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In this story within a story, Grandfather Tang and Little Soo use tangrams to illustrate the lively adventures of two shape-changing fox fairies.

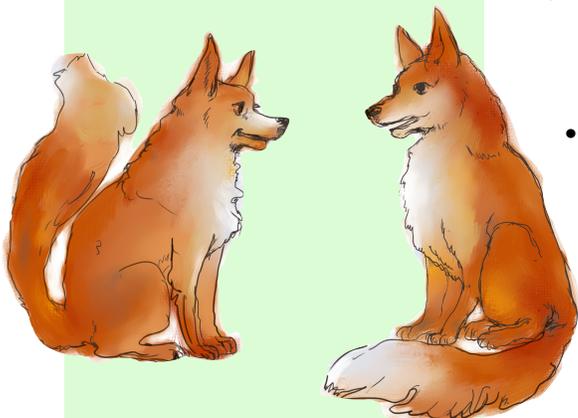
**Ages:** 5 to 8 years

**Lexile:** AD 660L

**ATOS Reading Level:**  
3.7

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# Grandfather Tang's Story

**What animal will you create with a set of tangrams?**

**Topics:** geometry, shapes, composing shapes, spatial visualization

## Activities To Do Together:

Before you read the book *Grandfather Tang's Story* with your child:

- Create your own set of tangrams. Directions can be found [here](#) or [bit.ly/3Vb31NL](http://bit.ly/3Vb31NL)
- Identify each of the shapes in a set of tangrams. Talk about their characteristics. Compare the shapes. How are they similar? How are they different?

As you read *Grandfather Tang's Story* with your child:

- Notice how the seven tangram pieces are arranged to represent different animals, people, and objects.
- Predict what animals Wu Ling and Chou will transform into next. Ask you child if they would transform themselves into an animal if they had the magical power of a fox fairy. Why or why not?
- Ask your child to predict what they think will happen after Chou transforms into a crocodile.

When you are done reading *Grandfather Tang's Story*:

- Learn to recognize triangles, squares, and parallelograms.
- Use two triangles to make the following shapes: a larger triangle, a square, a quadrilateral (any four-sided, closed shape made up of straight lines)
- Using tangrams, create one of the animals in the story. Then find a different way to make that same animal using tangrams. Create your own favorite animal with tangrams.
- Create a square using all seven of the tangram pieces. Try to make a rectangle, a pentagon, and a hexagon too.
- Try to make a square with six tangram pieces, five tangram pieces, four tangram pieces, three tangram pieces, two tangram pieces, and one tangram piece. Show someone else what is possible and what is not.

**Questions for Mathematical Thinking:**

1. A set of tangrams has seven pieces. How many pieces are triangles? How are the triangles different? How are the triangles the same?
2. A set of tangrams has one square and one parallelogram. How are the square and parallelogram different? How are they the same? How would you describe these two shapes to another person?
3. Sort the animals in this story into groups of flying animals and non-flying animals. What other ways can you sort the story animals? Sort the animals your way and ask someone to guess how you sorted them.
4. What shapes can you make with your tangram pieces?
5. Which of these shapes can you make with all or some of your tangram pieces? Square, Pentagon, Oval, Rectangle, Hexagon, Circle, Triangle, Octagon? Were there some shapes you couldn't make? Why?

**Early Math Project Resources:**

Tangram activities from the Early Math Project Website

<http://www.earlymathca.org/tangrams>

Follow this [link](#) or visit [earlymathca.org/external-resources](http://earlymathca.org/external-resources) for additional online resources.

**Vocabulary****Math words found in the story:**

above, before, beside, between, bigger, bottom, circled, closer, different, down, edge, first, left, long, many, middle, moments later, on, right, round, seven, shape, shapes, small, smaller, straight, tangrams, top, toward, under, up, wedge

**Related math words:**

area, attributes, congruent, flip, identical, parallelogram, perimeter, polygon, quadrilaterals, rectangle, rotate, sides, similar, slide, square, symmetry triangle

**Words to build reading comprehension:**

actions, arranges, bared, cattails, churned, darting, desert, drown, edged, expects, gobble, discourage, fainter, flap, flock, forged, knocked, lashed, mended, mighty, outdo, peered, pierce, plunged, probably, puff, rivalry, scales, scrambled, sharp, shivered, shrieked, shrunk, smoothing, spied, spike-toothed jaw, sprang, swoops, tragic, transformed, trembled, tucked, twitched, seize, whiskers, wicked, wink

**Math Connections:** *Grandfather Tang's Story* is a story within a story that includes many tangram images. Use *Grandfather Tang's Story* to introduce, identify, compare, compose, and manipulate geometric shapes.

A tangram is a set of seven geometric shapes that includes a square, a parallelogram, two large triangles, a medium triangle, and two small triangles. A set of tangrams can easily be made with a piece of paper or cardboard. Identify the types of shapes that are in a set of tangrams and talk about the characteristics of each of the shapes. Compare the parallelogram with the square—how are they alike and how are they different? How are parallelograms and squares like triangles? How are they different?

Encourage your child to create the tangram animals in the story. Suggest that they try to find their own way to represent some of the animals in the story with tangrams. Ask your child what animal they would add to the story and to show you how they would make that animal using tangrams.

Challenge your child to make different geometric shapes using all of the tangram pieces. Encourage them to make a square with all seven shapes. Ask if they can make a square with 6 pieces, 5 pieces, 4 pieces, 3 pieces, 2 pieces, and a single piece. Is it possible? Ask them to show you how they did it. Encourage them to show you how they would make other shapes such as hexagons, pentagons, triangles, and rectangles. Ask your child if there are shapes they couldn't make with the tangram pieces and to tell you why they think so.

Give your child time to explore with tangram pieces and encourage them to make complex shapes. The Early Math Project website has designs that your child can make with tangram pieces. Some of the designs have the outlines of the individual pieces and others are a solid image. Creating original designs and duplicating designs using tangrams supports children's spatial visualization skills. A lot of problem solving goes into duplicating a tangram puzzle as the pieces need to be flipped, rotated, and rearranged to reproduce an image. Try recreating tangram designs with your child. Take turns talking about what you've tried and what you will try to recreate the shapes. It's a playful and meaningful way to learn precise geometric and spatial vocabulary.

**Spanish Title:** n/a

**Related Books:** *Three Kids, One Wolf, and Seven Magic Shapes* by Grace Maccarone

Click this link to the [World Catalog](https://bit.ly/3XisiYI) or enter <https://bit.ly/3XisiYI> to find *Grandfather Tang's Story* in the public library.

## DISCOVERING THE MATH: BOOK GUIDE

Age Level	Related <a href="#">CA State Standards</a>
Kindergarten	<b>Geometry: K.G.1, K.G.2;</b> Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres). <b>K.G.4, K.G.5, K.G.6;</b> Analyze, compare, create, and compose shapes.
Grade 1	<b>Geometry: 1.G.1, 1.G.2;</b> Reason with shapes and their attributes.
Grade 2	<b>Geometry: 2.G.1</b> (partially); Reason with shapes and their attributes.
Grade 3	<b>Geometry: 3.G.1</b> (partially); Reason with shapes and their attributes.