Physics Study Template

Title

Write the overall topic e.g., Newton's Laws

Title:

Laws & Definitions

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List key laws, rules, or definitions accurately
Include:

- formulas (if relevant)
- units
- key terms
- variables

Concept

- Explain the main idea in your own words
- Keep it clear and concise
- What does the law mean?
- What relationship does it describe?

Concept

Diagram

Diagram

Graph, model, or labelled diagram
Show:

- the relationship (e.g., proportionality, trends)
- axes/labels where needed
- units

Example question

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Apply the concept to a problem:

- show all working (step-by-step)
- include units and final answer
- link back to the law used

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Title: Forces and Motion

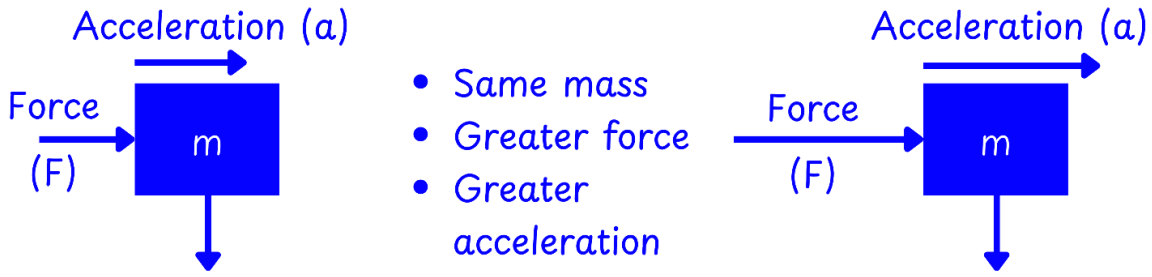
Newton's Second Law:
The net force acting on an object is equal to the rate of change of its momentum.

For constant mass:

$$F = ma$$

where
F = net force (N)
m = mass (kg)
a = acceleration ($m\,s^{-2}$)

A net force causes an object to accelerate.
For a given force, a larger mass results in smaller acceleration.
For a given mass, a larger force results in greater acceleration.
Acceleration is always in the direction of the net force.
Arrows represent the strength and direction of the forces acting on an object.



Example Question
A 2.0 kg object is pushed with a net force of 10 N. What is its acceleration?

Working:

$$F = ma$$

where
F = 10N, m = 2kg, a = ? ($m\,s^{-2}$)

$$a = \frac{F}{m} = \frac{10N}{2kg} = 5ms^{-2}$$

Answer:
The object accelerates at 5.0 $m\,s^{-2}$ in the direction of the applied force

Maths & Science Skills
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