

Lesson Title: Discovering Tangrams

Class: History and math
Grade level(s) 6th grade

Goals and Objectives

The student will be able to:

- Give an account of the ancient history of tangrams as it relates to China
- Create their own tangram pieces following on-line directions
- Assemble the pieces into 5 shapes using pre-made designs
- Assemble the pieces into 2 shapes using their imagination
- Discover electronic tangram designs using given URLs
- Complete the optional worksheet when used as an interdisciplinary lesson with mathematics

Time required/class periods needed:

Two 50-minute class periods

Primary source bibliography:

[HTTP://CHINESEPUZZLES.ORG/TANGRAM/](http://CHINESEPUZZLES.ORG/TANGRAM/) (ARTIFACT PHOTOS)

Other resources used:

HISTORY OF TANGRAMS (POWERPOINT ATTACHED AS PDF)

HISTORY OF TANGRAMS (WORD DOCUMENT ATTACHED BELOW)

<https://www.tangram-channel.com/history-of-the-tangram/> TANGRAM PATTERN AND SHAPES

[TANGRAM VIDEO](https://www.youtube.com/watch?v=pyR6YQPF2o) [HTTPS://WWW.YOUTUBE.COM/WATCH?V= PYR6YQPF2o](https://www.youtube.com/watch?v=pyR6YQPF2o)

[TANGRAM PUZZLE](http://www.enchantedlearning.com/crafts/chinesenewyear/tangram/) <http://www.enchantedlearning.com/crafts/chinesenewyear/tangram/> STUDENT DIRECTIONS ON HOW TO CUT OUT THE PUZZLE PIECES FROM A SQUARE OF PAPER. **MATH**

[WORKSHEET](http://math.about.com/siteSearch.htm?q=tangrams&suname=math) [HTTP://MATH.ABOUT.COM/SITESHARCH.HTM?Q=TANGRAMS&SUNAME=MATH](http://math.about.com/siteSearch.htm?q=tangrams&suname=math)

Required materials/supplies:

Laptop for pairs of students

1 piece of paper per student (larger paper for younger students works best)

Pencil, Scissors, Ruler

Vocabulary:

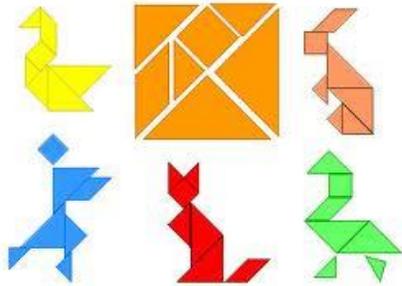
tangram – ancient Chinese seven-piece puzzle (*qiqiaoban* 七巧板 seven clever pieces)

Procedure:

1. Teach students the history of tangrams using the information in the PowerPoint (separate file on lesson plans site). The lesson can also be given to students using the attached "History of Tangrams" word document.
2. Discuss with students why they think tangrams became so popular around the world.
3. Working with a partner, have students use a laptop and go to the [TANGRAM PUZZLE](#) for directions on how to measure and cut their 7 puzzle pieces.
4. Provide students with paper. Students will use scissors, pencil, and ruler to create their 7 puzzle pieces.
5. Using the completed puzzle pieces, have students working in pairs arrange the pieces into 5 of the shapes shown at the above website
6. Have students make new shapes as they follow along with the video:
[HTTPS://WWW.YOUTUBE.COM/WATCH?V= PYR6YQPF20](https://www.youtube.com/watch?v=PYR6YQPF20) .
7. Students then will create at least 2 unique arrangements of the tangram themselves and share them with the class
8. Give students access to these websites (also found on the last slide of the PowerPoint) so they can discover more tangrams at no fewer than two of these websites:
 - <http://www.kidscom.com/games/tangram/tangram.html>
 - <http://www.gieson.com/Library/projects/games/matter/>
 - <http://www.abcya.com/tangrams.htm>
 - <http://mathforum.org/trscavo/tangrams.html>
9. Optional written application can be done on math worksheets from website above.

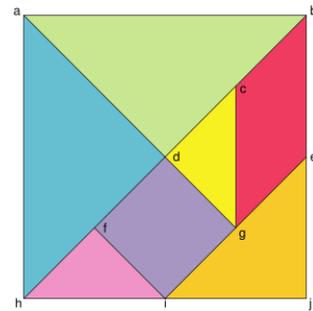
Assessment/evaluation

- Students will list at least 5 things they have learned about tangrams and why it is so popular puzzle.
- Appropriate grade given for 7 completed puzzle figures with students cooperating as partners.



History of Tangrams

by Janis Davis



The earliest known Chinese book about tangrams is dated 1813 but the puzzle was very old by then. The root of the word Tangram involves the Tanka people. These river people of China were great traders who were involved in the opium trade. The puzzle was originally popularized by *The Eighth Book of Tan*, a fictitious history of tangrams, which claimed that the game was invented 4,000 years earlier by a god named Tan. The book included 700 shapes, some of which are impossible to construct.

In Chinese, this puzzle is called qiqiaoban 七巧板 'seven clever pieces.' Tangrams enjoyed a surge of interest during the 19th century in Europe and America due to the opening up of trade with China and sailors' bringing home new found amusements. Another contributing factor in the popularity of the game in Europe was that, although the Catholic Church forbade many forms of recreation on the Sabbath, they had no objection to puzzle games such as the tangram.

"The Chinese Puzzle" spawned a flood of books and picture card sets. The craze quickly spread to other European countries. Soon, tangram sets were being exported in great number from China, made of various materials, from glass, to wood, to tortoise shell. Some quite elaborate Chinese examples exist with pieces carved from and/or inlaid with ivory, jade and other fine materials. Others were cheap made of wood or fired clay.

Tangrams continue to entertain and frustrate. The puzzle is intriguing for its simplicity as well as its complexity: The juxtaposition of these paradoxical traits captivates all players. Famous tangram players included Edgar Allen Poe, Lewis Carroll, Thomas Edison, and Napoleon. The puzzles were also popular pastimes during World War I, in the trenches of both sides. Skilled storytellers can weave a tale with many characters and objects using only the seven tans.

The classic rules of tangrams are as follows:

- all seven tans must be used in all figures
- they must lie flat
- they must touch
- they must not overlap

This is an excellent exercise in spatial perception and pattern recognition and the discernment of the whole from randomly scattered parts.