

WORKSHOP EXTENSION ACTIVITY

Built by The Home Depot Kids Workshops

January 2024: Delivery Truck

Ages 5–12

CONNECT.

Has your family ever ordered something that was brought to your home by a delivery truck? The Home Depot has delivery trucks that transport products and building materials of all shapes and sizes to homes and other sites across the country!

INVESTIGATE.

Do you think the weight of your Delivery Truck affects how fast it rolls? Let's find out!

You'll need:

- Delivery Truck
 - Timer
 - Painter's tape
 - Measuring tape
 - Materials to use as weights—such as mini cornhole bean bags or reusable bags filled with hex nuts or coins
1. Create three equal weights to be used during this activity. For instance: Find three mini cornhole bean bags that are the same size, or fill three reusable bags with the same number of hex nuts. Be sure that all three weights can fit in your Delivery Truck at the same time.
 2. Choose a spot in your home to perform your trials. You'll need a clear area of floor or another flat surface that is about five feet long.
 3. Use your measuring tape and painter's tape to mark a starting line and a finish line about four feet apart.
 4. Practice giving your Delivery Truck a push so it travels between these two lines. Time how long this takes, and practice again and again until the timing is consistent.
 5. Begin your trials! Place your empty Delivery Truck on the starting line, give it the same push, and time how many seconds it takes to pass over the finish line. Repeat for two more trials and record the time for each trial in the chart's *Empty: Flat Trial* squares.
 6. Place one weight in your Delivery Truck. Perform three more trials (each time pushing it with the same amount of force as before) and record the time in the *1 Weight: Flat Trial* squares. Repeat this with two and three weights.
 7. Calculate the average time for each weight by adding up the trials and dividing by three. Then discuss: Does your Delivery Truck's weight affect how it rolls on a flat road? If your truck wanted to maintain the same speed while carrying different weights, what would this mean for its engine?

INNOVATE.

Now let's change the experiment to see how weight affects your Delivery Truck as it's rolling down a hill!

You'll need:

- Your materials from your flat road experiment

- Several books to stack
- A board, at least three times your Delivery Truck's length

1. Use your board and books to set up a ramp that is not *too* steep!
2. Use the painter's tape to mark a starting point on the ramp where the truck's front wheels should go and an ending point on the floor that is no more than two feet away from the ramp's ending.
3. Place your empty Delivery Truck on the starting line, let it go (don't push it!), and time how long it takes to cross the finish line. Repeat this for a total of three trials, recording the time in the *Empty: Hill Trial* squares.
4. Continue with one, two, and three weights—each time, being careful not to push your Delivery Truck.
5. Once you've calculated the average time for each of the weights, discuss: When your Delivery Truck is rolling down a hill, does its weight affect its speed? What impact could this have on its brakes or how long it takes it to stop?



		Weight	Empty	1 Weight	2 Weights	3 Weights
Time (in seconds)	Trial 1	Flat				
		Hill				
	Trial 2	Flat				
		Hill				
	Trial 3	Flat				
		Hill				
	Trial 4	Flat				
		Hill				

Your delivery truck is like the many vehicles used in the skilled trades! A **Construction Remodeler** uses several different vehicles to get the job done. **Construction Remodelers** might use a bulldozer, dump truck, excavator, or crane. Their job could involve building and repairing drywall, laying floors or tile, installing plumbing fixtures, or installing trim, molding, and windows.

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