Every **Crazy Contraption**’s mechanisms needs a frame. Don’t have a wooden base? Then this guide is just for you! Use TeacherGeek components to build this **Standard Frame**.

**On-Wood Frame**
This frame needs a wooden base. Find the build guide and parts at: teachergeek.com/learn

**Standard Frame**
Don’t have a wooden base? **Great!** This build is just for you.

1. **Cut** two 19.5 cm (7.6”) dowels.

![Cut two 19.5 cm (7.6") dowels.](image)

**Tip:** Save extra dowel pieces to use later in your crazy contraption.

2. **Cut** 8mm off the end of two connector strips.

![Cut 8mm off the end of two connector strips.](image)

3. **Tap or push** two dowels from Step 1 into a connector strip from Step 2. Place the dowels seven holes in from each end of the strip and extend out 1 cm.

![Tap or push two dowels from Step 1 into a connector strip from Step 2. Place the dowels seven holes in from each end of the strip and extend out 1 cm.](image)

**Tip:** Use a tapping block to expose the dowels if necessary.
4 Tap or push a connector strip from Step 2 onto the dowels from Step 3.

5 Cut two 19.5 cm (7.6”) dowels.

6 Tap or push the dowels from Step 5 into the corner holes of two angle brackets as shown.

7 Tap or push two more angle brackets onto the dowels from Step 5 as shown.

8 Cut two 17.5 cm (6.8”) connector strips.
9. **Attach** the connector strips from Step 8 to the **angle brackets** from Step 7.

B. **Secure** the strips with the angle bracket **pegs** and four **nuts** and **screws**.

10. **Attach** four full connector strips to the upper angle bracket **pegs** from Step 9. **Secure these uprights** with four **nuts** and **screws**.

11. **Attach** the top-frame from Step 4 to the **uprights** from Step 10. Push the dowels into the top **hole** of each upright.

**Optional:**

Stabilize the frame by taping it to a piece of chipboard.

**Congratulations!**

Your frame is finished! Try flipping it upside-down, or right-side up!
Mechanisms: Simple Machines

There are two major families of simple machines.

Lever Family
1. wheel & axle
2. lever
3. gear
4. pulley

Inclined Plane Family
1. inclined plane
2. wedge
3. screw