

# Design and Technology Knowledge Organiser



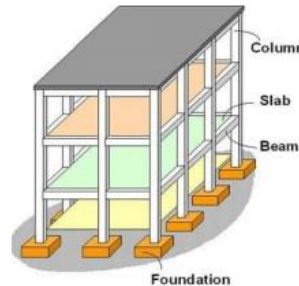
## Year 5

The Design Process	
Design Brief	A statement outlining what is to be designed and made
Specifications	A list of design criteria
Research	Sourcing information and inspiration to help with design work
Ideas	A range of potential solutions to the problem
Development	Further improving an idea
Final idea	A presentation drawing of chosen idea
Manufacture	Making the final outcome
Evaluation	Reviewing strengths and weaknesses of final product and design work

### Facts

#### Frame structures

- A frame structure consists of different parts. These parts are combined in such a way to make the structure strong.
- Frame structures have joins which keep them together.
- Frame structures utilise the combination of a beam, column and slab.



### Vocabulary

1. Compression – the application of pressure to squeeze an object.
2. Strut – a part of a structure under compression.
3. Diagonal – a straight line that goes from one corner to another inside a shape.
4. Triangulation – the use of triangular shapes to strengthen a structure.
5. Frame structure – a structure made from thin components e.g. tent frame.

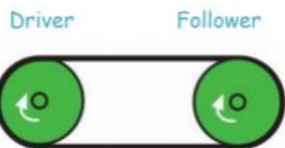
### Gears

- ◇ Gears are toothed wheels that lock together and turn one another.
- ◇ The wheels are usually different sizes so that one gear speeds up to slow down the next gear. Gears are also used to change the direction of movement.

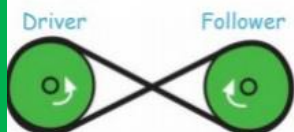


If the first gear wheel is smaller (and has fewer teeth) than the second one, then the second (bigger) gear doesn't have to move as quickly to keep up with the smaller gear. So the second gear wheel turns more slowly than the first.

Pulleys do not touch but the wheels are joined by a drive belt. They can be used to change the speed, direction or force of a movement.

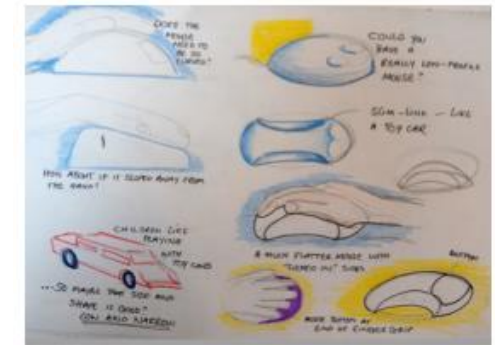


The pulleys rotate in the same direction.



The pulleys rotate in different directions.

### Clear 2D and 3D Sketches with Notes



A designer can use a range of techniques to make their initial sketching clear:

- use of colour behind the sketch;
- bold outlining of sketches;
- sketching in different colours;
- annotation;
- crating of 3D sketches (see below).

