

Matter

Mr. Skirbst

Weblinks

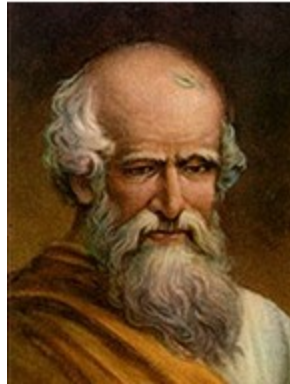
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***Weekly Challenge: The more you take away from me, the bigger I become.
What am I?***



Archimedes of Syracuse
c. 287 BC – c. 212 BC

He was a Greek physicist who is known as one of the **greatest scientists** of all time.

He is known for yelling “Eureka!” when he discovered how to use displacement to find density.

What is matter?

Matter

anything that has
mass and volume

4 Properties

4 Properties

1. Mass

4 Properties

1. Mass

- amount of matter in an object

4 Properties

1. Mass

- amount of matter in an object
- **measured in grams (g)**

4 Properties

1. Mass

- amount of matter in an object
- measured in grams (g)
- **does not change relative to its position in space**

4 Properties

2. Weight

4 Properties

2. Weight

- **gravity's force of attraction**

4 Properties

2. Weight

- gravity's force of attraction
- **measured in Newtons (N)**

4 Properties

2. Weight

- gravity's force of attraction
- measured in Newtons (N)
- **can change relative to its position in space**

4 Properties

3. Volume

4 Properties

3. Volume

- amount of space occupied

4 Properties

3. Volume

- amount of space occupied
- **liquid measured in liters (l)**

4 Properties

3. Volume

- amount of space occupied
- liquid measured in liters (l)
- **solid measured in cm^3**

4 Properties

3. Volume

- amount of space occupied
- liquid measured in liters (l)
- solid measured in cm^3
- **note: 1 ml = 1 cm^3**

4 Properties

4. Density

4 Properties

4. Density

- mass per unit volume

4 Properties

4. Density

- mass per unit volume

- **equation:** $D = m/v$

4 Properties

4. Density

- mass per unit volume
- equation: $D = m/v$
- **solids: g/cm^3**

4 Properties

4. Density

- mass per unit volume
- equation: $D = m/v$
- solids: g/cm^3
- **liquids: g/ml**

Other Terms that “matter”

1. Inertia

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2. Specific gravity

Other Terms that “matter”

1. Inertia (Latin for “lazy”)
 - an object’s resistance to motion
2. Specific gravity
 - **comparison of a substances density to the density of water**

Solving Word Problems

If a block has a mass of 20g and a volume of 10cm^3 , what is its density?

Solving Word Problems

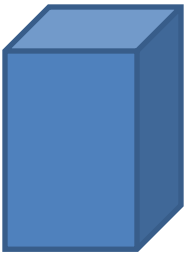
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Draw:

Solving Word Problems

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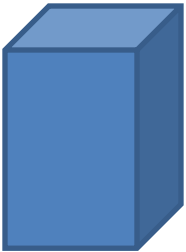


Solving Word Problems

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TOV:

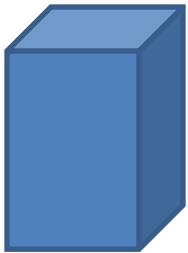


Solving Word Problems

If a block has a mass of 20g and a volume of 10cm^3 , what is its density?

Draw:

TOV:



$$m = 20\text{g}$$

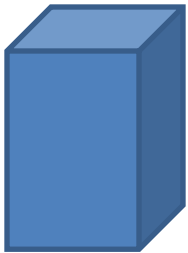
$$v = 10\text{ cm}^3$$

$$D = ?$$

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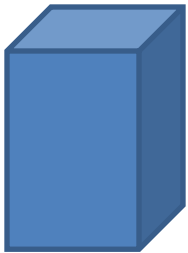
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Equation:

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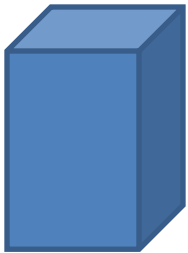
Equation:

$$D = m / v$$

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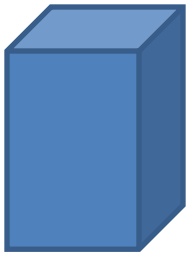
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Plug-in:

Solving Word Problems

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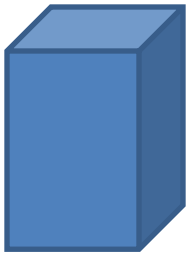
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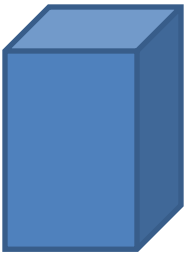
$$D = 20 / 10$$

Solution

Solving Word Problems

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$$m = 20\text{g}$$

$$v = 10\text{ cm}^3$$

$$D = ?$$

Equation:

$$D = m / v$$

Plug-in:

$$D = 20 / 10$$

Solution

$$D = 2\text{g/cm}^3$$

Density of Water

15ml

50ml

Mass of empty graduate =

Mass of graduate + water =

Mass of water (g) =

Volume of water(ml) =

$$\text{Density} = m / v$$

Density of water (g/ml) =
