

**GCSE Engineering
Revision Booklet 1
April 2016**



List/State the 'tool'





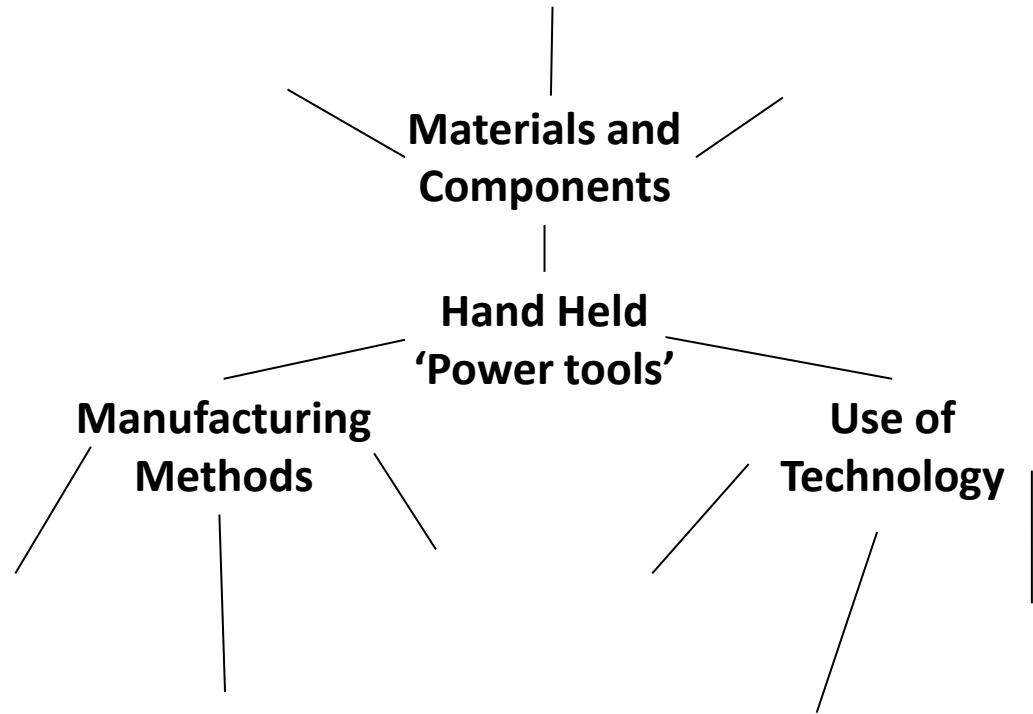








Low Carbon steel, DC Motor, injection moulding, gears, plastic, metal, copper, Sand Casting, Machining, grinding, battery, sustainability, land fill, robots, pick and place unit, ergonomics.



Sprue, gearbox, chuck, two speed, variable speed, ABS, Nylon, bar codes, Just In Time, Hardening, Carbon rich, Electrical circuit, vents, grip, gear train, bearings, seals, power, torque.

Name that picture!

Look at the pictures, and answer the following questions:

What is it?, Why is it there? What is it made from?, How is it made?, Could it be made an alternative way? Why is it made from this material? CLUE! *What properties does the material have that make it suitable.*

Give an alternative material they could be made from giving advantages as to why



What is it? _____

Why is it there? _____

What is it made from? _____

How is it made? _____

Alternative Material? _____

Why is this material suitable? _____

Material properties? _____

Alternative method of manufacture? _____

What is it? _____

Why is it there? _____

What is it made from? _____

How is it made? _____

Alternative Material? _____

Why is this material suitable? _____

Material properties? _____

Alternative method of manufacture? _____

What is it? _____

Why is it there? _____

What is it made from? _____

How is it made? _____

Alternative Material? _____

Why is this material suitable? _____

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Alternative method of manufacture? _____

@DnTtal

Name:

Date:

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Ergonomics: Looking at food mixers 1,2 & 3. Which one would you say has the most comfortable handle and is therefore more ergonomically designed?

Do any of them have any rubber around the grip, if not how would this help if it was there?

The most comfortable design is number ____
I think this is the most comfortable design because:

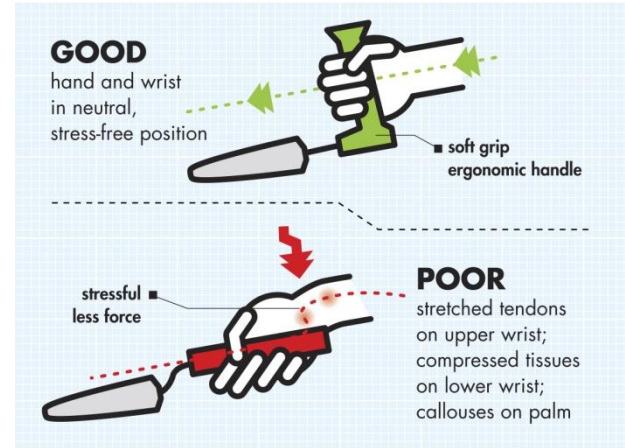
2 Marks

Rubber would/would not help the grip because

1 Mark

Ergonomics means:

2 Marks



Name:

Date:

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Manufacturing Methods- Plastic:

Injection moulding

1) Expand on the three areas below with regard to injection moulding, do not forget to include PPE where appropriate-

Preparation _____

Heating _____

Finishing _____

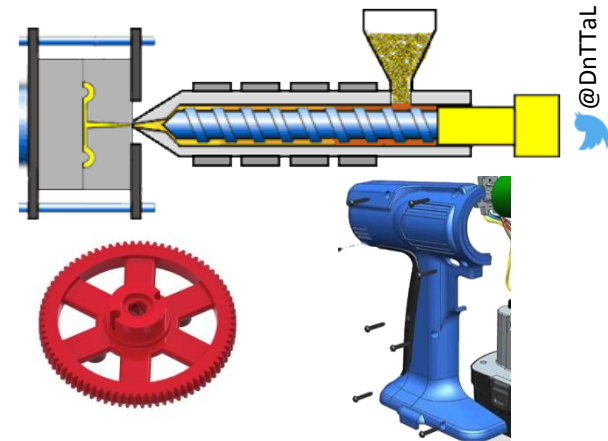
2) Explain the following terms:

Flashing _____

Runner _____

Sprue _____

3) Explain why using a rib or gusset is important in injection moulded outer casing?

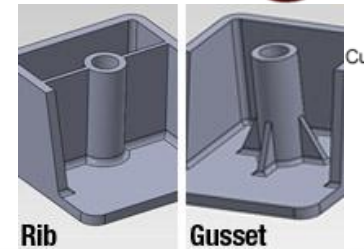
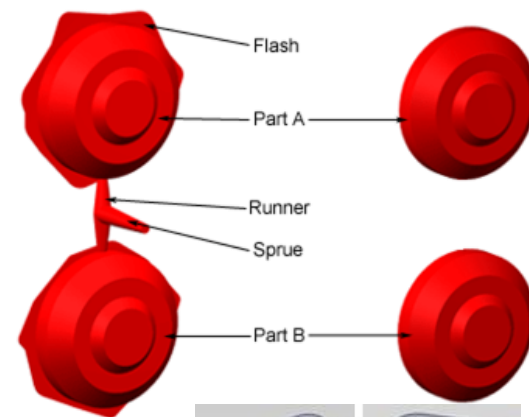


@DnTTaL



Molded Part

Final Part



Name:

Date:

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Manufacturing Methods – Metal gear cutting: Watch the video and fill in the blanks.

@DnTtal



1) _____



7) _____



2) _____



8) _____



3) _____



9) _____



4) _____



12) _____



5) _____



13) _____



6) _____



14) _____

Name: _____

Date: _____

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Use of New Technology – Manufacture and assembly.

Give three examples of how robots can be used in the production of products shown on the left.

Example 1 _____

Example 2 _____

Example 3 _____

What new, high tech alternative method of manufacture is there to injection moulding cases? _____

Why is this new, high tech method not used more? _____

Explain the term 'Just In Time'? _____

Explain how barcodes are used in modern manufacturing today? _____

What does CNC stand for? _____



Robotic tending of an injection molding machine, courtesy ABB Inc.

