# ENGINEERING CIRCUITS & MOTORS: ZIPPY BOTS

STEAM ENRICHMENT GRADE LEVELS K-4TH

## PROJECT OVERVIEW

Level of Difficulty: Easy

Time Required: 60 Mins.

Recommended Ages: 10+

## PROJECT DESCRIPTION

Kids N Tech Zippy Bots are mini robots created by attaching basic electronic components that includes a motor, and a power source that is attached to the head of a toothbrush. These bots use vibrations to move and can be customized by adjusting their balance and components for different behaviors. These mini bots are a gateway to basic engineering, motors, circuits, and the principles of balance. The Kids N Tech Zippy Bots activity is a great way to teach basic principles of robotics and engineering in a fun and hands-on way.

### WHAT'S INCLUDED: ALL THE PARTS REQUIRED TO MAKE ZIPPY BOTS

- Brush Heads
- Motors
- Batteries
- Pipe CLeaners
- Eyes
- Double sided tape
- Easy to follow lesson plan
- Short instructional video

## NOTE

This activity includes small parts and batteries. These are a choking hazard. Please supervise children under the age of 10 closely.

# PROJECT OVERVIEW

5E Lesson Plan: Building a Brush Bot

Grade Level: K-4

Introduction:

Introduce students to the concept of robots and how they are used in various applications. Explain that they will be building their own simple robot, called a Zippy Bot, to explore how vibrations can create movement.

Learning Objectives:

- Understand the basic principles of robotics
- Build a simple robot (Zippy Bot)
- Observe how vibrations create movement

Materials: KIDS N TECH Zippy Bot Kit

Engage:

Show students a video or pictures of different types of robots. Ask them what they think robots can do and how they work.

Explore:

1. Distribute materials to each student or group.
2. Share Instruction sheet with students to assemble their Bot using the provided materials.
3. Show video -https://youtu.be/D4us6kS8o7M?si=8DP3lBklKMKjCRmI
4. Students build their bots.

Explain:

Discuss with students how the motor's vibrations cause the Bot to move. Explain that this is a simple example of how robots can be powered and move.

Elaborate:

Challenge students to decorate their Bots and test them on different surfaces (e.g., carpet, tile) to see how the surface affects their movement.

Evaluate:

Have students observe and describe how their Brush Bot moves. Ask questions such as:

- What happens when you change the angle of the bristles?
- How does the weight of the decorations affect the Bot's movement?
- Can you think of ways to make your Bot move faster/slower?