

## Math K Project #1: Tangrams

**Objective:** Analyze, compare, create, and compose shapes.

**Skills:** Logic, problem solving, perceptual reasoning, visual-spatial awareness, creativity.

### Day 1: Project Launch



Students explored a set of tangram tiles and discussed the attributes of each piece. Students solved simple tangram puzzles to familiarize themselves with how tangram puzzles work; these puzzles included internal lines. The class discussed common shapes used across puzzles, such as building a square with two triangles and how many animal heads use a square and two triangles.

We read *A Sage's Journey: The Story of Tangrams* by John L. Lehet.

### Day 2: Tangram Deep Dive



We read *Grandfather Tang's Story* by Ann Tompert. This book is a folktale that uses an ancient Chinese story-telling technique involving tangrams.

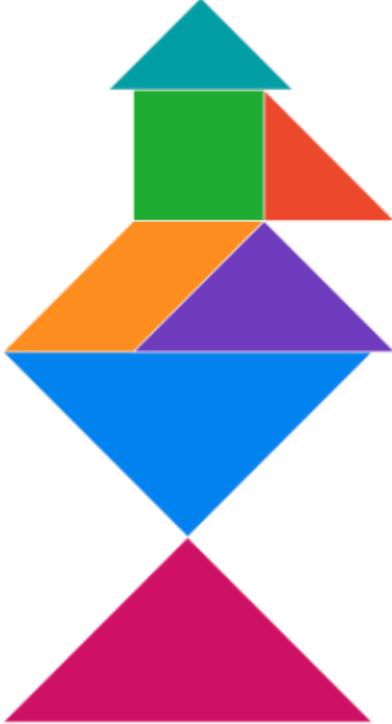
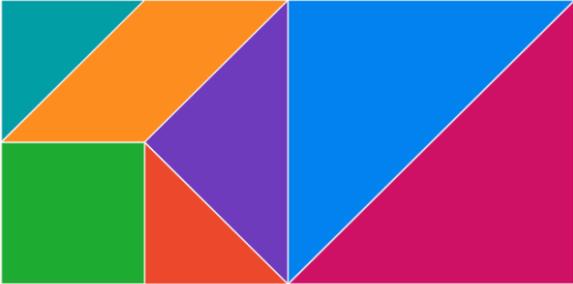
Students spent the majority of the day solving difficult tangram puzzles; these puzzles did not include any internal lines. We continued our discussion of using common shapes/designs to help solve tangrams.

### Day 3: Tangram Creation

Students started with a discussion of what makes a good tangram puzzle. They spent the rest of class time creating their tangram puzzles and sharing descriptions of each puzzle.

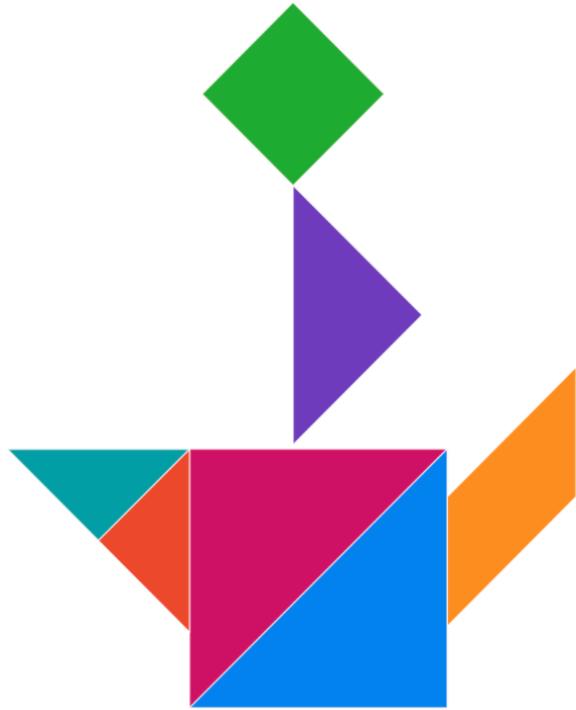
### Day 4: Share

Students shared and celebrated their tangram puzzles. There were lots of kind words and compliments given. Then, students had the opportunity to solve their classmates' puzzles.

Creator	Description (as dictated by students)	Tangram
Ajay	A robot that has an ear and a hat.	
Alisha	A flat computer.	

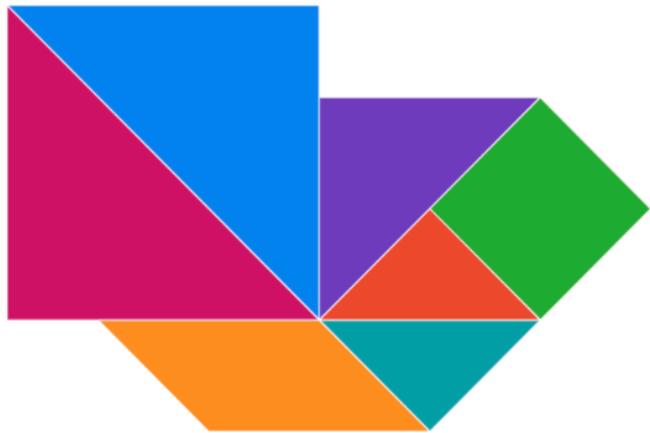
Alisha

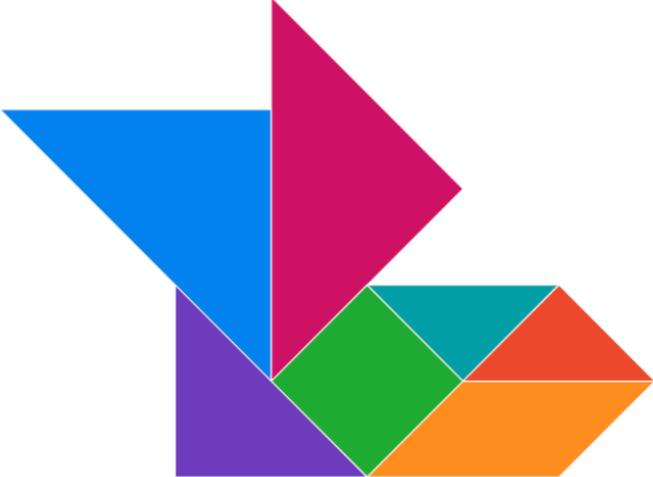
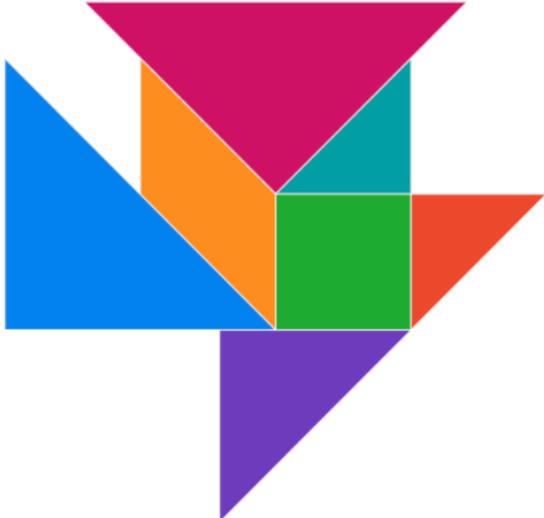
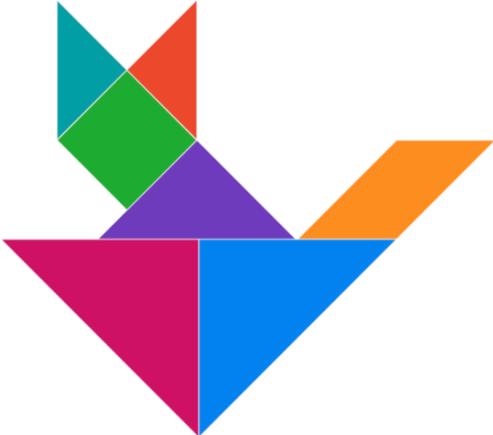
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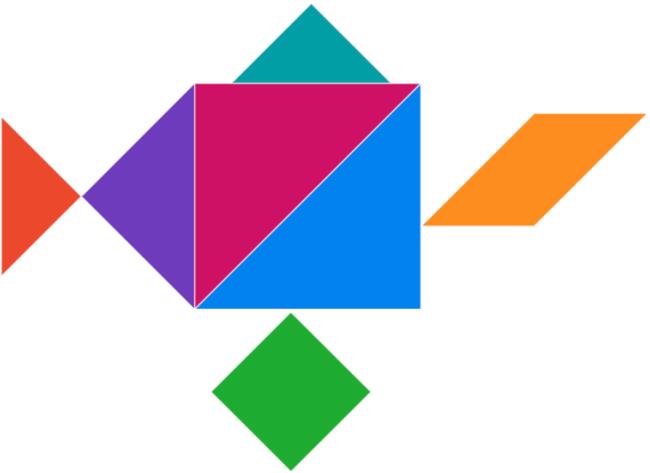
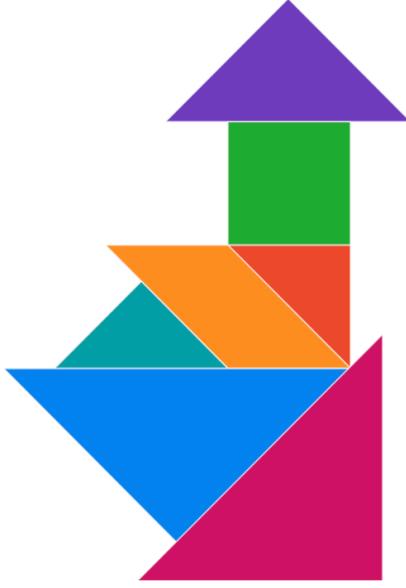
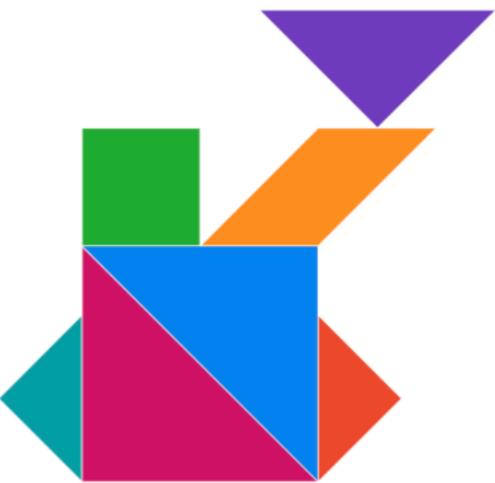


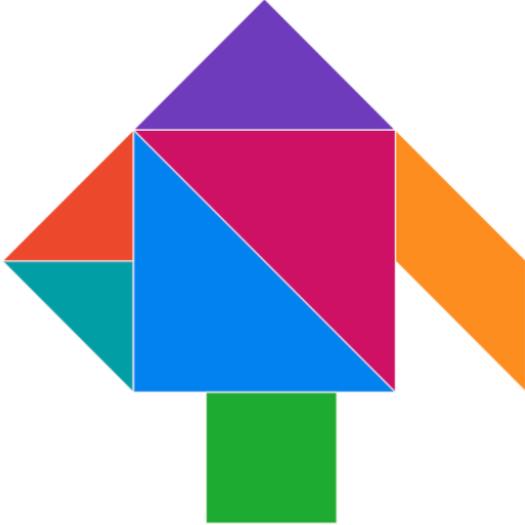
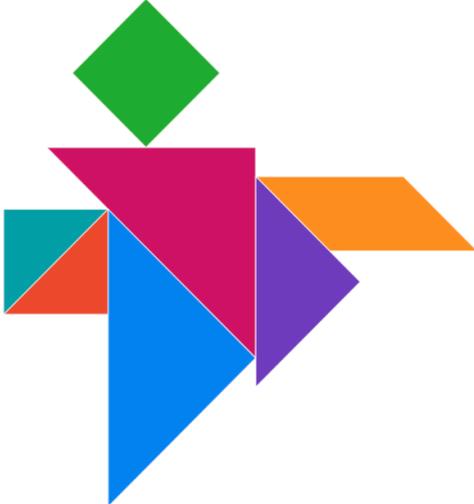
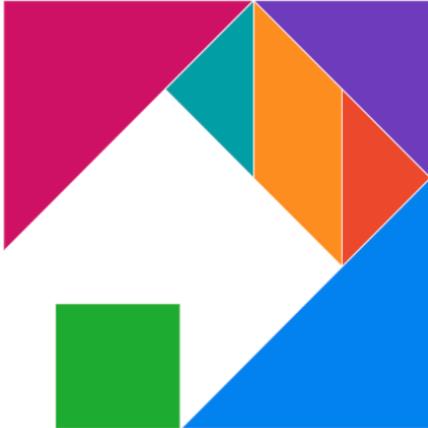
Arohi

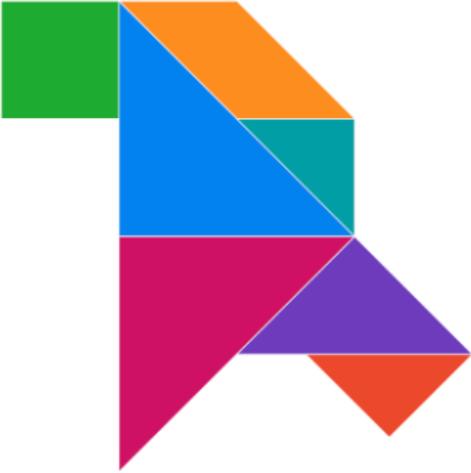
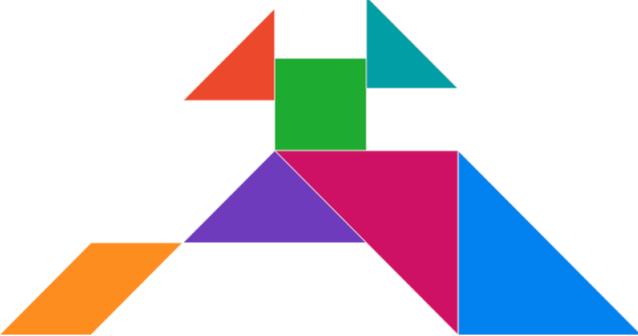
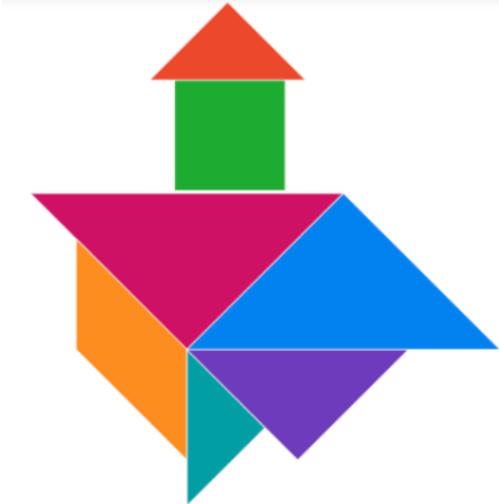
A machine that provides salt to melt ice.

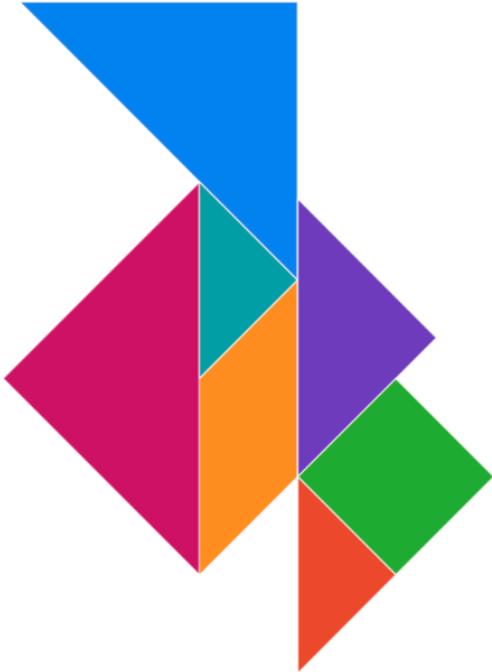


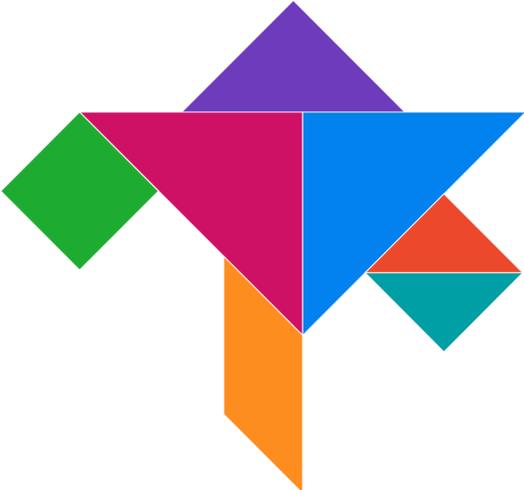
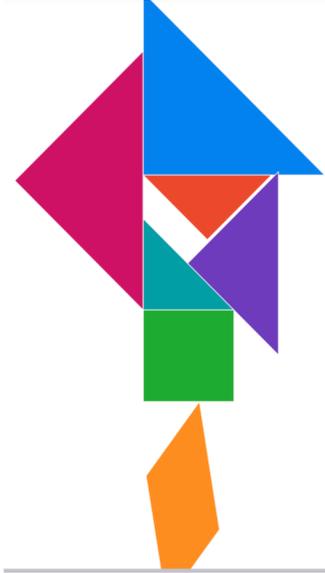
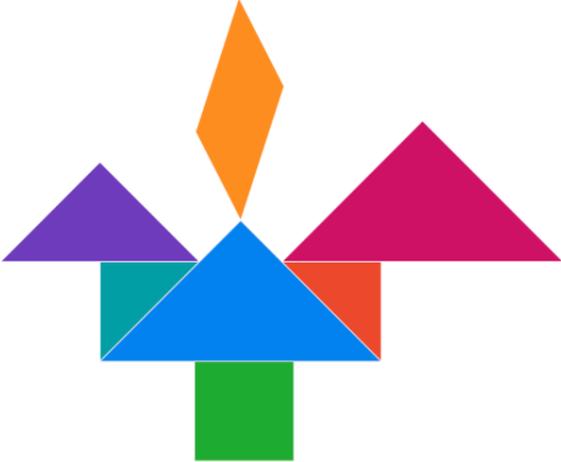
<p>Arohi</p>	<p>People put really old money inside and new money comes out.</p>	
<p>Arohi</p>	<p>A machine that gets really tiny specs of coloring. When people put credit cards in the machine, it shows the color that it is making. The card then comes out of the credit card place.</p>	
<p>Iris</p>	<p>A speaking cat.</p>	

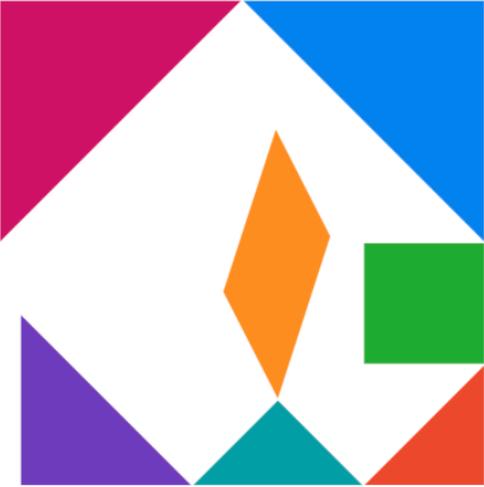
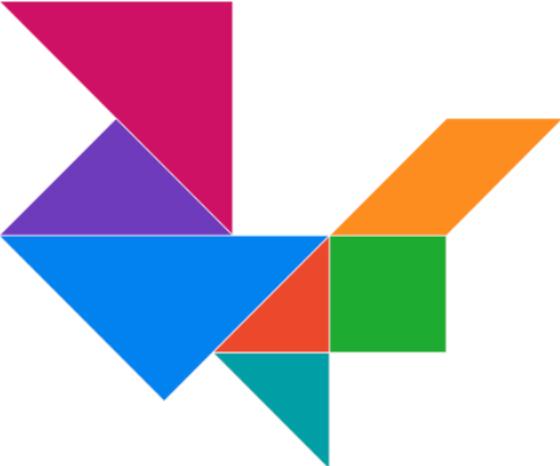
<p><b>Iris</b></p>	<p>A bird that is eating a worm.</p>	 <p>A colorful geometric bird composed of several shapes: a red triangle for the tail, a purple triangle for the wing, a pink square for the body, a blue triangle for the head, a teal triangle for the beak, an orange parallelogram for the tail feathers, and a green diamond for the worm being eaten.</p>
<p><b>Josie</b></p>	<p>A boat that another boat just crashed into.</p>	 <p>A colorful geometric boat collision. The main boat is composed of a blue triangle for the hull, a pink triangle for the bow, a teal triangle for the cabin, and a purple triangle for the mast. A smaller boat, composed of an orange parallelogram and a red triangle, is crashing into the side of the larger boat.</p>
<p><b>Lucas</b></p>	<p>A camera with solar panels. The square turns on the camera. The small triangles zoom in and out.</p>	 <p>A colorful geometric camera with solar panels. The camera body is composed of a blue triangle for the lens, a pink triangle for the body, a teal triangle for the viewfinder, and a red triangle for the flash. A green square represents the camera's sensor, and an orange parallelogram represents the solar panel. A purple triangle is positioned above the camera, possibly representing a light source or a lens flare.</p>

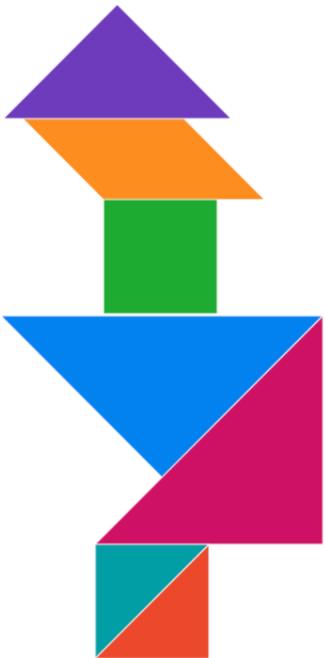
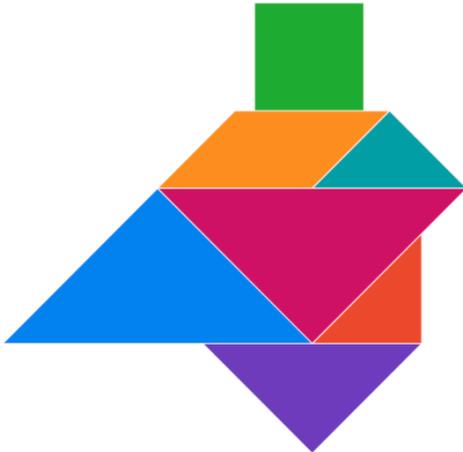
<p>Lucas</p>		
<p>Lucas</p>	<p>A robot that people made.</p>	
<p>Mannat</p>	<p>The trunk of a car.</p>	

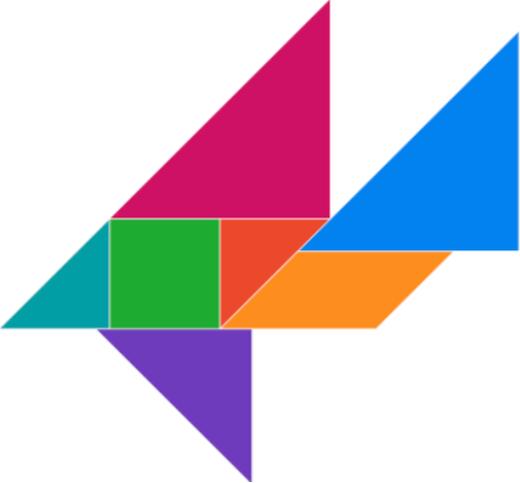
<p>Mannat</p>	<p>A bird that can open and close its mouth.</p>	
<p>Mannat</p>	<p>A dog flying in the sky.</p>	
<p>Rebecca</p>	<p>A train with passengers. The front lights up when it's dark.</p>	

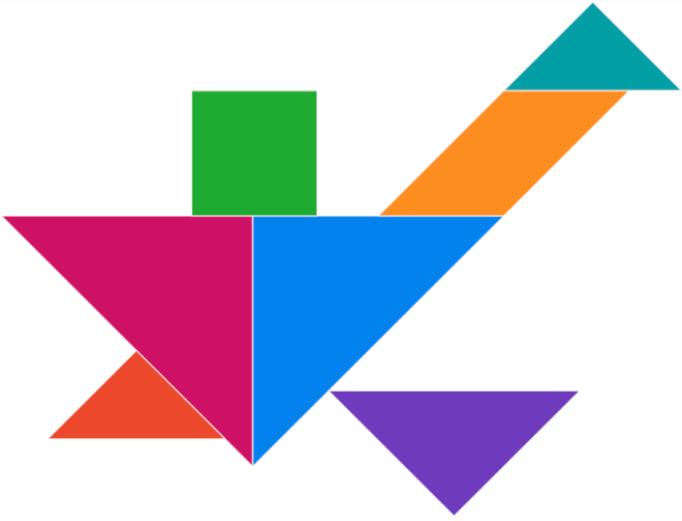
<p>Rebecca</p>	<p>A pregnant flamingo.</p>	 A colorful geometric shape composed of several triangles and a square. The shape is oriented vertically. At the top is a large blue triangle pointing downwards. Below it is a large magenta triangle pointing to the left. To the right of the magenta triangle is a smaller teal triangle pointing to the left. Below the teal triangle is an orange triangle pointing to the left. To the right of the orange triangle is a purple triangle pointing to the left. Below the purple triangle is a green square. To the right of the green square is a red triangle pointing to the left.
<p>Reyansh</p>	<p>An eagle that has a neck, a tail, wings, body, and a neck.</p>	 A colorful geometric shape composed of several triangles and a square. The shape is oriented horizontally. At the top is a purple triangle pointing to the right. Below it is an orange triangle pointing to the right. Below the orange triangle is a green square. To the left of the green square is a blue triangle pointing to the left. To the right of the green square is a magenta triangle pointing to the left. Below the green square is a teal triangle pointing to the left and a red triangle pointing to the left.

<p><b>Reyansh</b></p>	<p>You put your credit card in either side. The top sees if the credit card has any money. The middle part helps take the money in. The bottom gives out the receipt.</p>	
<p><b>Sahir</b></p>	<p>The top is a ball. The bottom is fire. So the whole thing is called a fireball.</p>	
<p><b>Sahir</b></p>	<p>Three houses. The main house is on fire.</p>	

<p>Sahir</p>	<p>A cave with fire inside. Hunters came and set the cave on fire when they were hunting foxes.</p>	
<p>Wyatt</p>	<p>A house on a ledge with a whole bunch of mountains.</p>	
<p>Wyatt</p>	<p>A ship that is shaped like a bird.</p>	

<p>Wyatt</p>	<p>A super tall and weird house.</p>	
<p>Yuva</p>	<p>A superhero flying in the sky. It has a head, a cape, a body, and a foot.</p>	

<p>Yuva</p>	<p>A bird flying in the sky with a little crack in its tail because pirates fired a cannon at the bird.</p> <p>This is also a shark that is swimming in the sea. Its fin got broken because fire came into the sea and hit its fin.</p>	
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<p>Yuva</p>	<p>A running goose with a box on its back.</p>	
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