

# Young Engineers - Bricks Challenge

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**Target Audience: 1st - 5th Grade**

**Up to 16 children per group.**

**Course Duration: 6-week session, 75 minute class**

The course objective is to explore both theoretical and applied knowledge in the fields of Science, Technology, Mechanical Engineering, and Mathematics (STEM) by using LEGO® technic and other exciting tools.

Students will learn mathematical and physical principles, develop independent learning, and improve building skills.

The laws of physics and mathematics will be discovered through the construction of exciting LEGO® models. Once the concepts have been demonstrated, students enjoy building hands-on LEGO® models. To carry out the building process, students will receive a tailor-made kit developed by Young Engineers.

## **Course Structure:**

**15 minutes:** Explanation of the model and introduction of lesson content.

**40 minutes:** Model building.

**10 minutes:** Playing and improvements.

**10 minutes:** Model dismantling, kit arrangement and lesson summary.



## **Main Topics:**

Basic and Complex Mathematical Operations: The integration between planning and building the model involves the calculation of energy transformations which enables the teaching of mathematical topics such as addition, subtraction and exponentiation.

Introducing Philosophers and Theoreticians: Archimedes, Newton, Da Vinci and many more.

Physical Forces and Laws: Centrifugal force, centripetal force, force of inertia, kinetic energy, potential energy, law of action-reaction, lift force, torque, leverage points, load distribution, force conservation, angular momentum and more.

## **Program Objectives:**

- Acquire theoretical knowledge in the fields of Science, Technology, Engineering, and Mathematics
- Integrate theoretical knowledge and scientific principles through a LEGO® project.
- Enhance students' fine motor skills and spatial sense
- Engage in cooperative teamwork challenges
- Encourage independent creative and inventive thinking.
- Develop the ability to analyze engineering processes.
- Broaden knowledge of physical laws and various natural phenomena.

## **Exciting Theme Models:**

Amusement park rides.

Aircraft.

Various means of transport

Cranes.

Elevators.

Modern machines.

