BUILD A BRIDGE CHALLENGE

Objective: Learn about engineering, forces, and structural design by building a bridge that can hold weight.

Materials Needed:

- Popsicle sticks
- Glue (or hot glue gun)
- Small weights (coins, small toys, or marbles)
- Ruler
- Paper and pencil for sketching designs

Instructions:

1. **Design Phase:** Ask students to draw a blueprint for their bridge design. Discuss concepts like balance, stability, and the types of forces acting on a bridge (compression and tension).
2. **Building Phase:** Have students construct their bridge using only popsicle sticks and glue. They can design a suspension bridge, beam bridge, or arch bridge.
3. **Testing Phase:** Once the bridge is built, test how much weight it can hold. Place small weights on the bridge until it breaks. Have students record how much weight it held before breaking and adjust their designs accordingly.
4. **Discussion:** Discuss which bridge designs held the most weight and why, introducing them to terms like “tensile strength” and “structural integrity.”

Teaching Instructions:

- Understand basic engineering concepts like force, load, and materials science.
- Improve critical thinking and problem-solving skills.

These activities engage students with hands-on learning, introduce them to key STEM concepts, and foster creativity, critical thinking, and problem-solving.