

Classifying Kites and Squares

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Project Introduction

We are pre-service teachers who are currently taking Math Structures II, a class about fundamental mathematical processes.

This course requires teams of learners to collaborate on an EMPACTS Project where grade level activities and lessons are developed for K-6 classroom teaching.

Our K-6 mentor was Sylvia Strode, a 5th grade math teacher at Elkins Elementary School.

After looking at topics to teach our team chose to do a lesson on classifying quadrilaterals: kites and squares.

This project allows our team to experience classroom teaching first-hand and develop skills and experience needed to be successful in the future.

College Curricular Goals

Math Structures

- Demonstrate understanding of basic geometric concepts
- Demonstrate understanding of mathematical systems

Teaching

- Prepare and present grade level lesson plans, activities, and assessments
- Demonstrate technology fluency in developing materials for teaching
- Gain experience in classroom management and teaching

Math Standards and Objective

Fifth Grade

Standards

AR.Math.Content.5.G.B.3: Understand the attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.

AR.Math.Content.5.G.B.4: Classify two-dimensional figures in a hierarchy based on properties

Objective

Students will be able to classify kites and squares based on their properties and characteristics.

Lesson Plan

Objectives:

1. Classify two-dimensional figures in a hierarchy based on properties
2. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category

Materials: paper, pencil, glue, scissors, PowerPoint

Lesson Instructions:

1. Begin the lesson by introducing the quadrilateral known as a kite to students and discuss a kite's properties. Have students construct their own kites and discuss how kites relate to other quadrilaterals on the hierarchy.
2. After students are familiar with a kite then introduce the properties of a square. Discuss where kites and squares should be located on the quadrilateral hierarchy.
3. Students work independently on a worksheet and then as a class come together to go over the questions.
4. Students create robots using quadrilateral shapes.
5. At the end of the lesson come back together and have students fill out an exit ticket.

Assessment: Students will be assessed by evaluating the worksheet and reviewing the exit ticket

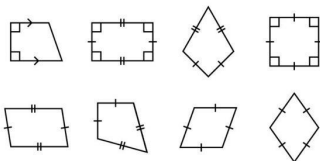
Conclusion: Come back together as a class to discuss overview of lesson and have students fill out an exit ticket

Safety: Consider using non-toxic glue and safety scissors

Worksheet

5

1. Consider the quadrilaterals shown.



- Use red to color each kite.
- Circle each square.

Sketch the shape as described.

- Kite with 4 equal side lengths and no right angles
- Kite that is not a trapezoid

4. Consider the polygons shown. Mark each name that can be used to classify the polygon. More than one name may be marked.

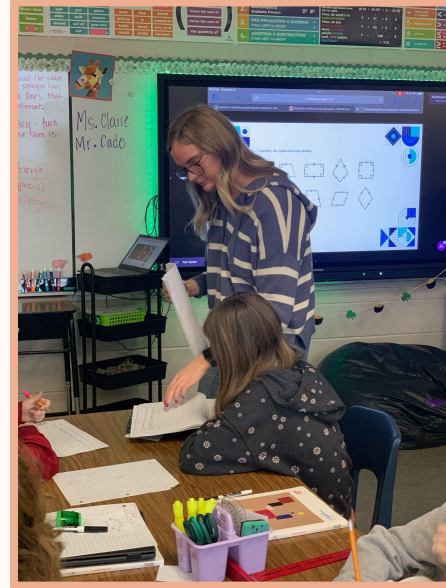
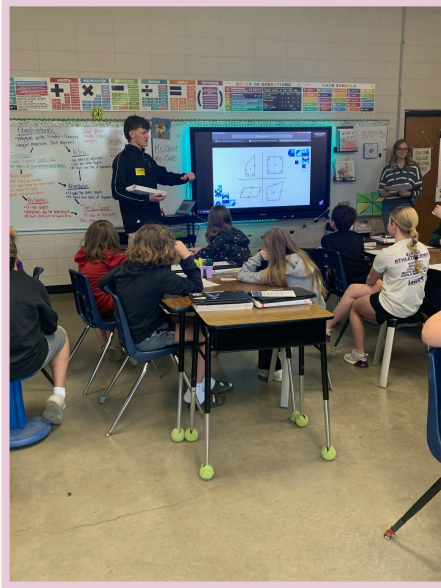
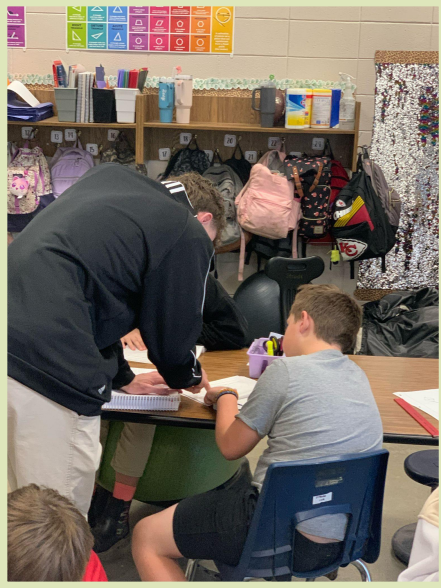
Polygon	Quadrilateral	Trapezoid	Parallelogram	Rectangle	Rhombus	Kite

5. Scott knows that all rhombuses and squares are also kites. Because all rhombuses and squares are also trapezoids, Scott thinks that all kites must be trapezoids as well. Is he correct? Explain.

Quadrilateral Robots



Teaching in the Classroom



What We Learned

Teaching this lesson we learned the importance of flexibility and mental agility. In a classroom unexpected challenges can arise at any moment and require quick thinking and adaptability. Although being prepared, not every part of our lesson went as planned. Student's varying levels of understanding and spontaneous questions require flexibility to modify the lesson to meet the students needs. We also learned to provide various teaching approaches. Not every student learns the same way so its important to provide different instructional strategies including visual aids, hands-on activities, or group discussions to make sure every student has the opportunity to engage with the material.

Acknowledgments

Professor Dianne Phillips: EMPACTS Project Facilitator

Professor Marjorie Whitmore: Math Structures II Instructor

Mrs. Sylvia Strode: 5th Grade Math Teacher: Elkins Elementary School: K-6th Mentor

Work Cited

Quadrilateral Robots Activity:

<https://www.teacherspayteachers.com/Product/Quadrilateral-Robots-Quadrilaterals-Activity-PBL-Math-Project-Geometry-Craft-8631630>

Eureka Math Module 5 Worksheet

Eureka Math Module 5 Exit Ticket