cubelets
ROBOT BLOCKS

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Investigating ACT Cubelets



Lesson Overview

Students investigate ACT Cubelets

Students investigate the unique properties of each ACT Cubelet. They create robots and name them, practice counting how many Cubelets are in their robot, and try to use SENSE, ACT, and Battery accurately when they are talking to peers and adults in the room.



Lesson Tags

Grade Level
Preschool & Kindergarten

Difficulty
Apprentice

Duration
30 minutes

Prerequisite Knowledge
A robot is a machine that can SENSE, THINK, and ACT.
Distance SENSE Cubelet
Battery Cubelet



Supplies

Cubelets (6 groups of)
1 Distance SENSE
1 Drive ACT
1 Battery
1 Rotate ACT*
1 Flashlight ACT*
Brick adapters*
Legos*
*Keep these blocks at the supply table

Other Supplies
Anchor Chart Paper
Anchor Chart Markers
Robot Rumpus by Sean Taylor or technology to watch this Youtube read-aloud



Description

Outline
1. Read Robot Rumpus by Sean Taylor
2. Review Cubelets vocabulary and group norms
3. Investigate ACT Cubelets one by one

Objectives
Students will investigate each ACT Cubelet.

Assessment
Teachers look for group collaboration, thoroughly testing each ACT Cubelet, clear explanations of what each Cubelet does, accurate Cubelets vocabulary.

How did this lesson work for you? Let us know! goo.gl/sLsypR
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Standards

ISTE

1.d. With guidance from an educator, students explore a variety of technologies that will help them in their learning and begin to demonstrate an understanding of how knowledge can be transferred between tools.
4.a. With guidance from an educator, students ask questions, suggest solutions, test ideas to solve problems, and share their learning.
4.d. Students demonstrate perseverance when working to complete a challenging task.
5.b. With guidance from an educator, students analyze age-appropriate data and look for similarities in order to identify patterns and find solutions.

Common Core

NA

NGSS

NA



Vocabulary

Collaborate
Cubelets
Robot
Sense
Think
Act
Battery
Distance
Drive
Flashlight
Rotate



Resources

Attachments

NA

Tips & Tricks

- Before class, have your groups planned - think also of what collaboration structures make the most sense for your class or your school. Possible team roles:
  - Materials Manager
  - Team Leader (in charge of making sure group stays on task)
  - Recorder

Pacing

10 minutes: Read and discuss Robot Rumpus by Sean Taylor or watch this Youtube read-aloud
5 minutes: Review Cubelets vocabulary and group-work norms
15 minutes: Students investigate ACT Cubelets

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Instructional Steps

Step 1 - Pre-class setup

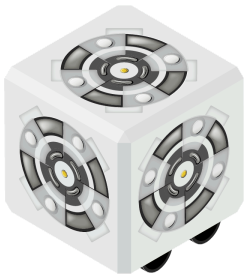
Time: 10 minutes

Cubelets Needed

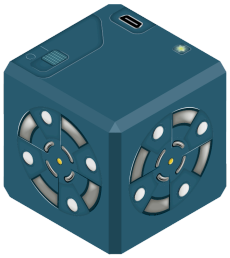
- ❏ Separate Cubelets into 6 groups, each containing:



1 Distance SENSE

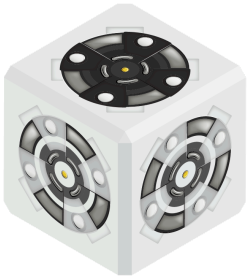


1 Drive ACT



1 Battery

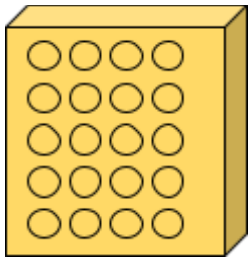
- ❏ At a central materials table, have 6 groups containing:



1 Rotate ACT*



1 Flashlight ACT*



Brick adapters*

- ❏ Prepare Anchor Chart to collect the names of the ACT Cubelets next to the Cubelets you already know - (Drive, Battery, Distance). Leave room to eventually add all of the Cubelets in your pack by the end of the unit.

Classroom Management

- ❏ Plan 6 student groups (groups should be no more than 4 students, and are best with 2-3).

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Step 2 - Cultivate Wonder

Time: 10 minutes

Robot Rumpus By Sean Taylor

"It's time to really get to know our Cubelets robots. When we think about robots, though, we should probably think about all the things the robots can do! Here's a funny book about pretend robots that make a huge mess in someone's house!"

- Read and discuss Robot Rumpus by Sean Taylor or watch this Youtube read-aloud

"Woah! That was a funny book! What did you notice in the book while we were reading?"

"Do you remember when we sorted our Cubelets several classes ago? We sorted them into three groups. Do you remember what groups we sorted them into?"

- [SENSE, THINK, and ACT]

"Excellent! Yes, SENSE, THINK, and ACT Cubelets all look very different from one another. And even though ACT Cubelets look very different from THINK Cubelets, do ACT Cubelets look very different from each other?"

- [Yes, wheels, big dented circle, black spinny circle on one side]

"Yes! Every Cubelet looks at least a little different than every other Cubelet in the set. Today, we're going to be investigating exactly what all these clear ACT Cubelets do."



Step 3 - Experience Before Expertise

Time: 5 minutes

Review Group Norms

"First, let's remember the Group Norms we made on the first day of this Cubelets unit.

- Review ideas on Group Norm anchor chart.

"Today, you will be in groups of [2, 3, or 4] students. Each person will have a very specific job. [Review the jobs you decided on during your preparation for class]."

- Wrap up conversation by reviewing the group norms, separating students into their groups, and assigning group roles.

- Once students are in their groups, have them share with the other group members what their role in the group is.

Notes

★ Be extra alert for students who are collaborating well and those who need your support. With only five minutes to open explore, students may encounter some tension in their groups.
★ Some teachers choose to use visual cues (like a necklace or a hat) to represent each group role.
★ It is recommended that one of your group norms be: Be respectful of materials. Cubelets are made for children and can sustain the hazards of normal play (falling off low tables, for instance), but are also machines that can break. Students may need help remembering to be gentle with Cubelets.

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Step 4 - Co-Construct Meaning

Time: 10 minutes

Investigate

"Today is all about understanding the different ACT Cubelets. Make sure you spend time with each ACT Cubelet, turning it around, putting it in different parts of the robot. See how you might add Legos to your robots to bring them to life. At the beginning, you'll start with a Drive Bot - see how many different Drive Bots you can make, then have your Materials Manager go trade in your Drive Cubelet for a different ACT Cubelet. You should only have one ACT Cubelet at a time.

- Groups get to work investigating ACT Cubelets one at a time.



Step 5 - Check for Understanding

Time: 5 minutes

Add to Anchor Chart

Students share out what they learned about each of the ACT Cubelets while the teacher records a model of each Cubelet next to its name on the Anchor Chart.



Differentiation - Intervention & Extension

Time: NA

Intervention

Some students may still struggle with holding their hand around the SENSE Cubelet instead of the ACT Cubelet. Be a support for them, but also give them time to practice on their own and with their peers.

Extension

For students who very quickly figure out what each ACT Cubelet does, ask them to use Legos and Brick adapters to make their robots "come to life" with what they think it could do or be.