

Overview:

In this lesson, students will explore the different features and attributes of the Blue ROK Block. Students will get hands-on experience as they analyze the block, practice connecting and disconnecting, and working as a team to solve a fun challenge.

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Unit Concepts & NGSS Alignment:

- Become familiar with how to use ROK Blocks to build models
- Compare/contrast number, shape, size, and color of basic blocks
- Identify and name 2 and 3 dimensional shapes that comprise the ROK Blocks
- Observe blocks closely, identifying details and functionality

Scientific/Engineering Practice - Asking questions and defining problems

Crosscutting Concept - Scale, proportion, and quantity

Activity Time:

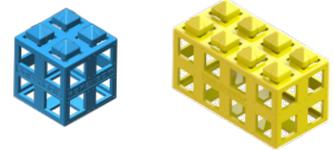
30 Minutes

Kid Spark Mobile STEM Lab:

ROK Blocks

Materials Per Student:

- 4 Blue ROK Blocks
- 1 Yellow ROK Block



Lesson Introduction:

Instructor: *"In the previous lesson, we learned about the big Yellow ROK Block. Today we are going to learn about a different block: The Blue ROK Block. The Blue ROK Block is in the shape of a cube. Two Blue ROK Blocks can be put together to be the same size and shape as the big Yellow ROK Block."*

Core Learning Activity:

1. Give each student (2) Blue ROK Blocks and instruct them to look at them closely.
2. Instruct students to share what they notice/observe about the blocks with other students. Use the following prompt questions for student discussion:
 - a. How many sides does the Blue ROK Block have? (6)
 - b. How many openings does the Blue ROK Block have on each side? (4)
 - c. Which side is different? (**Pyramid side**) What makes it different? (**Pyramids**)
 - d. How many pyramids are there? (4)
 - e. What are the pyramids for? (**Connecting to other blocks**)
3. Discuss with students how all the sides on the Blue ROK Block are the same size. Explain when a shape has six square sides that are all the same size, it is called a "cube".
4. Demonstrate and encourage students to practice connecting and disconnecting the Blue ROK Blocks. The Blue ROK Blocks go together the same way the Yellow ROK Blocks go together.
5. Give each student a Yellow ROK Block and ask them if they remember what kind of shape it is. (**Rectangular Prism**).
6. Ask students to compare the Blue ROK Block to the Yellow ROK Block. Use the words "half", "double", and "twice as large" to compare the sizes of the blocks. Demonstrate how the Blue ROK Blocks can connect to the Yellow ROK Block. (**Tip: it is easier to connect the Blue ROK Blocks to the bottom rather than the top of the Yellow ROK Block**).

7. Ask students to explore the different ways the Blue ROK Blocks and Yellow ROK Block can fit together. Use the following prompt questions with students:
 - a. How can you connect the Yellow and Blue ROK Blocks together to make a long shape? (**Demonstrate how to connect the Blue ROK Blocks to the square end of the Yellow ROK Block**).
 - b. How can you connect the Yellow and Blue ROK Blocks together to make a square shape? (**Demonstrate how to connect the Blue ROK Blocks to the Yellow ROK Blocks to form a square**).

Learning Extension:

1. Ask students to put a Blue ROK Block and a Yellow ROK Block next to each other on their desks and then stand up behind their chairs.
2. Instruct students to look closely at the Yellow ROK Block and then close their eyes.
3. Ask students to imagine they are inside a Yellow ROK Block that is big enough for them to stand in. Ask them to reach up and feel the top of the block, then the sides, and then the bottom.
4. Repeat this activity with the Blue ROK Block.
5. Ask students how the Blue ROK Blocks and the Yellow ROK Blocks are the same and different. Ask which is bigger.

Lesson Challenge: Build a Bigger Cube

Instructions: Have students work in teams of two. Make sure each team has (8) Blue ROK Blocks. Challenge teams to build a bigger cube using the (8) Blue ROK Blocks. Ask students to determine how many openings are on each side of the cube. (E.g. each side of the bigger cube should have 16 openings - see example solution below).

