

GYAN BHARATI SCHOOL

# Quest.....

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## **MATHEMATICS IN PLAYING CARDS**



Playing cards may have been invented during the **Tang dynasty** around the 9th century AD as a result of the usage of woodblock printing technology. The first possible reference to card games comes from a 9th-century text known as the *Collection of Miscellanea at Duyang*, written by Tang dynasty writer **Su E**. It describes **Princess Tongchang**, daughter of **Emperor Yizong of Tang**, playing the "leaf game" in 868 with

members of the **Wei clan**, the family of the princess' husband. The game reached Europe around 1360, not directly from China but from the **Mameluke empire of Egypt**.

### **Do you know.....?**

- There are 52 cards which is equivalent to the number of weeks in a year.
- There are 12 picture cards to represent each of the 12 months.
- There are two colours, red like a hot sun, and black like the night.
- If you add up all the values of the cards calling each Ace one, the jacks 11 the queens 12 and the king 13 you end up with 364.
- Just add a joker to give you the extra day needed for 365.
- Also note there's four suits that could represent the four different seasons.

### **LET US PLAY A GAME....**

1. War is one of the most basic card games for children.

#### **Number of Players:**

Typically 2, but War can be played feasibly with up to four players.

#### **Mathematical Skills:**

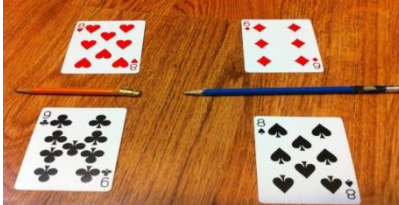
- Identifying numbers, comparing numerical values

#### **Set up is simple:**

- Shuffle a deck of cards and then divide it into two equal piles.
- From there, players simultaneously flip cards off the top of their respective decks and compare the values.
- The player that turns the higher number and/or face card value takes both cards and adds them to the bottom of their own deck.

- If there is a tie, both players play three cards face down and play a fourth face up. The values of the fourth cards are compared and the player with the highest value takes all ten cards!
- Once a player has acquired all of the cards, they are declared the winner.

## 2. Fraction Game (could be used in the classrooms)



(Students take turns playing “war” using a deck of cards and a pencil to act as the fraction line. The pair of students must then decide who has the larger fraction based on the four cards played. The winner gets to keep all the cards. Player with most cards at end wins.)

**Mathematical Skills:** To develop quick comparison of fraction values

### **Rules:**

- Shuffle and deal the cards.
- Each player puts their cards faced down in a pile.
- Both players turn over TWO cards at the same time (one above the pencil and one below).
- The player whose cards has the larger fraction wins all four cards.
- Players may use the paper to figure equivalent fractions or use the Tip Sheet.
- If players turn over equivalent fractions, then there is a fraction war.
- Each player places 2 new cards face down and the 3rd & 4th card face up (one above the pencil and one below).
- Who ever has the higher fraction wins all the cards.
- The game can continue until one player has all the cards or for a given amount of time.

### Fraction War Tips and Tricks

- If two fractions have a common denominator, the fraction with the larger numerator is the larger fraction. Ex:  $3/5 > 2/5$
- If two fractions have a common numerator, the fraction with the smaller denominator is larger. Ex:  $1/4 > 1/8$
- If you are unsure about which fraction is larger, use the fraction strips to compare.
- Each turn, players place two cards face up to represent a numerator and a denominator of a fraction. The player with the highest resulting fraction takes all four cards.

## Modification

### Subtraction War :

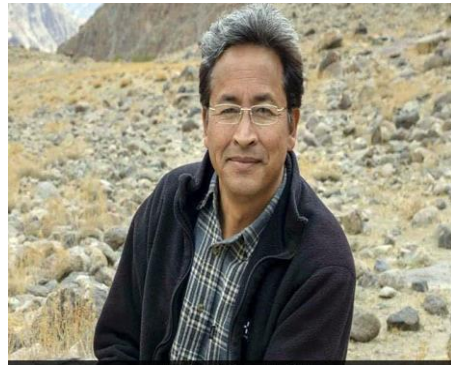
- *Each turn, players play two cards each and subtract the smaller value from the larger. The player with the highest result takes all*

### IDENTIFY HIM

- He is an Indian engineer, innovator and education reformist.
- Birth: 6 September 1966 in Ladakh.
- He invented the Ice Stupa technique that creates artificial glaciers.

#### Awards:

- Global Award for Sustainable Architecture 2017.
- Rolex Award for Enterprise 2016
- International Terra Award for best earth building (SECMOL) 2016
- Ramon Magsaysay Award 2018

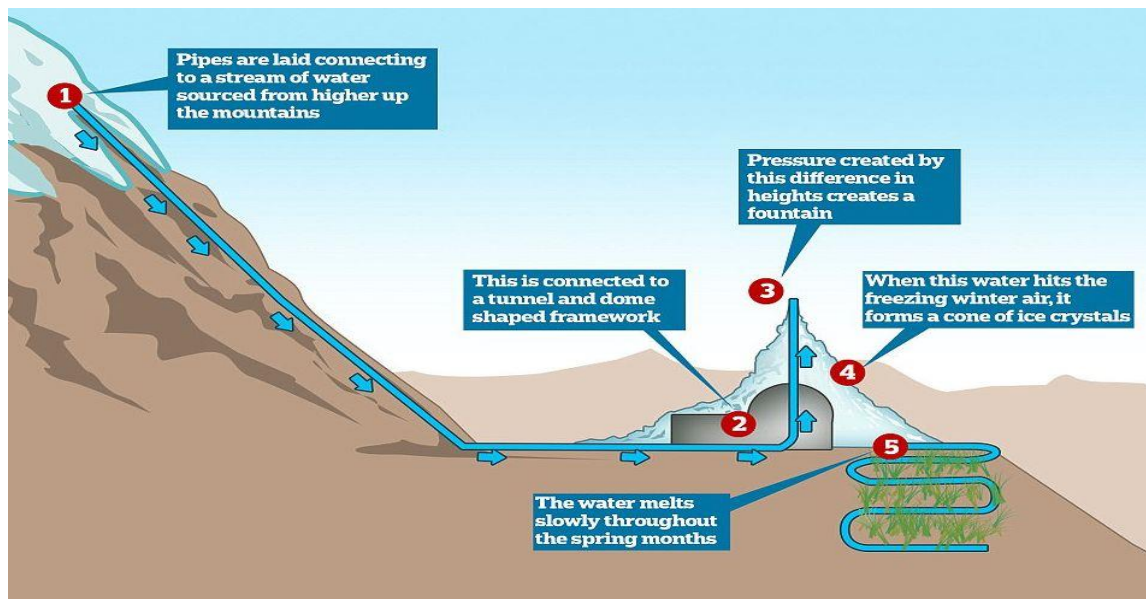


### WHAT IS AN ICE STUPA?



- The idea behind artificial glaciers is to freeze and hold the water that keeps flowing and wasting away down the streams and into the rivers throughout the winter.
- Instead, this ice will melt in the springtime, just when the fields need watering on a similar idea for water conservation.
- This is achieved by freezing the stream water vertically in the form of huge ice towers or cones of 30 to 50m height that look very similar to the local sacred mud structures called Stupa.
- These ice mountains can be built right next to the village itself where the water is needed.
- Very little effort or investment would be needed except for laying one underground pipeline from a higher point on the stream to the outskirts of the village.

## HOW IT WORKS:



- The idea is very simple and needs no pumps or power.
- We all know that water maintains its level. Therefore water piped from 60m upstream would easily rise close to 60m up from ground when it reaches the village.
- The water would freeze by the time it reaches the ground and slowly form a huge cone or Ice Stupa roughly 30 to 50m high.
- In reality we won't even need a tower structure since we can let the piped water first freeze at the ground level and then mount higher meter by meter as the thickness of the ice grows, finally reaching close to the height of the source.
- The idea is also to conserve this tower of ice as long into the summer as possible so that as it melts, it feeds the fields until the real glacial melt waters start flowing in June.
- Since these ice cones extend vertically upwards towards the sun, they receive fewer of the sun's rays per the volume of water stored; hence, they will take much longer to melt compared to an artificial glacier of the same volume formed horizontally on a flat surface.

## FROM STUDENT'S DESK

### DID YOU KNOW??!!

- According to the theory of relativity, if we are able to travel more than the **speed of light**, we will be able to see the future as time will stop.
- We can't taste food **without Saliva**.
- There is one more state of Matter **PLASMA** which exists at a very high temperature **10<sup>7</sup> degree Celsius**.

- Octopuses have 3 hearts and Blue blood.
- RBC's are EUKARYOTIC cells without a nucleus.
- We always add acid to water. When we add water to acid, the solution Burns.
- Light takes just nearly 1 second to reach the moon.
- There is a dead sea. It has so much of salt that a person can easily float without drowning.
- Water's density is highest at 4-degree Celsius and ice (solid) floats on water.
- The boiling point of water is 100 degree Celsius ONLY on plains. It decreases on high altitudes.
- Water can be both ice and water at 0° C.
- Mercury is closest to the sun still Venus is hotter than mercury.
- Our nose can remember 50000 different scents.
- The lens in the eye is of 572 Megapixels (approx).

-AKSHAT SRIVASTAVA (S1C)

Answer:Name of the Scientist: SonamWangchuk

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