

### ENGINEERING PROPERTIES OF MATERIALS

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**LINK**

[http://www.technologystudent.com/mobapps/ENGINEERING\\_properties\\_materials1.pdf](http://www.technologystudent.com/mobapps/ENGINEERING_properties_materials1.pdf)

Once you have downloaded the App, you can use it to navigate the website. You may need to follow the links on each page of the App, to research / complete answers to all the questions.

**ARE YOU READY?  
USE THE MOBILE App!!**

**1a**

WRITE A DEFINITION OF 'STRENGTH' - include a sketch of commercial testing.

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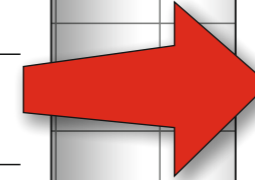
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**1b**

COMMERCIAL TEST



**2a**

WHEN A MATERIAL DISPLAYS THE PROPERTY CALLED ELASTICITY, WHAT DOES THIS MEAN?

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**2b**

DESCRIBE THE 'COMMERCIAL TEST' FOR ELASTICITY BEING CARRIED OUT BELOW.

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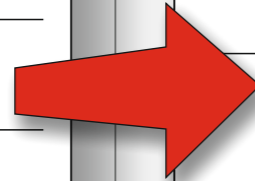
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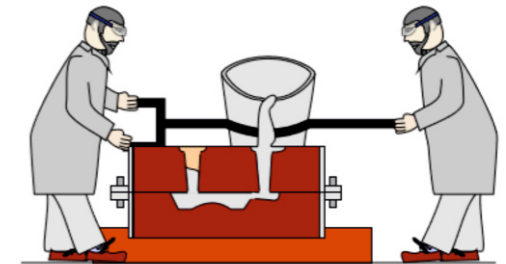
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**3**

WHY IS THIS A DEMONSTRATION OF PLASTICITY?



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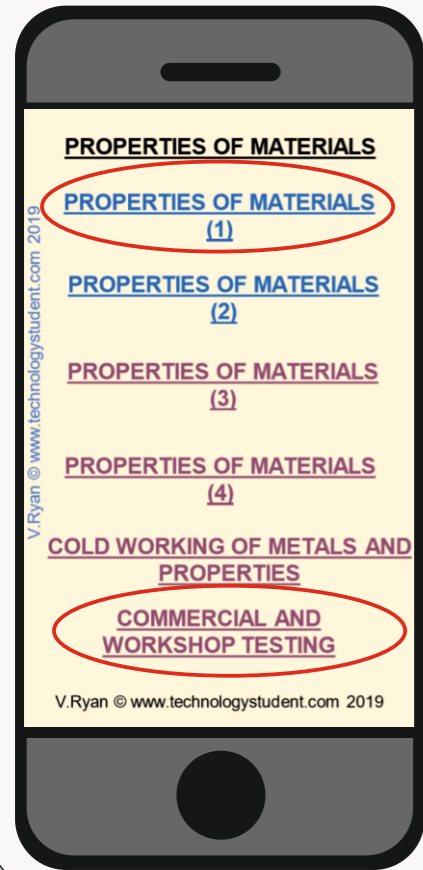
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**ARE YOU READY?  
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**1a** EXPLAIN THE PHYSICAL PROPERTY CALLED 'DUCTILITY'?

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**1b** DESCRIBE A COMMERCIAL TEST FOR DUCTILITY.

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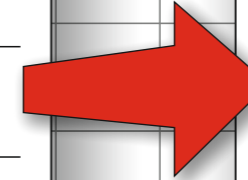
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**2a** WHAT IS MEANT BY THE TENSILE STRENGTH OF A MATERIAL?

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**2b** WITH THE AID OF A SKETCH, DESCRIBE A 'WORKSHOP' TEST, TO DETERMINE TENSILE STRENGTH.

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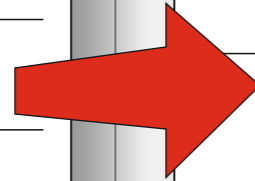
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**3** HOW DOES THIS MACHINE MEASURE TENSILE STRENGTH?

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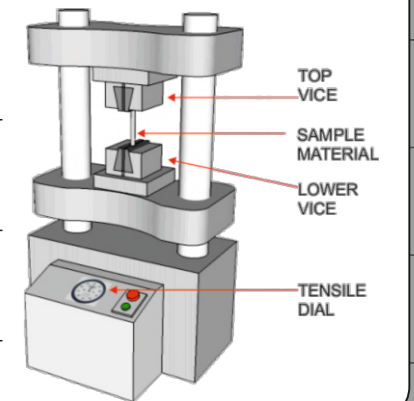
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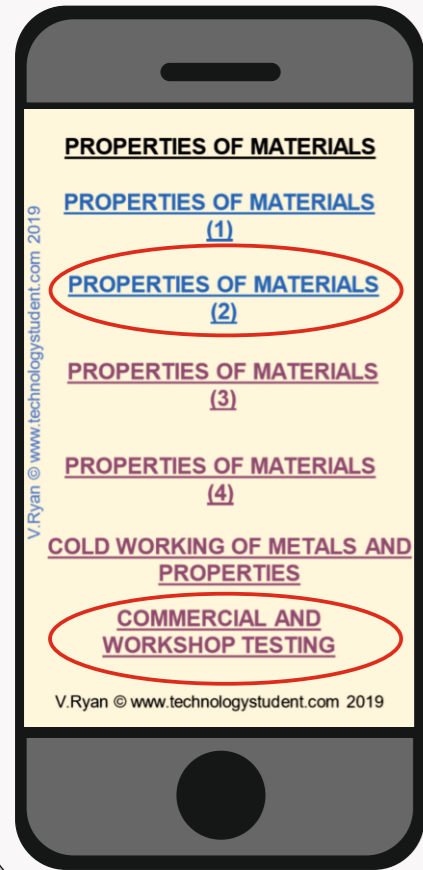
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**1a** EXPLAIN THE PHYSICAL PROPERTY CALLED 'MALLEABILITY'?

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**1b** DESCRIBE A WORKSHOP TEST FOR MALLEABILITY.

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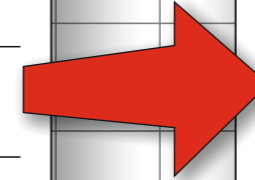
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**2a** WHAT IS MEANT BY THE 'TOUGHNESS' OF A MATERIAL?

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**2b** DESCRIBE THE TEST FOR 'TOUGHNESS', AS SHOWN BELOW.

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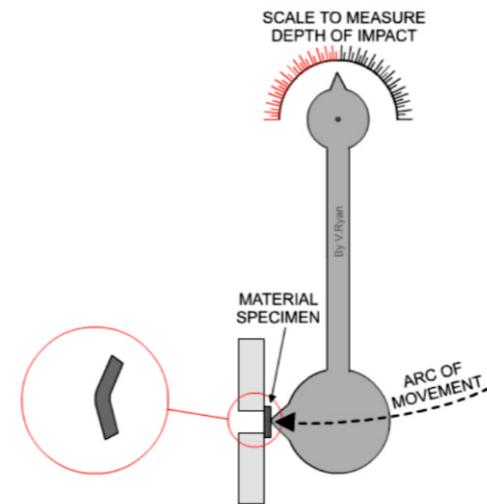
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**3** WHAT IS MEANT BY THE HARDNESS OF A MATERIAL?

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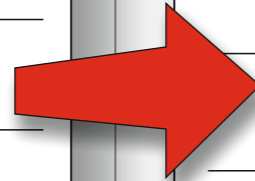
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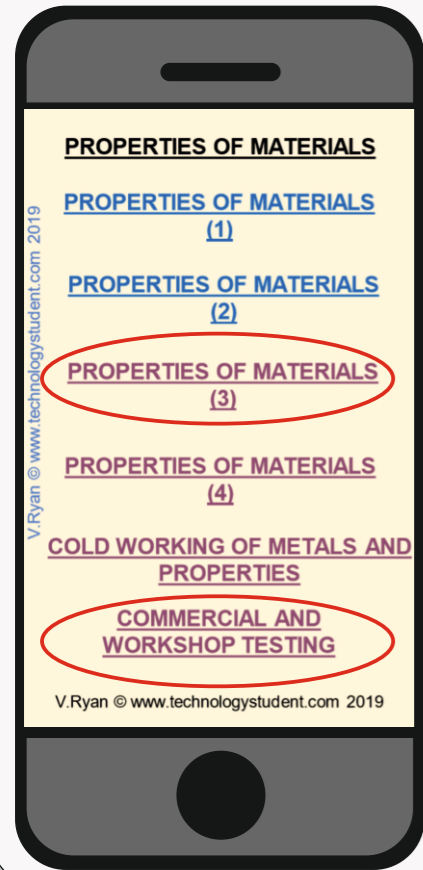
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**ARE YOU READY?  
USE THE MOBILE App!!**

**1** EXPLAIN THE PHYSICAL PROPERTY CALLED 'ADSORBENCY'?  
(Include reference to a sponge)

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**2** WHY IS THE DENSITY OF A SPONGE, LESS THAN THAT OF STEEL, IF BOTH SAMPLES ARE THE SAME VOLUME?

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**3a** WRITE A DEFINITION OF 'FUSIBILITY'.

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**3b** DESCRIBE A PRACTICAL APPLICATION OF FUSIBILITY.  
Include a sketch / image.

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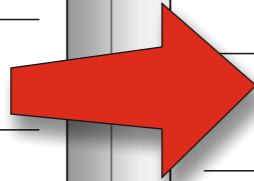
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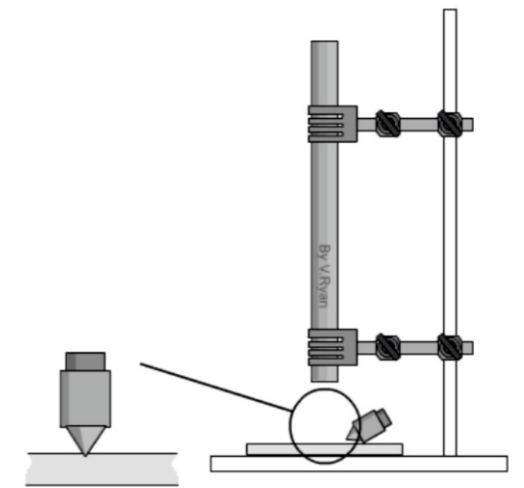
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**4** WHAT PROPERTY IS BEING TESTED HERE?

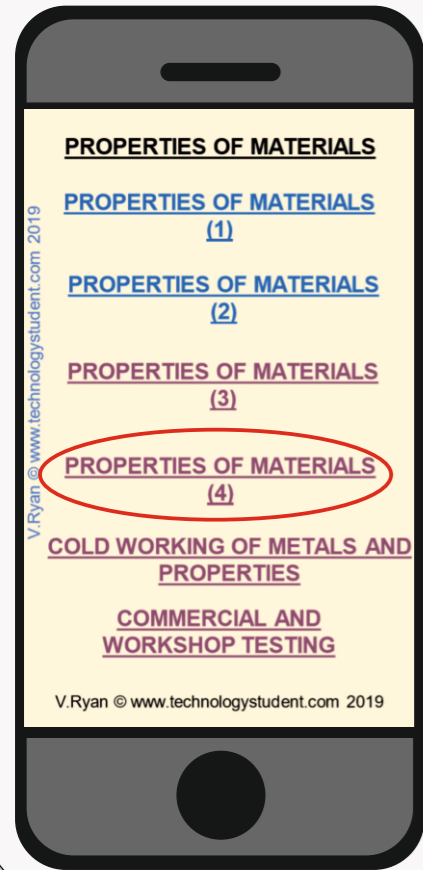
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**ARE YOU READY?  
USE THE MOBILE App!!**

1a

WHAT IS 'YIELD' STRENGTH?  
(include a sketch / diagram in the next box)

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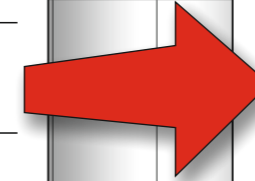
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1b

SKETCH / DIAGRAM SUPPORTING YOUR EXPLANATION OF YIELD STRENGTH



2

WITH REFERENCE TO MATERIALS, WHAT IS 'STRESS'?

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3a

DESCRIBE ULTIMATE TENSILE STRENGTH.

(support your answer with a graph, drawn in the opposite box)

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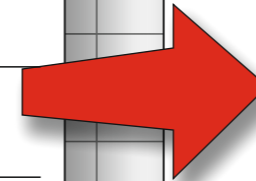
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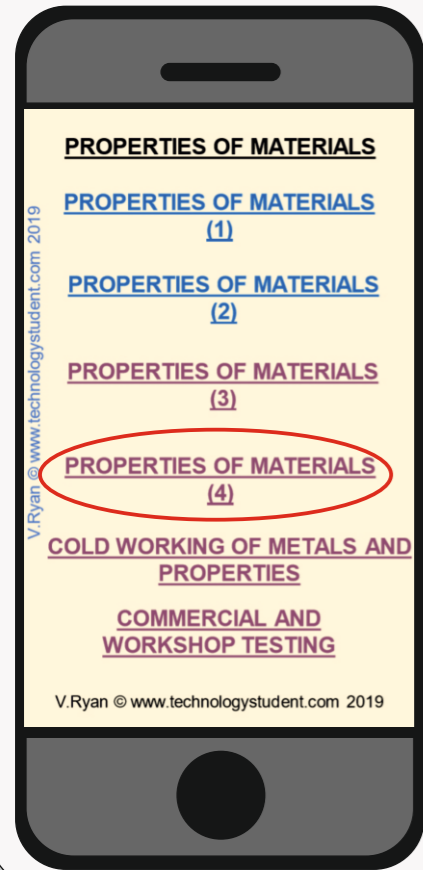
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3b

ADD YOUR GRAPH HERE.



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**1a**

**WHAT IS 'STRAIN' ?**  
(include a sketch / diagram of a strain test in the next box)

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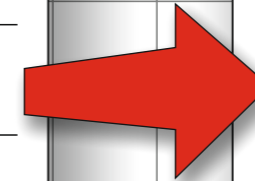
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**1b**

**SKETCH / DIAGRAM SUPPORTING YOUR EXPLANATION OF 'STRAIN'.**



**2**

**WHAT IS YOUNG'S MODULUS?**  
(include the formula)

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**3a**

**WHAT IS MEANT BY 'STIFFNESS' OF A MATERIAL.**  
(support your answer with a sketch of a suitable test, in the next box)

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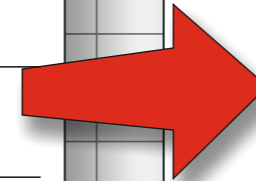
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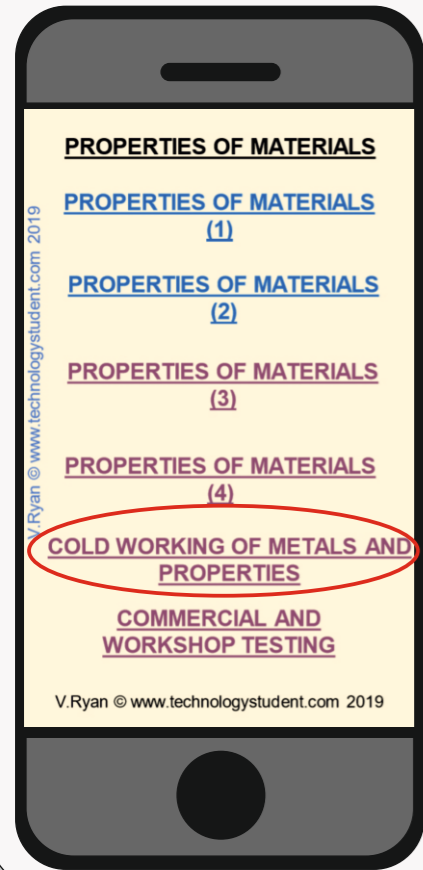
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**3b**

**ADD YOUR SKETCH HERE.**



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**1a**

WHAT IS 'COLD WORKING OF METALS' ?

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**1b**

DESCRIBE ONE ADVANTAGE AND ONE DISADVANTAGE, OF COLD WORKING OF METALS.

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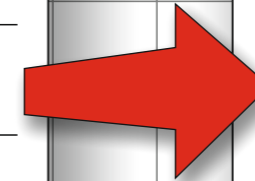
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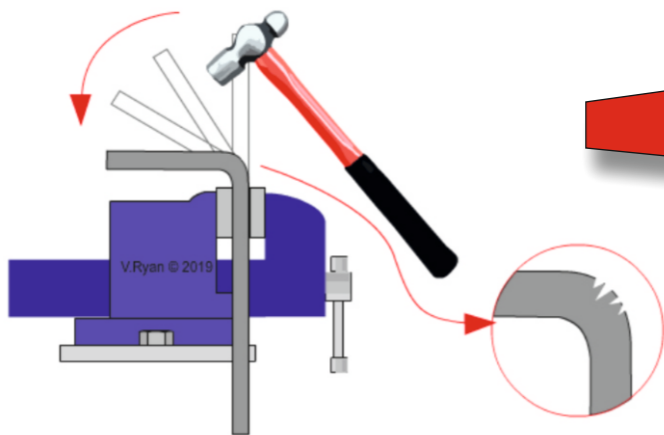
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**2a**

STUDY THE DIAGRAM BELOW. IN THE NEXT BOX, EXPLAIN WHAT IS BEING DEMONSTRATED.



**2b**

YOUR EXPLANATION

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**3**

DESCRIBE THE COLD WORKING PROCESS CALLED 'PLANISHING' (Include a sketch).

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