

Retractable Bridge

Applicable Age Group 5-6 year-old toddlers

- Activity Objectives**
- ☑ Propose multiple solutions by analyzing problems and solve them creatively.
 - ☑ Explore the worm gear structure and its self-locking function.
 - ☑ Understand the structural characteristics and functions of retractable bridges through hands-on design.

Activity Description Learn about the structural characteristics and functions of retractable bridges with children. There are such bridges in Tianjin and London—when a large cruise ship passes by, the bridge deck opens, and closes again after the ship has passed. Discuss and analyze a retractable method that can lift and lower the bridge deck. Build a retractable bridge using a worm gear structure to explore the self-locking function of the worm gear.

STEAM Literacy Development Indicators

Method Indicator	Situation-based introduction: Analyze problems	Build a bascule bridge using a worm gear	Test structural stability and smoothness	Further explore the functions of bascule bridges
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

- For the retractable bridge structure, the bridge deck is relatively heavy, so overall support is crucial. When building the support structure, pay attention to the stability of the base.
- Installing and connecting the worm gear is the key point. Give children time to explore and adjust how the worm gear controls the bridge deck.

