LAB 10:   HOOKE'S LAW

AIM: To determine the ratio for the stretching force and the extension of a spring.

APPARATUS AND MATERIALS:

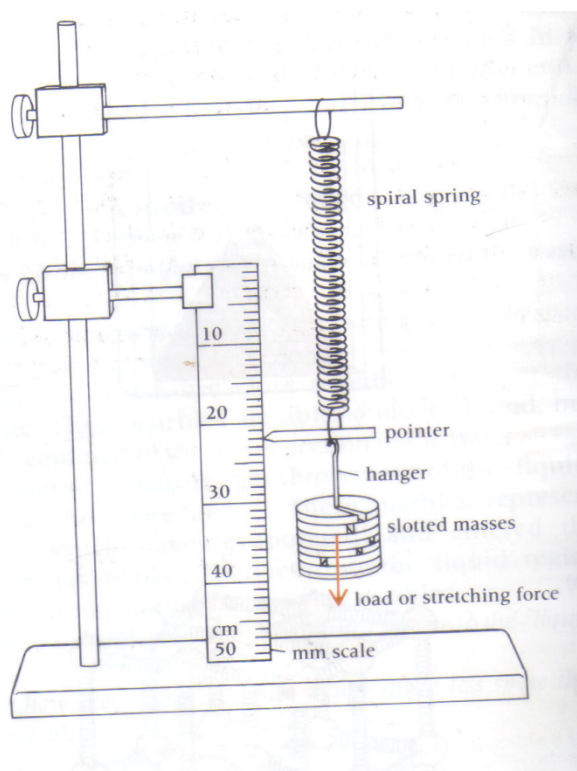|	
spiral spring	rule (mm scale)
retort stand	hanger
slotted mass	optical (pin pointer)

Diagram: Apparatus for Hooke's Law

METHOD:

- Arrange a stand to hold a millimetre scale close to a hanging spiral spring as shown in the diagram above.
- Attach a pointer to the end of the spring and take a scale reading of the pointer for the unstretched, unloaded spring.

- Hang the slotted mass hanger to the end of the spring and take a series of scale readings as slotted masses are added to the hanger, increasing the the stretching force or load.
- Record the readings in a table.
- Calculate the stretching force using F = mg, where g = 10 N/kg.
- Calculate the increase in length or the extension of the spring by subtracting the initial length of scale reading for the unloading spring from all of the loaded readings.

THEORY:

- State Hooke's law and the formula.

RESULTS:

- Record and tabulate all results in table below (showing all headings and units)

Mass on hanger m / (kg)	Stretching force mg / (N)	Scale reading / (mm)	Extension of the spring / (mm)

- Plot a graph of extension against the stretching force.

CALCULATIONS:

- Calculate the gradient of the line to determine the ratio for the stretching force and the extension of a spring.

CONCLUSION:

- State the ratio for the stretching force and the extension of a spring.