

# Tower Crusher

*User Guide*



## Cautionary and Warning Statements

- This kit is designed and intended for educational purposes only.
- Use only under the direct supervision of an adult who has read and understood the instructions provided in this user guide.
- Read warnings on packaging and in manual carefully.

## Materials Included

- Plastic jug
- Crusher stand

## Items Required (not included)

- Scale
- Sand\*
- Paper
- Tape
- 2" x 8" cardboard cylinder (or paper towel tube)

\* Even though sand is recommended because you can be more precise with weight measurement, the weight doesn't have to be sand. It could also be metal washers, hanger weights, and so forth.

## Preparing Structures

**Note:** Many different kinds of structures can be tested with this product. In the section **Other Activities**, we will mention some of those.

1. Take the cardboard cylinder and wrap a piece of paper around it longways.
2. At the edge where the paper overlaps, secure the shape with a piece of tape on the top, bottom, and middle (Figure 1).
3. Slip the cardboard cylinder out of the new paper structure.

## Preparing the Crusher Stand

1. Set the crusher stand on a flat surface and remove the movable platform by sliding it to the top of the stand (Figure 2).



Figure 1



Figure 2

2. Remove the lid and weigh the empty plastic jug on the scale. Record the weight.
3. Set the paper structure in the crusher stand and slide the movable platform onto the stand with the guide extensions facing down.
4. Place the jug on top of the stand and steadily add sand to the jug until the structure is crushed (Figures 3 and 4). Record the weight of the jug (Figure 5).



**Figure 3**



**Figure 4**



**Figure 5**

## Other Activities

- Using the same method of creating a paper structure from the cardboard cylinder, you could test the strength of multiple structures (Figure 6), structures of different heights, or different kinds of paper such as card stock.
- Using index cards, make structures of different shapes such as a square, triangle, rectangle, circle, and so forth, and test the shapes to find the strongest structure.



Figure 6

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