

KINDERGARTEN & GRADE 1 MATHEMATICS: Shapes

Summary of Learning Opportunity

This class has been enjoying learning about shapes. I decided to utilize that interest to get them thinking about how smaller shapes can make bigger shapes. We started with picture books on shapes, talking as a class about all the different shapes we could see. The students then moved to working individually using manipulatives (triangles, squares and rectangles of various sizes and colours, with multiple copies of each type) which they had used in prior learning. The students arranged the manipulatives into bigger shapes. I circulated the class as they worked to talk with them about what they had made to gauge their understanding and thinking, using the proficiency descriptors in the K-4 Mathematical Foundational Learning Progressions. In using the Foundational Learning Progressions, I focused specifically on the skill Geometry and Measurement (Spatial Sense) and sub-skill 2D Shapes and 3D Objects. I continued this lesson the following day by having the students draw the shapes they created with the manipulatives to gather further evidence of students' proficiency to create 2D shapes.

Mathematics K and 1	Learning Standards	Competencies	<p>Understanding and solving</p> <ul style="list-style-type: none"> Develop, demonstrate and apply mathematical understanding through play, inquiry and problem solving. <p>Communicating and Representing</p> <ul style="list-style-type: none"> Represent mathematical ideas in concrete, pictorial and symbolic forms
		Content	<p>Kindergarten</p> <ul style="list-style-type: none"> Single attributes of 2D shapes and 3D objects <p>Grade 1</p> <ul style="list-style-type: none"> Comparison of 2D shapes and 3D objects

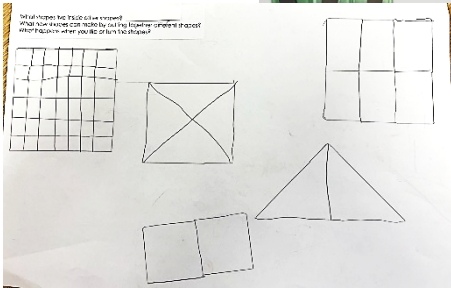
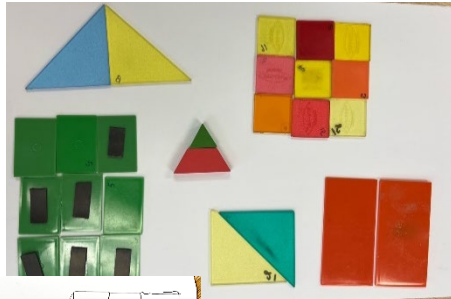
Foundational Math Connections

Instruction

MATHEMATICS:
Geometry and
Measurement – 2D
Shapes and 3D Objects

- I started the lesson by sharing picture books about shapes with the class. As a whole class, the students called out and identified the different shapes they saw in the books
 - The shapes identified by various students were rectangles, triangles, circles, hexagons and trapezoids.
 - The students discussed, without prompting, the differences between squares and rectangles and I used this as an opportunity to deepen the discussion and have the students list the similarities and differences between these shapes.
- The students were then presented with a task focused on 3 questions:
 - What shapes live inside other shapes?
 - What new shapes can you make by putting together different shapes?
 - What happens when you flip or turn the shapes?
- I gave the students manipulatives they were already familiar with the support their exploration and completion of the task. At the end of the lesson, students shared each other's creations.
- The following day, students recorded their shapes on paper. Some students chose to use the manipulatives again, while others drew their work (either free-hand or with a ruler) to show the different ways to compose different shapes using other shapes.

Demonstration of Student Learning, Teacher Assessment, and Reflection



Student A (Kindergarten)

Proficient

Student A was able to create larger 2D shapes using manipulatives and by drawing. The student challenged themselves to try and use as many shapes as they could to create one big shape. When pointing to their large drawn square, they proudly said, "It took so many little squares to make that big square." This is evidence for their ability to demonstrate their mathematical understanding through play and inquiry.

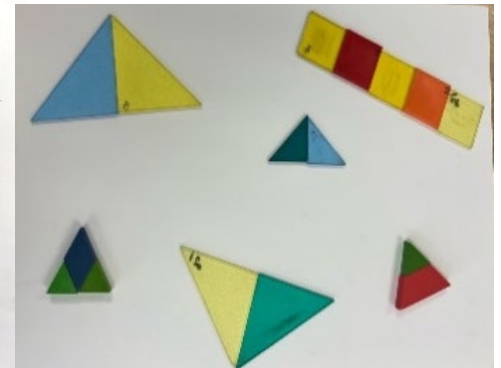
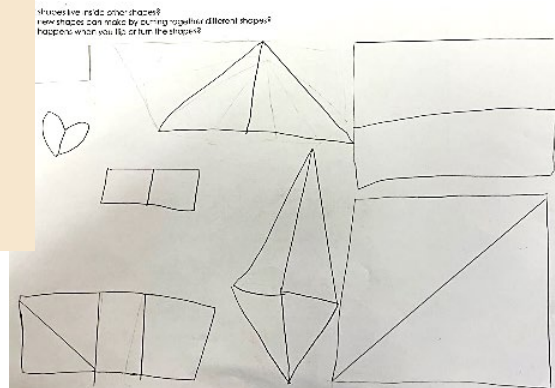
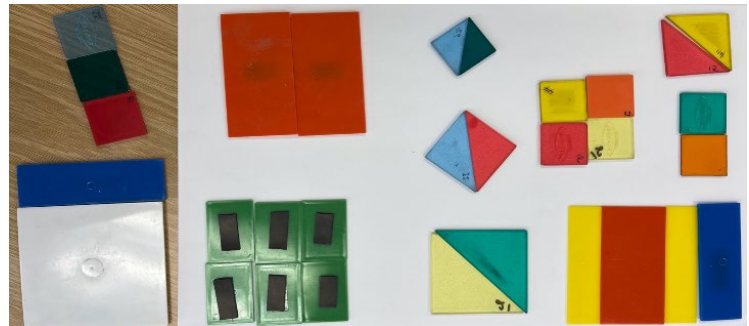
In our conversation, the student demonstrated the ability to identify and describe shapes by name, both the smaller shapes and the bigger shapes they created. When asked how they knew which one was a square which one was a rectangle they responded with, "the rectangles have two long sides and two short sides."

Student B (Grade 1)

Proficient

Student B was able to compose and decompose 2D shapes using smaller shapes using concrete and pictorial forms. Their work with the manipulatives and their drawings demonstrated ability to build the same larger shape (rectangle) in many different ways. When asked if they could create a different shape they said "I could build triangles" and then demonstrated that by using smaller triangles to build a larger triangle.

The student was able to verbally identify the name of each shape and explain which smaller shapes were used to make the bigger shapes.



Teacher's Reflection

Using the K-4 Mathematical Foundational Learning Progressions allowed me to start with a clear understanding of what "Proficient" looked like for a given skill or competency and use it to guide my planning, teaching and eventually the assessment of the task. I found that the skills, sub-skills, and proficiency descriptors helped to break down the Learning Standards into observable and measurable parts so that it was easy to see not only which students were proficient, but which would need more support and in which specific areas. I also found that the proficiency descriptors helped in conferencing with parents, writing reports cards and provide descriptive feedback that is both understandable and actionable.