

Maths Around Us

21 CS

Creativity and innovation

IF

AI

CC

Integration with
Social Studies

POTTERY: SHAPES AROUND US

Pottery is an art and a skill that has always been a part of Indian history and civilizations. It involves the creation of objects of different shapes by moulding clay or porcelain. These objects were created mainly for storage, cooking, transportation of materials, decoration, etc. Over the years, this art, also known as ceramics or ceramic art, has evolved into a much sought after skill. It is a means of living for some people. Some people express their creativity through this and some people practise this as a hobby.

In India, the style of pottery is different in different places. Even early civilizations had a unique style of pottery. The patterns drawn on the surface of the objects tell us about the culture and beliefs during that time. Some examples of pottery that was found in ancient India and in modern times are given below.



Ancient pictograph from the Indus Valley Civilization



Fish bowl from the Indus Valley Civilization



Modern pots made in Kerala and Gujarat

Features Highlighted

Maths Around Us: Interesting information and activities to connect maths with Indian history, art, culture, real-life situations and financial literacy

Aim: To measure the length of any cuboidal shape using a thread

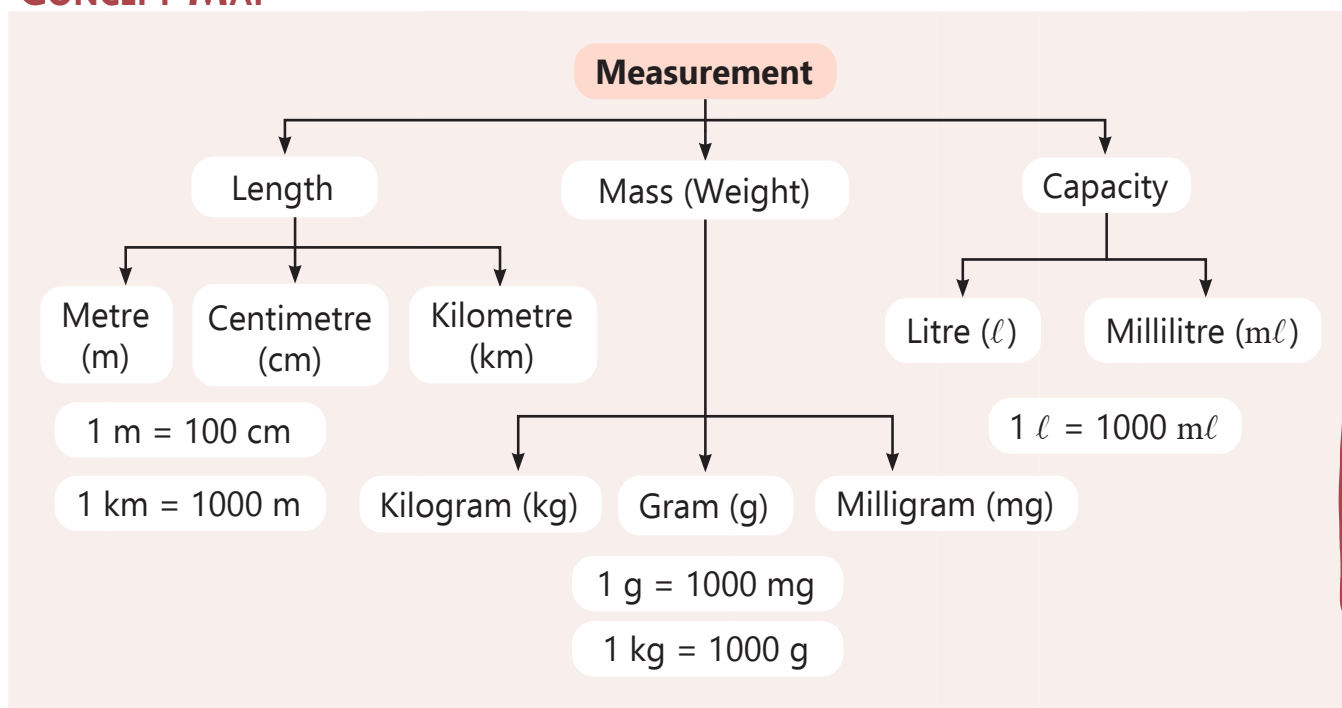
Materials required: A long thread (preferably white), a measuring tape or a ruler, marker pens, any object (book, pencil box, etc.)

Procedure:

1. Take your pencil box and a thread.
2. Place the tip of the thread at one corner of the pencil box. Then stretch it along the edge of the box till it reaches the next corner. Mark this length with a marker pen on the thread.
3. Now, measure the length of the marked thread with a measuring tape. This will give you the length of your pencil box. Using the same method, try measuring other objects in your bag or classroom.



CONCEPT MAP



KEY CONCEPTS

- **Distance:** The measurement of length between two points or locations
- **Mass:** The amount of matter that an object has
- **Weight:** The measure of the heaviness of an object

Features Highlighted

Maths Lab Activity: Hands-on activity to help in improving investigation, reinforcement and extension of concepts just learnt

SKILL UP!



A.

21 CS Critical Thinking



Collect buttons in 7 different colours.

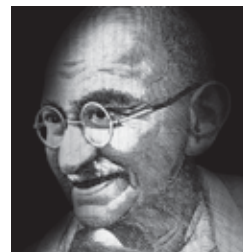
Specify the colour of these buttons along with their ordinal numbers.

B.

21 CS Media Literacy

IF

Find out the date of the 150th birth anniversary of Mahatma Gandhi in the year 2019. Prepare a birth anniversary chart based on your findings. Use number names and expanded forms of the numbers in your chart.



Also, find out a few famous sayings by Mahatma Gandhi and include in your chart. One of his famous sayings is given below.

“There’s enough on this planet for everyone’s need but not for everyone’s greed.”

C.

21 CS Information Literacy, Life Skills

Sarika’s home address is given alongside.

Flat no. 3, 4th floor,
Tower 116, Tank Road

1. Which ordinal number is used in the address? _____
Is it used for the flat number or for the floor number? _____
2. The flat number is less than the floor number. True or False. _____
3. Is the tower number an even number or an odd number? _____
4. How will you write the tower number in words? _____

SUSTAINABLE DEVELOPMENT GOALS

Use Question B to start a discussion on the United Nations Sustainable Development Goals. The saying by Mahatma Gandhi, included in this question, can be linked to SDG 1 No Poverty. Many of his sayings can be linked to one or the other SDGs. Find out which of his sayings can be linked to which SDG.

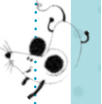
Which SDG interests you the most? Choose an SDG and explore it more.

Features Highlighted

Skill Up: A variety of questions catering to inquiry-based, discovery-based, discussion-based and analysis-based learning



WORKSHEET 12



21 CS Information Literacy

CC Integration with General Knowledge

Name the seasons. What special features do you see in these seasons? Sequence the seasons from 1 to 5 in the space provided. One has been done for you.

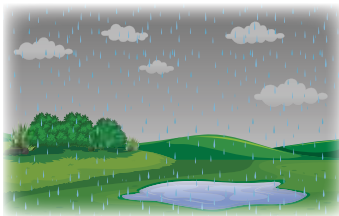
1.



Name:

Features:

2.



Name:

Features:

3.



Name:

Features:

1

4.



Name:

Features:

5.



Name:

Features:

Features Highlighted

Worksheet: Picture-based, fun, problem-solving questions to reinforce concepts

Honesty Is the Best Policy!

21 CS

Critical thinking,
Communication

Rita and Larry's mother bought 20 chocolate muffins.



Larry, Rita, I have chocolate muffins for you. Wash your hands and come here.

Here are 3 muffins for each of you. This is a reward for keeping your room clean.

Yay! Thank you Mummy. These are my favourite!



They look yummy!

The next day...



Children, yesterday we had 20 muffins. Now, there are only 10. Have you taken any?

Sorry Mummy, I forgot to tell you. Yesterday, Palit came over. I shared 2 muffins with him.

Rita, Larry is honest. He told me that he had taken muffins. Did you take any?

No, Mummy, I did not. Larry must have taken more.



Mother takes Rita to her bedroom.



Rita, it's okay to take food if you want to eat something tasty. But it is dishonest to lie about it.

I am sorry, Mummy. I could not help myself. I took just 1 muffin in the noon and 1 in the evening.



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Innovation

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Social Science

Maths Mela

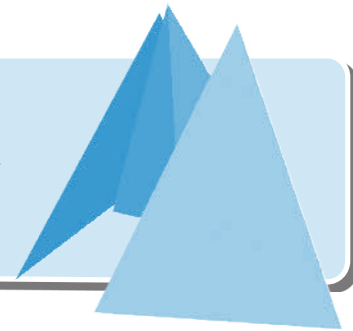
Let us build a square pyramid

All You Need Is ... Thick cardboard pieces, Glue, Cellotape, Brown or black permanent marker, Scissors, Pencil, Ruler, Paint brush, Sand and/or glitter

Let's Start:

1

Measure and draw four equal triangles on the cardboard, using a pencil and a ruler. Remember that the larger your triangles, the bigger your pyramid will be.



2

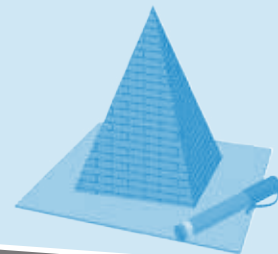
Cut the triangles using your scissors.

3

Glue the sides of all four triangles together to form a pyramid shape. You can also use cellotape to hold the sides firmly.

6

Draw several vertical and horizontal lines on each side of the pyramid with a dark brown or black permanent marker to imitate the appearance of bricks.



4

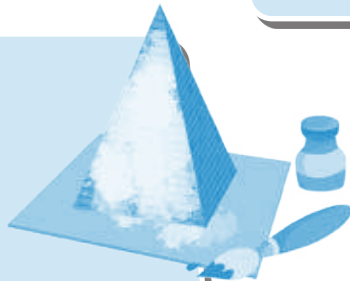
Draw a square on another cardboard piece such that its side is longer than the base of the triangles. Cut out the square.

5

Now glue the bottom of the pyramid into the middle of this cardboard piece.

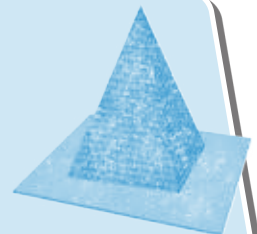
7

Now spread glue over the pyramid and the base using a paint brush or a spoon to make an even layer over each surface.



8

Pour sand over the pyramid and the base while the glue is still wet. If sand is not available, you can pour glitter also, but sand will give more realistic look. And your pyramid is ready.



Features Highlighted

Maths Mela: Model making or hands-on project ideas to enhance learning beyond the classroom

Eminent Mathematicians

21 CS

Information
Literacy

IF

RENÉ DESCARTES

(1596 – 1650)

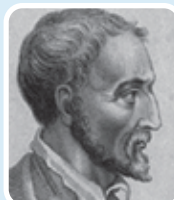


He was a French philosopher, mathematician, and scientist. The Cartesian coordinate system was named after him.

Descartes invented the convention of representing unknowns in equations by x , y , and z and knowns by a , b , and c . He also developed the standard notation that uses superscripts to show the powers or exponents; for example, the 2 used in x^2 to indicate x squared.

GEROLAMO CARDANO

(1501 – 1576)



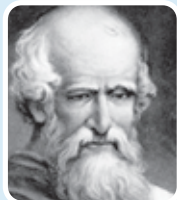
He was an Italian polymath. His interests and proficiencies ranged from being a mathematician, physician, biologist, physicist, chemist, astrologer, astronomer, philosopher, writer, and gambler.

He was one of the eminent figures in the foundation of probability.

He wrote the book about games of chance, *Liber de ludo aleae* ('Book on Games of Chance'). He used the game of throwing dice to understand the basic concepts of probability.

ARCHIMEDES OF SYRACUSE

(287 – 212 BC)



He was a Greek mathematician, physicist, engineer, inventor, and astronomer. Archimedes derived and rigorously proved a range of geometrical theorems, including the area of a circle, the surface area and volume of a sphere, etc. The first calculation of π was done by him.

Archimedes had proven that the volume and surface area of the sphere are two thirds that of the cylinder including its bases. He also proved that the area of a circle was equal to π multiplied by the square of the radius of the circle (πr^2).

MARTHA EUPHEMIA LOFTON HAYNES

(1890 – 1980 D.C.)



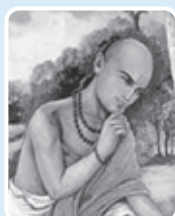
She was an American mathematician and educator.

She was the first African-American woman to gain a PhD in mathematics, from the

Catholic University of America in 1943. She taught mathematics and served as chair of the Math Department at Dunbar High School. Haynes was a professor of mathematics at the University of the District of Columbia where she was chair of the Division of Mathematics and Business Education, a department she created dedicated to training African American teachers.

MAHĀVĪRA (OR MAHAVIRACHARYA, "MAHAVIRA THE TEACHER")

(DIED 875 AD)



He was a 9th century Jain mathematician possibly born in or close to the present day city of Mysore, in southern India. He separated astrology from mathematics. He is highly respected among Indian mathematicians, because of his formation of terminology for concepts such as equilateral and isosceles triangle, rhombus, circle and semicircle. He found methods to calculate the square of a number and cube roots of a number. He stated confidently that the square root of a negative number does not exist.

Features Highlighted

Eminent Mathematicians: Brief write-ups on eminent mathematicians and their contributions

1

Numbers up to 10,000

Course book: Refer to pages 9 to 32

No. of periods: 10

Learning Outcomes:

- Learning numbers and their number names up to 10,000
- Learning the order of numbers up to 10,000 with their place value and face value
- Comparing numbers up to 10,000
- Finding the greatest and the smallest number out of a set of numbers
- Arranging the numbers in an ascending or a descending order
- Understanding even numbers and odd numbers up to 10,000
- To round off numbers to the nearest tens and hundreds

Prior Knowledge:

- Read and write numbers, their number names, place value, face value, expanded form of numbers till 1000
- Compare the numbers and put them in ascending and descending order
- Form the greatest and the smallest number till 1000, out of given digits

Vocabulary: Thousands, Hundreds, Tens, Ones, Predecessor, Successor, Greater than, Less than, Equal to, Greatest number, Smallest number, Ascending order, Descending order, Even numbers, Odd numbers, Rounding off numbers

Resources: Manipulatives: Wooden models of cubes representing 1000s, 100s, 10s and ones, Abacus
Virtual Manipulatives: Resources given in the DigiSuite

REFRESH ACTIVITY (Self)

Recommended Time: 5 minutes

Let's Get Started: Give the students the wooden models of cubes representing hundreds, tens and ones and ask them to represent 3-digit numbers till 999.

Lesson 1: Recalling 3-digit Numbers

Period 1

Learning Objectives	Recall the formation and the order of 3-digit numbers to help students understand 4-digit numbers
Skills in Focus	Number sense, Counting skills
Recommended Teaching Time	45 minutes

Features Highlighted

Teacher's Manuals: The Teacher's Manuals for Perfect Maths 1 to 8 are planned to assist teachers in multiple ways. Each manual has a comprehensive period plan and micro lesson plans that act as a guide for the allocation of periods and teaching strategy for different topics in a chapter.