

Sofia's Pyramid™

Teacher Packet
Hands-On STEM + Culture + Creativity

Recommended Ages: 8–14
Time: 20–45 minutes
Cost: Free
Technology Required: None

Teacher Overview

Lesson Summary

Sofia's Pyramid™ is a hands-on learning experience where students:

- Explore pyramid geometry
- Learn about global civilizations
- Apply engineering design thinking
- Build a physical pyramid
- Reflect on their learning

The lesson integrates math, cultural studies, and social-emotional learning through creative construction.

Quick-Start Teacher Guide

Materials (Flexible Options)

Students may use:

- Clay
- Paper
- Cardboard
- Recycled materials
- Sand
- Blocks
- Natural materials

No specific kit required.

Lesson Flow

1. Introduction (5–10 minutes)

Ask students:

- What is a pyramid?
- Where in the world have pyramids been built?
- Why do you think civilizations built pyramids?

Briefly explain:

A pyramid is a 3D shape with a polygon base and triangular faces that meet at a point.

2. Build Phase (15–25 minutes)

Instructions to Students:

1. Choose your materials.
2. Decide your base shape (square, triangle, etc.).
3. Build your pyramid.
4. Test its stability.
5. Improve your design if needed.

Encourage creativity and experimentation.

3. Reflection (5–10 minutes)

Students complete the worksheet in Section 4.

Optional:

Students record a 30-second explanation of their pyramid.

Optional Advanced Extension Page

Title: Engineering Challenge

Choose one:

- Build the tallest pyramid possible.
- Build the strongest pyramid (test with small object on top).
- Calculate the surface area of your pyramid.
- Compare your pyramid to one from history.

Write your findings below:

Teacher Assessment Rubric (Printable)

Student Name: _____

Criteria	Emerging	Proficient	Advanced
Understands pyramid structure	Identifies shape	Explains faces/edges	Applies measurement concepts
Engineering effort	Basic build	Stable design	Improved after testing
Reflection	Simple answers	Thoughtful responses	Deep insight & connection
Participation	Needed support	Participated	Led or inspired others

Differentiation Guide (Teacher Reference)

For Younger Students:

- Focus on identifying shapes.
- Use pre-drawn templates.

For Middle Grades:

- Introduce surface area and volume.
- Add measurement requirements.

For Advanced Students:

- Calculate slope angles.
 - Compare global pyramid architecture.
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Implementation Ideas

- STEM Week Activity
 - Math Center Rotation
 - Cultural Heritage Month
 - After-School Maker Challenge
 - Family Engagement Night
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Closing Statement for Teachers

Sofia's Pyramid™ is designed to be simple, inclusive, and globally accessible. Every child can build. Every child can create. Every child can participate.