

# Glass Tangrams

Grade: All grades

Time: 1+ hr

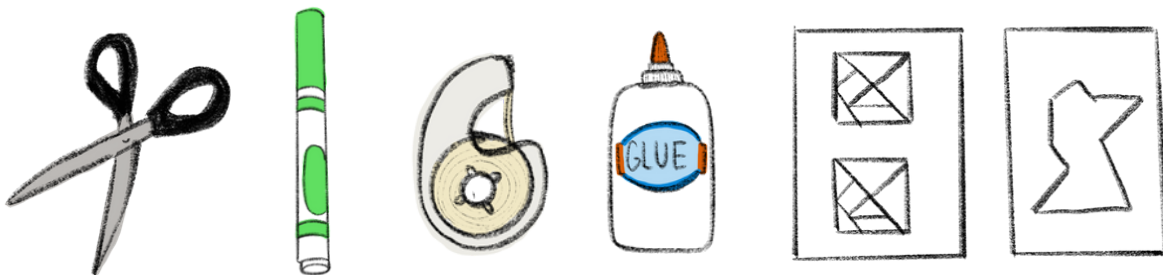
## Activity Overview :

To create a stained glass picture artists take broken pieces of glass and compile them into a beautiful work of art. They do the same with broken pieces of pottery to create mosaics. In this activity you will fit various shapes into a boundary to build eleven stained glass configurations for an art client. Through this process you will develop your geometry and spatial sense, which means you will develop your ability to visualize shapes in different positions and rearrange the shapes relative to other shapes.

- What kinds of birds do you usually see in your backyard?
- What are some structures you see in everyday life?

## Materials:

- Handouts contained at the end of this document
- Scissors
- Markers
- Tape or glue

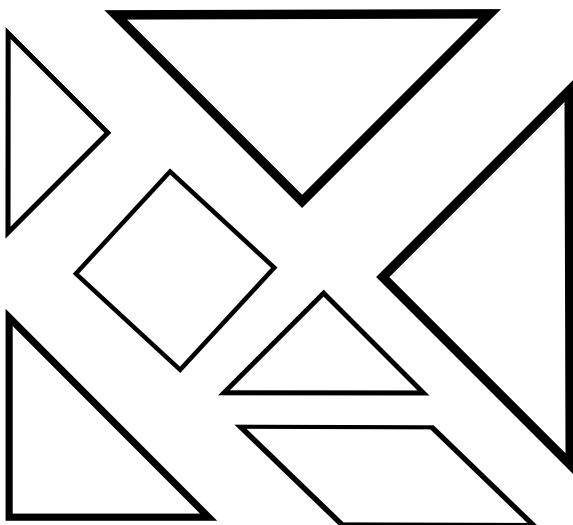
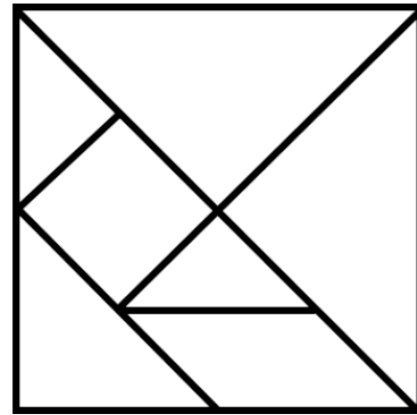


**Don't worry if you don't have all these supplies. Experiment with other everyday items and see what you can build!**

## Activity:

- 1 Start off by cutting only one of the tangram shapes templates (pages 4-6).
- 2 Go to the first stained glass outline on page 7. You must use all 7 shapes you cut out from the template to complete the picture.
- 3 Your client is very picky and does not want any of the tangrams shapes to overlap or cross over the outline of the picture.
- 4 You are given 1 hour to complete this task! If you do not succeed the client will move onto a different supplier.
- 5 Once you complete all of the images, you can go ahead and colour the tangram pieces for each picture and glue them down for a finished masterpiece!

Step 1



## Engineering and Science Connections

In this activity, we developed our [geometry](#) and [spatial sense](#), which means we developed the ability to visualize shapes in different positions and rearrange the shapes relative to other shapes.

We also developed [problem solving](#), and [reasoning skills](#) which are aspects of the mathematical process outlined in the Ontario mathematics curriculum for grades 1-8. These skills are crucial to mathematics and science.

## Extensions:

There is so much more you can do with these shapes!

- Use the tangram shapes to create an image that looks like something in real life.
- Become the client and create your own outline that would be challenging to create.
- Create the first letter of your name with the tangram shapes.
- Trace the tangram shapes onto tissue paper and paste them onto wax paper to create a stained glass feel. Add a black cardstock border and then hang in your window!
- Search the web for more tangram puzzles (with the permission of an adult). Colour the shapes and paste onto a piece of paper to become a work of art.

## Share your creations!

Don't forget to share your experiments and creations with us! We would love to see what you've made. You can Email us at: [esqinfo@uwaterloo.ca](mailto:esqinfo@uwaterloo.ca) or send us a message/tag us on our social media!

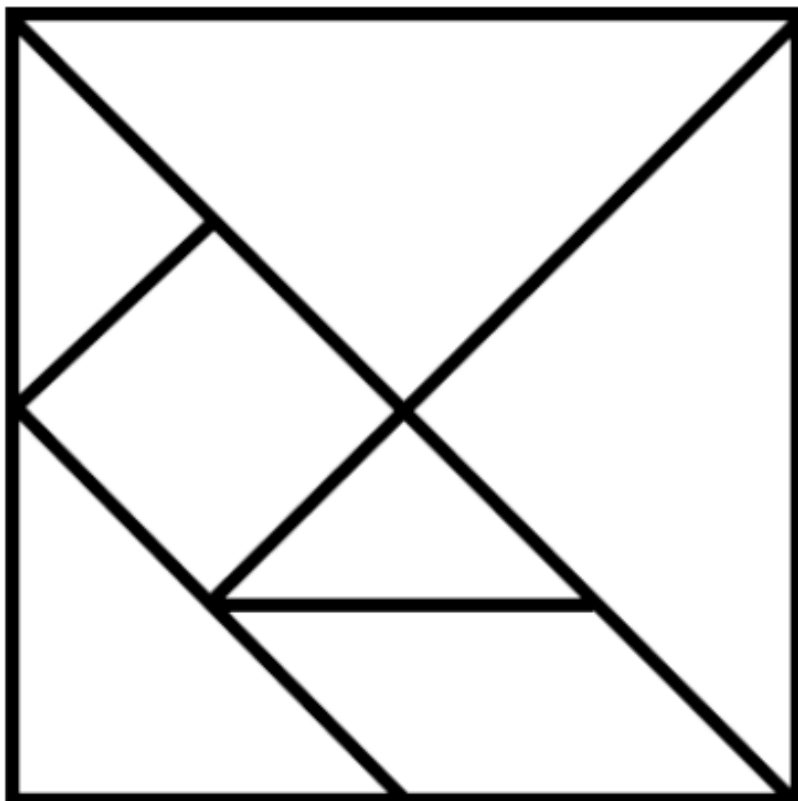
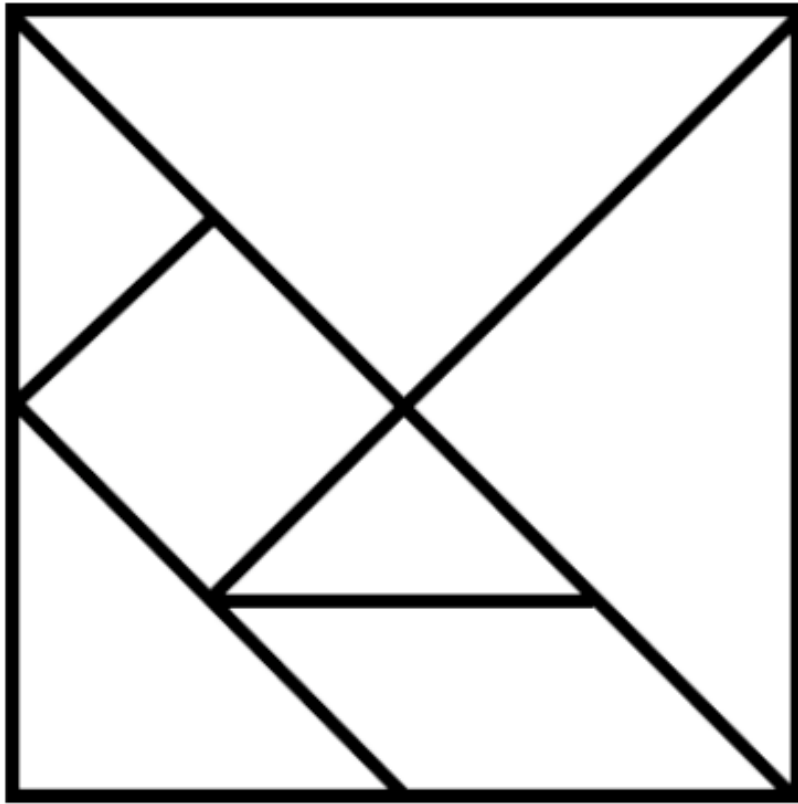
**Facebook:** @uwengoutreach

**Twitter:** @UWEngOutreach

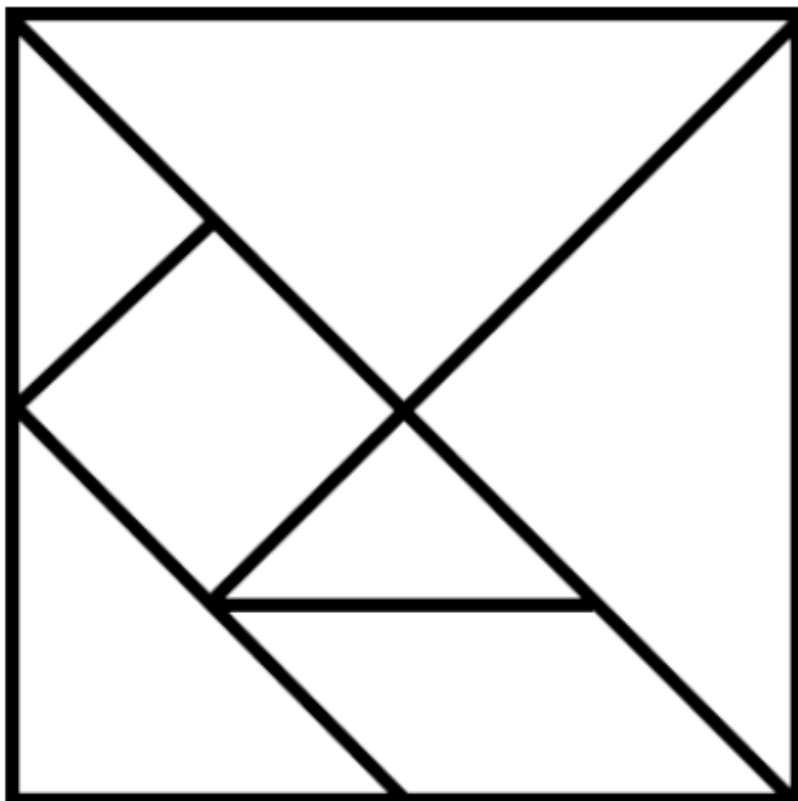
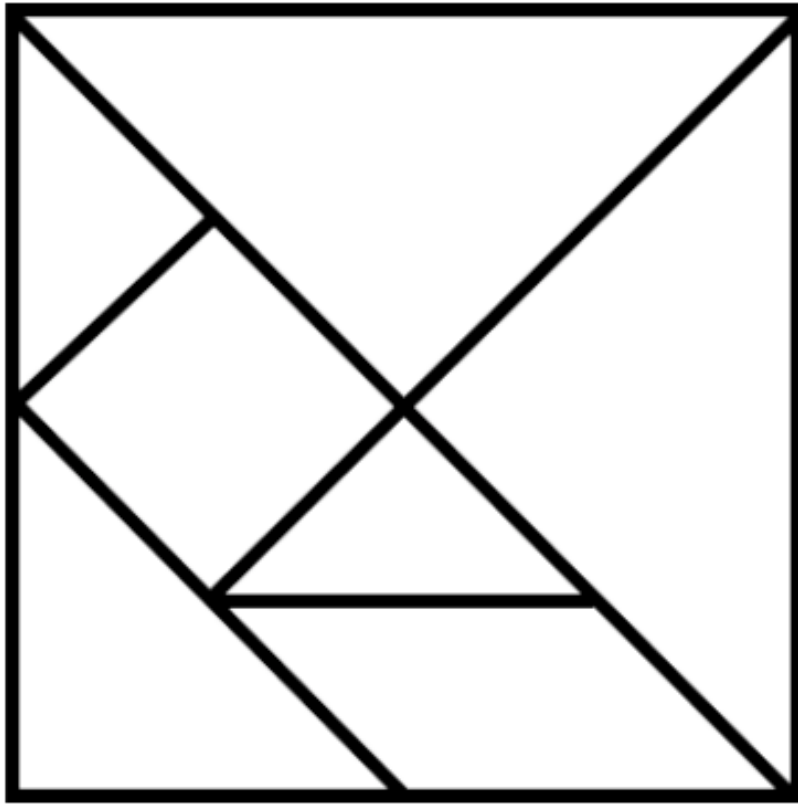
**Instagram:** @uwengoutreach

**Thanks for exploring, discovering, and learning with us!**

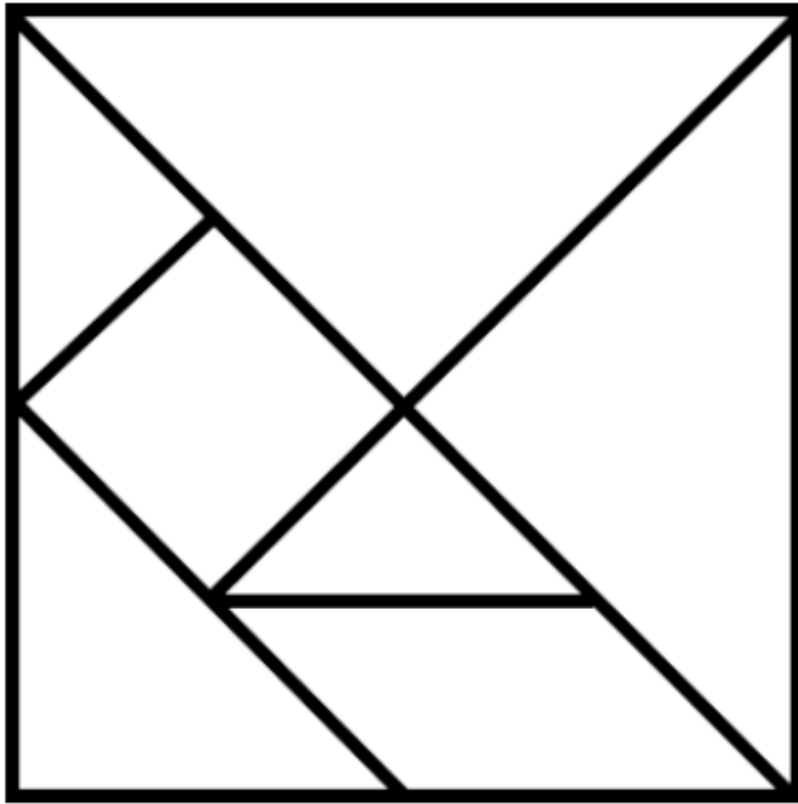
## Tangram Shape Template



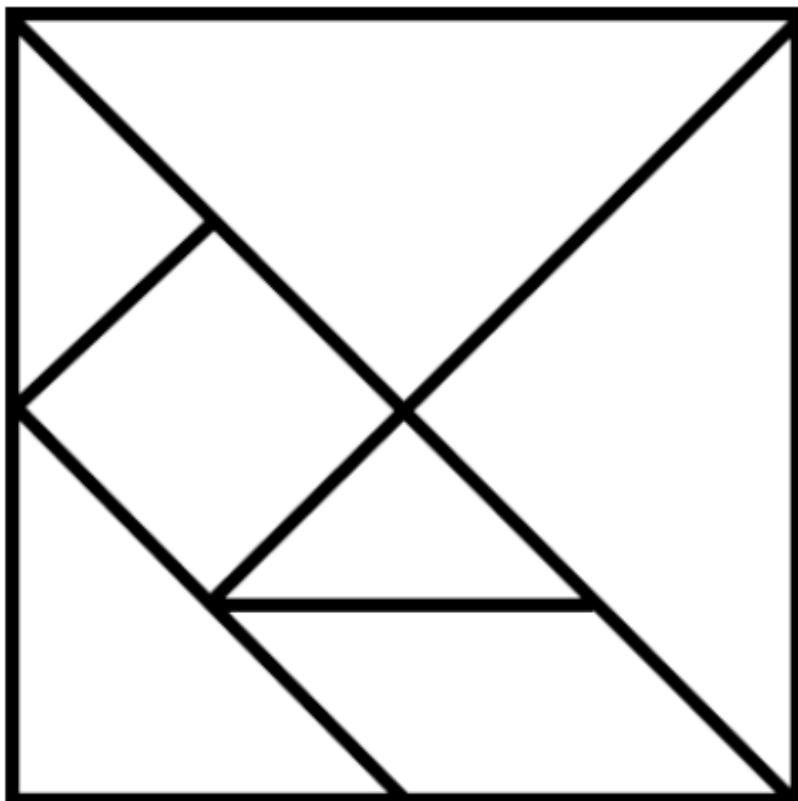
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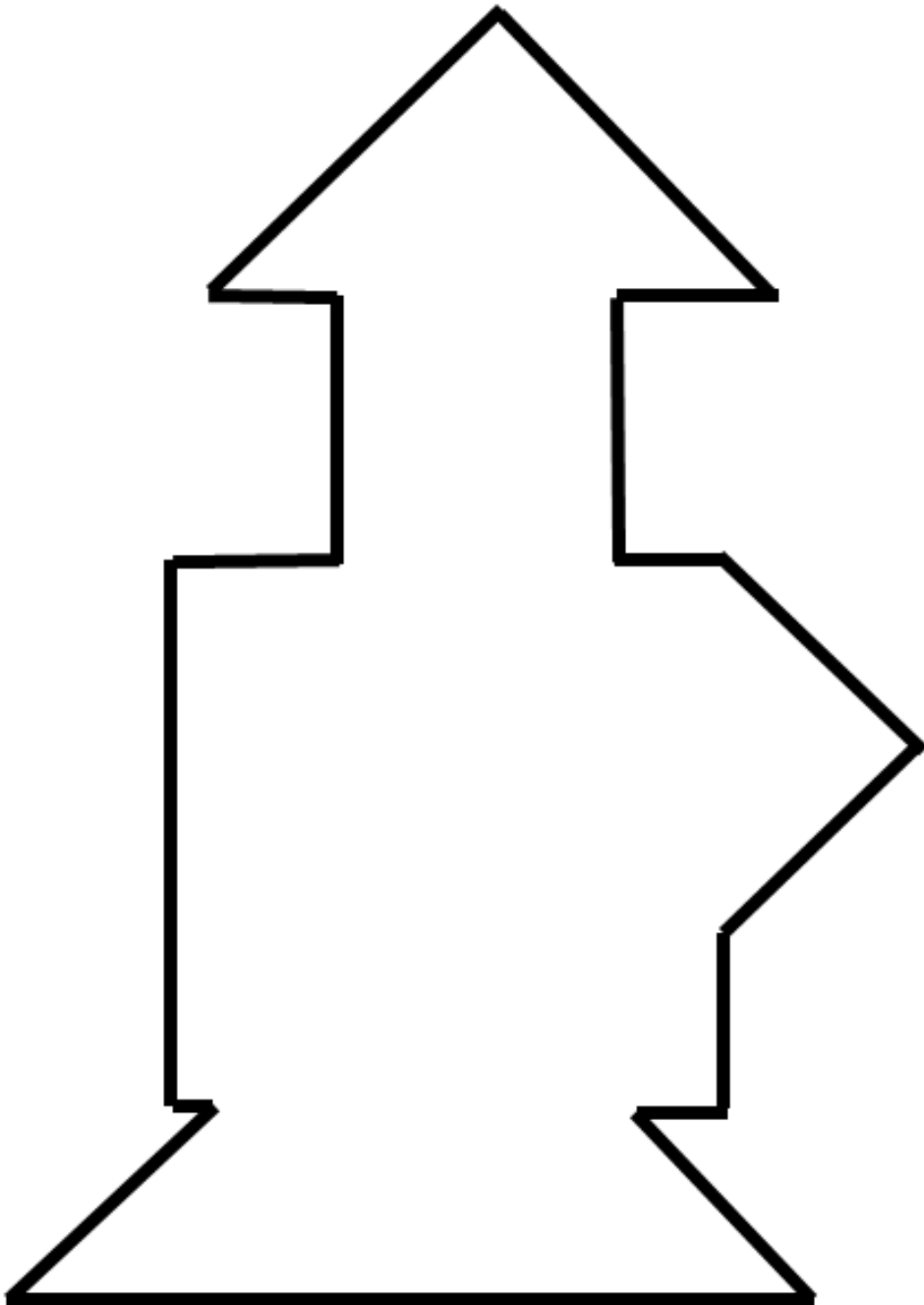


## Tangram Shape Template

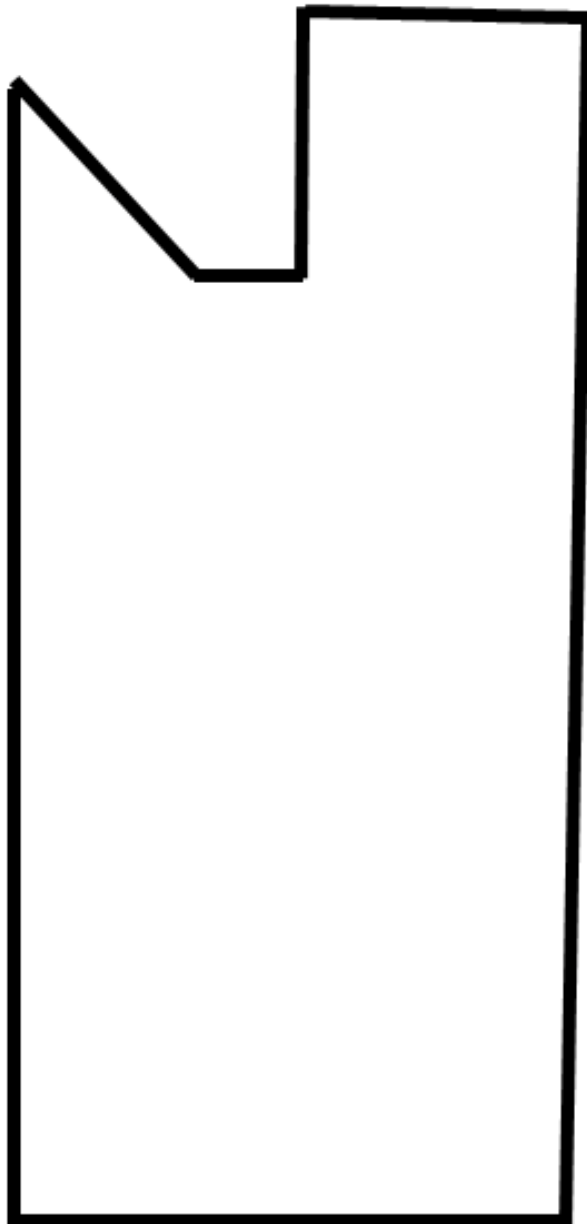


**Extra**



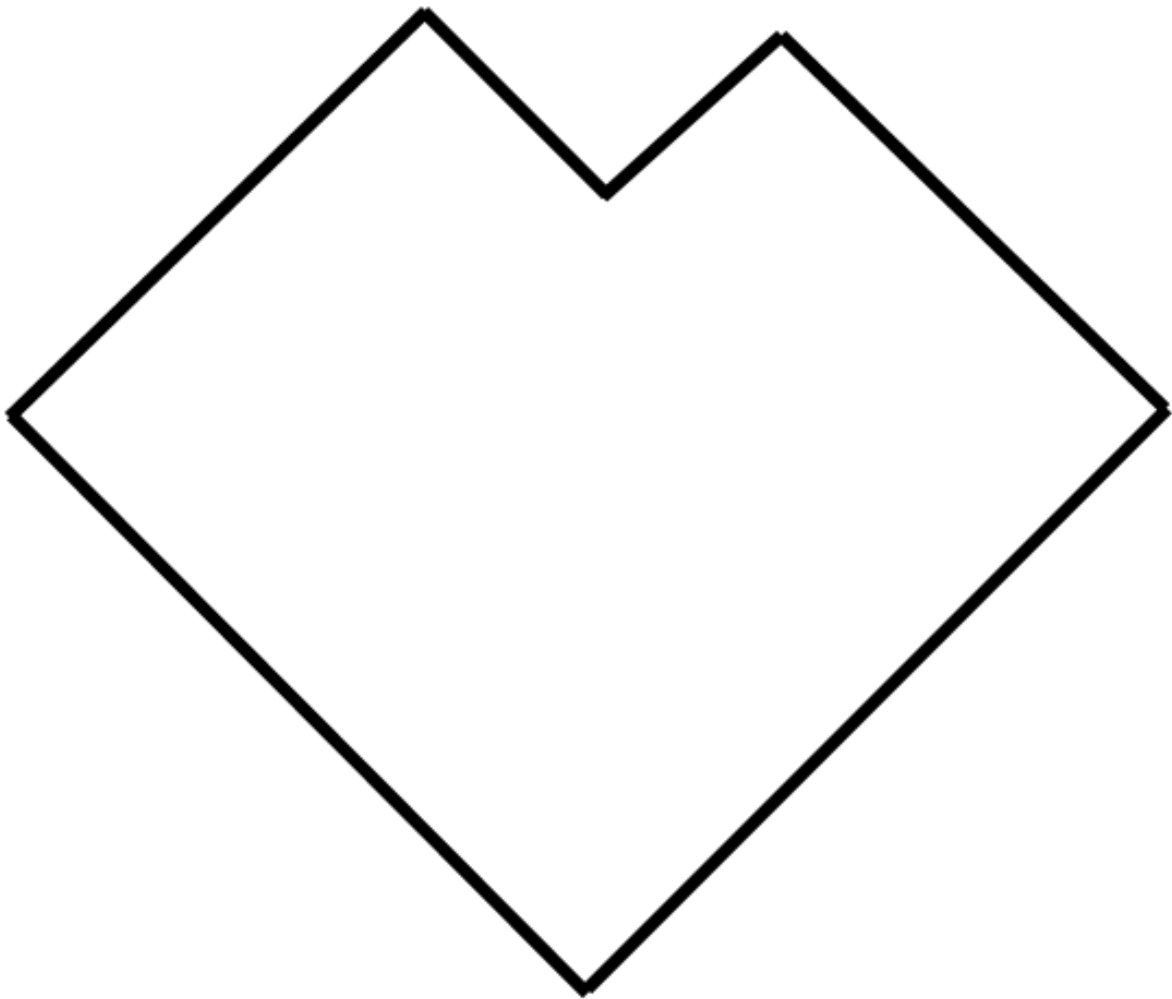
**Robot**

# Sky Scraper

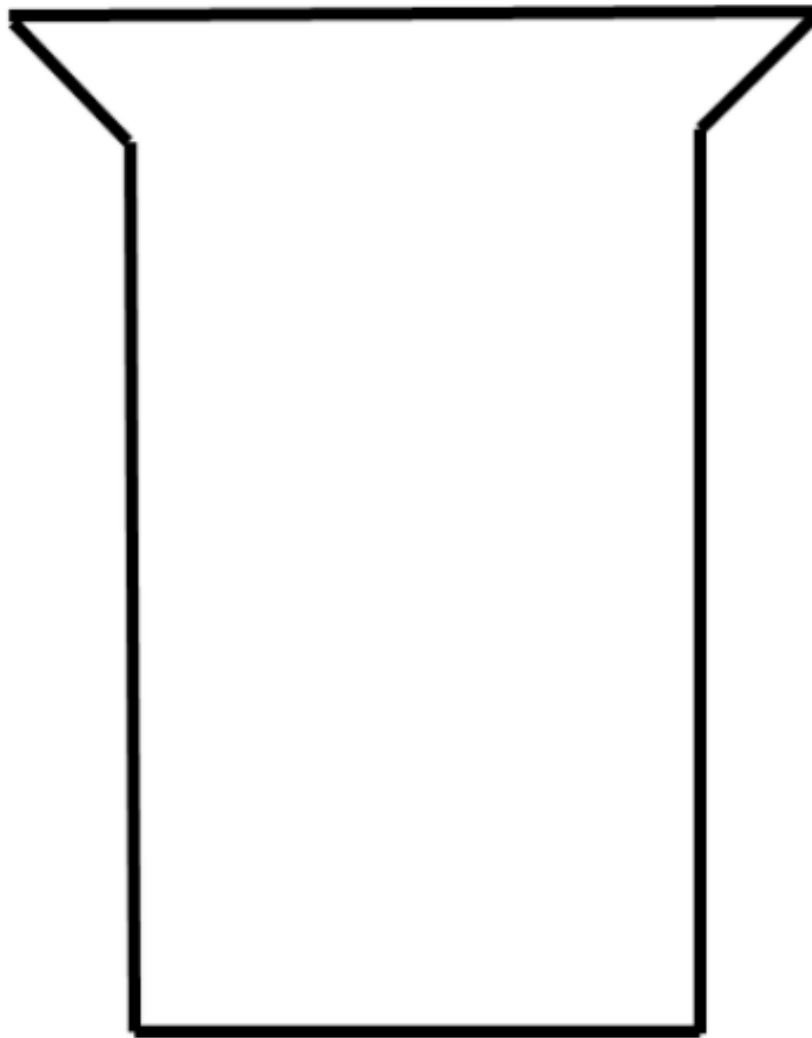




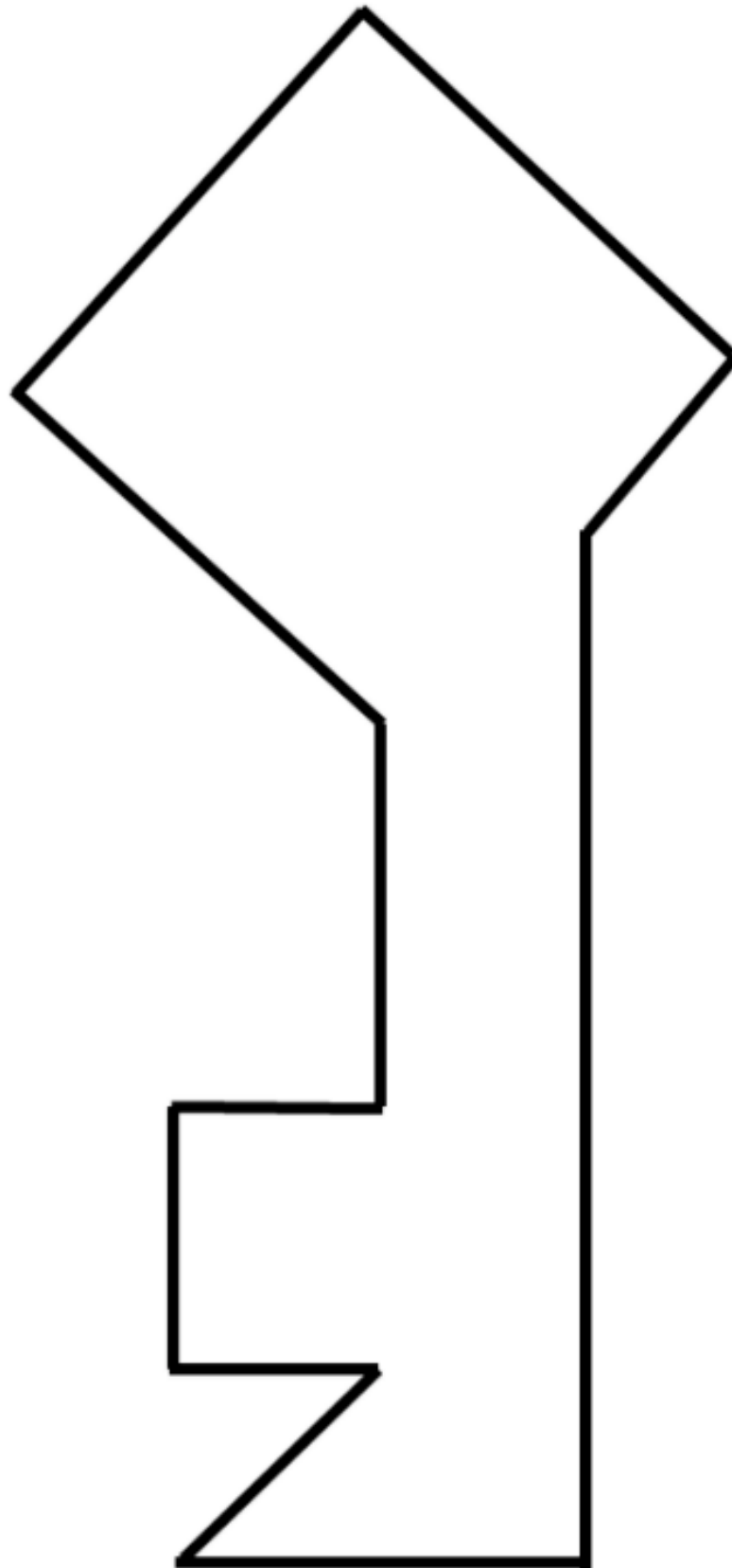
# Heart

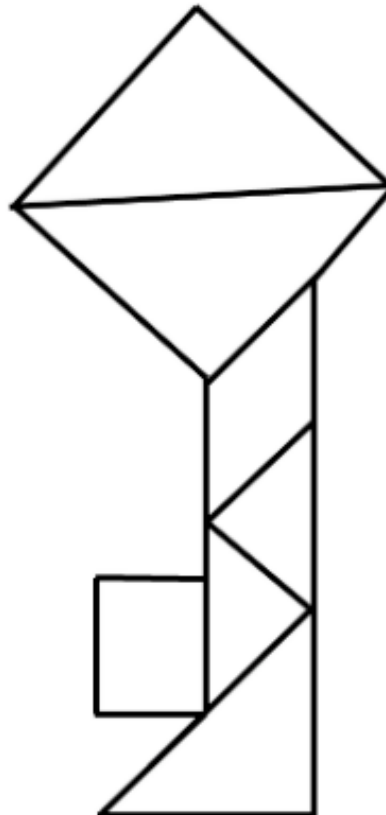
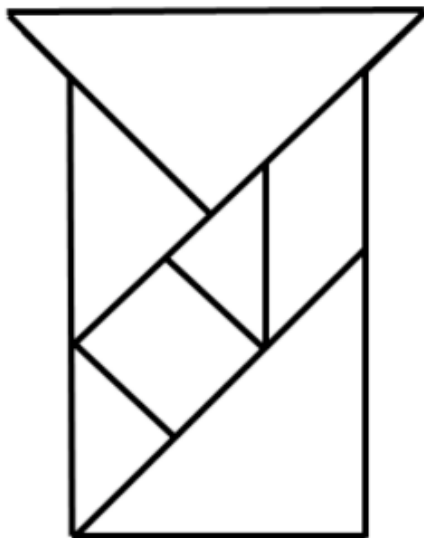
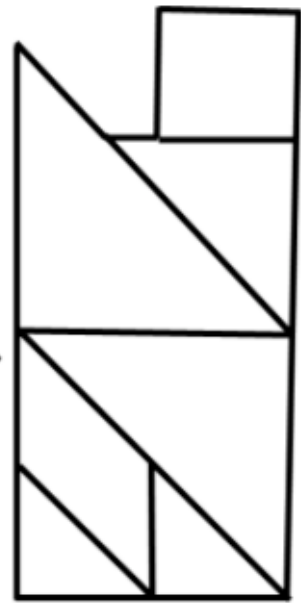
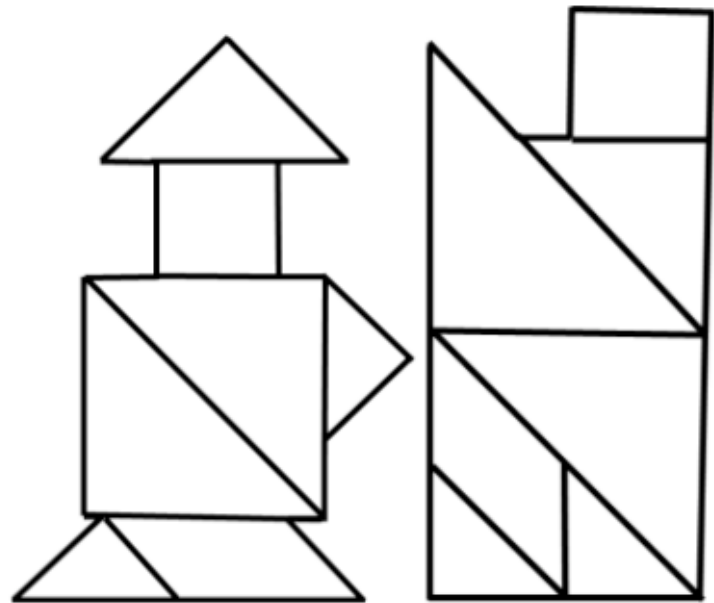
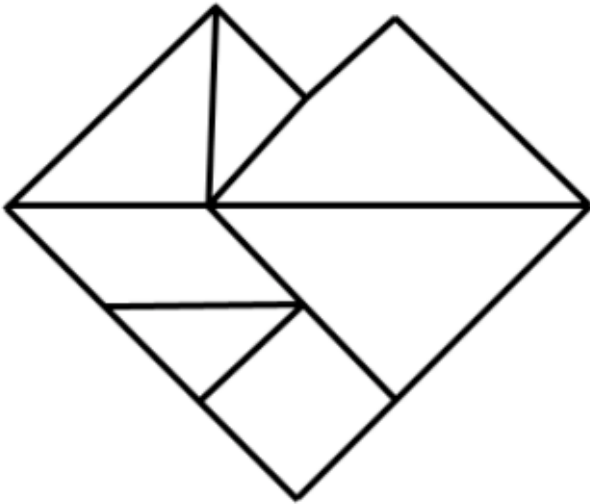


# Beaker



**Key**



**Answer Key**

# 3, 2, 1 Done!

**3 - Write or draw 3 things you learned from this activity**

**2 - Write or draw 2 things you found super interesting or cool and want to learn more about**

**1 - Do you have any questions about the activity? Did something make you wonder...what if? how? or why?**