

# Calculating Load Weight Pocket Guide

## Step 1: Determine the Volume of the Load

Rectangle/Square: Volume = Length x Width x Height

Hollow Cylinder: Volume = 3.14 x Length x Wall Thickness x (Diameter - Wall Thickness)

Complex Shapes: In some instances, imagine the whole object is enclosed in a rectangle and then calculate the volume of that rectangle.

Or, break the object into two or more smaller rectangles and then calculate the weight of each part and add them together.

## Step 2: Determine the Material You'll be Lifting

The table can be used for approximate weight values of common loads and materials.

## Step 3: Determine the Weight of Object

Multiply the approximate pounds per cubic foot of the material times the calculated volume of the load to get the weight of the object or load.

Material	Pounds / Cubic Ft
Aluminum	165
Asbestos	153
Asphalt	81
Brass	524
Brick	120
Bronze	534
Coal	56
Concrete	150
Crushed Rock	95
Diesel	52
Dry Earth	75
Gasoline	45
Iron Casting	450
Lead	708
Lumber (Fir)	32
Lumber (Oak)	62
Lumber (RR Ties)	50
Oil, Motor	58
Paper	58
Portland Cement	94
River Sand	120
Rubber	94
Steel	480
Water	63
Zinc	437



### Example #1: Block of Aluminum

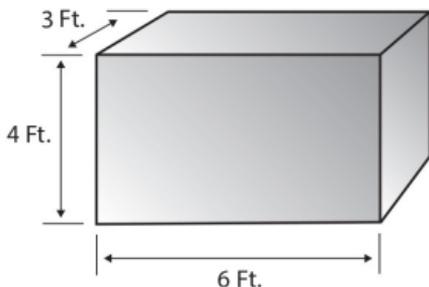
Volume = Length x Width x Height

Volume = 6 feet x 3 feet x 4 feet

Volume = 72 cubic feet

Block weight = 72 cubic feet x 165 pounds per cubic foot

Block weight = 11,880 lbs. / 5.94 tons



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### Example #2: Steel Pipe

Volume = 3.14 x Length x Wall Thickness X (Diameter - Wall Thickness)

Volume = 3.14 x 8 feet x 0.125 feet x (3 feet - 0.125 feet)

Volume = 3.14 x 8 feet x 0.125 feet x 2.875 feet

Volume = 9.03 cubic feet



Steel tube weight = 9.03 cubic feet x 480 pounds per cubic foot

Steel tube weight = 4,334 lbs. / 2.17 tons

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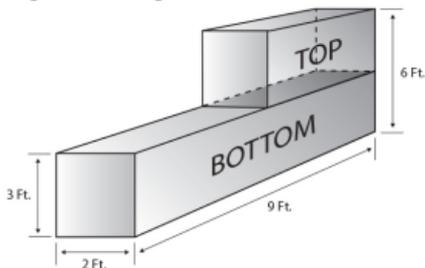
### Example #3: Complex Shapes

Volume<sub>1</sub> = 4 feet x 2 feet x 3 feet

Volume<sub>1</sub> = 24 cubic feet

Volume<sub>2</sub> = 9 feet x 2 feet x 3 feet

Volume<sub>2</sub> = 54 cubic feet



Total Volume = Volume<sub>1</sub> (24 cubic feet) + Volume<sub>2</sub> (54 cubic feet)

Total Volume = 78 cubic feet