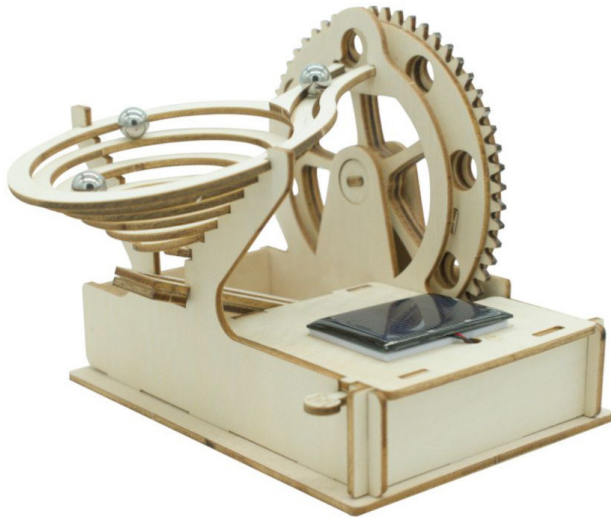


SOLAR MARBLE RUN

CAT# 80-50MARBR



The Solar Marble Run kit offers an engaging way to promote STEM education in the classroom while fostering a sense of environmental stewardship and creativity. Students will construct their own Wooden Marble Run using 28 easy-to-remove die-cut wooden pieces. This activity provides an excellent opportunity for collaboration and problem-solving as students work together to build the marble run.

This kit is a perfect example of a STEM toy that combines learning with fun. It provides an interactive way for students to learn the fundamental principles required to make the marble run function, such as gravity, motion, and energy transfer. The Solar Marble Run offers a choice of solar power or battery power to propel a wooden gear that cycles the ball back up to the start for endless fun. Students will learn about renewable energy sources and the benefits of solar power. Strong direct sunlight is required for solar power usage, providing an opportunity to discuss solar energy and its applications.

PRIMARY DIVISION: GRADES 1-3

Overall Expectation: STEM, Structures and Mechanisms Focus

Explore structures and mechanisms, including the roles of materials in supporting structures and making devices work.

Specific Expectation

Identify and describe the purpose of simple machines such as levers and pulleys.

Activity

Students work together to assemble the Marble Run kit, identifying and discussing simple machines like inclined planes and gears used in the construction. They learn how these components work together to move the marble.

JUNIOR DIVISION: GRADES 4-6

Overall Expectation: STEM, Structures and Mechanisms Focus

Investigate the principles of forces, energy, and control in simple machines and structures.

Specific Expectation:

Explore the relationships between the components of simple machines and the forces acting on them.

Activity:

Students explore the concepts of potential and kinetic energy as they observe the marble's motion through the Marble Run. They investigate how the height and angle of the track affect the speed and movement of the marble.

INTERMEDIATE DIVISION: GRADES 7-8

Overall Expectation: STEM, Structures and Mechanisms Focus

Investigate how technological problem-solving meets human needs and leads to innovation.

Specific Expectation

Analyze the impact of friction and lubrication on the efficiency of mechanisms.

Activity

Students analyze the efficiency of the Marble Run, experimenting with different track configurations and materials to reduce friction and optimize the marble's movement. They discuss how engineering principles are applied to improve the design.

SECONDARY DIVISION: GRADES 9-12

Overall Expectation: Physics Focus

Apply principles of physics to understand motion and energy transfer.

Specific Expectation

Analyze mechanical advantage and efficiency in simple and compound machines.

Activity

Using the Marble Run, students delve into concepts of potential and kinetic energy, friction, and mechanical advantage. They calculate the energy transfer as the marble moves through the track and discuss ways to enhance efficiency.

CROSS-CURRICULAR CONNECTIONS

Mathematics

Students can calculate the speed and acceleration of the marble.

Technology

They explore the use of solar power and its applications in everyday objects.

Language Arts

Students can write descriptions of their Marble Run designs or create presentations on renewable energy sources.

Summary

The Solar Marble Run kit not only teaches STEM concepts but also encourages teamwork, problem-solving, and creative thinking, all while promoting environmental awareness and sustainability.