

“In the Construction Zone”

Module 12, Warm-Up



Prompt:

Often, construction work begins with demolition. In order to build a structure, something may need to be destroyed to make space for the new structure - like an old wall, house, or building.

You will create a structure and a wrecking ball to demolish that structure!

Materials:

- Tape (scotch or masking)
- Scissors
- String, ribbon, yarn, or finishing line
- Recycled materials such as cardboard, egg carton, tissue box, shoe box, etc.
- Wrecking ball (golf ball, tennis ball, bag of coins, pebbles/rocks, etc.)
- Additional materials for wrecking Ball Set Up Option 2
 - 1 Bucket/Pail
 - Yardstick/Meter stick (or long stick you find outside or a pole that is safe)
 - 2 Binder clips or rubber bands
- *Optional: Books/a weight and a sock, bag, or pouch to hold the wrecking ball*
- *Optional: Explorer Notebook*

Note for grown-up's: If you do not have some of the suggested materials, you can use similar types of materials.

Instructions:

1. Create a stack of recycled materials to be your “old structure” to demolish.

2. Make your wrecking ball set up using one of the two images below.

3. **Option 1:**



- a. Cut a long piece of string and tie one end around the wrecking ball. You might want to add some tape so it is secure!
- b. Tape the other end of the string to a table (check with a grown-up before taping anything to a table!), or use a stack of books or something heavy to hold the string in place.
- c. Put your recycled structure in front of the wrecking ball.
- d. Pull back the wrecking ball and demolish the structure of recycled materials!

4. **Option 2:**



- a. Fill a bucket with water or rocks to weigh it down.
 - b. Use the tape and a binder clip to attach the yardstick to the bucket. The yard stick should be angled away from the top of the bucket. The top of the stick will be where you attach the string.
 - c. Use more tape and the other binder clip to attach one end of the string to the top of the stick.
 - d. The other end of the string should hover above the floor, leaving enough room to attach the wrecking ball and allow it to swing back and forth
 - e. Attach your wrecking ball to the bottom of the string using tape.
 - f. Test out your design by slowly swinging the wrecking ball, making sure the bucket doesn't tip over, and that the yardstick doesn't become detached.
 - g. Position your wrecking ball creation next to the old structure, and pull back the wrecking ball and demolish the structure of recycled materials!
5. Remember, engineers often have to try and try again, going back to explore more materials and improve their designs from what they learn as they test!
 6. Experiment with how far back you pull the wrecking ball. What happens if you pull the wrecking ball back just a little? A lot?

For explorers using an Explorer Notebook:

1. Plan out your set up in your notebook before building.

Check out the last page for a page design idea. You can use this or set up your page however you want!

Extensions:

The following are optional steps you can take if you want to extend this adventure:

1. Try building a heavier structure to demolish. Do you need to change the design of the wrecking ball creation? Do you need to change how far back you pull the wrecking ball?
2. Adjust the length of the string.
 - a. If the wrecking ball is closer or farther from the ground, how does that change the way the old structure is demolished?
3. Name and decorate your old structure and/or the wrecking ball creation.

Explorer Notebook

You can use this to help you set up your Explorer Notebook!

Demolition Module 12, Warm-Up

Sketch of my design:

A large, empty rectangular box with a black border, intended for a student to draw a sketch of their design. The box is positioned below the text 'Sketch of my design:' and occupies most of the lower half of the page's content area.