AGARAM
PUBLIC SCHOOL

APS/Cir 48/ 2024-25/Gen 21.09.24.

Dear Parents,

Greetings!

Sub: Science & Math Expo 2024-25

We are delighted to announce the annual **Eureka - Math and Science Expo 2024-25**, which will be held on **23rd Nov 2024**, in our school. The theme for this year is **"From Curiosity to Creation: Math & Science Fuelling the Future"**. This theme reflects our goal of fostering innovation and curiosity in our students as they explore how mathematics and science are shaping the world of tomorrow.

Event Highlights:

- The expo is open to all students from Grades 1 to 12.
- Students will have the opportunity to showcase their projects, demonstrating their understanding of key mathematical and scientific concepts.
- The expo will feature interactive demonstrations, hands-on activities, and creative presentations that highlight real-world applications.

Detailed guidelines, Sub-themes, instructions for participation and criteria for assessment are attached as a separate document.

Kindly encourage your ward to participate in this exciting event. Such activities help children to develop essential skills, including creativity, self-confidence, problem-solving, critical thinking, teamwork, and effective communication.

Warm regards,

Principal

EUREKA 2024-25

"From Curiosity to Creation: Math & Science Fuelling the Future "

Sub-themes for Science

1. Sustainable Development & Environment & Conservation

- **Renewable Energy**: Solar, wind, hydroelectric power.
- **Waste Management**: Recycling and waste-to-energy.
- **Conservation**: Water conservation, afforestation, Biodiversity & Abiotic system.
- **Climate Change**: Global warming, reducing carbon footprint.

2. Innovations in Agriculture

- **Smart Farming**: IoT and sensors in farming.
- **Hydroponics & Aquaponics**: Soil-less farming.
- **Organic Farming**: Sustainable, chemical-free agriculture.
- **Soil & Water Testing**: Advanced monitoring techniques.
- **Aeroponics**

3. Robotics & AI

- **Daily Life Robotics**: Automating household tasks.
- **AI in Healthcare**: AI-assisted diagnosis.
- **Drones**: Use in agriculture and disaster management.
- **Smart Homes**: IoT-based automation.

4. Health & Medicine

- **Biomedical Innovations**: Prosthetics and medical devices.
- **Disease Prevention**: Vaccination and pandemic control.
- **Nutrition & Wellness**: Balanced diets and wellness.
- **For Physically challenged**.

5. Space Exploration

- **Space Travel**: Rockets and satellites.
- **Life Beyond Earth**: Exoplanets and extraterrestrial research.
- **Cosmology**: Black holes and the Big Bang theory.

6. Physics in Everyday Life

7. Chemistry for a Better World

- **Green Chemistry**: Eco-friendly chemical processes.
- **Materials Science**: Nanotechnology and smart materials.
- **Chemical Reactions**: Applications in daily life.

8. Biology: Understanding Life

- **Human Anatomy**: Advances in physiology.
- **Biotechnology**: Genetic modification, biofuels.
- **Microorganisms**: Role in health and industry.

9. Water Management

- **Water Purification**: Cleaning and recycling water.
- **Water Conservation**: Drip irrigation, rainwater harvesting.
- **Flood Management**: Innovative solutions to prevent flood

Sub-themes for Mathematics

1. **The Power of Problem-Solving**
   - Explore how curiosity-driven problem-solving in mathematics has led to breakthrough innovations and creative solutions across various fields like technology, medicine, and engineering.
2. **Mathematics: The Blueprint of Innovation**
   - Focus on how math forms the foundation of future technologies, from space exploration to artificial intelligence, showcasing the role math plays in creating the future.
3. **From Puzzles to Progress**
   - Emphasize the fun side of math through puzzles and games, and how these exercises of curiosity lay the groundwork for real-world mathematical applications.
4. **Patterns and Predictions**
   - Demonstrate how mathematical patterns and models are used to predict future trends, whether in climate science, economics, or technology, making math essential for foresight and innovation.
5. **Building the Future: Mathematics in Architecture and Engineering**
   - Highlight the role of mathematical creativity in designing the future of urban development, transportation systems, and sustainable infrastructure.
6. **Curiosity in Code: Math in Computing**
   - Showcase how curiosity in numbers and algorithms has led to the development of computing, coding, and cryptography, pushing the boundaries of digital transformation.
7. **Mathematical Curiosity and Environmental Sustainability**
   - Investigate how mathematical models and solutions can address pressing environmental challenges like energy efficiency, pollution control, and climate change.
8. **Mathematics and the Future of Health**
   - Explore how mathematics fuels advancements in medical technologies, from imaging techniques to data analysis in genomics and personalized medicine.
9. **From Numbers to Nature: Mathematical Modelling of the Future**
   - Discuss how math helps to simulate and model natural systems, enabling innovation in fields such as biology, physics, and environmental sciences to forecast the future.
10. **Mathematical Curiosity: The Path to Space**
    - Dive into how mathematical theories, fueled by human curiosity, have been the key to exploring the cosmos and the future of space travel.

Guidelines for participation

1. All students willing to participate need to register to respective science/math teacher and submit your proposal on or before 14.10.24.
2. The students may participate in any of the 4 categories:

   Category i – classes 1 – 2
   Category ii – classes 3 – 4
   Category iii – classes 5 - 7
   Category iv – classes 8, 9, 11
3. A registering will be represented by either an individual student or two students of the same category
4. The sub – theme once selected cannot be changed. Similarly, the title of the project cannot be changed.
5. The student/ team project may be-
   - An investigation-based study;
   - Application of basic principles of Maths, Science, and technology;
   - A novel solution/indigenous design to a problem/challenge.
6. Care should be taken to use eco-friendly materials in the preparation of exhibits.
7. The teams would be required to submit the details of their respective projects (title, description, list of materials used, images/video)
8. The participating team would bear all expenses related to participation in the event.
9. The exhibits will be assessed by a team of experts as per the following criteria:

Science

a) Creativity	20%
b) Originality	20%
c) Scientific thought & Applicability	20%
d) Work-Manship	20%
e) Presentation	20%

Mathematics

a) Fulfilment of Purpose	20%
b) Content & Originality	20%
c) Analysis & understanding	30%
d) Presentation	20%
e) Judge's opinion	10%

The decision of the experts would be final.

10. Certificates will be awarded to all the participants & exciting prizes for the winners of each category