

Triangle Design

Grades K-2



Introduction:

Mathematics is a creative and visual subject! This activity gives space for students to exercise the visual part of their brain. It encourages students to be visual and make connections between decomposing larger shapes into smaller shapes or composing smaller shapes to make larger shapes.

Agenda for the day:

Activity	Time	Description/Prompt	Materials
Mindset Video	5 min	Play the mindset video.	Mindset video
Triangle Designs	5 min	<ol style="list-style-type: none"> 1. Share the challenge and constraints. 2. Set teams up to work together. 	<ul style="list-style-type: none"> • Four isosceles triangle cut outs per student (page 3) • Envelopes with four isosceles triangles or enough triangles for the group • Poster paper • Markers
	20 min	<ol style="list-style-type: none"> 1. Create shapes with isosceles triangles. 2. Record shapes on team poster. 	
	20 min	<ol style="list-style-type: none"> 1. Bring the class together for a whole class sharing. 2. Have teams' share their favorite shape. 	
Debrief Mindset Message	5 min	Debrief the mindset messages for this activity.	



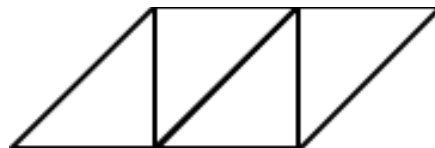
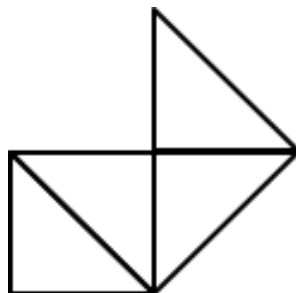
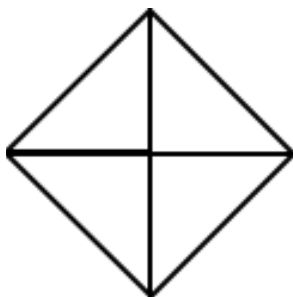
Activity: Triangle Designs

This activity helps to communicate that mathematics is an open and creative subject. Students are invited to play with triangles and to create their own shapes. The students' shapes need to follow following constraints.

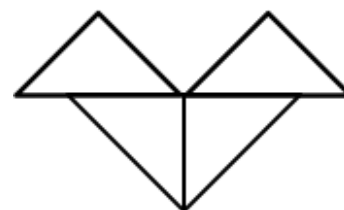
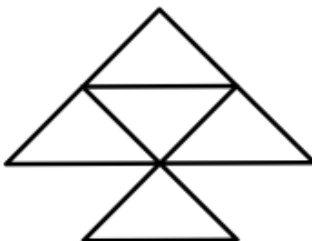
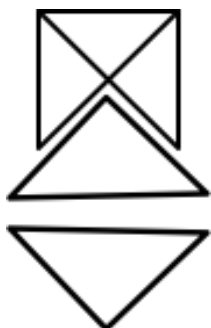
Each shape must have:

1. Four isosceles triangles.
2. No gaps or overlaps between triangles.
3. Each triangle touching at least one other triangle.
4. Triangles touching along sides of the same length.

For example, this satisfies the constraints:



And this does not satisfy the constraints:





Show the class the four isosceles triangles included on page 4 and share with them the constraints. Prompt them to create as many shapes as they can with the four triangles and following the constraints.

When reviewing the constraints, you can model them or you can have students model them under the document camera so the class starts making their shapes with the same understandings. It may also be good to print the constraints or write them on posters for students so that they can refer to them while they create and discuss their shapes.

Pass out envelopes with the isosceles triangles. Make sure there are enough triangles for each person at the table to get four to use, this will encourage a greater variety of shapes.

Ask students to share their shapes with their group. Once the group is convinced the shape meets the constraints they should put it onto their poster, with a label.

Give students time to make as many shapes as possible. When they cannot decide on their own ask if what they have created counts or not ask them if the shape follows the three constraints.

Once students have spent plenty of time creating shapes. Have them choose one as a team to share with the class from their poster. Tell teams to pick their favorite shape and choose one or two representatives to share with the class. When students are sharing have them start wherever they want, if they do not talk about the constraints you might ask them how the shape satisfies the constraints.

