



Play-Well TEKologies

Business Office
216 Greenfield Avenue
San Anselmo, CA, 94960
415.460.5210
jeff@playwell.org
www.play-well.org

‘ENGINEERING FUNDAMENTALS WITH LEGO’

PROPOSED 2011 - 2012 ENRICHMENT PROGRAM

CLASS DESCRIPTION

Design and build motorized machines, catapults, pyramids, demolition derby cars, truss and suspension bridges, buildings, and other constructions. Explore concepts in physics, mechanical engineering, structural engineering, and architecture while playing with your favorite creations. This is a hands-on and minds-on class suitable for LEGO® novices to “maniacs.” This class is not affiliated with the LEGO Group. For more information about our organization, please visit our website, www.play-well.org or contact Cory Anderson (canderson@play-well.org – 619.888.4270).

SAMPLE CURRICULUM (10 WEEKS) ENGINEERING FUNDAMENTALS

PROJECT	ENGINEERING FUNDAMENTALS
Belt Drive Cars	Intro to Motors / Batteries / Pulley Systems
Corbelled Arch Bridges	Bridge Design, Architectural Corbels, Overlapping
Gear Drive Cars	Gear Ratios: Torque Vs. Speed
Inchworms	Eccentric Motion, Complex Gear Train
Castles and Catapults	1st, 2nd, 3rd Class Levers, Fulcrum, Throw
Carnivals	Crown Gears, Meshing Gears at 90 degrees
Spinning Tops	Angular Momentum, Center of Gravity, Centripetal Force
Gondolas	Friction and Slippage, Continuation of Belt-Drive system
Skid Steering Vehicles	Steering Mechanisms, Friction
Battle Tracks	Rack Gear System, Monorail Vehicle Design



GOALS

The goals of the class are to:

- (1) Develop and enhance students’ problem solving and critical thinking skills
- (2) Expose children to concepts and vocabulary of Engineering, Architecture, and Physics
- (3) Provide an opportunity to have a great time with a terrific building toy

TEACHING METHODOLOGY

Students work individually, in teams, and as a group throughout the sessions. A short discussion and demonstration of the day’s topic starts each meeting. Children are given a design/building assignment. Instructors will provide individual assistance and instruction and facilitate challenges, performance testing, competitions, and modifications to projects.



COMPANY / INSTRUCTOR PROFILE

Play-Well TEKnologies has been 'Teaching Engineering to Kids' for over ten years throughout California. Our instructors have varied careers and educational backgrounds (mechanical engineering, architecture, biology, art, geology, alternative energy, civil engineering, etc.). More important, though, is that all share a common enthusiasm for kids, engineering, and LEGO. Current instructors have been leading classes and directing summer camps for one to eight years.

INSTRUCTOR

The class will be taught by an experienced instructor. The instructor may not be determined until shortly before the first class meeting. An assistant instructor will be added at our discretion.

CLASS MATERIALS

We will provide all materials for the classes. Materials will be removed from the site daily.

CLASS LENGTH

Class durations will be 90 minutes. Longer and shorter duration classes may be negotiated.

CLASS FEE

\$16.00 per class meeting per student for a 90-minute class. Total fee depends on number of meetings in session.

CLASS SIZE

Minimum 11 students, maximum 17 students for one instructor, 24 students for two instructors. Larger classes may be negotiated.

CLASS TYPE

We offer two types of enrichment classes,

- Pre-Engineering Course (K – 1st Grade)
- Engineering Fundamentals Course (2nd – 5th Grade)

