GYAN BHARATI SCHOOL

QUEST

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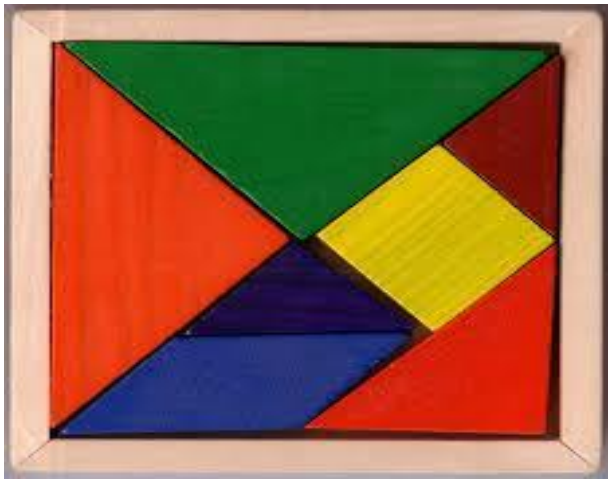
GEOMETRY IN TANGRAM

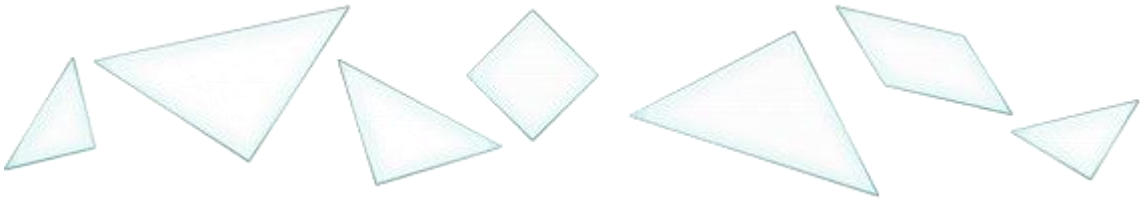
The ancient Chinese art of tangram puzzles is a popular mathematical problem solving activity, finely tuned to bring out the best in pupils. The tangram puzzle consists of 7 geometric pieces which are normally boxed in the shape of a square.



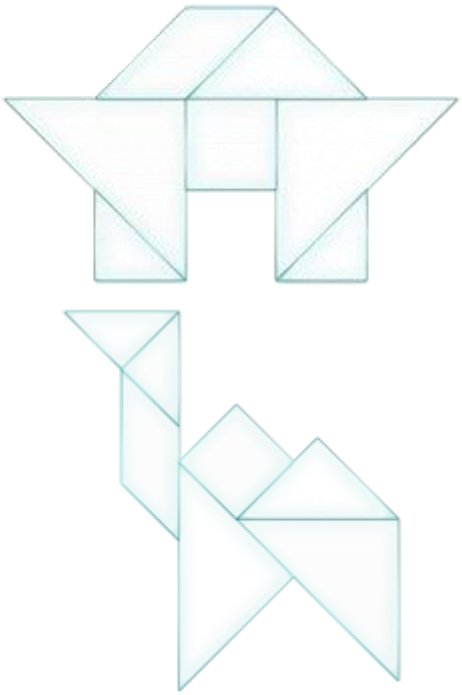
THE LEGEND OF THE TANGRAM

The ancient Chinese story of the tangram is that a sage, a wise old man was to take a precious sheet of glass to the king who needed a window in his palace.The square piece of glass was wrapped in silk and canvas and carried in the sage's back pack. The journey was long, the sage crossed a desert and rivers, he travelled through forests and fields. He arrived at a rugged mountain range and climbed to the summit of a high, rocky peak. At the top of the mountain he looked into the distance and glimpsed the palace he was travelling to. Pleased that he had almost arrived, he stumbled and tumbled down the side of the mountain. The glass was broken.

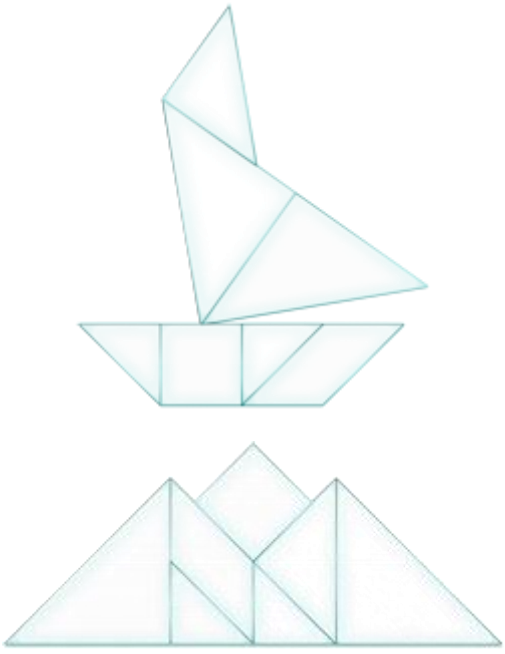
When he met the king he told of his journey and admitted that the glass was broken. The square glass was unwrapped from its silk and canvas case and the sage was surprised to see that glass was not shattered but divided into seven geometric shapes.

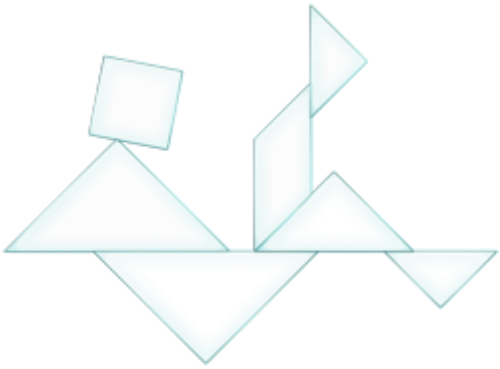


The sage moved the shapes around and made images to describe his journey.



He showed the king his home, a camel he had seen in the desert, monks he met on his way, a boat on the river he crossed and the mountain range where he fell .



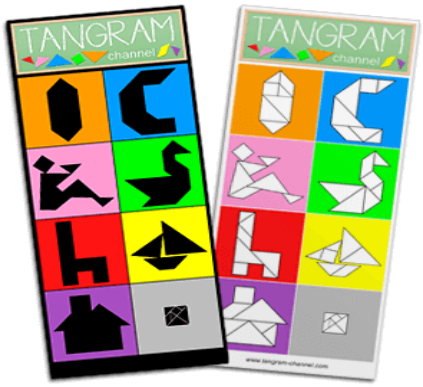


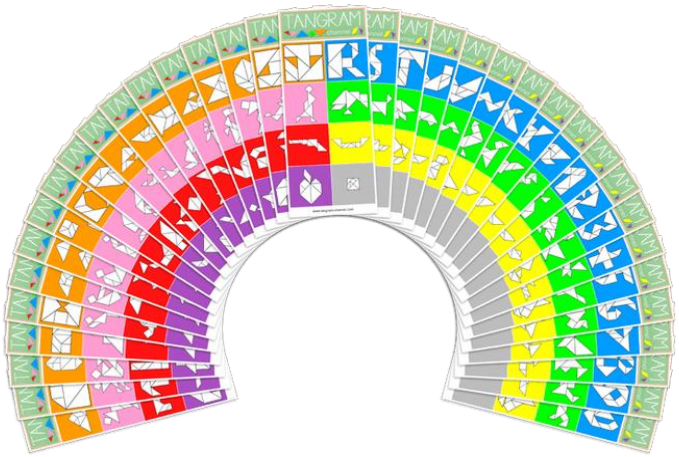
The king enjoyed the geometric images and had the shapes recreated in wood. . . Tangrams were invented.

Let us enjoy Tangram.....

*Crafts & Activities

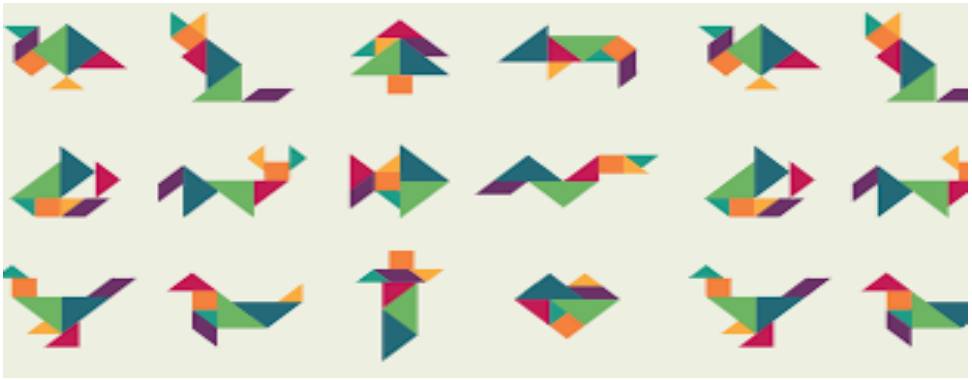
Playing with tangrams is a great way to learn about polygons, explore mathematical concepts like transformations (translations, reflections, rotations) or symmetry and practice spatial awareness, problem solving skills and fine motor skills.
These Tangram cards are an exciting way for pupils and teachers to enjoy the ancient Chinese art of Tangram.



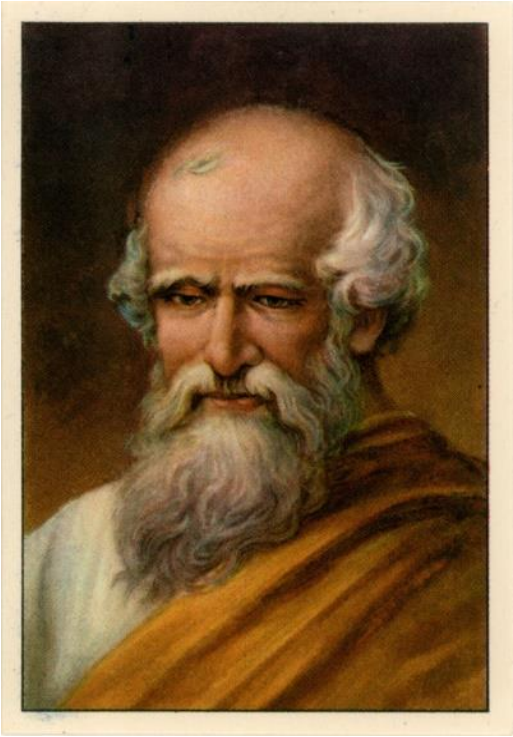


*Tangram puzzles

The main scope of the tangram puzzles is to improve and develop the logical part of the human brain. It betters the visual and analytical thinking as well as the child's orientation and decision-making. It might look easy, but many adults cannot solve these amazing and unique puzzles . . .



IDENTIFY THE SCIENTIST:



He was a Greek mathematician, physicist, engineer, inventor, and astronomer.

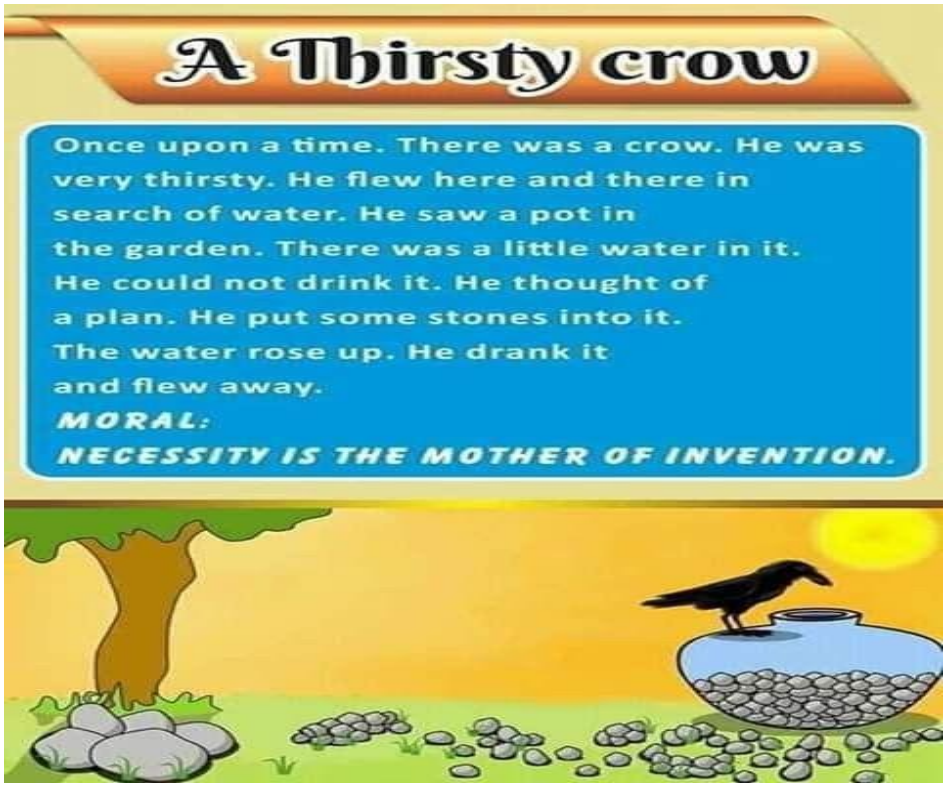
Born: 288 BC, Syracuse, Italy

Died: 212 BC, Syracuse, Italy

Nationality: Greek

Parents: Phidias

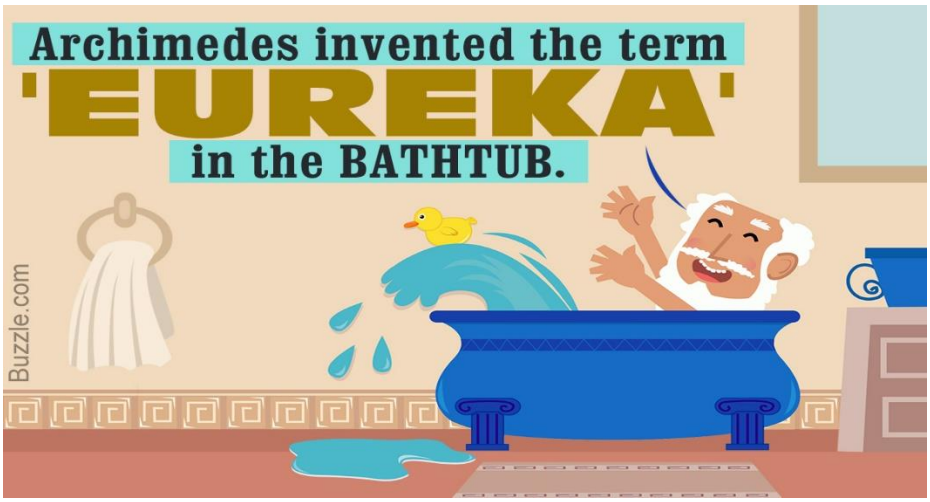
Discoveries: the laws of levers and pulleys, which allow us to move heavy objects using small forces. Invented one of the most fundamental concepts of physics – the center of gravity. Invented the sciences of mechanics and hydrostatics.



Be a scientist, interpret and explain the story!!!

Why did water rise up when the crow put stones in the pot??

How did Archimedes find the purity of the king's golden crown?



Deep in thought, pondering how best to solve the king's problem, Archimedes walked to the public baths for his daily bath. As he began to lower himself into the water, the water in the tub began to spill out over the sides. Curious, Archimedes continued to lower himself slowly into the water, and he noticed that the more his body sank into the water, the more water ran out over the sides of the tub.

He was so excited by his discovery that he jumped out of the tub at once, and ran all the way home a shouting 'Eureka, Eureka!' – which in Greek means, 'I have found it! I have found it!'

So now, all that remained for Archimedes to do was to compare the volume of the crown to the volume of the amount of gold that the king Hiero had given the goldsmith.

Archimedes found that the crown did, in fact displace more water than the lump of gold of equal weight. Thus he came to the conclusion that the crown was not pure gold, and that the goldsmith had indeed mixed some silver (or other, lighter metal) into the gold in an attempt to cheat the king.

Archimedes' Principle, which states that a body partially or completely immersed in a fluid is buoyed up by a force equal to the weight of the fluid displaced by the body.

WHAT IS ARCHIMEDES' PRINCIPLE USED FOR?

Archimedes' principle is very useful for:

- Calculating the volume of an object that does not have a regular shape. The oddly shaped object can be submerged, and the volume of the fluid displaced is equal to the volume of the object.
- It can also be used in calculating the density or specific gravity of an object. For example, for an object denser than water, the object can be weighed in air and then weighed when submerged in water. When the object is submerged, it weighs less because of the buoyant force pushing upward. The object's specific gravity is then the object's weight in air divided by how much weight the object loses when placed in water.
- The key applications of this principle are floating of ships in water, rising of a balloon in air.

REAL LIFE APPLICATION OF ARCHIMEDES PRINCIPLE:

An elephant submerged deep inside a muddy open well in Odisha was miraculously rescued after a harrowing two-hour rescue operation by forest and fire officials.

Weight of an elephant is about 6000 kg. How do you think, Archimedes principle helped in rescuing the elephant? (Hint: Buoyant force)

Refer to the link: https://www.youtube.com/watch?v=NOEhgmV2a-s

Challenge!! Find the words as soon as possible.

P	J	A	J	U	D	V	E	F	B	N	S	V	H	H	O	R	Z	C	L	X	Q	E	E
D	E	O	F	A	T	N	R	Z	F	X	I	Q	A	F	Q	Q	N	U	S	M	M	S	H
W	Z	L	U	M	W	O	L	L	O	H	Y	H	X	F	T	D	M	A	X	B	N	W	O
Q	T	V	V	H	X	S	S	G	J	X	D	F	X	K	I	A	E	T	S	B	K	L	N
Y	E	I	X	M	C	E	U	K	E	W	N	K	I	L	J	E	T	C	H	D	D	C	B
G	P	F	F	C	C	L	C	I	E	C	A	P	S	O	O	W	J	K	A	G	I	M	C
D	G	W	V	K	E	P	G	E	I	K	X	F	S	L	X	D	H	F	S	B	I	Q	J
J	P	U	H	J	M	I	D	N	D	O	F	Q	R	M	O	G	K	M	X	N	W	L	E
L	O	E	O	G	O	C	P	F	Y	C	O	F	A	E	T	M	A	M	X	D	Z	F	U
R	T	H	H	M	S	N	O	K	Q	F	W	S	I	U	I	G	P	I	Y	L	H	D	D
K	J	K	N	I	S	I	T	J	P	A	S	T	D	X	F	E	V	D	Z	N	E	E	M
O	M	U	Q	D	U	R	T	E	N	P	D	T	P	H	M	K	U	M	N	C	D	N	P
X	B	L	T	E	E	P	P	N	H	P	Y	F	I	U	O	R	S	O	G	H	W	S	X
Z	N	O	R	V	T	S	P	Y	S	T	T	B	L	F	N	M	L	S	K	B	R	I	S
M	I	D	U	L	C	E	J	V	Y	N	U	O	Z	I	R	S	K	Y	A	V	C	T	N
K	V	R	D	E	G	D	C	P	H	K	V	J	T	Y	O	A	N	F	V	L	V	Y	Q
P	X	I	L	E	A	E	Y	V	Y	H	E	A	V	Y	Z	N	R	L	Y	I	A	T	W
W	L	A	N	O	V	M	Q	C	F	Q	Q	P	G	Y	S	G	K	P	U	L	Q	A	W
U	H	R	O	W	B	I	C	O	N	L	C	T	X	Q	H	G	N	P	T	G	R	O	B
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A	B	W	X	J	C	C	F	C	H	X	Y	W	A	T	E	R	V	X	L	W	B	F	M
V	O	J	C	H	M	R	Q	A	Q	D	Q	U	M	J	U	I	G	Q	L	J	U	Y	W
F	Z	X	K	X	J	A	W	Z	T	T	T	Q	B	Q	I	T	P	O	R	P	K	F	I
O	Q	U	H	L	I	J	S	O	S	C	E	U	K	R	K	G	L	Z	S	Z	W	B	C

Archimedes Principle	float	sink	volume
mass	space	water	air
heavy	light	hollow	density
buyancy			