Darton Primary School Foundation Subject Organiser

Area: Construction | **Year: 4** | **Subject: Design and Technology**

What should I already know?

→ how to strengthen, stiffen and reinforce materials
→ that materials have both functional and aesthetic qualities
→ levers and linkages create movement

How will I use this learning in the future?

In Year 5, I will learn how electrical systems can enhance products and relate this to everyday life. I will also learn to use a wider range of tools such as a pillar drill and a disk sander.

What should I be able to do by the end?

Designing

Annotate designs with thought processes, including reasons for changing designs.
Plan what equipment you need before you begin constructing.

Evaluating

Explore existing products and discuss strengths and any drawbacks.
Evaluate against design criteria and consider if a product needs adapting to fit purpose.

Use tools safely and accurately with some adult support.


hammer


screwdriver


hand saw


spanner


nail


screw


G clamp


sand/glass paper


try square

Uses of Mechanisms:

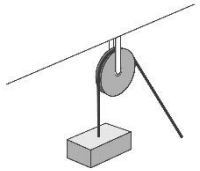
Flagpole:
A flag being raised/lowered on a flagpole is an example of a pulley mechanism in action.

Can Opener:
A can opener is an example of a gear mechanism in action. When you turn the handle, it turns a small gear.

Bicycle Gears:
Bicycle gears are an example of a multiple gear and pulley mechanism in action because of the use of chains and cogs.

Mechanisms:

-Mechanisms are parts that make something work.
-Mechanisms are all around us. A set of related mechanisms used to create movement is called a mechanical system.
-Gears are toothed wheels (cogs) that lock together and turn one another. When one gear is turned the other turns as well.
-The wheels are usually different sizes so that one speeds up to slow down the next gear.
-Pulleys are like gears but the wheels do not lock together. The wheels are instead joined by a drive belt. Pulleys can be used to affect speed, direction and force of movement.



Vocabulary

annotate	add notes with explanation or comments
cog	a wheel or bar with ridges at the edge which transfers motion by working with another cog
drawback	a disadvantage or problem
drive belt	a loop of flexible material to link two or more shafts
G clamp	used to hold items in place for sawing
gear	cogs that lock together and turn each other
mechanism	a part that makes something work
pulley	like gears but joined by a drive belt
sandpaper	paper with sand stuck to it – used to smooth surfaces
try square	a piece of equipment used to check and mark right angles in work

What should I know by the end?

I should be able to make a functional product that uses pulley and/or gear mechanisms.