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Magnetic Levitation Ball

Success



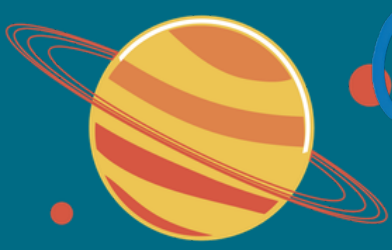
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Do you know what this is



What kind of magical power do magnets have?





Crafts & Science

Properties of Magnets



- Magnets have magnetism and can attract objects made of iron.
- Magnets have magnetic poles; every magnet has two poles — a North (N) pole and a South (S) pole — which always exist as a pair.
- When two magnets are brought close to each other: like poles repel each other, and opposite poles attract each other.
- In short: Like poles repel; opposite poles attract.

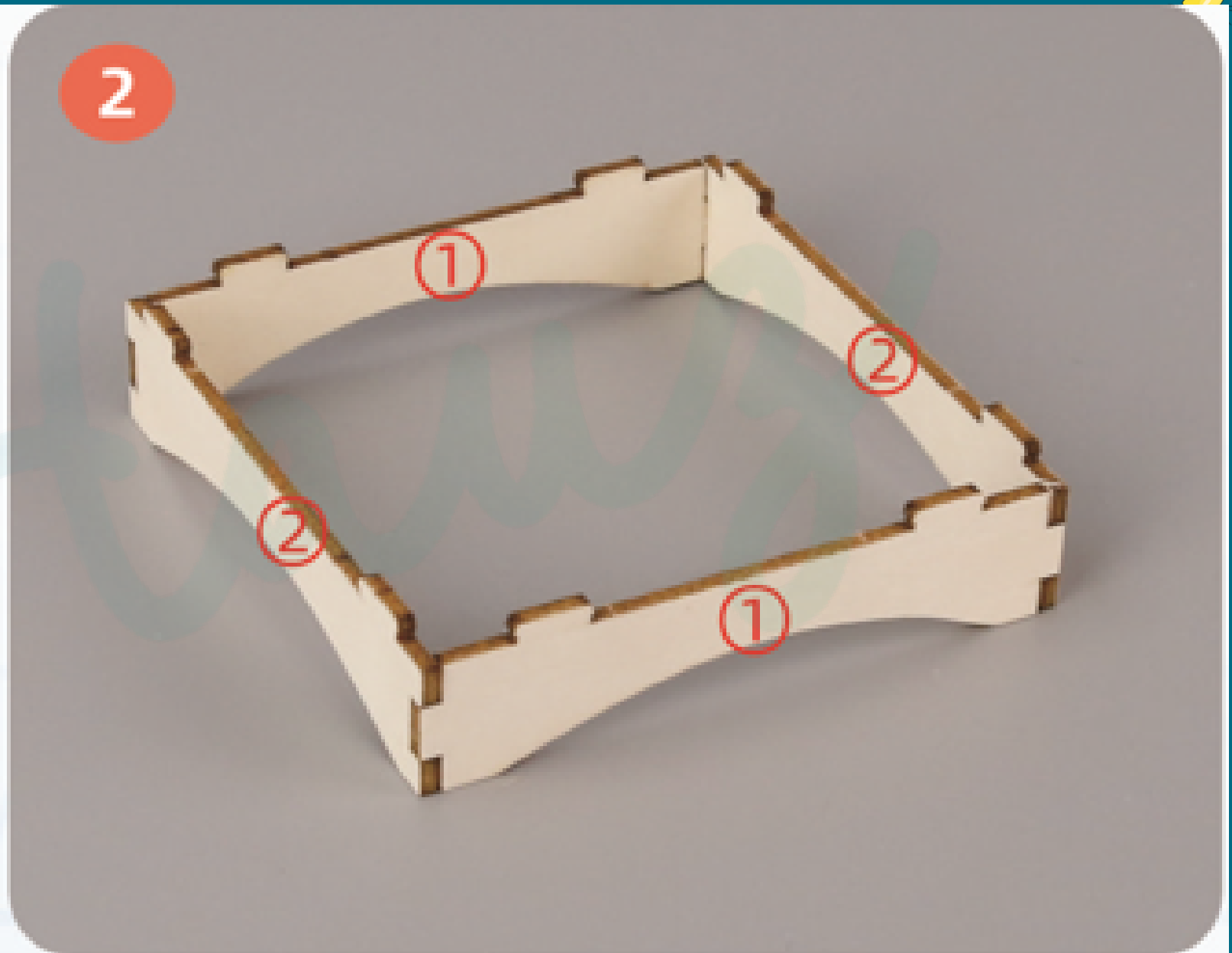
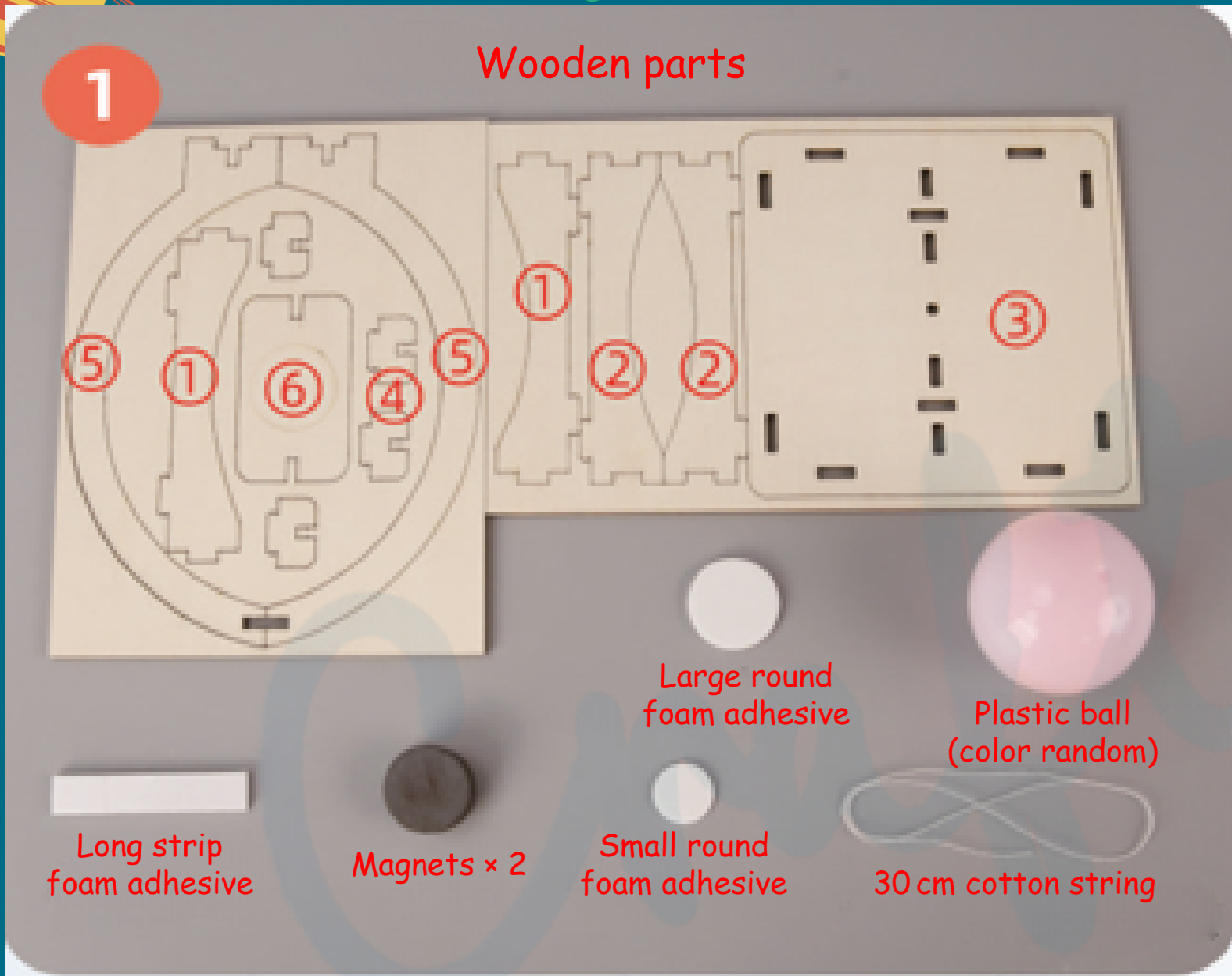


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Experimental Steps

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Material kit display

Assemble Board 1 and Board 2 into a base bracket, as shown.



Install the base plate (Board 3) onto the bracket, as shown.

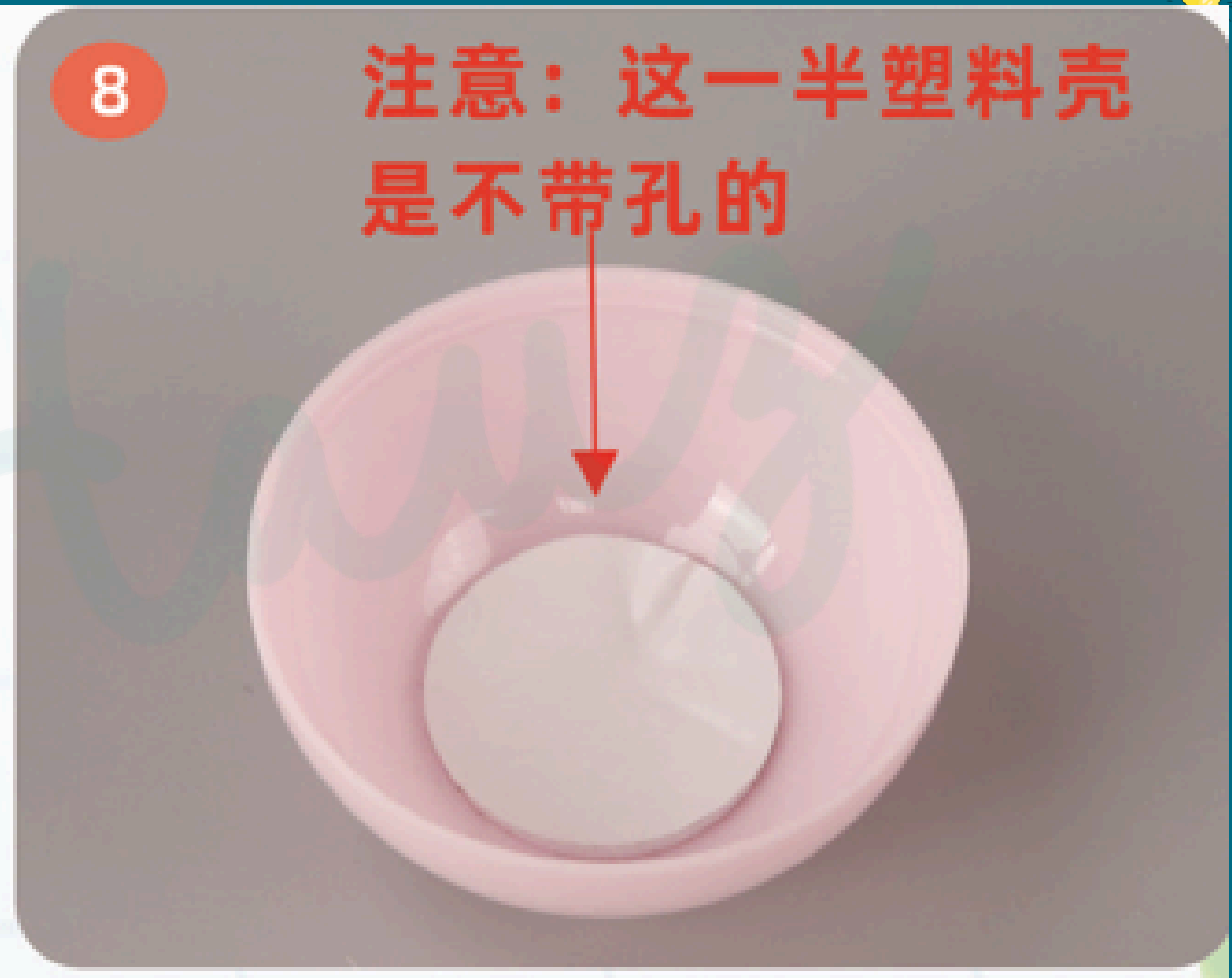
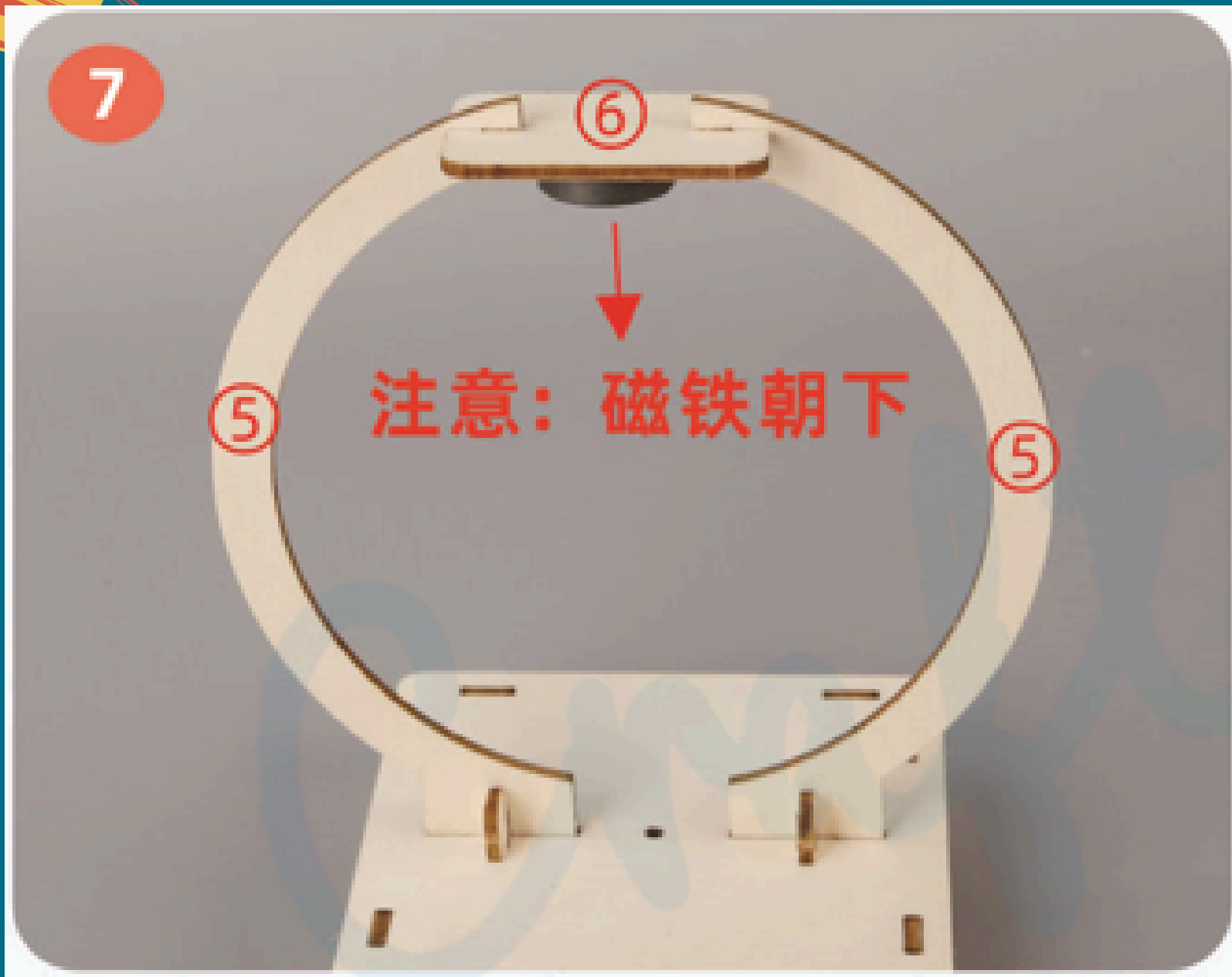


Insert the two pieces of Board 4 into the slots on the base plate (Board 3), as shown.



Install the two pieces of Board 5 in the positions shown.

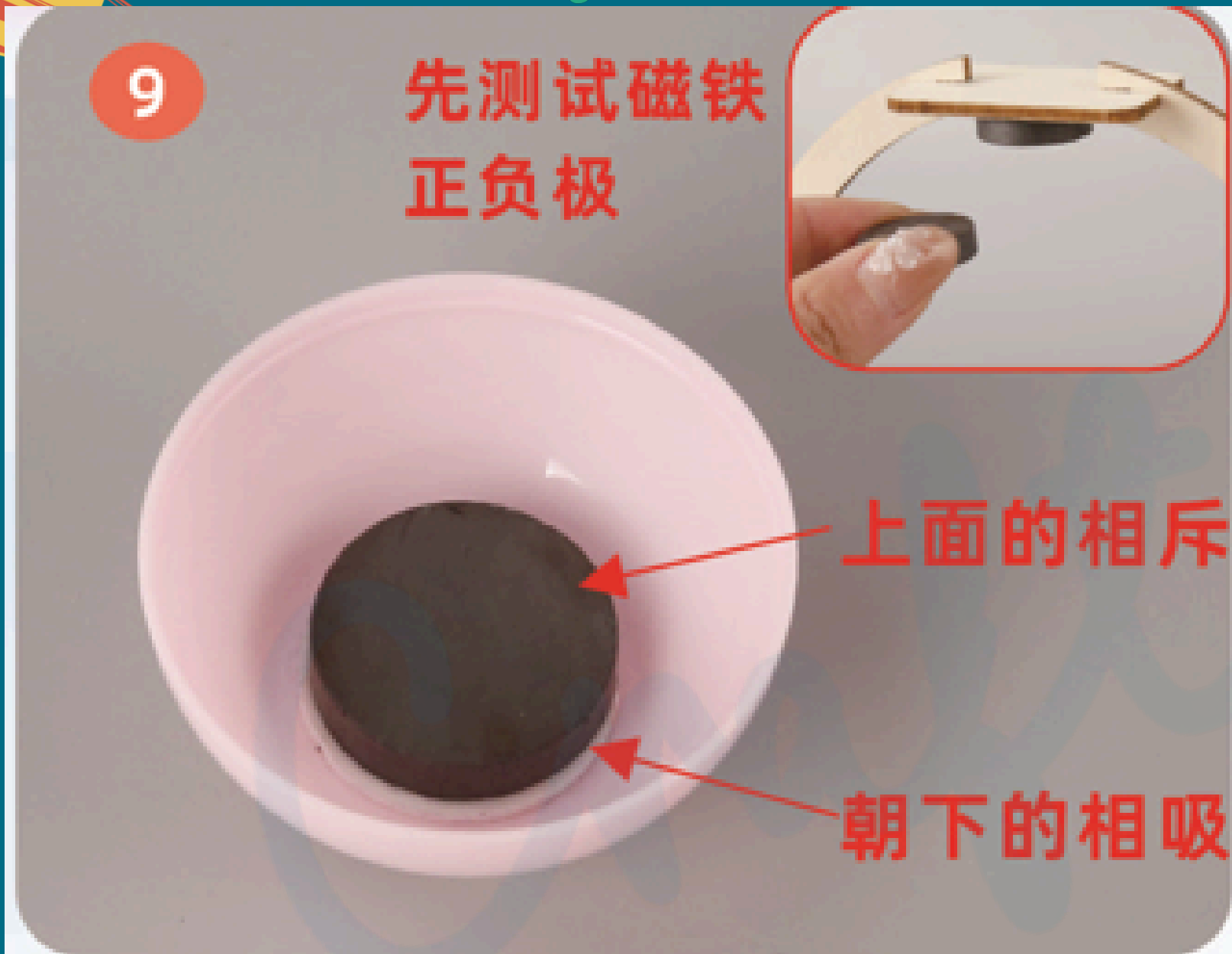
Use small round foam adhesive to attach a magnet inside the marked frame area on Board 6, as shown.



Insert the two pieces of Board 5 into the grooves on both sides of Board 6, as shown.

Note: Make sure the magnet side faces downward.

Pull the two halves of the plastic ball apart. Stick a piece of large round foam adhesive in the center of the half without holes, as shown.

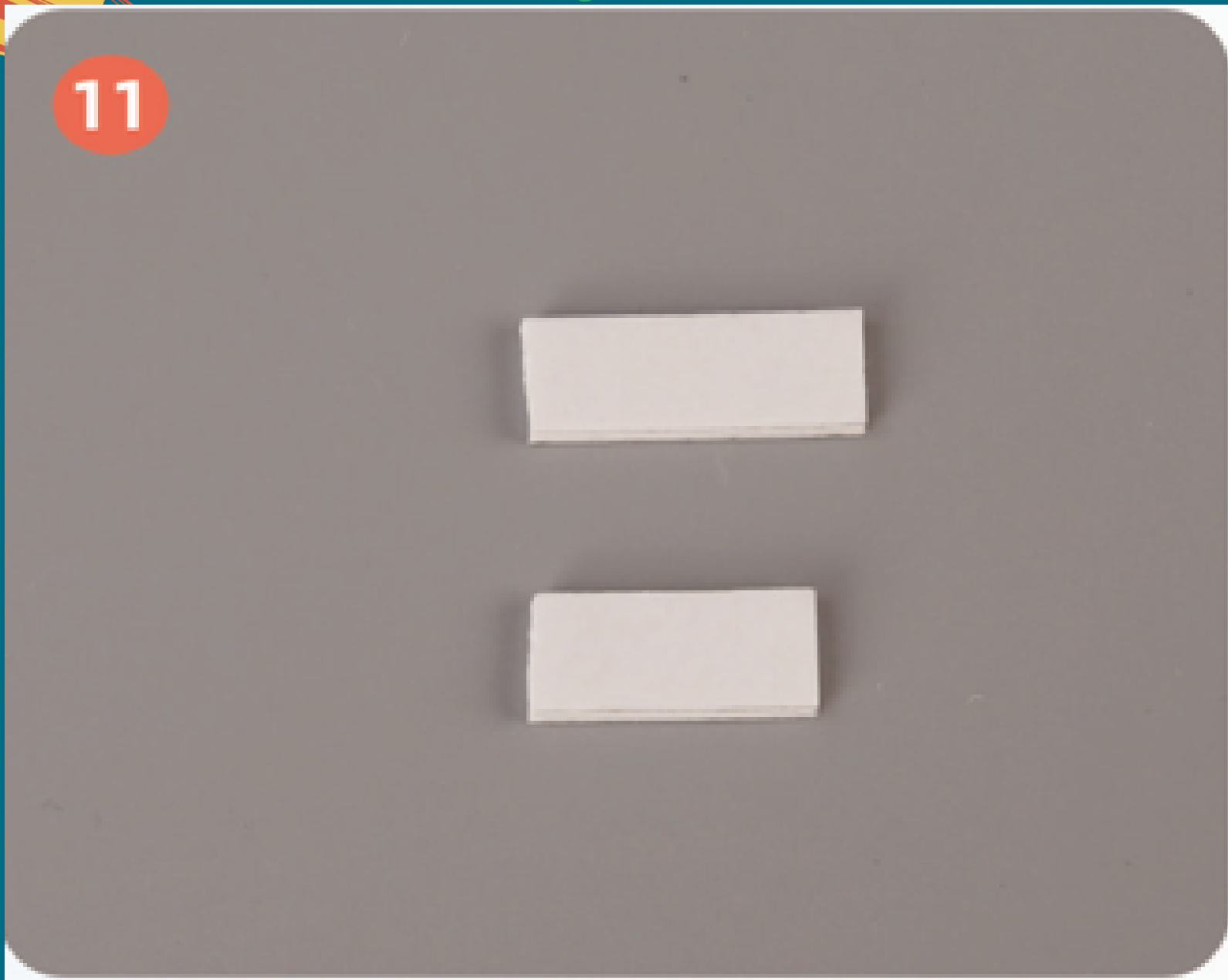


First test the poles of the magnets:

- The upper sides should repel each other.
- The lower sides should attract each other.

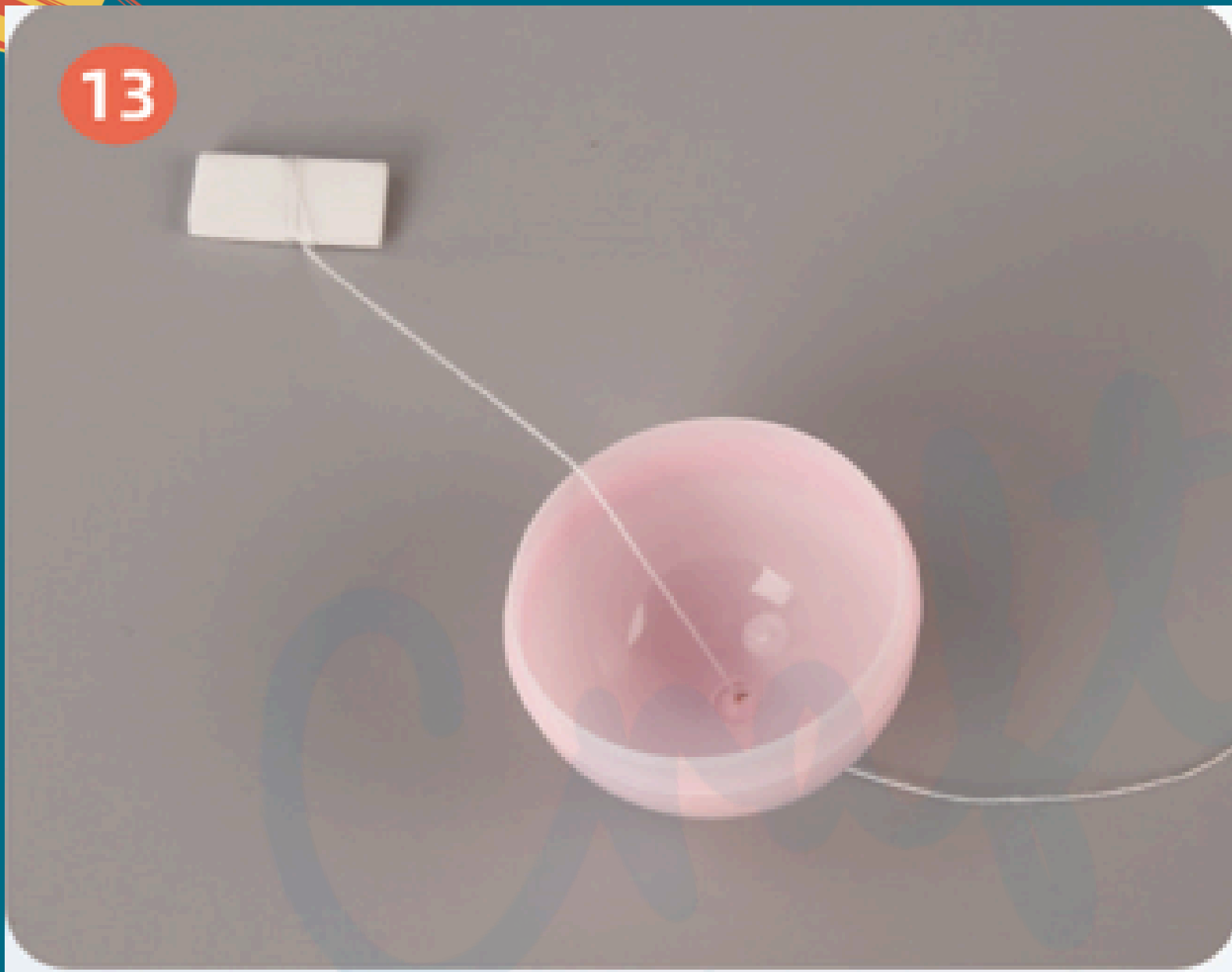
Stick the second magnet onto the foam adhesive following the polarity instructions, as shown.

Flip the assembly from Step 9 over and align it with the other magnet to test. If they attract each other, the polarity is correct.



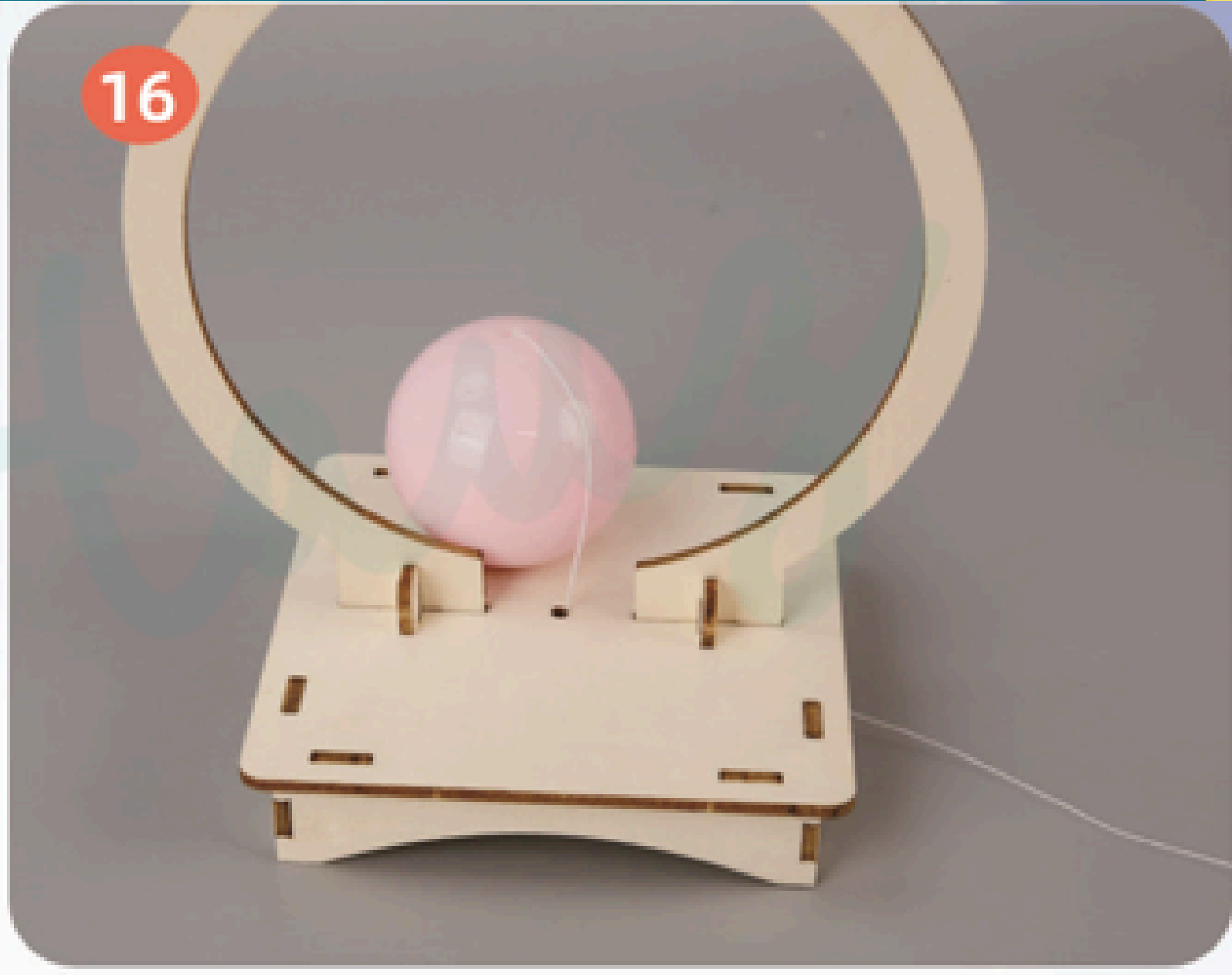
Cut the long strip of foam adhesive into two sections (scissors not included)

Remove the backing paper from both sides of the foam adhesive before winding. Wind one end of the cotton string around the foam adhesive about five times, as shown.



Thread the cotton string through the half of the plastic shell that has a hole, as shown in the diagram.

First pull the entire length of the cotton string out through the hole, as shown. Then attach the foam adhesive at the center position.



Join the parts completed in Step 9 and Step 14 together to form a complete plastic ball, as shown.

Thread the cotton string through the center hole of the base plate down to the bottom, as shown.



Note: Be sure to peel off the protective backing from both sides of the foam adhesive before winding it.

Wind the extending end of the cotton string around the other piece of foam adhesive — wind it five times first, then adjust according to the height of the plastic ball, as shown.

Once the height of the plastic ball at the front is adjusted correctly, attach the remaining foam adhesive underneath. Your magnetic levitation ball is now fully assembled!



Note: If the plastic ball does not levitate, check the following possible issues:

1. Refer back to Step 10 — confirm whether the two magnets attract each other correctly.
2. Check if the cotton string is too short. If the distance between the two magnets is too great, levitation will not be possible.

Scientific Principle

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The magnet inside the ball and the magnet on the top bracket have like magnetic poles facing each other, creating an upward repulsive force. This force is equal in strength and opposite in direction to the ball's own weight, keeping the ball balanced vertically. The string below restricts horizontal movement and prevents the ball from tipping over due to magnetic repulsion, thereby maintaining a stable levitation state.

