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Simple Exam Definition (You can memorize this)

> **Hooke's Law states that the extension of a spring is directly proportional to the applied force, provided the elastic limit is not exceeded.**

If you want, I can:

- Give **numerical problems with solutions**
- Explain it at **primary / O-level / senior level**
- Show **common exam mistakes**

Just tell me 👍

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Hooke's Law obeyed

- Slope of the graph = **spring constant (k)**
- Curve or bend → elastic limit exceeded

Everyday Examples

- Springs in weighing scales
- Shock absorbers in vehicles
- Rubber bands (within limit)
- Trampolines

Simple Exam Definition (You can memorize this)

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- Spring returns to original length
- Hooke's Law applies ✅

- **Beyond elastic limit**:
  - Spring becomes permanently stretched
  - Hooke's Law no longer applies ❌

Force–Extension Graph

- Straight line through the origin → Hooke's Law obeyed
- Slope of the graph = **spring constant (k)**
- Curve or bend → elastic limit

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What is Extension?

$$\text{Extension} = \text{Final length} - \text{Original length}$$

Example:
If a spring was **10 cm** and becomes **14 cm**,
Extension = **4 cm (0.04 m)**

Elastic Limit (Very Important!)

Hooke's Law **only works up to the elastic limit**.

- **Below elastic limit**:
  - Spring returns to original length
  - Hooke's La[illegible]plies ✅
- **Beyond elastic limit**:
  - [illegible]

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Where:

- **F** = applied force (in newtons, N)
- **x** = extension or compression (in metres, m)
- **k** = spring constant (in N/m)

🔹 The **spring constant (k)** shows how stiff the spring is.

- Large **k** → stiff spring
- Small **k** → soft spring

What is Extension?

$$\text{Extension} = \text{Final length} - \text{Original length}$$

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Hooke's Law states that:

> *The extension of an elastic object (like a spring or rubber band) is directly proportional to the force applied to it, provided the elastic limit is not exceeded.*

In simple words:
👉 **The more you pull, the more it stretches — but only up to a certain point.**

Mathematical Form

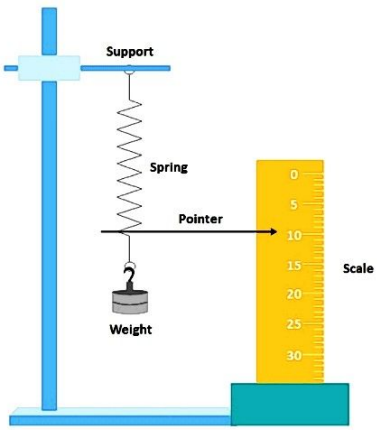
Hooke's Law is written as:

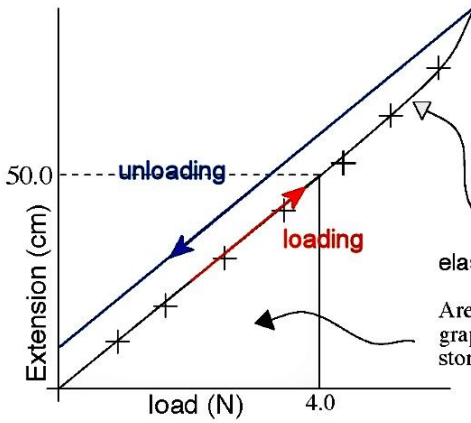
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Explain hookes law properly

Alright, let's break **Hooke's Law** down clearly and properly — no rush, no confusion 😊





What is Hooke's Law?

Hooke's Law states that:

> *The extension of an elastic object (like a spring or rubber band) is proportional to the force applied to it, provided the elastic*

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Why the grammar now works

- The condition (**"provided the elastic limit is not exceeded"**) is placed correctly.
- The subject (**extension of a spring**) and verb (**is**) are clear.
- The relationship (**directly proportional**) is not broken.

If you want, I can:

- Rewrite it in **very simple English**
- Adjust it to **Grade 7 / O-level style**
- Help you practice **explaining it orally**

Just say the word

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> According to Hooke's Law, the extension of a spring increases in direct proportion to the force applied to it, as long as the elastic limit is not exceeded.

Very short exam-friendly version

> The extension of a spring is directly proportional to the applied force, provided the elastic limit is not exceeded.

Why the grammar now works

- The condition ("**provided the elastic limit is not exceeded**") is

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Best scientific wording
(Recommended)

> **Hooke's Law states that, provided the elastic limit is not exceeded, the extension of a spring is directly proportional to the applied force.**

✔ Clear
✔ Grammatically connected
✔ Accepted in exams

Simple and clear version

> **According to Hooke's Law, the extension of a spring increases in direct proportion to the force applied to it, as long as the elastic limit is not exceeded.**

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Got you 👍 — you're right. The **idea is correct**, but the **sentence can sound grammatically awkward** if it's not framed well. Let's fix that cleanly.

Correct and smooth grammar versions

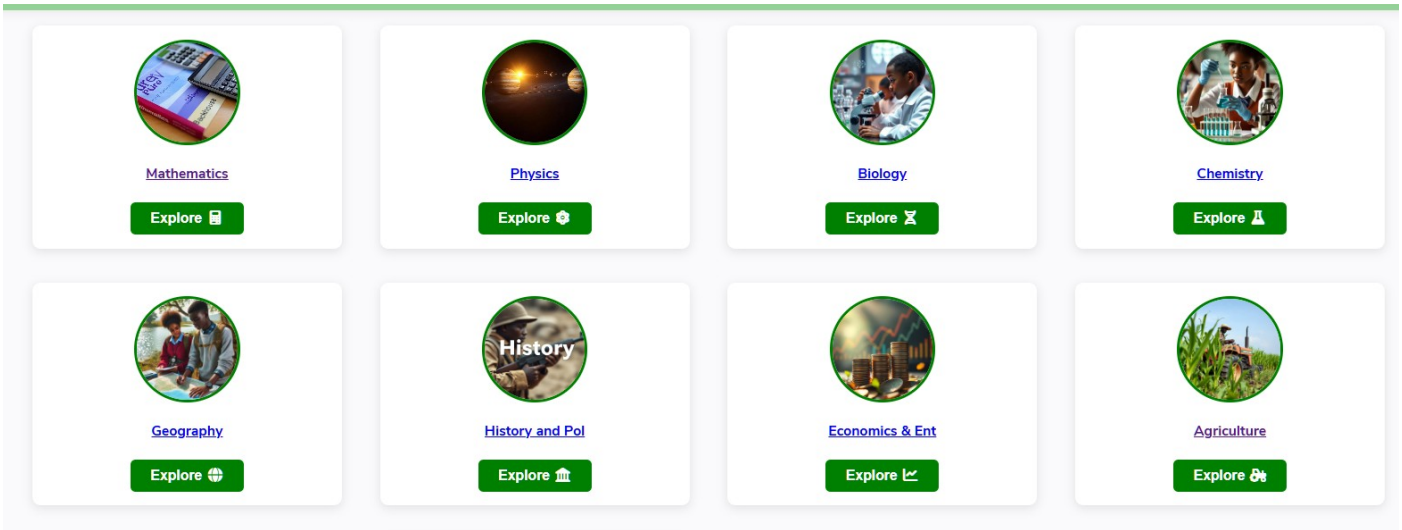
Here are **well-connected** and **standard** ways to state Hooke's Law:

Best scientific wording (recommended)

> **Hooke's Law states that, provided the elastic limit is not exceeded, the extension of a spring is directly proportional to the applied force.**

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