Getting Your Child Started in Engineering

Parents often want to help children explore engineering, but don't always know how to start. Whether you are new to engineering or this is familiar ground, this page should help you on your path to support your budding engineer's growth.

You will be the most successful if you start with where your child's interests naturally fall. Many roads lead to skills required for engineering, so you can be more focused in how you guide them in their journey. These possible first steps implement the guidelines in _Engineering for the Uninitiated_ (see related blog entry: "One Small Step").

Is your child more advanced? The Resources page provides an easy to sort list for different levels.

If your child likes to …	He/she is already developing …	This may be a good first step…
Play sports like baseball/softball, tennis, soccer, football, or lacrosse	Spatial skills and sense of projectile motion (physics)	- Enhance projectile predictive skills (Angry Birds or Cut the Rope) - Create devices that use knowledge of force, speed, and movement (Backyard Ballistics, catapult kits)
Cook, make clay or mud pies	Experience with measurement and measuring tools, material properties	- Measurement skills for chemical engineering (Spa kit) - Introduction to electricity concepts (Conductive clay) - Apply material properties and manufacturing processes to structural requirements (hand building, bridge building)
Draw, paint, or color	2-D and 3-D visual literacy, experience with chemical dyes and material textures	- Technical drawing (Spirograph for experience using tools and getting a sense of natural paths under constraints; techniques for drawing with French curves and drafter's tools -- haven't found an intro book yet, just ones more committed to drawing more professionally) - Measurement and material properties (mixing own paints, glues, dyes and learning about characterizing properties)
Do karate, boxing, dance, or wrestling	Levers, relation of mass, force, and speed, spatial skills	- Provide experience with simple machines - Use knowledge in creating automata using mechanism and machine concepts - Combine speed and gravity concepts (e.g. design roller coasters)

If your child likes to …	He/she is already developing …	This may be a good first step…
Run, bike, skate, or skateboard	Relation of force on speed and speed on trajectory; types of motion and influence of environment on them; power technology terms such as gears, chains, bearings	- Terminology and systems thinking and see "inside" of technology - Applying knowledge of speed and gravity (Roller coaster creator, Cut the rope, Race car track construction, Marble runs, Rube Goldbergs) - Gears and mechanisms (Gearation for exploration, LEGOs, Mechanism books, Karakuri)
Build, shape, create, or destroy things, sewing, arts and crafts	3-D spatial skills, experience with materials	- Applying structural knowledge and skills (Blocks, Jenga, LEGOs) - Apply material knowledge to moving devices (creating paper automata, Karakuri, making automata, pop bottle rocket, Elements of Popups) - Building at different scales with precision (Doll house furniture construction, model building) - Testing construction stability (Jenga) - Testing materials and shapes (Art of Construction) - Introduction to electronic technology (Wearable electronics)
Organize, systematize, or plan events	Problem solving, spatial skills, systems thinking	- Location methods (GPS and geocaching, Battleship) - Code making and breaking - Programming (Alice, Scratch, Kudo)
Solve puzzles, mysteries, and brain teasers	Problem solving, logical thinking, spatial thinking	Science mysteries (requiring experiments), Math puzzlers, Tangoes, Shape by Shape, 3D puzzles, Set, Mastermind, Othello
Play musical instruments, mix musical compositions, create videos, photograph	Experience with time measurement, methods of systematizing, experience with sound and light, computer technology	- Battleship, Sudoku, creating own instruments - Sound concepts (from physics) - morse code & related electronics, - HTML and Javascript programming - GPS, geocaching - code making and breaking