Water-Lifting Windlass

Applicable Age Group 5-6 year-old toddlers

Activity Objectives

☑ Understand the structural characteristics and functions of pulley devices.

☑ Comprehend that fixed pulleys can change the direction of force.

Activity Description

Learn about the windlass—a device used in the past to draw water from wells—with children. Tie a bucket with a rope, lower it into the well, then turn the windlass handle to lift the bucket up. This solves the problem of fetching water. Guide children to design a windlass structure by hand, which will use a fixed pulley device. Through this, they can observe the characteristic of fixed pulleys changing the direction of force.

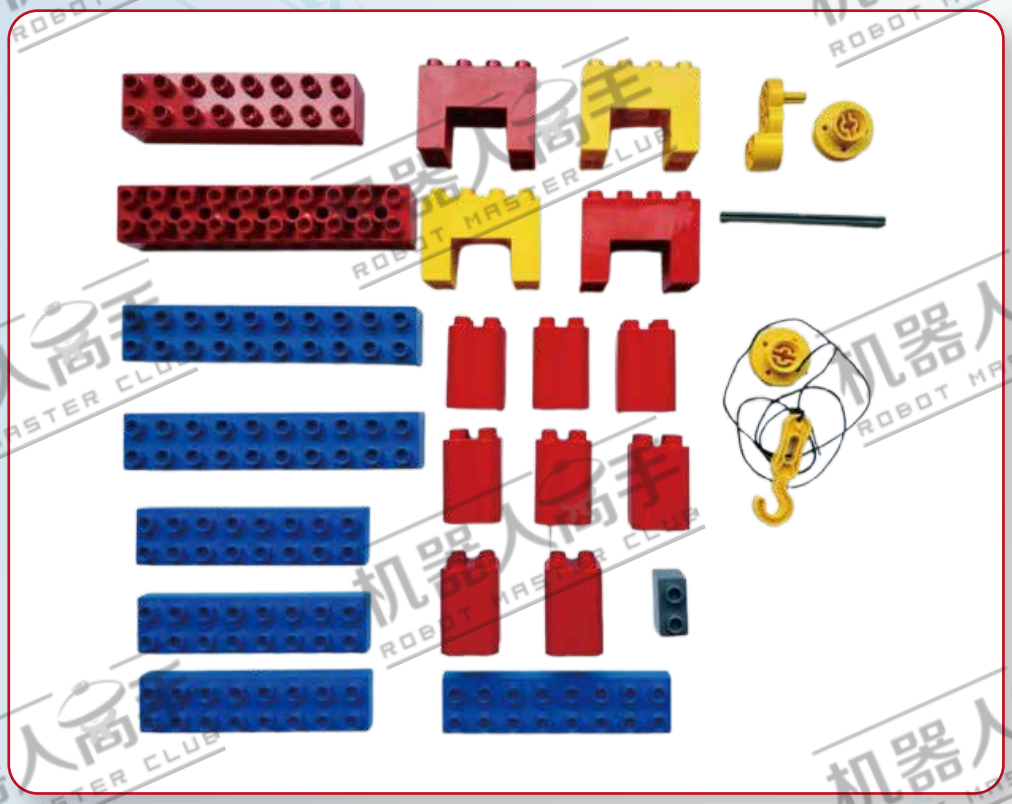
STEAM Literacy Development Indicators

Indicator \ Method	Situation-based introduction: Understand the function of pulleys	Build a windlass device using pulleys	Test the application of fixed pulleys in changing force direction	Knowledge expansion: Optimize functions
Curiosity and Imagination	●			
Flexibility and Adaptability		●		
Verbal and Written Communication Skills				
Cross-boundary Cooperation and Exemplary Leadership				
Critical Thinking and Problem-solving Skills			●	
Proactive and Pioneering Spirit				●
Ability to Evaluate and Analyze Information				

Interactive Tips

- The installation of the pulley device is both a key point and a difficulty. Find a proper position to ensure the rope can lower the bucket into the well and lift it up.
- The rope of the windlass structure tends to fall off during operation. Ask children to solve this problem to ensure the rope is secure.

Find These Blocks



Build a Windlass Device Using Fixed Pulleys