



Craft
Ages 9–12
40 minutes

Tabletop Pinball

Description

Create a miniature pinball machine using a box lid in this introduction to inclined planes

Space Considerations

Any type of space where kids can be seated to do a craft

Competencies

- Engineering
- Eye-hand coordination
- Problem solving

Materials

- Shallow cardboard box or box lid (e.g. a shoebox or the lid from an office paper box)
- Acrylic paint (optional)
- Paintbrushes (optional)
- Glue gun (preferred) or glue sticks
- Tape
- Bottle caps
- Ruler
- Ping-Pong balls
- Scissors
- Paint stir sticks
- Other tactile items—pompoms, cotton balls, foam shapes, toilet paper tubes, cardboard to cut, earplugs, etc. (Optional)

Implementation

1. Prepare the box:
 - a. Cut down the sides of your box so they are 7–12 cm high.

- b. Place the box in front of you with the short ends at the top and bottom, and the sides facing up.
- c. Cut an opening on the top left side that is big enough for a Ping-Pong ball to fit through. This will be the ball launch point. You can insert and secure a toilet paper tube to this hole if desired.



- d. Optional: Paint the box lid and let it dry. As you prepare the other pieces, they can also be painted if desired.
2. Make the playing field (depending on the size of your box, you may have to adjust measurements in these instructions).
 - a. Put glue on top of two bottle caps and place them under the top two corners of the box lid. This will raise the slant of the playing field from the table or floor so that the Ping-Pong ball will move down with gravity.
 - b. Using scissors, make a vertical slit in the lower left side of the box, about 5 cm from the bottom. The slit should be just large enough for the paint stir stick to fit through



- c. Push the stir stick through the slit and leave a 5 cm space between the end of the stir stick and the right wall. The other end of the stick will be outside the box. This is called the flipper.
- d. Plan the rest of your playing field. Incorporate a variety of tactile items such as bottle caps, foam shapes, earplugs, etc. You may also consider bending strips of cardboard or using cut toilet paper rolls to serve as score cups. You must leave enough space in your board for the ball to pass through, so plan the spacing accordingly and then glue all items into place.



3. Play the game!

- a. Drop the Ping-Pong ball down from the top of the box, in the opening you created.
- b. When the ball moves down the board towards the flipper, use your hand to flick the flipper and hit the ball, aiming towards the various score cups you have in place.
- c. A turn can be considered over once you score the ball into a cup, or the ball goes down below the flipper.

- d. Encourage participants to compete against friends. They could take a certain number of turns and add up their scores, or they could see who can keep the ball in play the longest.

Accessibility Considerations

- Offer pre-cut options or help with cutting, making holes and gluing as needed
- Offer a variety of tactile items for kids to choose from and allow them to incorporate the objects that are most suitable for them
- Offer tape and large glue sticks as alternatives to using the glue gun
- Use a small, circular bell as the ball so kids can hear it moving around

Book Suggestions

The Boy Who Thought Outside the Box: The Story of Video Game Inventor Ralph Baer by Marcie Wessels

Recycle and Remake: Creative Projects for Eco Kids by DK