

Barrier Gate Machine

Applicable Age Group 5-6 year-old toddlers

- Activity Objectives**
- ☑ Explore the working principle of the worm gear structure through observation and hands-on practice, and apply it.
 - ☑ Understand the structure and function of barrier gate machines.

Activity Description Observe barrier gate machines in daily life with children—such as those at parking lots, community entrances, and railway tracks. Understand their working process and functions, then guide children to understand and use the worm gear device to design a barrier gate machine.

STEAM Literacy Development Indicators

Method Indicator	Situation-based introduction: Understand the function of a barrier gate	Design a barrier gate using a worm gear device	Test whether the barrier gate works smoothly and refine it	Knowledge extension: Further exploration
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

- Installing the worm gear device is relatively easy, but the key is to help children understand its principle. Therefore, encourage them to observe and think more: after the worm gear starts, the teeth of the gear will mesh with the helical teeth of the worm gear to achieve transmission. When the gear starts, the helical teeth of the worm gear cannot mesh with the teeth of the gear for transmission—this is one-way transmission, so it has a self-locking function.
- When installing the barrier, the yellow beam may not be fixed properly. Guide children to use a crank and fix two points on the yellow beam; only then can the yellow beam realize the function of lifting and lowering the barrier.

