Module 1
Lesson 1.6
1 hour

Archimedes Principle

Archimedes
Archimedes' Principle
2 Questions
Recap and Questions

1

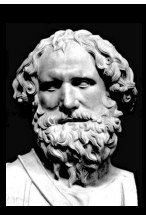
Archimedes

Who is Archimedes?
Examples of Inventions/Laws/Principles

https://www.britannica.com/science/geometry/idealization-and-proof
https://dictionary.cambridge.org/dictionary/english/arithmetic
https://www.collinsdictionary.com/dictionary/english/mechanics
https://www.bbc.co.uk/history/historic_figures/archimedes.shtml
https://www.greecehighdefinition.com/blog/2023/1/24/top-12-contributions-of-archimedes

2

Who is Archimedes?



Mathematician, Philosopher and Inventor

Wrote about Geometry, Arithmetic and Mechanics.

Geometry: Shapes, special relationships and properties of space
Arithmetic: adding and multiplying (etc.) numbers
Mechanics: concerning equilibrium or motion of bodies (e.g. dynamics)

3

Examples of Inventions/Laws/Principles

- π
- Catapult
- Principle of the lever
- Hydraulic screw
- Death Ray (?)
- Law of hydrostatics (Archimedes' Principle)

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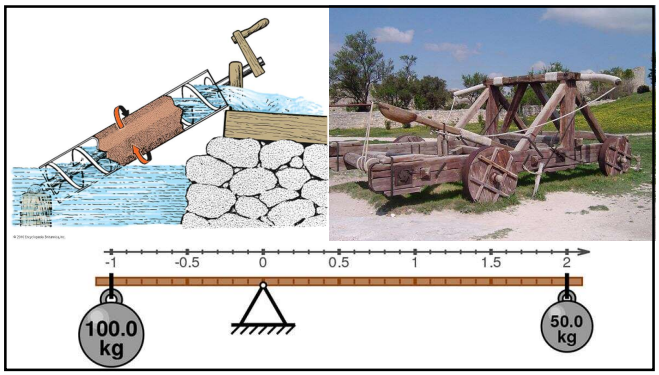

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Archimedes' Principle

Displacement
Eureka!
Principle & Formula

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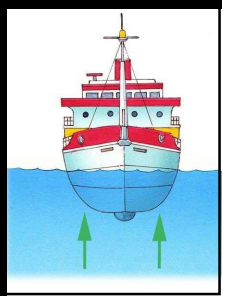
Displacement (at sea)

The mass of water **displaced** by a ship (in tonnes)

The ship **pushes the water out of the way**.

The water fights to take the space back.



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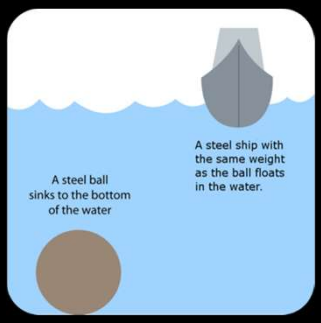

Why?

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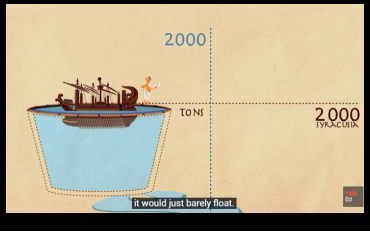
The real story behind Archimedes' Eureka!

Armand D'Angour (4m 41s)

https://www.youtube.com/watch?v=0v86Yk14rf8



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Archimedes' Principle

A body immersed in a fluid is subjected to an upwards force equal to the weight of the displaced fluid.

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Formula

$$F_b = \rho g V$$

F_b = the buoyant force
ρ = the density the fluid
V = fluid volume
g = the acceleration due to gravity

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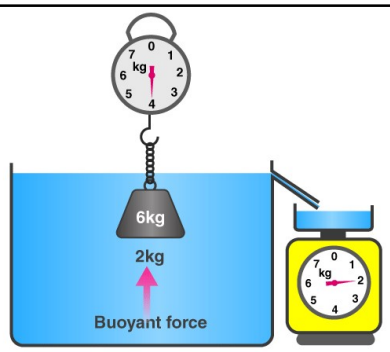

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2 Questions

What is buoyancy?

a. The upward force of a fluid
b. The downward force of a fluid
c. The weight of the object

If the mass of an object that is submerged in a fluid is 10t and the buoyant force on it is 20t, what will happen to the object?

a. It will sink
b. It will float
c. More information is required

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Group discussion based on 2 Questions

Why did you select your answer?

Work it through together.

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Recap and Questions

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