



DESIGN TECHNOLOGY KNOWLEDGE ORGANISER

Topic: Cam Toy Project



YEAR 8 DT

My Tool Box



Pin Hammer – Used to knock panel pins and small nail into wood.



Coping Saw – Used to cut curves and internal shapes in wood.



Tenon Saw – Used to cut straight lines in wood.



Bench hook – Used to hold work in place when cutting



Wood Vice – Used to secure material while working on it (cutting, filing sanding etc.)



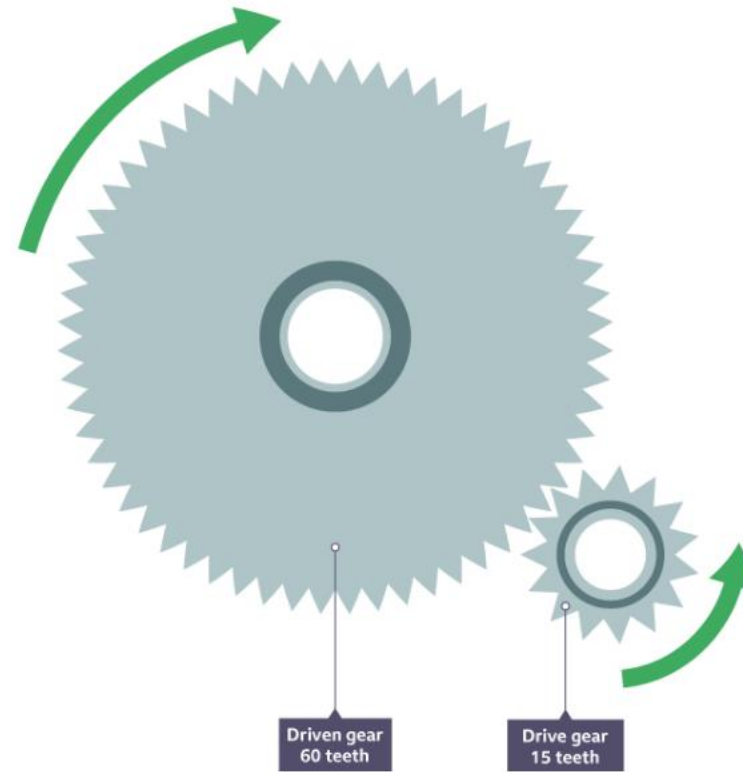
Scroll-Saw/Hegner-Saw- Used to cut complicated shapes in thin material.



Pillar/Bench Drill – Used to drill holes into different materials.

Gear trains

Gear trains are when two or more gears are joined together. In a simple gear train, the drive gear causes the driven gear to turn in the opposite direction



Smaller gears with fewer teeth turn faster than larger gears with more teeth. This difference in speed is called the gear ratio.

Gear ratio = number of teeth on driven gear ÷ number of teeth on the drive gear

Example

The driven gear has 60 teeth and the drive gear has 15 teeth.

$$\text{Gear ratio} = 60 \div 15 = 4$$

For each rotation of the drive gear, the driven gear would rotate four times.

$$\text{Gear ratio} = 4:1$$

This is known as gearing up. If the driven gear had 15 teeth and the drive gear had 60 teeth, the gear ratio would be 4:1 which is known as gearing down.

Key Terms

Aesthetics- how humans perceive and judge objects according to their attractiveness

Softwood - the wood from a conifer (such as pine, fir, or spruce)

Pine wood - an evergreen coniferous tree which has clusters of long needle-shaped leaves.

Manufactured Board – timber sheets which are produced by gluing wood layers or fibers together (such as MDF, Plywood and Chipboard)

Medium-density fibreboard (MDF) – an engineered wood product made from wood fibres and resin binder (glue)

Plywood – is a composite material. It is composed of individual plies/veneers of wood. It is very strong due to the way the plies are put together. The grain of each ply is positioned at ninety degrees to the pieces of ply above and below it.

Ratio - the relation between two amounts showing the number of times one value contains or is contained within the other

Tasks

Task 1: Cover the knowledge organiser then write down all the tools you have learnt. Check and red pen mistakes.

Task 2: Do the same as task 1 for Key terms & definition.

Task 3: Look around your home and list as many different products you can find that you think use gears to function.

Task 4: Draw two tools and write what they are for.

Task 5: For the products listed in task 3, write down what the gears do in the product (what do the gears move)

Task 6: Create a mind map for the information you remember and red pen anything you've forgotten.

Task 7: Teach it. Create a task that can be used to teach some of the information from here.

To go further:

Introduction to sketchup -3D CAD



Introduction to 3D crating:



