

Teacher Guide

BMC Issue: #52, Sequences

Subjects: Geometry, Algebra

Grade Level: 6th grade and up

Topics: Sequences & Series, Fractions, Proof without words

Lesson Aim/Objectives:

- Observe shapes and patterns used in Native American art
- Model infinity with paper-folding
- Investigate infinite series of fractions with paper-folding
- Split shapes into self-similar shapes
- Explore sum of infinite series

Common core standards:

Geometry 7.G

Draw, construct, and describe geometrical figures and describe the relationships between them.

HS Modeling with Geometry G-MG

Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

Operations and Algebraic Thinking 5.OA

Analyze patterns and relationships.

Practices

2. Reason abstractly and quantitatively.
4. Model with mathematics.
7. Look for and make use of structure.

Materials:

- Print
 - BMC issue
- Bring
 - Color pens or pencils
 - Any paper
 - Scissors (optional)

Terms:

Geometry: triangle, square, polygon, midpoint, region, crease pattern
Algebra: sequence, series, sum, equation

Instructions:

1. Read activities in newsletter
2. Register for BMC meeting to get Zoom link
3. Instruct students to consider the hosts as guests in the classroom.
4. Pass out a copy of newsletter to each student.
5. Tell students we encourage participation; they should share results, drawings, and ask questions. They can show their papers to the camera.

Notes:

- Test technology; if problems arise, please let hosts know.
- Use the recap issue to revisit problems in the classroom
- Provide feedback