UNIT: JCI BUILDING SYSTEMS

BUILD YOUR ROOM!

Your Mission:

Before you build your own speaker, you’ll become a Sound Sleuth by investigating how sound and waves behave. Follow the instructions and record your observations. Be curious. Ask questions. Notice patterns.

Focus: Amplitude and Energy

Materials:

* Slinky
* Rope
* Graph paper
* Ruler

STUDENT DIRECTIONS:

**STEP 1: Set Up Your Wave Model**

1. **Choose a wave tool:** Use either the slinky or the rope.
2. **Find space:** Lay it on the floor or table and stretch it out straight—about 1 to 2 meters long.
3. **Partner roles:**
   * *Partner A* holds one end **still**.
   * *Partner B* will create waves from the other end.

**STEP 2: Create and Measure Waves**

1. **Make three waves**—one small, one medium, one large. Use smooth side-to-side or up-and-down movements.
2. **Observe each wave:**
   * How far does it travel before stopping?
   * How high is the wave (use a ruler to measure the height from the rest position to the top of the wave)?
   * How does the motion (small vs. large) affect energy?
3. (Optional) **Sketch one of your waves on graph paper.**

What to Record:

* Amplitude: ☐ Small ☐ Medium ☐ Large
* Distance Wave Traveled: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Energy Level: ☐ Low ☐ Medium ☐ High
* What did you notice about amplitude and energy?  
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Standards Alignment

NGSS:MS-PS4-1, MS-PS4-2, MS-PS4-3, MS-PS2-3, MS-PS2-5ETS: MS-ETS1-1, MS-ETS1-2, MS-ETS1-3STEL: STEL 1F, STEL 2G CCSS: CCSS.MATH.CONTENT.6.SP.B.5, CCSS.MATH.CONTENT.8.F.B.4