

STEM Collaborative Cataloging Project
[Tangrams] Lesson Plan

Context (InTASC 1,2,3)

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Created:

Lesson Topic: Grandfather Tang's Story

Grade Level: 2nd Grade

Duration: 20 minute station or whole group activity.

Desired Results (InTASC 4)

Purpose: Grandfather Tang's Story and Osmo Tangram make teaching geometry both easy and creative. By the end of the lesson plan, your students will be familiar with basic geometry and how shapes can turn into bigger things!

North Dakota Mathematics Content Standards:

- Geometry: Reason with shapes and their attributes.
 - G.1 (Grade 1) Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
 - G.2 (Grade 1) Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. Students do not need to learn formal names such as "right rectangular prism."
 - G.1 (Grade 2) Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. 1 Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. Sizes are compared directly or visually, not compared by measuring.

Objectives:

1. Students will compare and contrast similarities and differences in the tangrams.
2. Students will create new shapes from the composite shapes.
3. Students will interact with technology appropriately.

Assessment Evidence (InTASC 6)

Evidence of meeting desired results: Students will complete the parts of the research project including the name of the animal group, picture showing inside and outside characteristics, and an additional fact if possible. Students will also draw a picture showing the three functions that bones have for animals.

Learning Plan (InTASC 4,5,7,8)

Instructional Strategy: (Check all that apply)

Direct Indirect Independent Experiential Interactive

Technology Use(s): (Check all that apply)

- Student Interaction Align Goals Differentiate Instruction Enhance Lesson
- Collect Data N/A

Hook and Hold:

To gain understanding of what the Tangram Osmo Kit is watch the following video first:

<https://www.youtube.com/watch?v=88NIZXw9OSc>

1. Read aloud Grandfather Tang's Story by Ann Tompert
2. Explain to students that a tangram is an ancient Chinese puzzle.
3. If smartboard is available display examples of Chinese puzzles.
4. Show students example of tangrams. You can show just the tangrams the come with the Osmo or you could show other manipulatives you may have.
5. Take time to count the sides and identify the shapes together.
 - 2 large triangles- red and blue
 - 1 medium triangle - green
 - 2 small triangles - purple and teal
 - 1 square - yellow
 - 1 parallelogram - orange
6. Then introduce activity listed below.

Make sure before the lesson you do the following:

- Set up an account on Osmo if you have not done so before.
- Make sure the iPads are ready to go and have Osmo Tangram app downloaded.
- It is a good idea to test each iPad out before students arrive.
 - For directions to set up the base watch the following video
<https://www.youtube.com/watch?v=Gvu9xpdvpeE>

Materials:

- Osmo base
- Osmo Tangram App
- Tangram tiles
- iPad 2 or higher
- "Grandfather Tang's Story" by Ann Tompert.

Procedures

1. Let them know that just like Grandfather Tang did in the book, they will also be creating various animals, shapes, objects, and humans with tangram.
 - Whether you want the students in stations or as a whole group is up to teacher preference. If students are divided up into stations you may encourage another station to reread the book of the day. At another station students could be making their own tangrams, or identifying the names of tangrams
2. Start the Tangram app and go to 'Tangram'
3. Have them start on 'Easy' and solve a few animal puzzles. However, when the orange bubbles start to appear, instruct them to start solving the orange puzzles unless they find them too difficult.
4. By the end of the class, the majority of students should have solved at least 5-8 orange puzzles and 1 castle puzzle! You can have them go back to the game anytime to continue their progress.

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5. Have students clean up their tangrams and return to their seats.

Summary: To summarize the lesson reread the story aloud and ask students how they were like Grandfather Tang today. If you are running short on time just pick a page or two to read aloud.

Reflection (InTASC 9)**Reflect On:**

- *Preparation*
- *Planning*
- *Teaching*
- *Student Engagement and Participation*
- *Evidence of Student Learning*

Standards

Council of Chief School Officers. (2011, April) *Interstate Teacher Assessment and Support Consortium (InTASC) model core teaching standards: a resource for state dialogue*. Washington DC. Retrieved from http://www.ccsso.org/documents/2011/intasc_model_core_teaching_standards_2011.pdf

North Dakota Department of Public Instruction. (2011) *North Dakota English mathematics content standards*. Bismarck, ND. Retrieved from <https://www.nd.gov/dpi/uploads/87/math.pdf>

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