

Didactic Scenario

1. Title

Cube

2. Keywords

Cube, architecture, modern art, shapes

3. Basic Information

STEAM Subject: engineering, math, arts

Typical interaction time with the instructional scenario in teaching hours for in-school work:
70 minutes

General description of the scenario:

<u>Phases</u>	<u>Stage</u>	<u>Time</u>
Preparation	Preparatory	10 minutes
Main part	Implementation	55 minutes
Conclusions	Evaluation	5 minutes

Age group: 9-10 years old

Estimated difficulty level:

Very Easy	Easy	Moderate	Challenging	Very Challenging
	X			

Teaching resources

Material:

1. Wooden or plastic cubes (one per student or in small groups)

2. Whiteboard or chalkboard with markers/chalk
3. Chart paper and markers
4. Rulers and measuring tapes
5. Art supplies (colored pencils, markers, etc.)

School infrastructure: Media, Computer

Additional material from external sources/online tools: N/A

Differentiated Instruction for students of differing abilities and learning styles in the same class: N/A

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4. Educational Problem

By exploring the properties of a cube, students enhance their spatial reasoning skills. Spatial reasoning is vital for understanding shapes, patterns, and solving mathematical problems, making this lesson an opportunity to develop these essential cognitive abilities. The creative cube artwork activity in the lesson integrates art with math concepts. It allows students to visually represent a cube's properties, encouraging artistic expression while reinforcing their understanding of cube shapes and its attributes. The lesson plan encourages students to work in small groups, fostering teamwork and communication skills. Students learn from each other's observations and interpretations, creating a positive learning environment.

5. Learning Objective (-s)

1. Students will learn about the properties of a cube, including its sides, edges, and vertices.
2. Students will develop their understanding of spatial reasoning and geometry through hands-on activities and visualizations.
3. Students will be able to identify and distinguish cubes from other three-dimensional shapes.

6. Phases of the Scenario

Phase 1

Title: Preparation

Indoor	Outdoor	Mixed
X		

Phase duration in minutes: 10 minutes

Detailed description of the scenario phase:

1. Gather materials: Wooden or plastic cubes (different sizes) rulers, measuring tapes, chart paper, and art supplies.
2. Print out the handouts. Worksheet 1 will be used one per pair. Worksheet 2 should be printed out for each student in the class.
3. Set up the learning environment: You may prepare a nice music for background while students will be coloring the cubes. (list of music)

Activity sheets: N/A

Phase 2

Title: Main part

Indoor	Outdoor	Mixed
X		

Phase duration in minutes: 55 minutes

Detailed description of the scenario phase:

Introduction (10 minutes):

Begin the lesson by showing students a picture of a cube and asking if anyone knows its name and properties.

Define a cube as a special kind of three-dimensional shape that has six equal square faces, eight vertices (corners), and 12 edges.

Discuss real-life examples of cubes, like dice or boxes, to help students visualize the shape.

Exploring Cube Properties (20 minutes):

Distribute wooden or plastic cubes to each student or small groups.

Ask students to carefully examine the cube and identify its faces, edges, and vertices.

Have them count the number of faces, edges, and vertices aloud as a class.
Encourage students to measure the length of one side of the cube using rulers or measuring tapes and record the measurements on a worksheet

Creative Cube Art (20-25 minutes):

Introduce students to Thank you X artist and his works.

Give students art supplies and ask them to draw a cube according to the specific instructions:

1. We will be creating a collaborative cube drawing, similar to Thank You x's style -Each of you will create 2 sides of a cube
2. The sides of the cube will be any pattern or design that is unique to you
3. The left side must incorporate your name into the design

Conclusion and Feedback (5 minutes):

Gather the students together and review the properties of a cube.

Ask individual students to share their artwork with the class, explaining the features they included in their drawings.

End the lesson by asking the following feedback questions:

- a. What are the properties of a cube?
- b. How many faces does a cube have? How many edges and vertices?
- c. Can you name any real-life objects that are shaped like cubes?
- d. What was the most interesting part of the lesson for you?

Activity sheets: N/A

Phase 3

Title: Conclusions

Indoor	Outdoor	Mixed
X		

Phase duration in minutes: 5 minutes

Detailed description of the scenario phase:

1. Assess learning: Observe student interactions with cubes and their measurement accuracy.
2. Review artwork: Examine students' cube artwork to assess their understanding of cube properties.
3. Informal assessment: Use questioning and class discussions to gauge comprehension.
4. Identify strengths and areas for improvement: Evaluate the effectiveness of the lesson in achieving objectives.
5. Ensure understanding: Confirm that students grasp cube properties and their connections to art and math.

Activity sheets: N/A

7. Evaluation Methodology

Assessment for this lesson can be done through observation, class participation, and the student's artwork. Additionally, you can give a short quiz to check their understanding of cube properties.

8. Additional Resources for the teacher

N/A