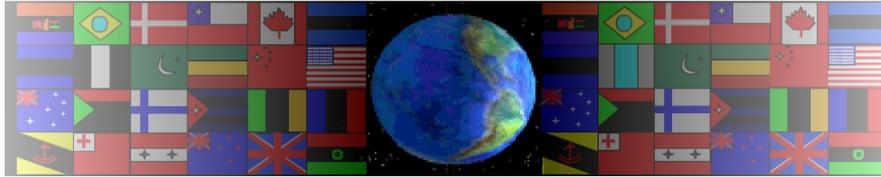


PRODUCT DEVELOPMENT EXERCISE

V.Ryan © 2000 - 2012

On behalf of The World Association of Technology Teachers

W.A.T.T.



World Association of Technology Teachers

This exercise can be printed and used by teachers and students. It is recommended that you view the website (www.technologystudent.com) before attempting the design sheet .

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PRODUCT DEVELOPMENT EXERCISE

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THE TAPE MEASURE

Study the sample development page (page 2).

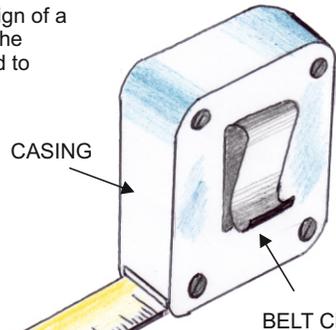
How many of the key areas (page 3) have been mentioned on this sheet? Place a tick against the areas included.
(See slide three for key areas)

What grade would you give this development sheet?

WHAT AREAS / TECHNIQUES NEED TO BE INCLUDED ON THE FOLLOWING DEVELOPMENT SHEETS?

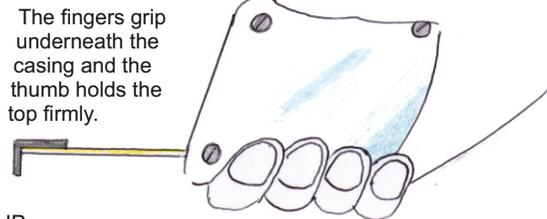
PRESSED STEEL CASING

This is a standard design of a basic tape measure. The clip has been designed to grip a belt. The tape rewinds automatically, but in this case too quickly (health and safety issue). The tape tends to develop faults, after it has been used several times.

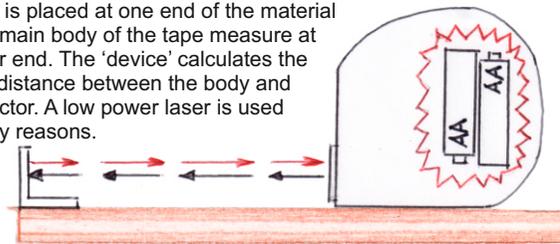


The casing shape has been ergonomically redesigned, so that it can be held in the hand comfortably.

The fingers grip underneath the casing and the thumb holds the top firmly.



This is a 'radical' developed design, with the steel tape being replaced by a distance sensor. A small reflector is placed at one end of the material and the main body of the tape measure at the other end. The 'device' calculates the precise distance between the body and the reflector. A low power laser is used for safety reasons.



The distance is digitally displayed in a small LCD screen.



A back light allows use in dark spaces or poor light conditions.

LIFE CYCLE
All designs have a life cycle - a guaranteed for five years.

GRIP

BELT CLIP

Below the ergonomic shape is clearly seen. The top and underneath have a rubber layer, to make the tape more comfortable to hold. In addition, it provides improved protection against knocks and drops

This 'grip' has small 'suckers' to hold the tape in place

RUBBER SUCKERS

AESTHETICALLY PLEASING

55mm

Ergonomic design, for comfort and ease of use



Symbol applied to all these designs. All materials from a recycled source and can be recycled again.

Reflector showing laser bouncing back to the tape measure body.

These are alternative tape measure 'ends'.

A.

B.

MAGNET

A has a small 'lip' that grips the underneath of the materials being measured.

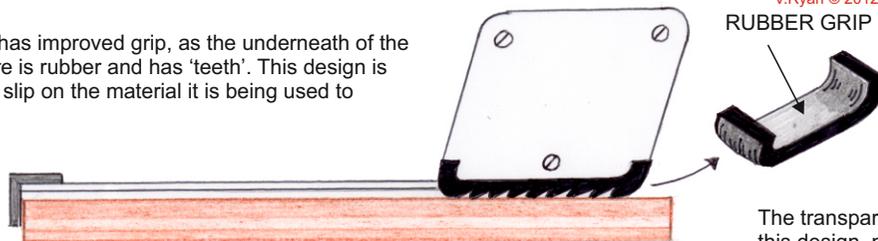
B has a magnetic end that attaches firmly to steel.

This updated design has two grips, one at the end of the tape and the other on the casing of the tape measure. This is unlikely to slip, when in use.

GRIP

The grip on the casing slides up and down. Once the tape is retracted into the casing, the grip can also be retracted, allowing easier storage. No sharp edges visible.

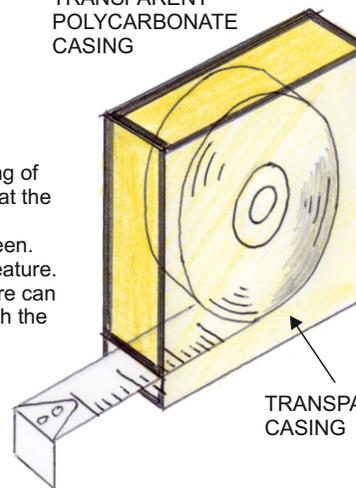
This design has improved grip, as the underneath of the tape measure is rubber and has 'teeth'. This design is less likely to slip on the material it is being used to measure.



RUBBER GRIP

TRANSPARENT POLYCARBONATE CASING

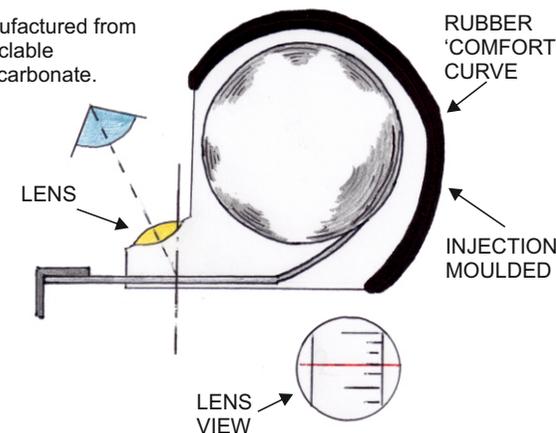
The transparent casing of this design, means that the internal workings / mechanism can be seen. This is an aesthetic feature. Also, the tape measure can be read easily, through the casing.



TRANSPARENT CASING

The transparent body has been developed a little further. It is a more ergonomic design. The body has a built in lens, which magnifies the scale, allowing easy reading of the measurement.

Manufactured from recyclable polycarbonate.

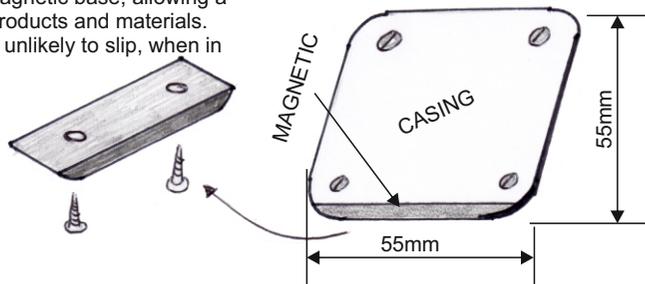


RUBBER 'COMFORT' CURVE

INJECTION MOULDED

LENS VIEW

This design has a magnetic base, allowing a secure fix to steel products and materials. This means that it is unlikely to slip, when in use on steel.



MAGNETIC

CASING

55mm

55mm



ANTHROPOMETRICS AND
ERGONOMICS

HEALTH AND SAFETY ISSUES
DISCOVERED AND RESOLVED?

METHOD OF
CONSTRUCTION
MODEL AND REAL PRODUCT

MANUFACTURING
PROCESSES
INJECTION MOULDING ETC...

MATERIALS
PROPERTIES OF MATERIALS

DISASSEMBLY
OF PRODUCTS/
MODELS

CUSTOMER /
CLIENT VIEWS

STYLE / AESTHETICS

DIFFERENT IDEAS
VALID IDEA ?
DEAD END?

EVALUATE IDEAS

FOUND ANY PROBLEMS?
WHILE SKETCHING / MODELLING

PRODUCT DEVELOPMENT SHEETS

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SOLVED ANY PROBLEMS?
WHILE SKETCHING / MODELLING

EVIDENCE
PHOTOGRAPHS IN REAL TIME
AS YOU WORK
VIDEO CLIPS

VIEWS OF OTHERS

MODELS AND PROTOTYPES
2D AND 3D

ONGOING TESTING
EXPERIMENTATION

ENVIRONMENT
LIFE CYCLE
SUSTAINABILITY

COSTS
TO MANUFACTURE
PRICE TO CUSTOMER

REFER
TO SPECIFICATION
REGULARLY
CHECK YOU ARE KEEPING TO
THE SPECIFICATION

SKETCHES
EXPLODED VIEWS
COLOUR RENDERED ILLUSTRATIONS
SECTIONAL VIEWS
ORTHOGRAPHIC
CAD COMPUTER AIDED DESIGN

SIZES
LENGTH, HEIGHT AND DEPTH