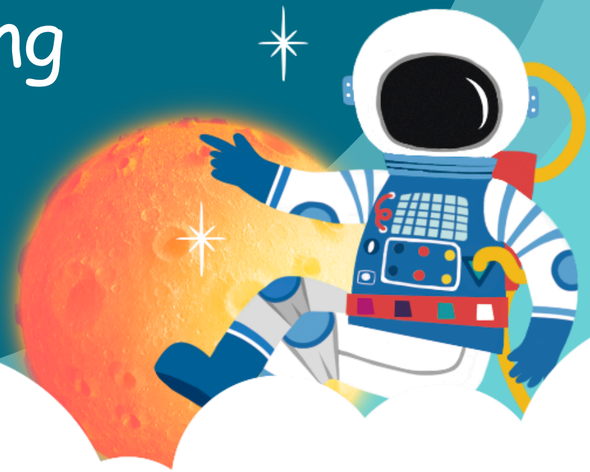
Pirate Ship

Experiment Objectives

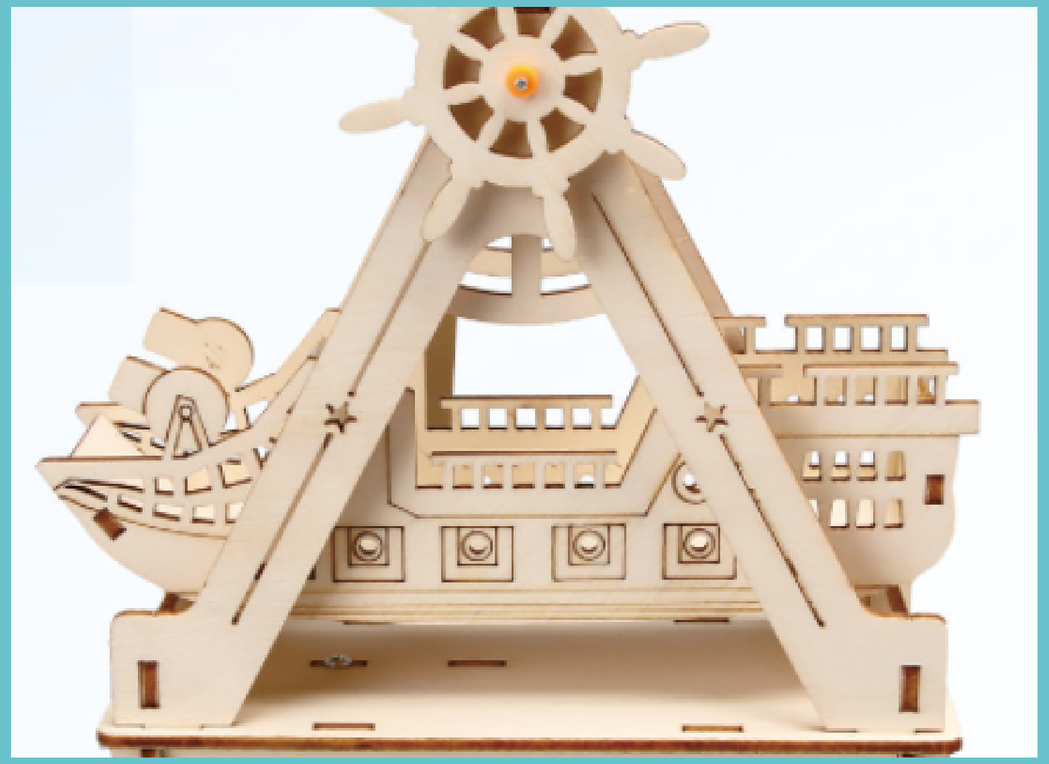
1. Understand the history of ship development
2. Learn to assemble a pirate ship model
3. Stimulate children's interest in learning through scientific experiments and cultivate their scientific thinking



Riddle:

A body of steel weighs thousands of pounds,
Yet it doesn't sink when placed in water.
It fears not the wind and waves,
Only shallow water makes it frown.
(Guess what it is)

Answer: Pirate Ship



Introduction

Can you name the vehicles in the picture?

What are their characteristics?

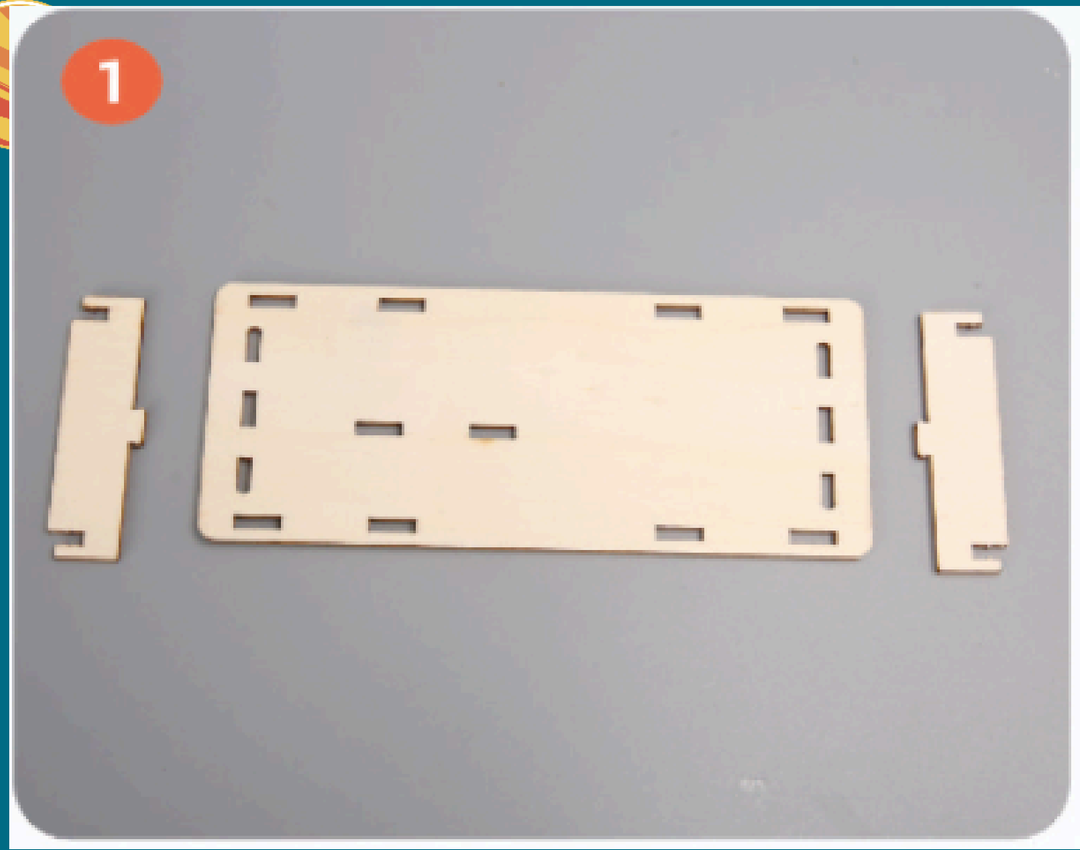
Transportation is an indispensable part of modern life.

With the changes of the times and the advancement of science and technology, the number of transportation tools around us has greatly increased, bringing great convenience to everyone's life.

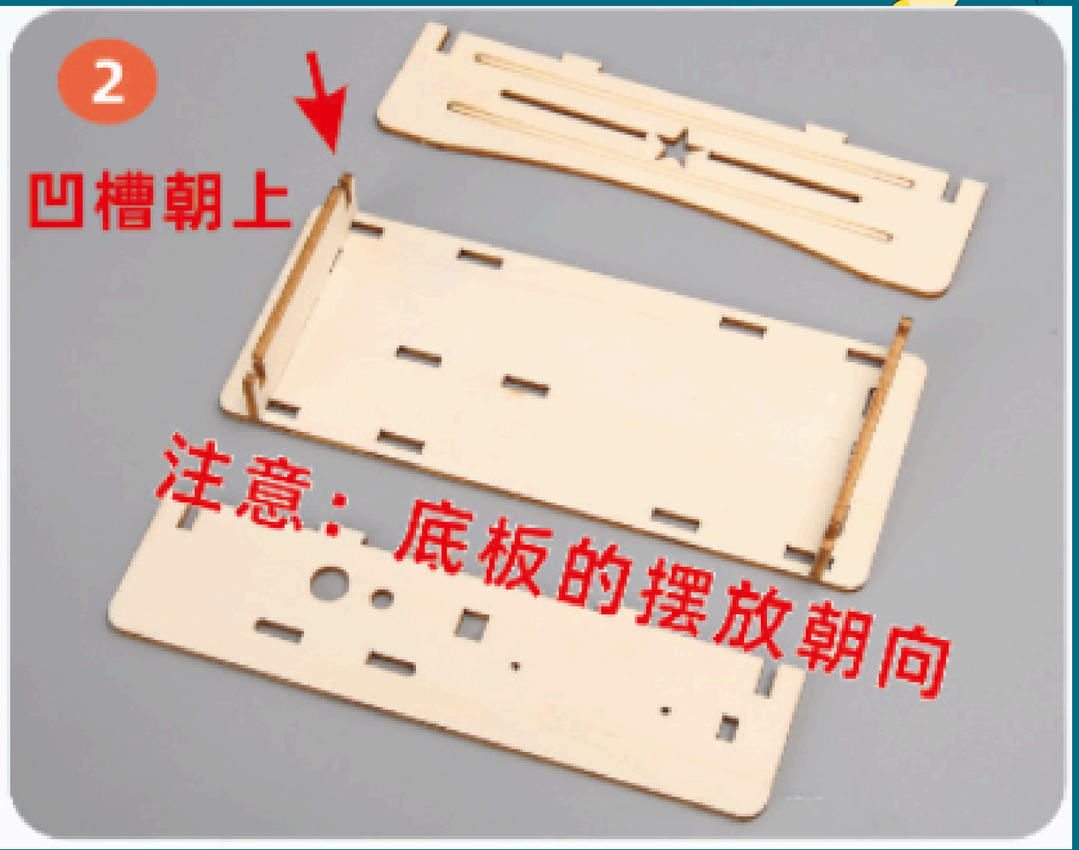
Cars on land, ships in the sea, and airplanes in the sky have all shortened the distance between people.

Let's make a pirate ship!

Experiment Steps

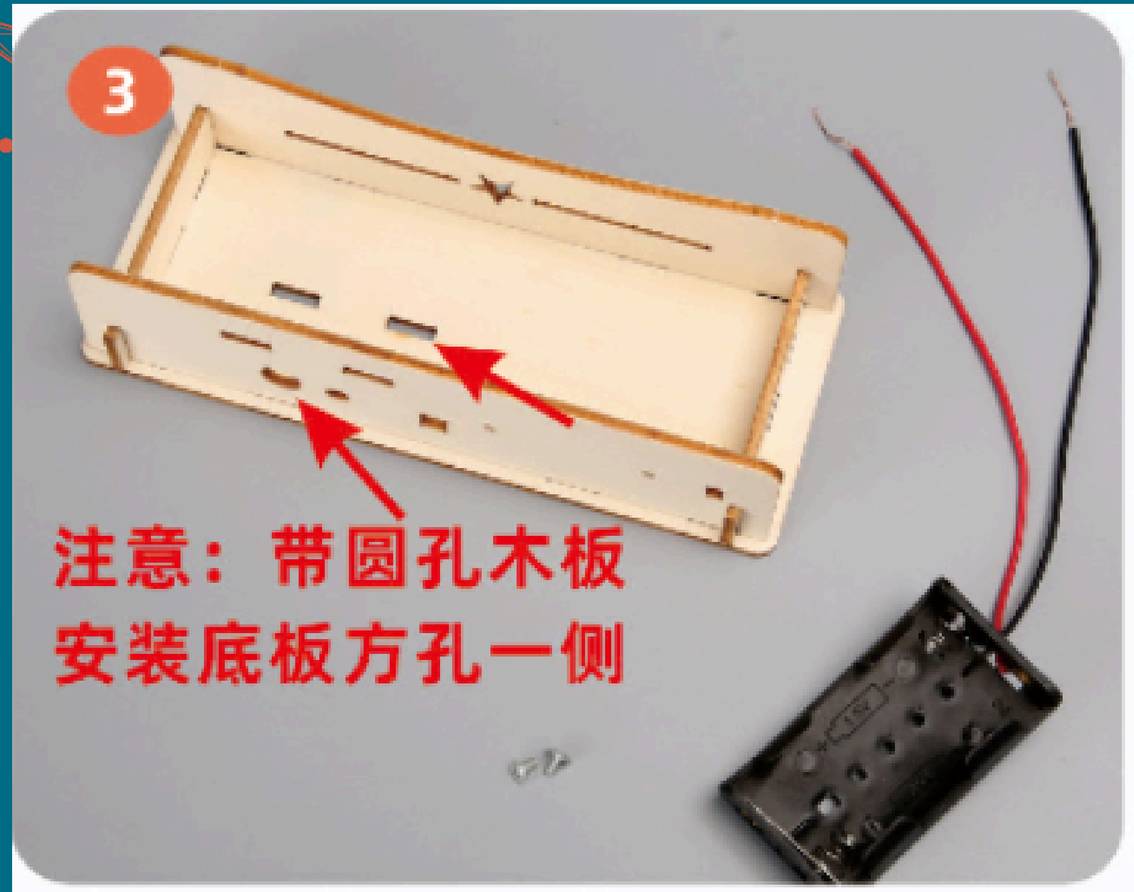


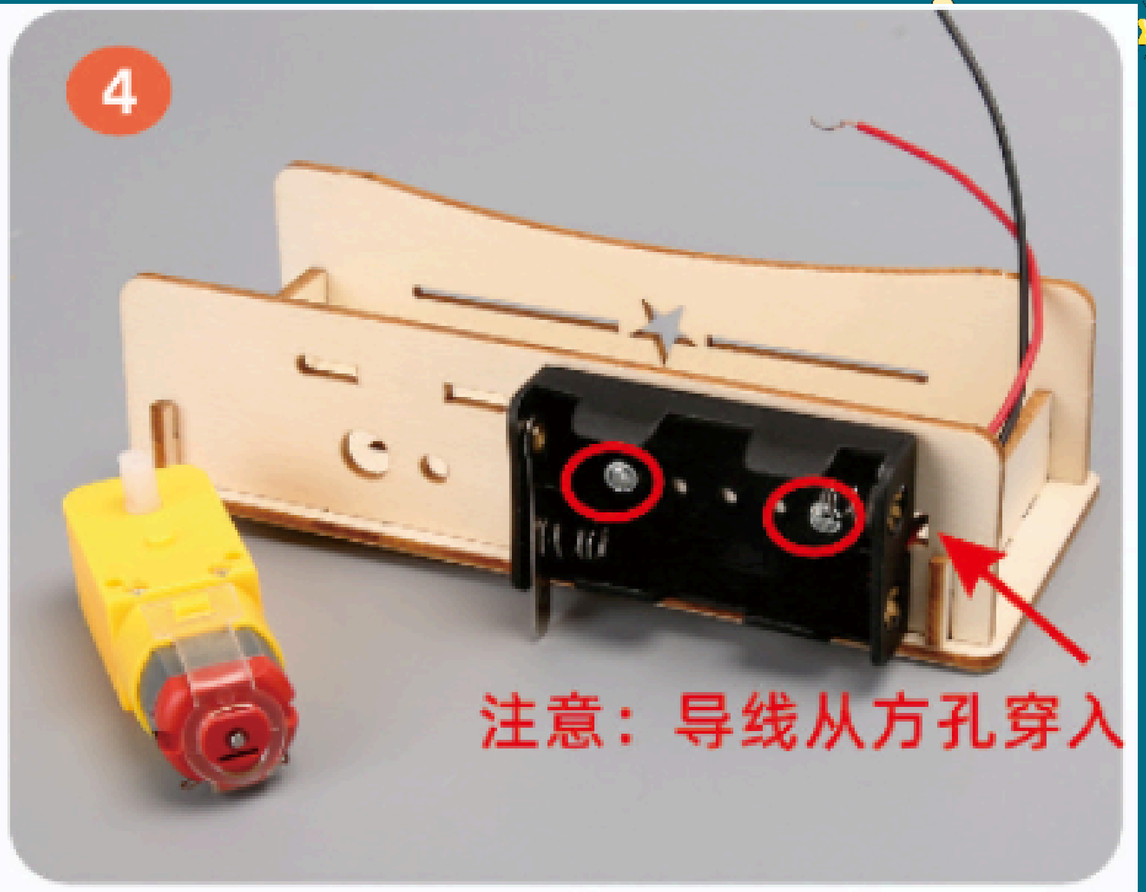
Prepare the wooden base plate as shown.



When installing the side plates, make sure the groove faces upward.

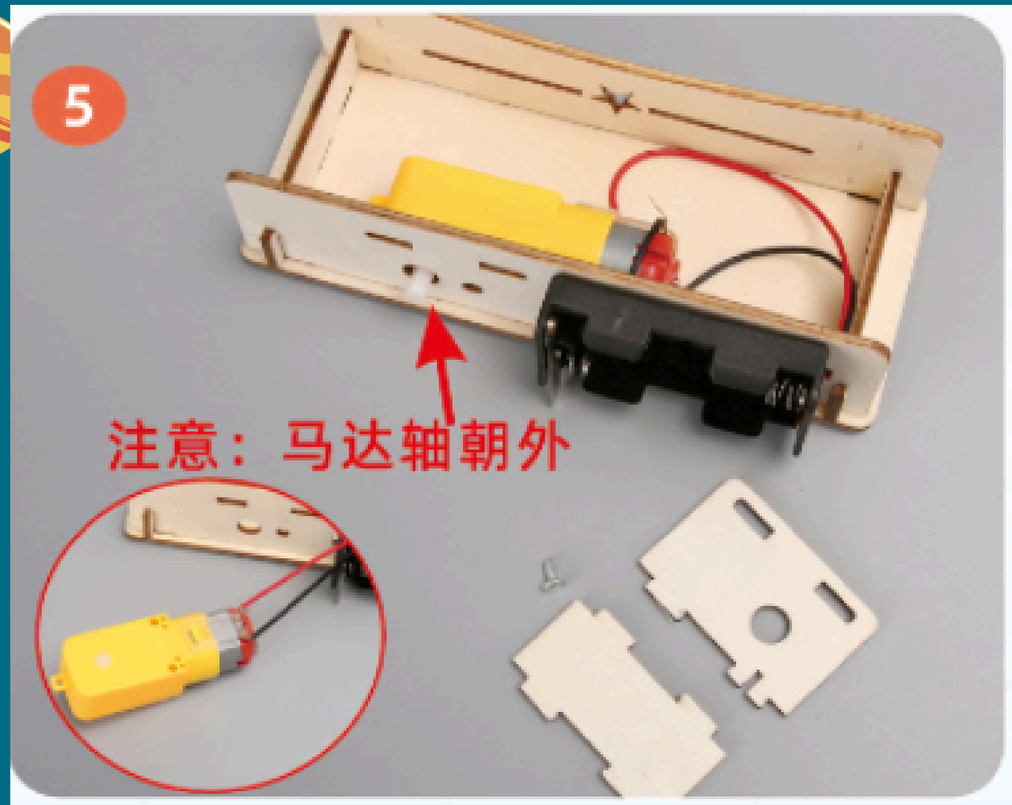
Take note on the direction of the base plate's groove.





Align the two side boards with the slots on the base plate and insert them.
Prepare the battery box and two 4 mm short screws for the next step.
Note: The board with round holes should be installed on the side with square holes on the base plate.

Use two 4 mm short screws to secure the battery box onto the side board.
Prepare the motor.
Note: The wires should pass through the holes.



Connect the battery box wires to the motor as shown, then place the motor inside the base.
Prepare the parts shown and one 6 mm long screw.
Note: The motor shaft should face outward.

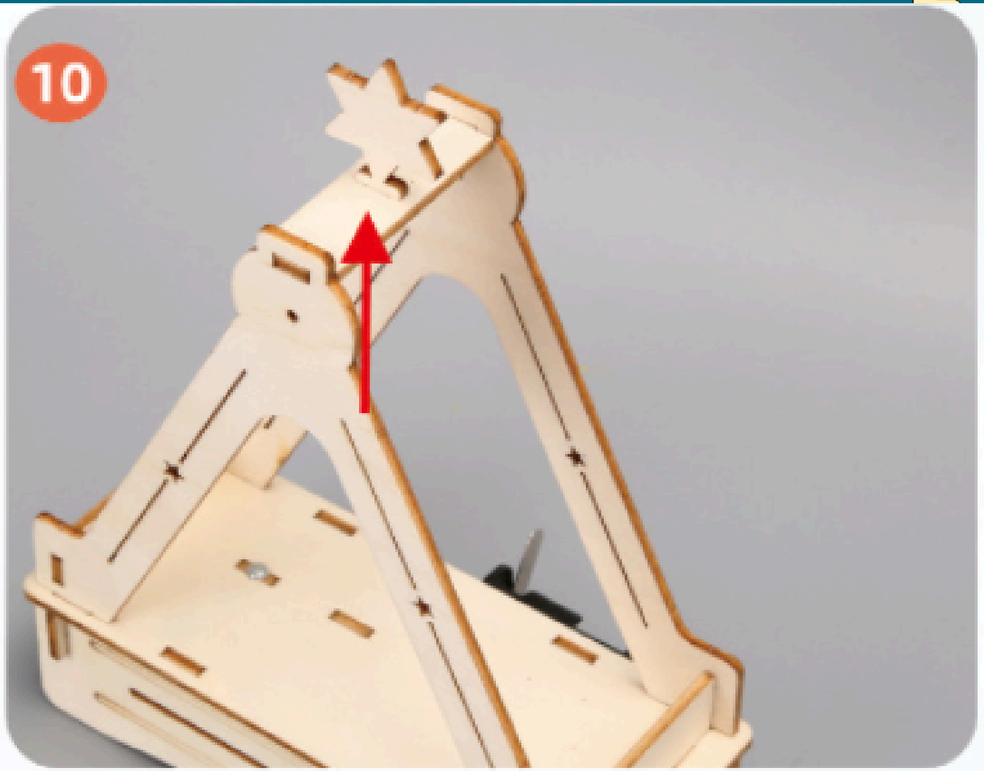
Assemble the parts as shown in the red circle, place the motor inside, and secure it with a long screw.

Note: If the motor is not firmly fixed, the base plate has been installed backward.

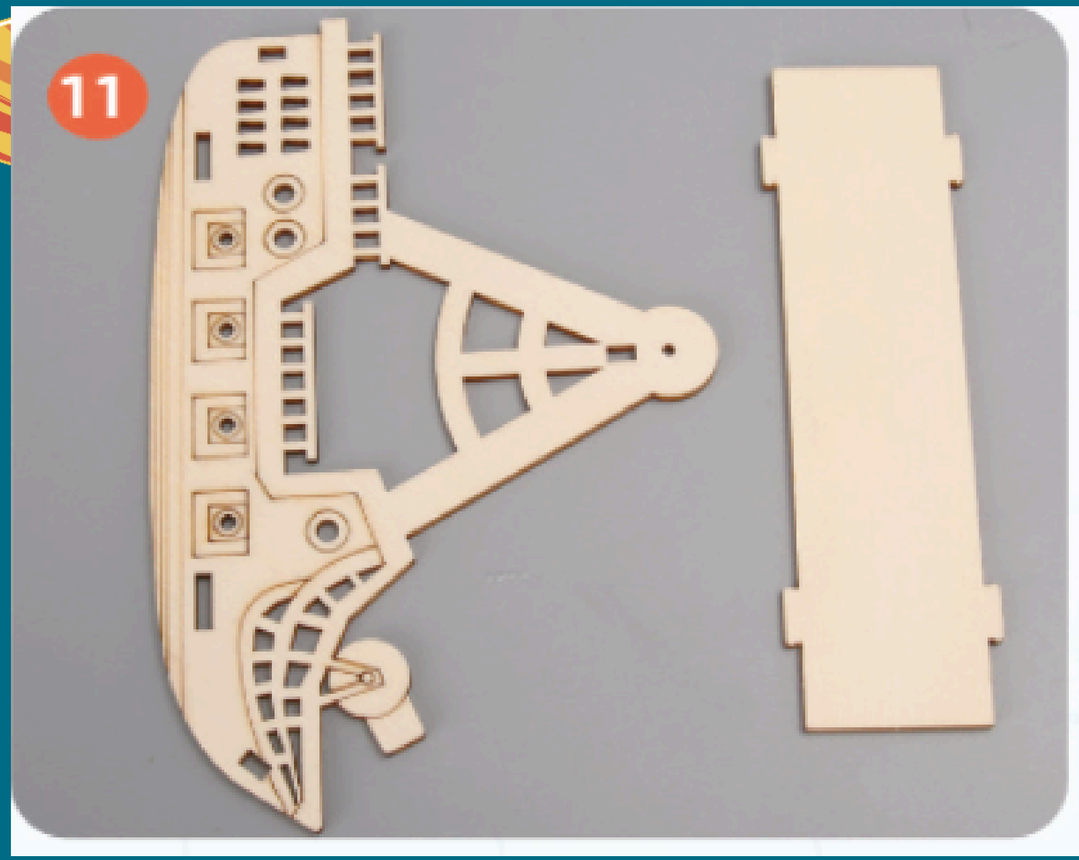
Prepare the wooden parts shown in the picture.

Assemble them into a support frame as shown, with the protruding slots facing downward.

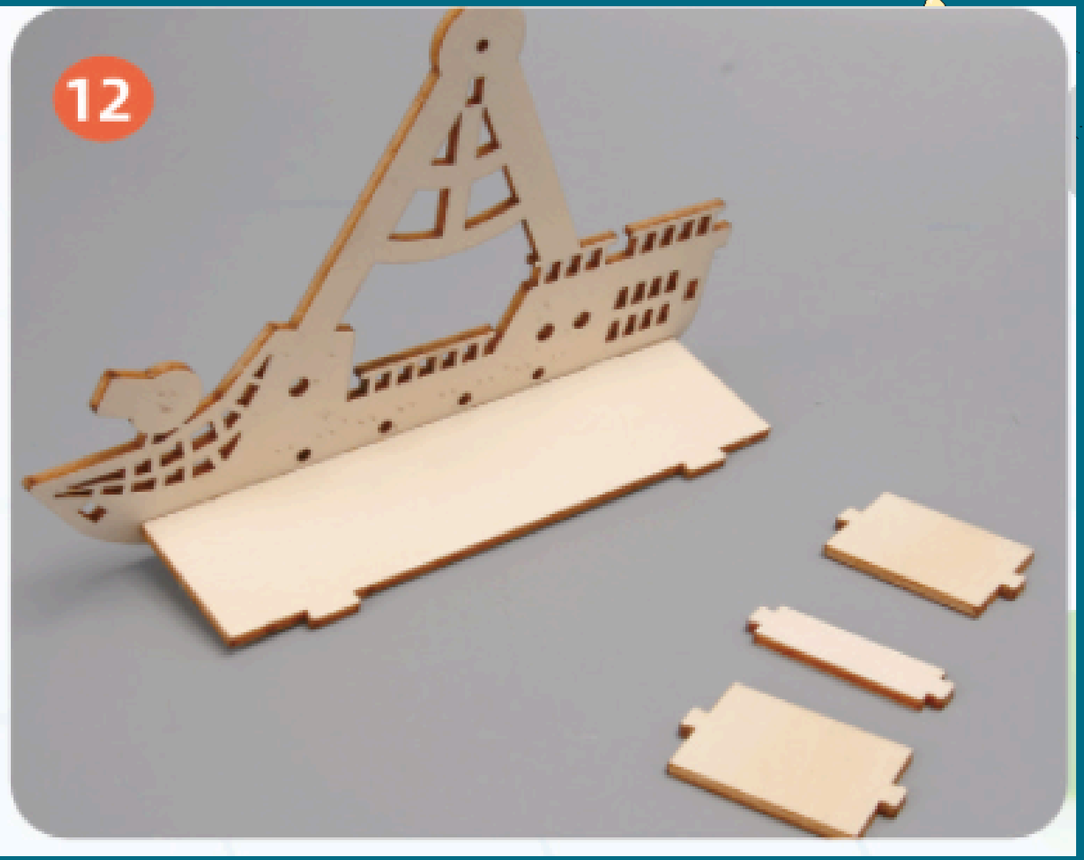
Install the assembled frame onto the base plate as shown, and prepare the parts for the next step.



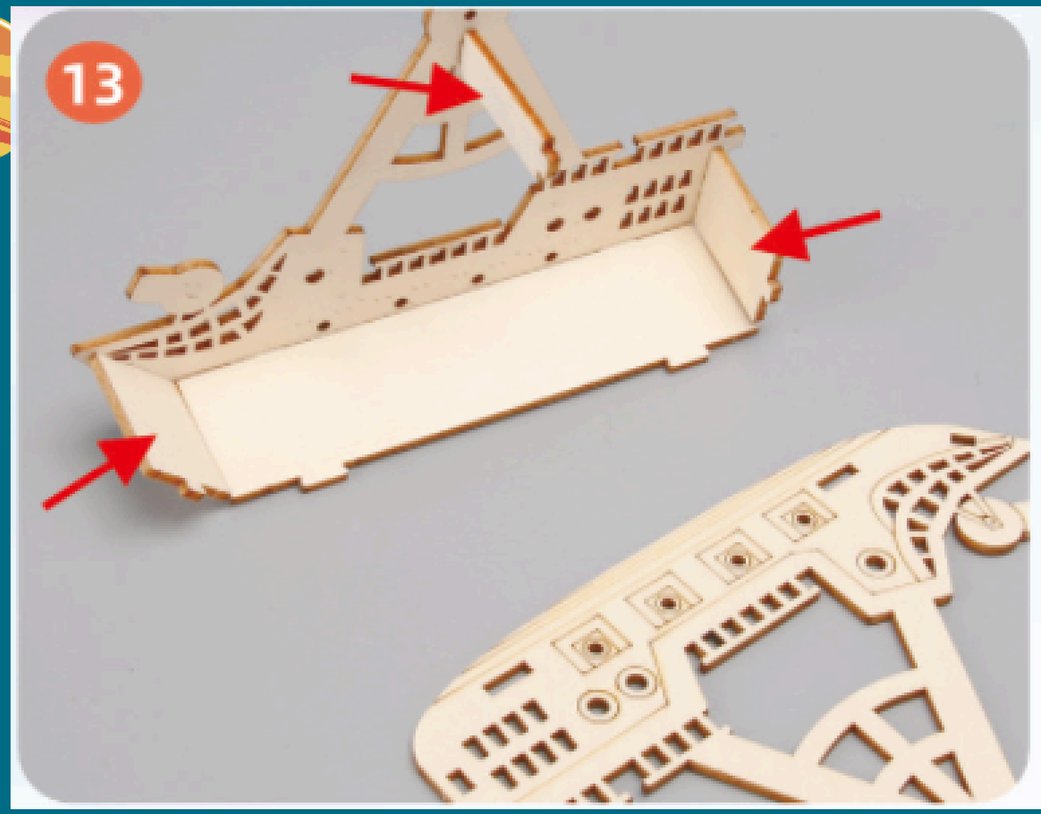
Install the top part of the support frame as shown in the picture.



Prepare wooden panel as shown in the picture.



Assemble & Prepare wooden panel as shown in the picture.

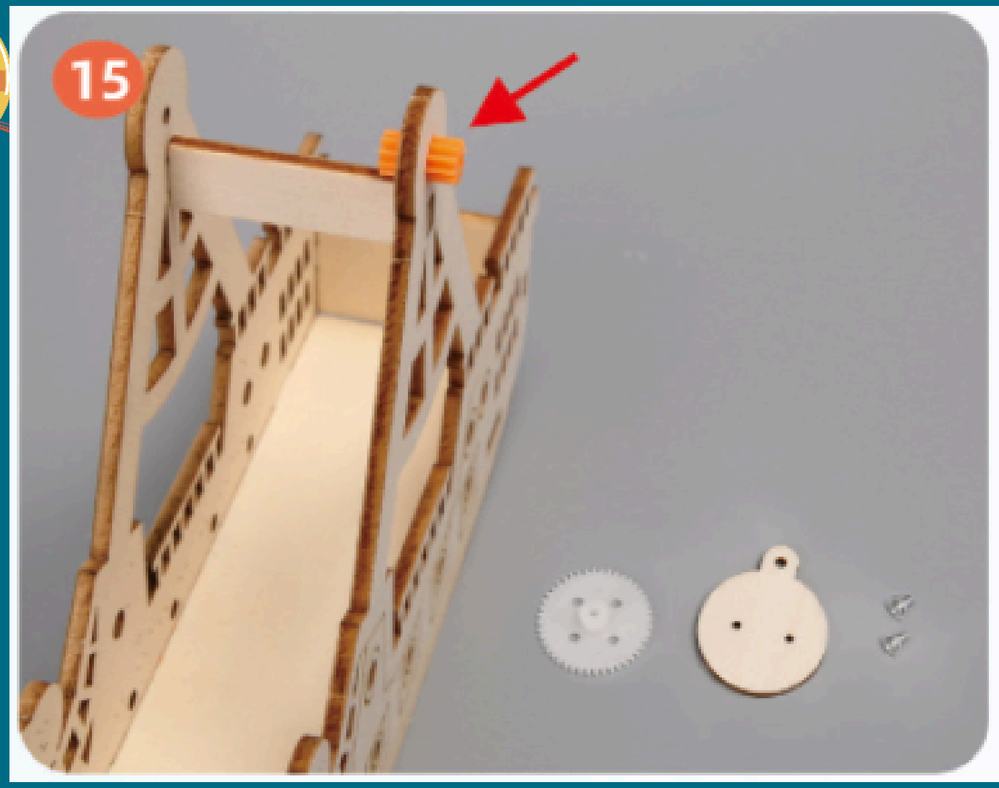


Install the top and both sides as shown, and prepare another side board.

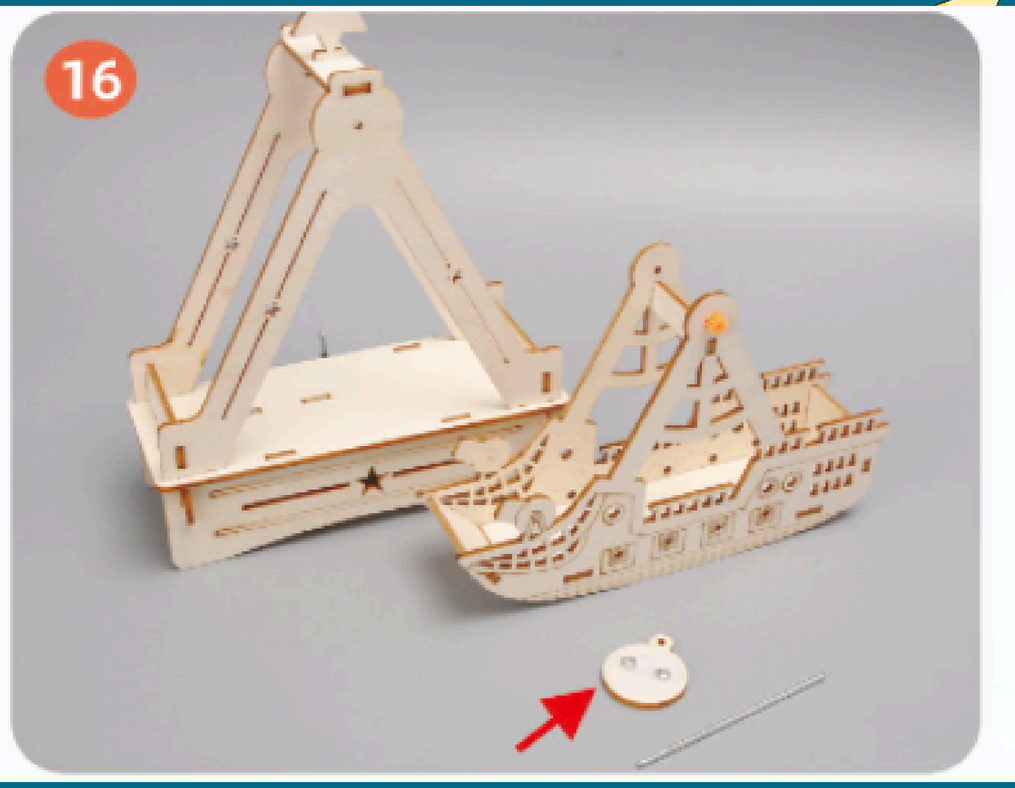
Install the other side board as shown.

Note: The patterns on both side boards should face outward.

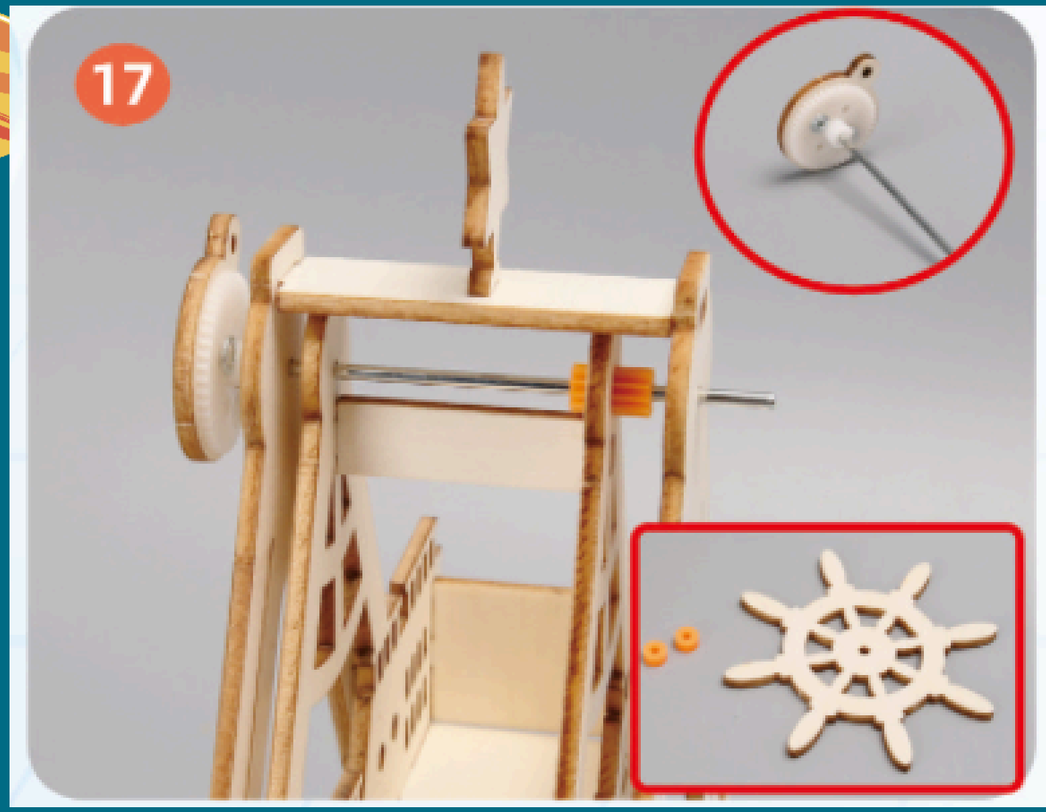
Prepare the long gear.



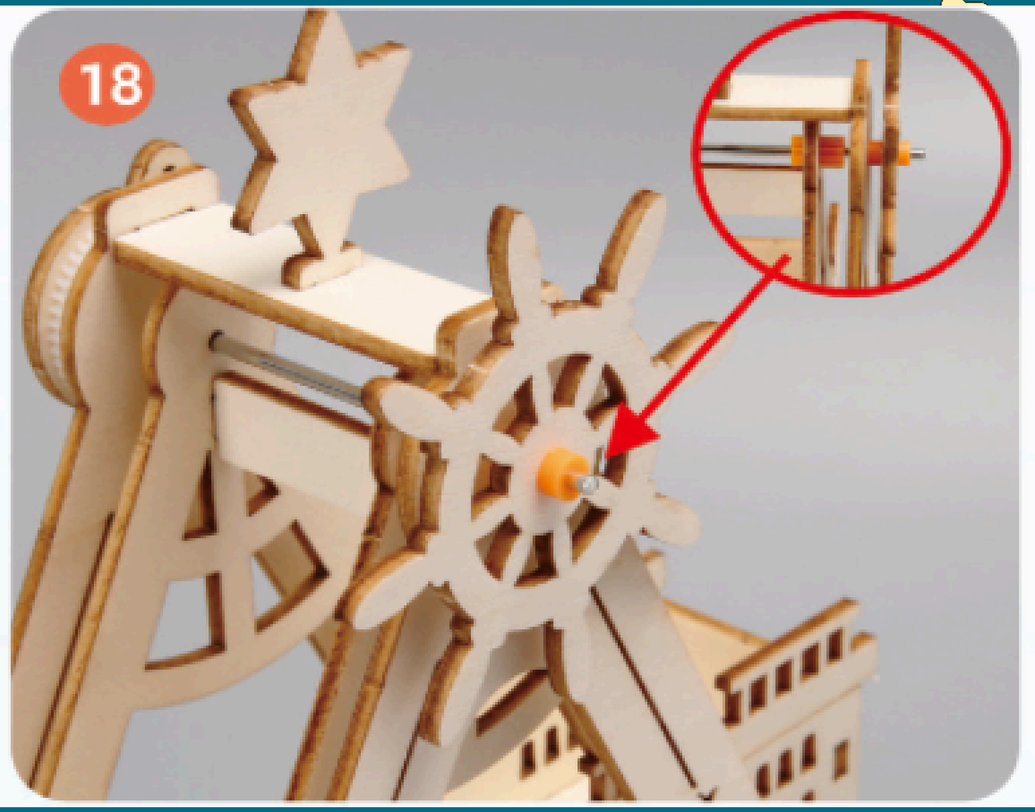
Install the long gear as shown in the picture. Prepare the parts for the next step, along with the multi-hole gear and two 4 mm short screws.



Install according to the arrow markings, and prepare the parts for the next step along with the 70 mm shaft.



Insert the multi-hole gear assembly into the support frame as shown in the picture.



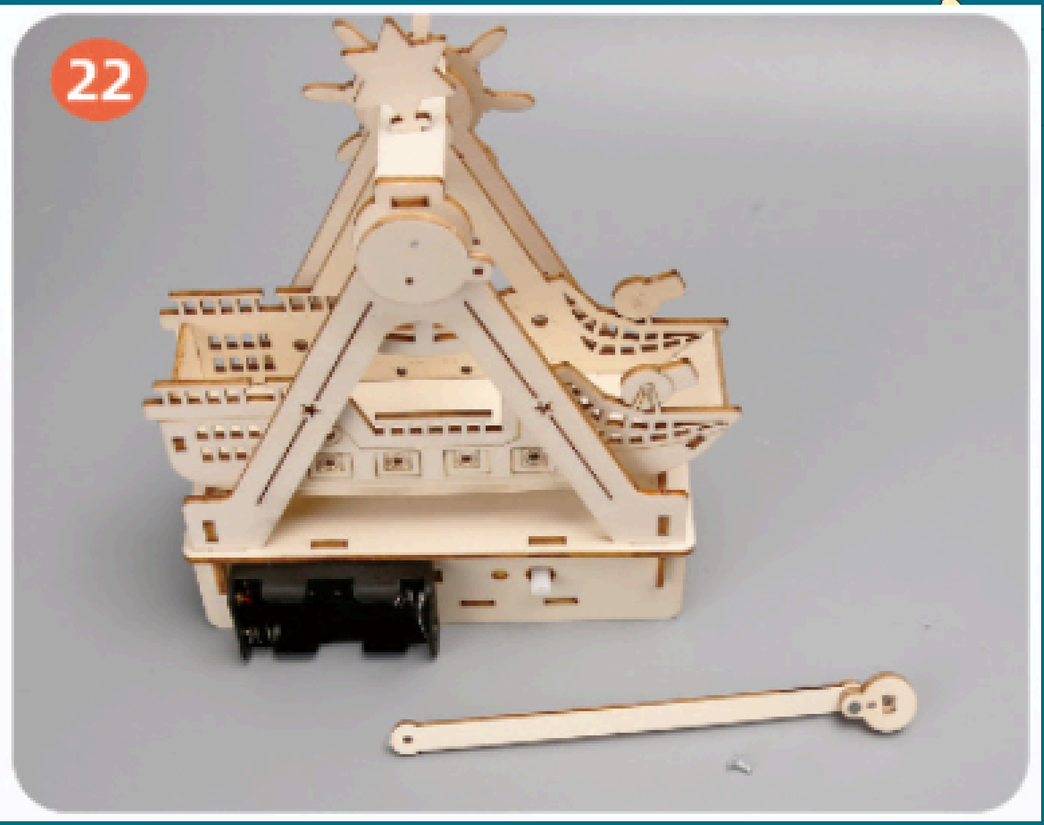
Assembly order: shaft sleeve → ship wheel → shaft sleeve.

Prepare the parts shown in the picture and one 6 mm screw.

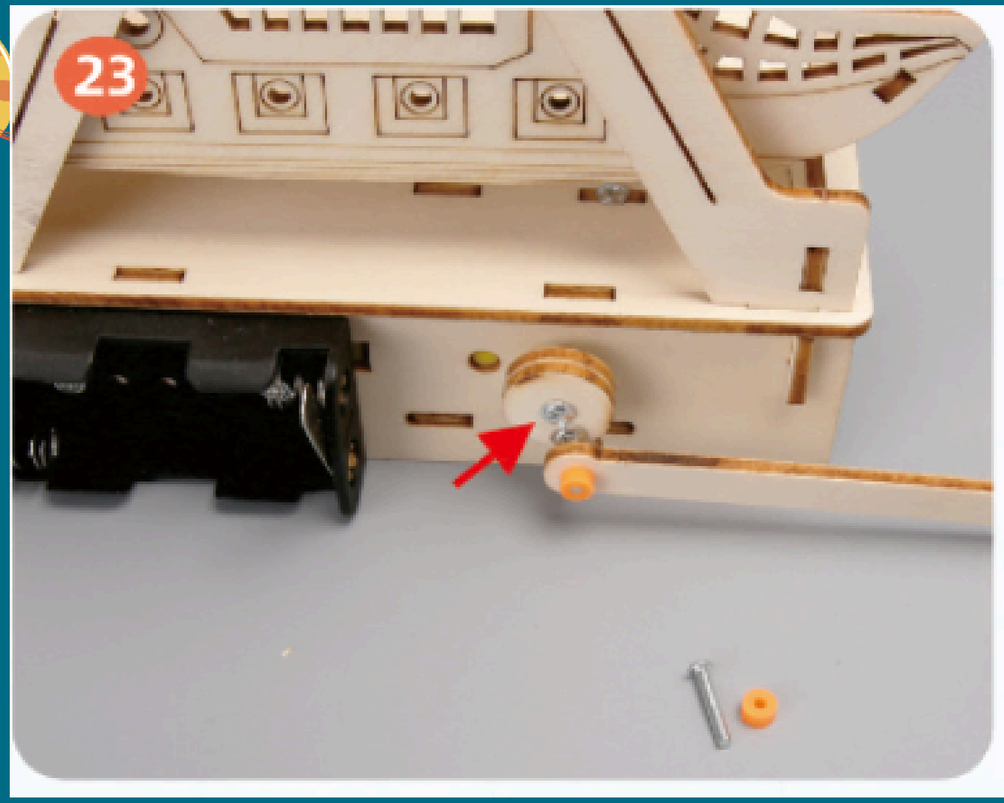
Stack the two parts together and secure them with the screw as shown. Prepare for the next step with one DT12 pin and one shaft sleeve.

Note: Pay attention to the screw installation position.

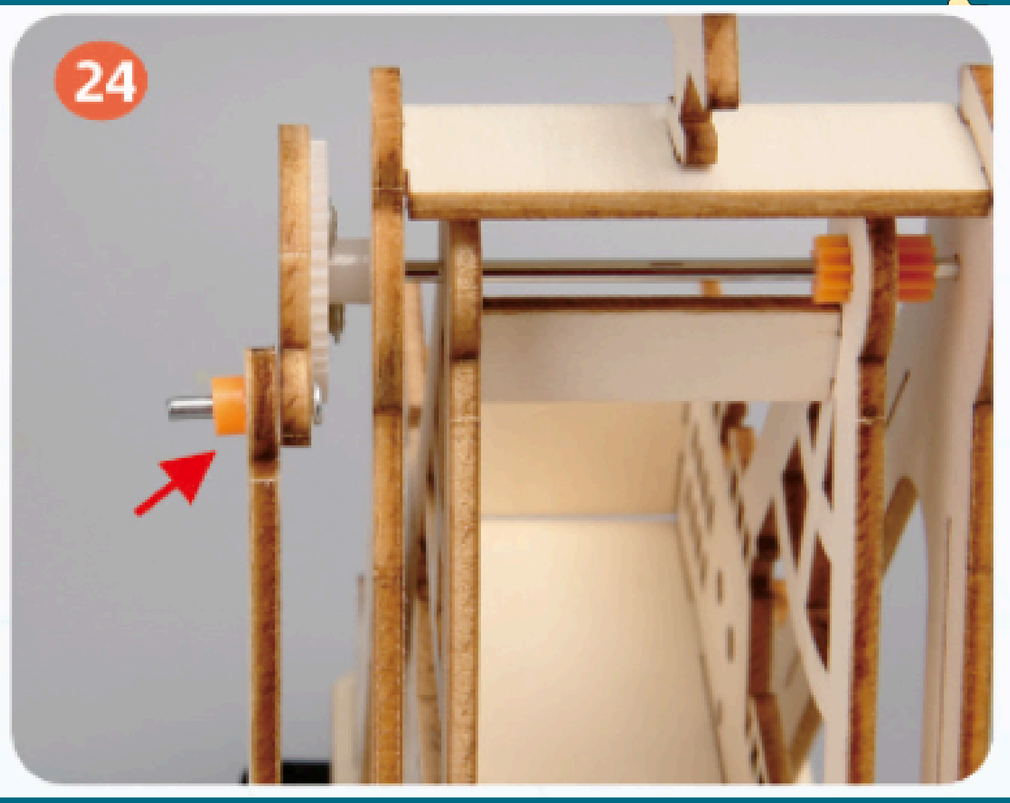
Insert the DT12 pin through the small board and the long strip as shown, and secure them with a shaft sleeve.
Note: The DT shaft should pass through the hole next to the square hole.



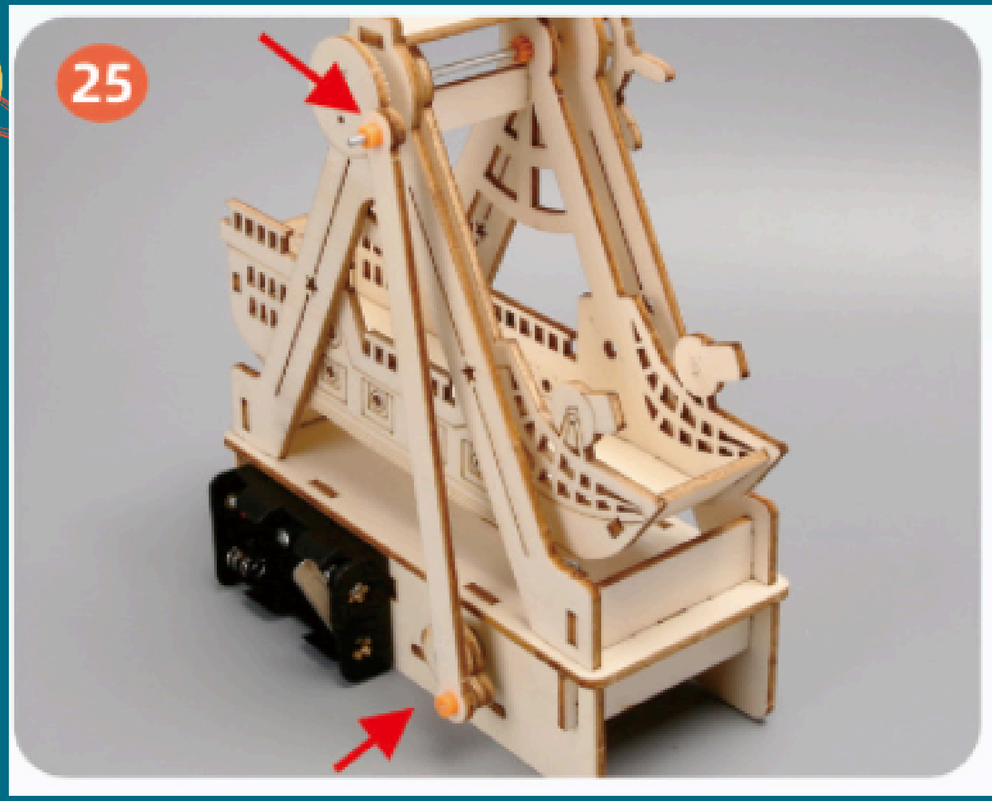
Prepare the ship body assembly, the long strip assembly, and one 6 mm long screw as shown.



As shown in the picture, align the small board with the square hole to the motor shaft and secure it with a long screw.



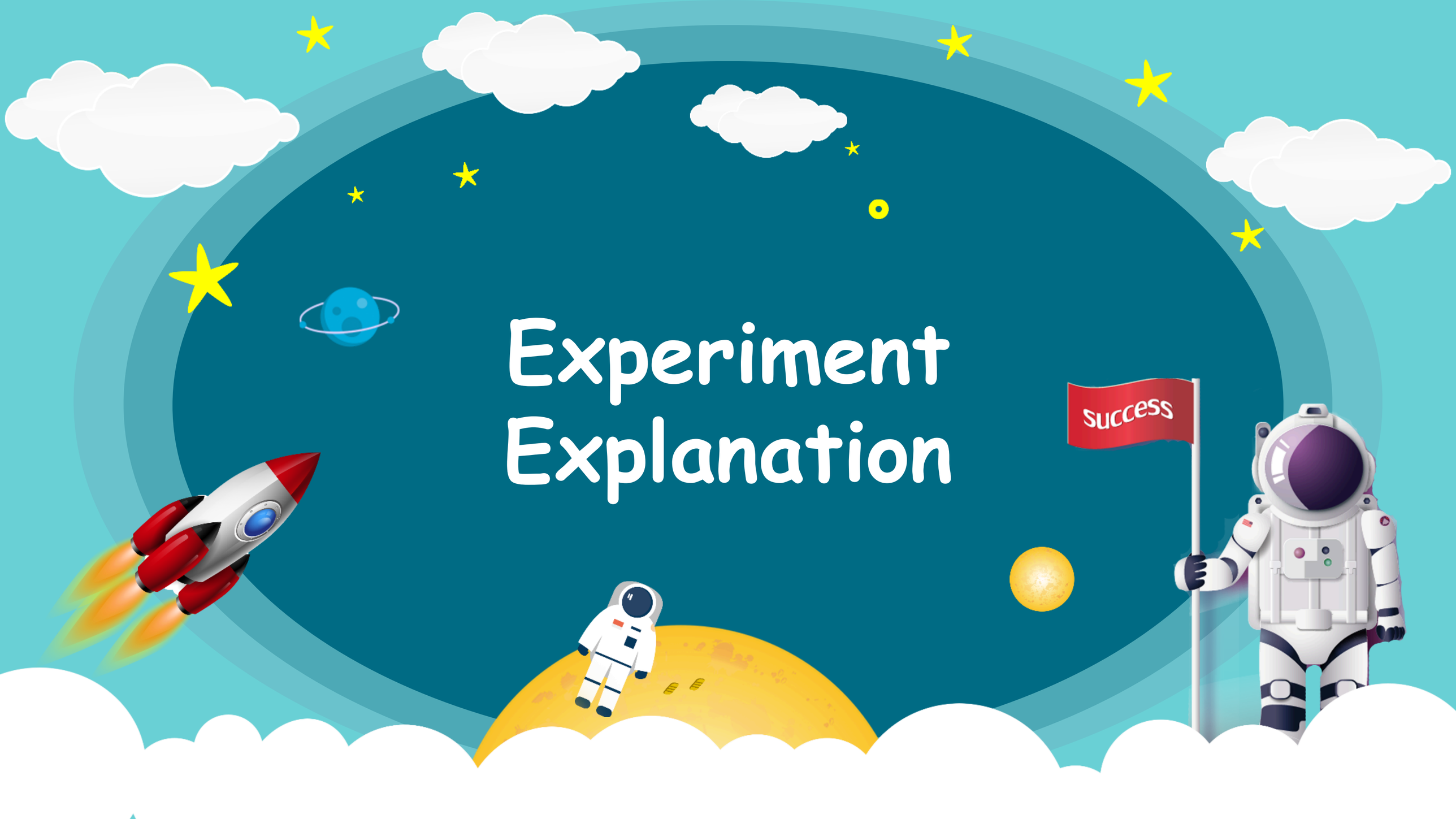
As shown, insert the DT12 pin through the multi-hole gear assembly and the small hole on the long strip, then secure it with a shaft sleeve.



Installation diagram of the long strip board (marked with an arrow)

Finished product display

Experiment Explanation



The principle of the pirate ship is oscillation around a horizontal axis.

After starting, the ship swings back and forth — from slow to fast — allowing passengers to experience the feeling of turbulent waves: rising to the crest and plunging into the trough, bringing a thrilling and exciting experience.