WEBINAR REPORT

TOPIC: Education Through Monuments – Mathematics Session by Anita Makkar Ma'am, Principal-The HDFC SCHOOL, Gurgaon

CONDUCTED BY: Maharaja Sawai Man Singh II Museum Trust

RESOURCE PERSON: Ms. Anita Makkar

ATTENDED BY: MATHEMATICS DEPARTMENT

DAY/DATE: Friday, 8th September 2023

TIME: 5:00 pm to 6:00 pm

A webinar on "**Education through Monuments**" was organised on 8th September'23.

The resource person, Ms. Anita Makkar started the session by explaining the importance of learning the purpose of a topic in mathematics. She explained that studying monuments can be an engaging way to incorporate mathematics education into learning process. Following Mathematical concepts can be explored while studying monuments:

Geometry: Analyze the geometric shapes and structures of monuments. Identify basic shapes like cubes, spheres, cones, and pyramids. Calculate their volumes, surface areas, and dimensions.

Symmetry: Examine the symmetry in monument designs. Discuss different types of symmetry such as bilateral, radial, and rotational symmetry. Calculate axes of symmetry.

Proportions and Ratios: Investigate the use of proportions and ratios in monument design. For example, explore the golden ratio in architecture and how it contributes to aesthetic appeal.

Measurement: Measure the dimensions of a monument or its components, like statues or columns. Calculate distances, heights, and widths to practice measurement skills.

Historical Mathematics: Research the historical and cultural context of the monument's construction. Explore the mathematics and engineering techniques used during that era.

Scale Models: Create scale models of monuments as a hands-on project. This involves scaling down the dimensions while maintaining proportional relationships, teaching scale and ratios.

Architectural Blueprints: If available, examine architectural blueprints or plans of the monument. Learn how to read and understand technical drawings, including scale and measurements.

Mathematical Challenges: Pose mathematical challenges related to the monument. For example, calculate the cost of building materials, estimate the weight of stone blocks, or determine the angles of inclined structures.

Trigonometry: Study trigonometry by analyzing the angles and slopes of monument features. Calculate angles of elevation and depression to understand how architects and engineers work with angles.

Historical Context: Explore the historical significance of the monument and the mathematical innovations of its time. Discuss how math influenced architecture and engineering during different periods in history.

Math in Sculpture: If the monument includes sculptures, delve into the mathematics of sculpture design, such as proportions of human figures or animals.

Mathematical Interpretation: Encourage discussions and essays on how mathematics is applied in monument design and construction, fostering critical thinking. Various mathematical principles used in monument design, such as geometry, trigonometry, and calculus can be explained. The role of symmetry and proportions in creating aesthetically pleasing monuments and structural integrity and stability can be discussed.

By integrating mathematics education with monument study, we can make math more tangible and relatable while gaining a deeper appreciation for the mathematical principles behind architectural marvels.Overall, it was an enriching and engaging session for one and all.