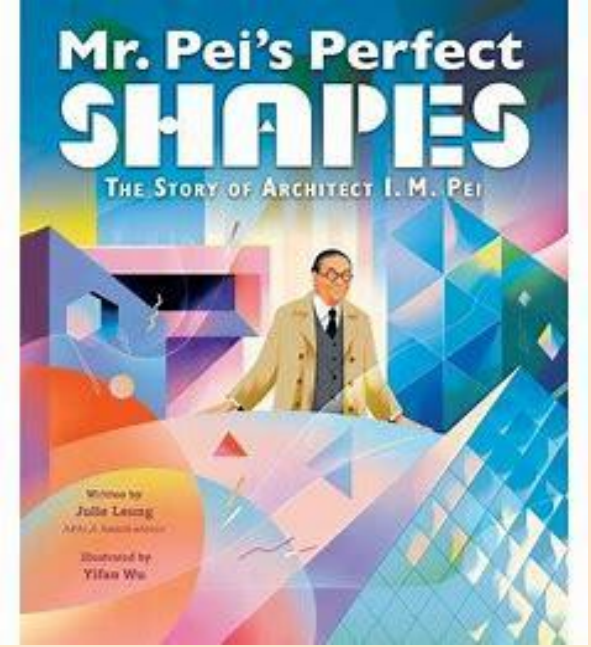
Architect-inspired building-making for 2nd grade students



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Developed by Lucie Carriker, McCayla White and Nina Cordero for CU Boulder's Children's Book Festival 2024, Open Education Resource, Creative Commons, Available at colorado.edu/event/bookfest

Grade and Colorado Academic Standard

Math

Grade Level: 2nd

Content Area: Math

Standard Category: Geometry

Grade Level Expectation: #2.G.A.: Reason with shapes and their attributes.

Evidence Outcome: 1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. (Sizes are compared directly or visually, not compared by measuring.) Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

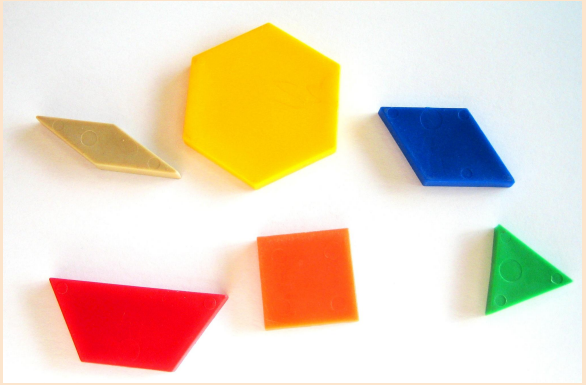
"Colorado Academic Standard information retrieved from https://www.cde.state.co.us/apps/standards.
→ View the full standards at https://www.cde.state.co.us/standardsandinstruction/standards

Activity Overview

- Much like Mr. Pei, students will trace and cut out shapes to make mosaics, then place shapes in a building shape of their choosing.
- Individual activity
- Activity adapted from Super Simple, available via this link

Materials

- Scissors
- Clear contact paper
- Construction paper
- Yarn or string
- Hole punch
- Pattern blocks (geometric shape blocks)
- Sentence frames for comparing shapes



Directions

Introduce the activity by reading *Mr. Pei's Perfect Shapes*. Then, explain to students how, like Mr. Pei, they are going to use shapes to create their own buildings. Introduce the idea of using shapes to create their own (2 dimensional) buildings, by matching the sides of shapes.

1. Have students trace out shapes using the **pattern blocks** on a sheet of construction paper. Students will need at least 1 of each shape. Then, have them cut out the shapes with **scissors**.
2. Then, give each student **two** pieces of **contact paper**. Each will need to be large enough to place the shapes.
3. Instruct students to place the shapes on **one** piece of contact paper to create their building, leaving little gaps between the shapes. **(Students may need help peeling the contact paper.)**

Directions Cont’d

4. Once students are done placing the shapes, have them place the **other piece** of **contact paper** on top. This will keep the shapes in place.

5. Punch a hole through the top of the project using the **hole punch** and run a **string** through the top, tying it in a loop.

End the activity by having students hang their buildings in the window, and let each other see their designs. Encourage students to describe their buildings out loud in terms of which shapes they used, and to explain their reasoning (if applicable) for choosing those shapes, using the sentence frames on the next slide.

Sentence Frames

- ★ I used ____ triangles, ____ hexagons, ____ squares, and ____ trapezoids.
- ★ I decided to put this ____ next to this ____ because they have sides that are the same length.
- ★ I chose to put these two ____ next to this ____ because they create a (wide/narrow) angle.
- ★ (For adults assisting nonverbal students): We put this ____ next to this ____ because (student's name) _____.

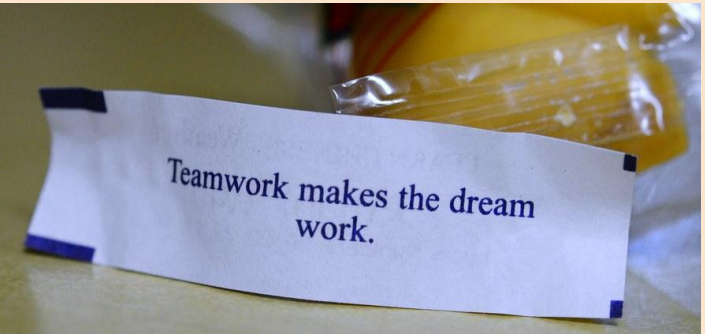
Modifications for Diverse Learners

- **For those whose fine motor skills are still developing:**
  - Handling thin sheets of paper might be a challenge, so students could make their buildings with the pattern blocks themselves. Assuming blocks will need to be reused in future classes, use a washable glue or tape to connect the blocks in the student's desired shape.
- **For those who are blind or have limited vision:**
  - Focus on the pattern blocks instead of the paper since they will make for a more tactile experience. Have students attach their blocks to a sheet of paper with a temporary adhesive and leave small spaces between each block so that they can clearly feel the outline of each shape after their design is complete.
- **For those who benefit from attention and/or sensory support:**
  - Introduce the project to students several days before your first day of actually working on the project. If possible, send the book home with each student so that their adults can read the book to them when they are in the best possible headspace. Since it is already an individual project, students could be allowed to work outside of the classroom (with an adult) to limit distractions from their peers.

Modifications Cont’d

★ **For those who require hands-on support:**

- Have an IA (instructional aid) or other special service provider do the bulk of the project while engaging with and describing the activity to the student. Make sure the student gets to handle/feel each shape in both paper and pattern block form. Show them the mosaic-in-progress after each new shape has been added and ask for their opinion if they are able to verbalize one, or try to gauge their opinion in other ways if they are not. Bring the student around the classroom to see (or feel) other students’ projects and have their classmates come to them to provide feedback and encouragement.



We also hope you can join us on Saturday, November 9 at the Boulder Public Library to meet Julie Leung and hear more about *Mr. Pei's Perfect Shapes* in-person…along with other authors and illustrators! For more information, visit

https://www.colorado.edu/event/bookfest