time and students' engagement.

   Reading Comprehension

   - "Why does Cielo like to skate?"
   - "Did Cielo ever feel upset or stuck? What did she do next?"

   Design Experience

   - "What part of your skateboard helped someone ride safely?"
   - "Did something not work when you were building? What did you try next?"
   - "Why is it kind to build a skateboard that helps more people ride?"
   - "What part of your skateboard did you like building the most?"

Special Olympics

The Special Olympics is a global organization that empowers children and adults with intellectual disabilities by giving them opportunities to train, compete, and find joy through sports. Its mission is to foster inclusion and acceptance for all and celebrate the abilities of every person—regardless of how their brain or body works. The transformative power of sports to instill confidence, improve health and inspire a sense of competition is at the core of what Special Olympics does: real sports, real competition, real achievements. *Source: Special Olympics, Mission. www.specialolympics.org*

How to Talk About Special Olympics with Children:

- **Use clear, positive language:** "An intellectual disability means someone's brain works in a different way, and they might learn or think differently."
- **Focus on shared experiences:** "People with intellectual disabilities like to play, try hard, and have fun—just like you!"
- **Emphasize inclusion and strengths:** "Athletes of all abilities are strong, determined, and love being part of a team."
- **Encourage empathy in design:** "When we create, it's important to think about how we can help someone else feel strong, safe, and included."