Waves

The observed wavelength of a wave depends upon the relative motion of the source and the observer. If either is moving toward the other, the observed wavelength is shorter; if either is moving away, the wavelength is longer.

Accelerating electric charges produce electromagnetic waves around them. A great variety of radiations are electromagnetic waves: radio waves, microwaves, radiant heat, visible light, ultraviolet radiation, x rays and gamma rays. These wavelengths vary from radio waves, the longest, to gamma rays, the shortest. In empty space, all electromagnetic waves move at the same speed – the 'speed of light'.

Waves can superpose on one another, bend around corners, reflect off surfaces, be absorbed by materials they enter, and change direction when entering a new material. All of these effects vary with wavelength.

In many physical, biological and social systems, changes in one direction tend to produce opposing (but somewhat delayed) influences, leading to repetitive cycles of behaviour.
🌐 Laws of Motion

All motion is relative to whatever frame of reference is chosen, for there is no motionless frame from which to judge all motion.
🌐 Laws of Motion

The energy of waves (like any form of energy) can be changed into other forms of energy.

Human eyes respond to only a narrow range of wavelengths of electromagnetic waves – visible light. Differences of wavelength within that range are perceived as differences of colours.

Wave behaviour can be described in terms of how fast the disturbance spreads, and in terms of the distance between successive peaks of the disturbance (the wavelength).

Light from the sun is made up of a mixture of many different colours of light, even though to the eye the light looks almost white. Other things that give off or reflect light have a different mix of colours.

Something can be 'seen' when light waves emitted or reflected by it enter the eye – just as something can be 'heard' when sound waves from it enter the ear.
🌐 Solar System
🌐 Stars

Light acts like a wave in many ways and waves can explain how light behaves.

Vibrations in materials set up wavelike disturbances that spread away from the source. Sound and earthquake waves are examples. These and other waves move at different speeds in different materials.
ⓘ *Structure of the Earth*
🌐 Changes in the Earth's Surface
🌐 Plate Tectonics

Light travels and tends to maintain its direction of motion until it interacts with an object or material. Light can be absorbed, redirected, bounced back, or allowed to pass through.

One way to make sense of something is to think how it is like something more familiar.

How fast things moves differs greatly.

Things move in many different ways, such as straight, zig zag, round and round, back and forth, and fast and slow.
ⓘ *Pushes and pulls*
🌐 Laws of Motion

Things that make sound vibrate.
ⓘ *Investigating sound & hearing*

light　　　　*wave motion*　　　*vibrations*