

STEM

A plant's stem is its foundation – the underlying support structure and the area for growth. Similarly, STEM-based education and activities also provides a foundation – a foundation on which to ask questions and to seek answers. To dream and to invent. To create.



EVOLUTION OF STEM

In the 1990s the acronym STEM was first used to describe an interdisciplinary approach to Integrating academic concepts into curriculum. That notion has since evolved and the term STEM is now used to describe an array of both academic and extracurricular models that integrate Science, Technology, Engineering and Math principles into real-world applied lessons and projects.



STEM Science, Technology,
Engineering, Math

STEM AND TINKINEER

Sometimes the most effective learning takes place without the student even knowing it! Tinkineer introduces STEM concepts through a combination of fun and engaging characters coupled with hands-on projects that result in beautiful showpiece-quality, kinetic models. We've taken a hybrid approach. Each kit begins with a short lesson in the form of a comic book story. That story stars one or more of the Tinkineers who learn about a physics or engineering concept related to the project.



For example, with the Marbleocity coasters, we explore rollercoaster science. We look at the classic example of a gravity-powered roller coaster and the conservation of energy principles therein. The builder then proceeds to build an operational rolling ball, kinetic sculpture (or “marble machine”) that puts those principals into action – exemplifying what we've just learned about kinetic energy, potential energy and frictional losses.

While learning about conservation of energy is the overt STEM lesson of the Marbleocity coaster kits, embedded in the project (and in all Marbleocity projects) are many more STEM lessons.

One of Marbleocity's greatest STEM lessons is that complex machines are actually merely a series of much simpler sub-assemblies! The construction of each model is designed to highlight this important engineering lesson...whether the student knows it or not! Making something by hand can have the ability to take a highly complex machine and magically distill it into something that is no longer intimidating! What was at first overwhelming is suddenly easy to understand.

Best of all, the Marbleocity marble machines are a conversation piece that can be displayed with pride and enjoyed by its builder and their loved ones.