

PITCHING MACHINE

CAT# 80-50-W033



The Automated Pitching Machine Kit offers an exciting way for students to explore basic electricity, circuits, motors, and propulsion while having fun launching foam balls. This hands-on activity promotes STEM learning and allows students to understand fundamental concepts in a practical way.

PRIMARY DIVISION: GRADES 1-3

Overall Expectation

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 use the Automated Pitching Machine Kit to understand how electricity and motors work together to propel objects. They explore the components of the pitching machine and how they contribute to launching foam balls. This activity enhances their understanding of basic circuits and mechanical systems.

JUNIOR DIVISION: GRADES 4-6

Overall Expectation

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

With the Automated Pitching Machine Kit, students investigate how the spinning wheel attached to a DC motor propels the foam balls. They learn about the transfer of rotational motion into linear motion and the forces involved. This project promotes an understanding of energy conversion and mechanical principles.

INTERMEDIATE DIVISION: GRADES 7-8

Overall Expectation

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 use the Automated Pitching Machine Kit to explore the impact of friction on the performance of the pitching machine. They experiment with different factors such as wheel speed and ball weight to optimize the machine's efficiency. This project enhances their problem-solving skills and understanding of mechanical systems.

SECONDARY DIVISION: GRADES 9-12

Overall Expectation: Physics Focus

Apply principles of physics to understand the operation and efficiency of mechanical systems.

Specific Expectation

Analyze mechanical advantage and efficiency in simple and compound machines.

Activity

Using the Automated Pitching Machine Kit, students analyze the physics behind projectile motion and energy transfer. They calculate the force required to launch the foam balls and discuss mechanical efficiency. This project provides insights into physics principles and engineering design.

CROSS-CURRICULAR CONNECTIONS

Mathematics

Students can calculate the speed and trajectory of the launched foam balls.

Technology

They explore different designs and components to optimize the pitching machine's performance.

Physical Education

Students can discuss the principles of sports science related to projectile motion.

Summary

The Automated Pitching Machine Kit provides an engaging way for students to learn about electricity, circuits, and mechanical systems while having fun launching foam balls. This project encourages critical thinking, and problem-solving, and fosters curiosity in STEM disciplines, preparing students for real-world applications in engineering and technology.