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YOUNG'S MODULUS APPARATUS

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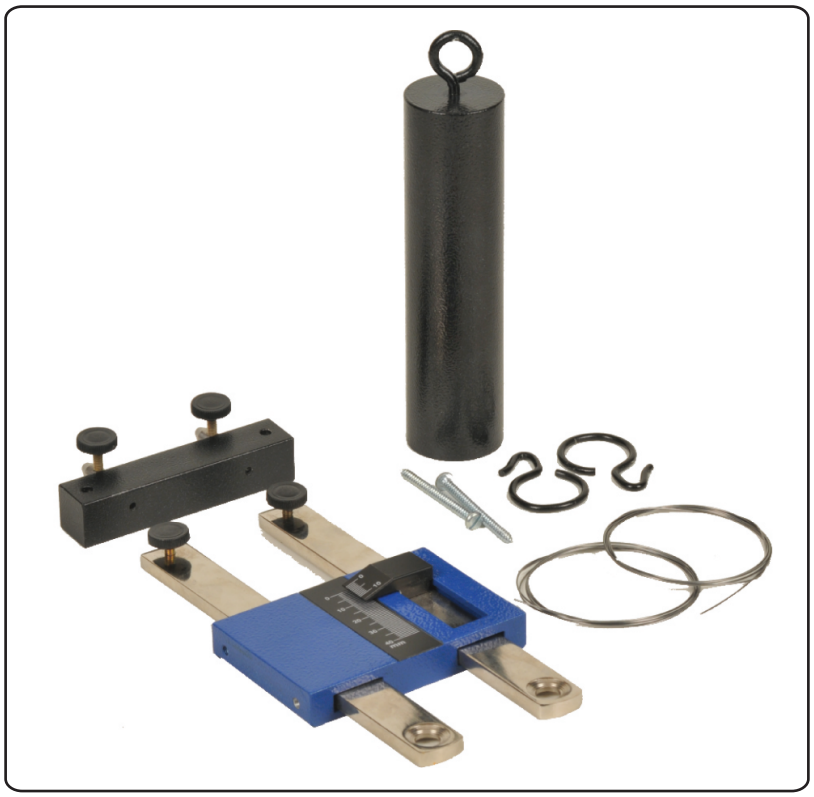
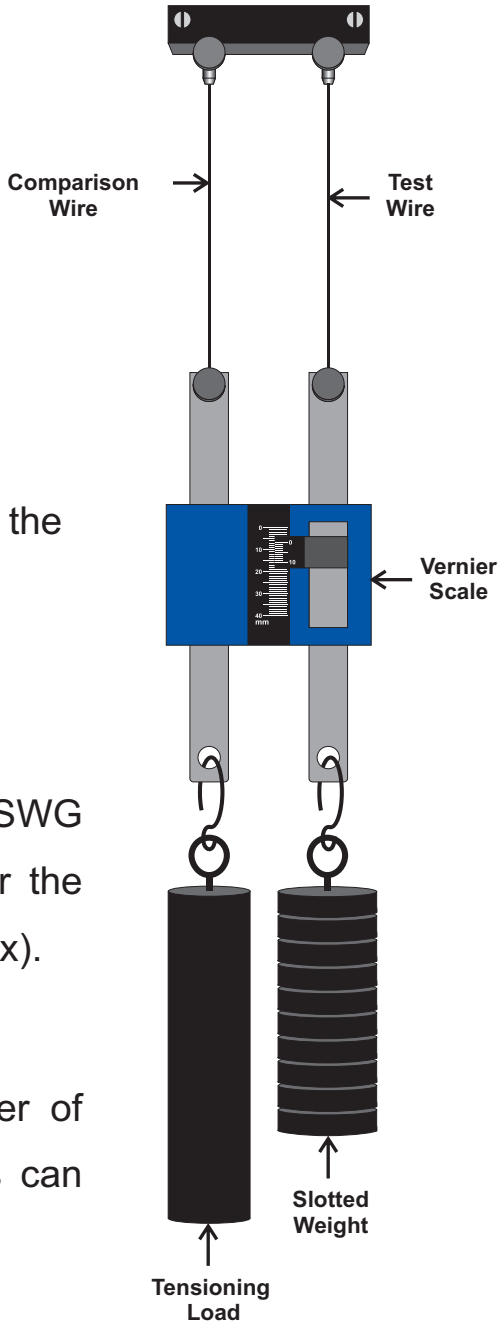


Instruction Manual

YOUNG'S MODULUS APPARATUS

KIT CONTENTS :

ITEM	QUANTITY	DESCRIPTION
1.	1	Young Modulus
2.	1	Instructions (this booklet)
3. Weight 1.3kg. Approx.	1pc	
4. Steel Wire	2pc	
5. Clamp	1pc	
6. Screw	2pc	
7. Hook	2pc	



AIM :

The aim of this experiment is to determine the Young modulus for a wire.

YOU WILL NEED :

A Young Modulus apparatus, Steel wire (SWG 22 or thinner), a suitable fixing beam for the wires, 1pc of Hooked Weight (1.3kg Approx).

The wire suggested will have a diameter of 0.71mm or less). Alternative metal wires can be used of course.

WHAT TO DO :

Set up the apparatus as shown in the diagram. Measure the original length of the wire (L). Measure the diameter of the wire in at least three places with the micrometer screw gauge and hence calculate the mean radius of the wire (r).

Load the wire carefully and for each weight (F) record the extension (e) of the wire using the vernier scale. After each new weight check that the wire returns to its original length.

Repeat the procedure for about 8 different values of F. It is important that the limit of proportionality of the wire is not exceeded.

ANALYSIS AND CONCLUSIONS :

Plot a graph of F against e and hence find the Young Modulus for Steel (E).

$E = FL/eA$

where A is the cross sectional area of the wire.

The Young modulus for the wire will be the gradient of the graph x L/A.

COMMENTS ON THE EXPERIMENT :

Pupils should be warned about the possibility of the wire breaking. Safety spectacles should be worn when close to the wire.

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