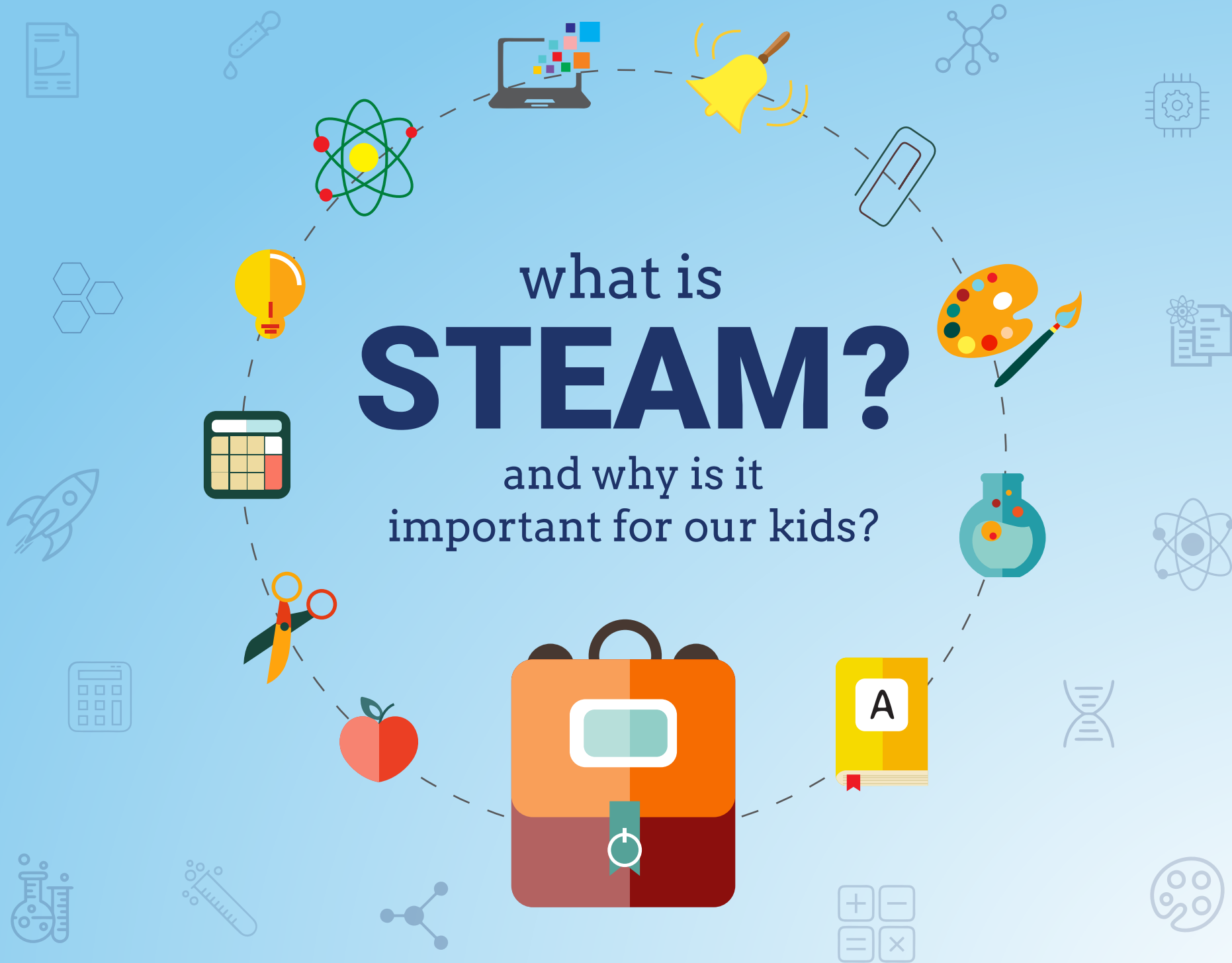


# what is **STEAM?**

and why is it  
important for our kids?



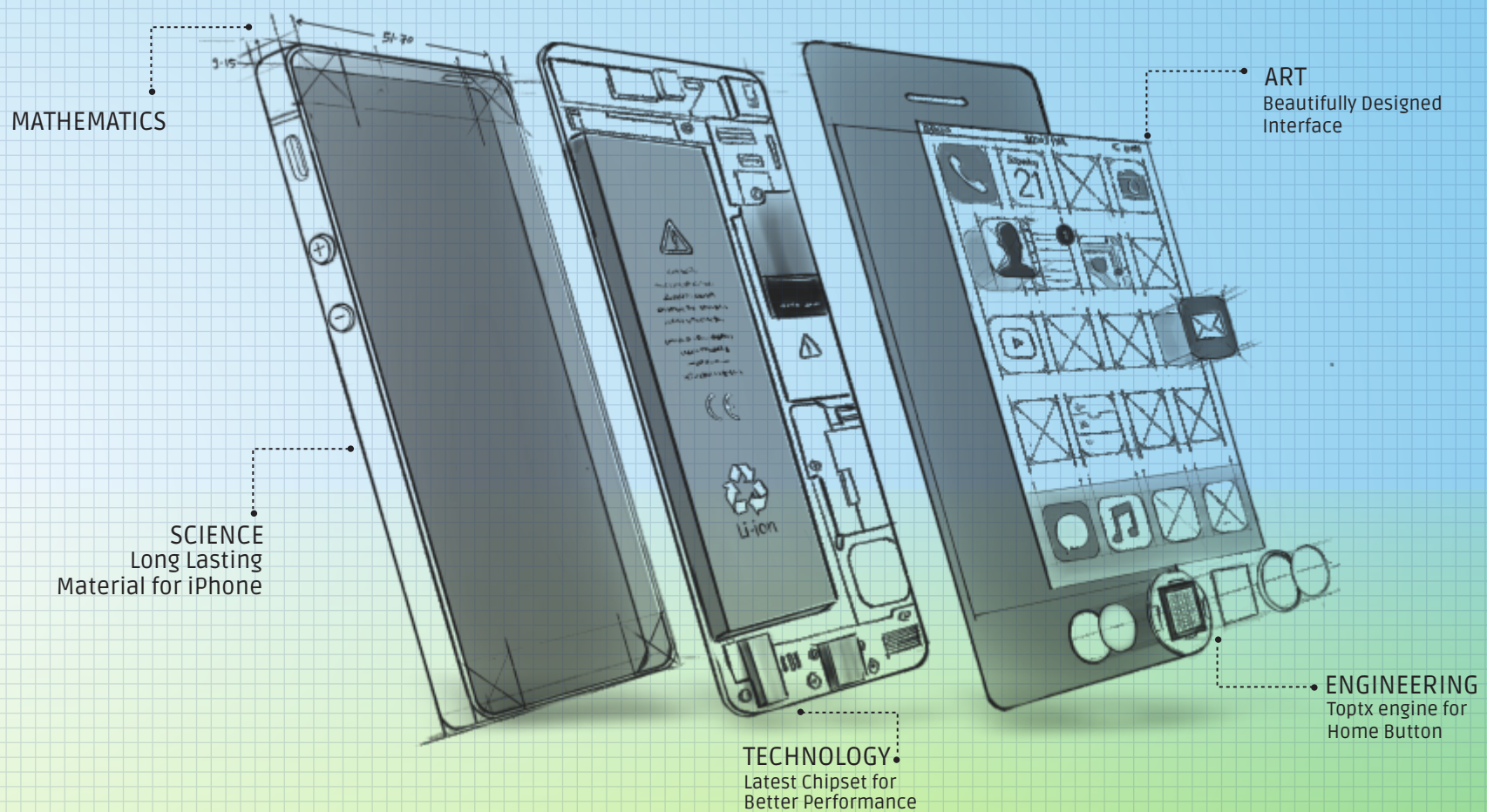
# STEAM

Science,  
Technology,  
Engineering,  
Art,  
Maths



STEAM is an interdisciplinary framework, implementing knowledge of Science, Technology, Engineering, Art, and Mathematics to create a functional project. Through STEAM projects students learn how things function. It develops functional literacy.

## Exploded View of iPhone to show **STEAM** Integration

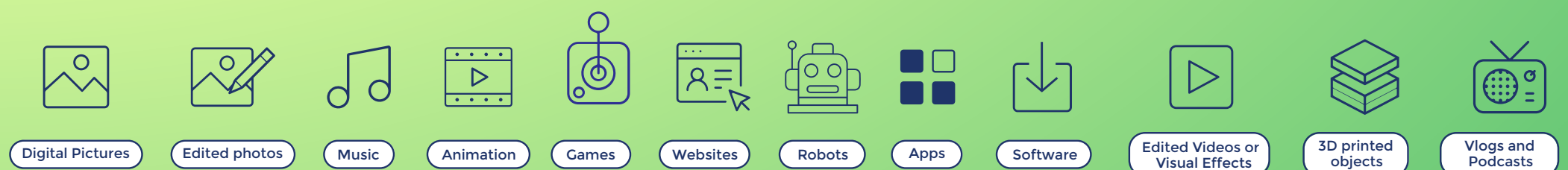


## WHY STEAM ?

### THE WORLD NEEDS INNOVATORS OF TOMORROW!

Innovation and Creativity are going to be the drivers of tomorrow's economy. Creative Problem-Solving being the most important skills in 21st Century requires application of ideas from different subjects. Hence, it is important for our children to make connections between subjects to Create, Solve, and Innovate.

### BECAUSE YOUNG PEOPLE ARE MAKING!



Easy access to technology has brought a social revolution where more and more children are making. A recent report suggests that more than 53% of young people are making Digital Pictures, Edited Videos and Visual Effects, Music, Animation, Games, Web-sites, Software and Edited Pictures. They are also involved in making Remixes and Mashups, Mobile Applications, Robots, and 3D Printed objects. To support this diverse nature of Making, Creating, Tinkering, its time that we move from our traditional education system.



# STEAM

## INTEGRATION IN CLASSROOM



### SKILL DEVELOPMENT WITH STEAM INTEGRATION

*LEARNING GOALS FROM TWO OR MORE DISCIPLINES ARE FUSED TO DEVELOP CONCEPTS AND SKILLS IN STUDENTS.*

Let's take an example of following project. This project is for the students of the age group 6-8 years. In this, students will be able to distinguish geometric shapes in 2D and 3D and measure sizes and proportions. They will learn to create the physical shapes using clay modeling and later apply their knowledge to create real-world objects like Table/Chair. This involves interdisciplinary learning of Science, Technology, Engineering, Art, and Mathematics. It helps in the development of Motor Skills, Observation, Visual Communication, Color Differentiation, and Co-operation.

### STEAM GUIDING PRINCIPLES - FOR TEACHERS

These are the principles that must be kept in mind to lead an STEAM program in school. These must be followed irrespective of any change of strategies in conduct of program.

#### FOCUS ON INTEGRATION

Help students find the connections and close relationships of concepts among different disciplines. Connecting concepts and finding patterns in different subjects will help them with deeper understanding of how things work.

#### ESTABLISH RELEVANCE

It is necessary for students to understand the importance of concepts and skills they are learning. It is easier to explain relevance when students are given real-world problems, or global issues to analyze and solve.

#### EMPHASIZE ON 21ST CENTURY SKILLS

In the near future, our students are expected to work in the jobs that don't exist yet. They will require Critical Thinkers, Creative Problem Solvers, and Team Players who can communicate and work efficiently in culturally diverse team.

#### CHALLENGE THE STUDENTS

Give students challenges that spark their curiosity, makes them ask questions, and engages them in discovery and exploration.

#### LEARNING APPROACHES

Provide learning opportunities to students by Project-based approach and Problem-based approach while implementing STEAM program. In project based, students create objects that demonstrates what and how they have learned, and in problem based, students solve problems creatively, where they learn while solving.

#### EMPHASIS ON ART AND AESTHETICS

Provide lessons where students share knowledge and ideas through Art weighing on Visual Communication. Students should be taught about Art and how it is combined with the project they are working on.





## STEAM (SCIENCE, TECHNOLOGY, ENGINEERING, ARTS AND MATHEMATICS) BENEFITS TO STUDENTS

### INTRODUCES CREATIVE PROCESS TO STUDENTS

STEAM framework encourages Guided Learning where students engage in independent investigations, discover answers, apply their learning, and creatively solve problems.

### OFFERS COLLABORATION

STEAM projects involve teamwork where ideas are exchanged and students brainstorm to solve a problem. Students share responsibilities, understand different perspectives, communicate ideas clearly, and help each other.

### IMPROVES CRITICAL THINKING

Students think systematically and strategically while working on a project or solving problem. Interdisciplinary projects help to analyze the project critically from various perspectives, focusing on required details, and understand relations between subjects.

### HANDS-ON-LEARNING EXPERIENCE

STEAM projects engage students in experiential learning. Students use different materials and tools to build and fix things in a project, which allows them to understand practical functions of things.

### TEACHES THE VALUE OF ART

In STEAM projects students learn the diversity of Art and how it is an integral part of the projects. It drives engagement as students can connect their technical projects with Visual Arts or Music and make them more interesting like programming a robot.

### CONCLUSION

STEAM education makes our children future-ready. Our children can only work in the fields they are aware of. They cannot work on something that they don't know. To innovate, they must create.

Its time, we as educators, and parents recognize the importance of STEAM education and integrate it in our school curriculum.

