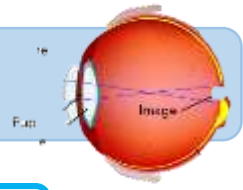




Knowledge Organiser – Light (Year 6)



Key Vocabulary

- Blocked** To stop or make passage through difficult
- Light** The bright form of energy given off by something (e.g. the sun) that makes it possible to see.
- Light source** An object that makes its own light. Examples of light sources: lamps, the sun, lap tops.
- Opaque** If an object or substance is opaque, you cannot see through it.
- Reflection** The process by which light is sent back from a surface.
- Refraction** The bending of light. The reason light bends when it passes between two materials is because it changes speed.
- Shadows** A shadow is a dark shape on a surface that is made when something stands between a light and the surface.
- Translucent** Light passes through it, but the light is scattered, so you cannot see clearly through it.
- Transparent** Light completely passes through an object or material, and you can see clearly through it clearly.



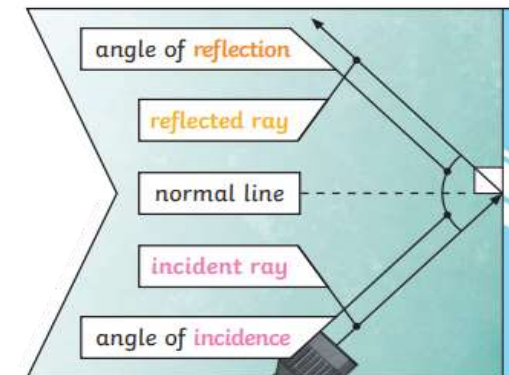
How does light travel?

We need light to be able to see things. Light waves travel out from sources of light **in straight lines**. These lines are often called **rays or beams of light**. Light travels as a wave. But unlike waves of water or sound waves, it does not need a medium to travel through. This means light can travel through a vacuum - a completely airless space.



The Law of Reflection

The **Law of Reflection** states that the angle of incidence is equal to the **angle of reflection**. Whenever light is reflected from a surface, it obeys this law. The angle of reflection is the angle between the normal line and the reflected ray light. The **angle of incidence** is the angle between the normal line and the incident ray of light.

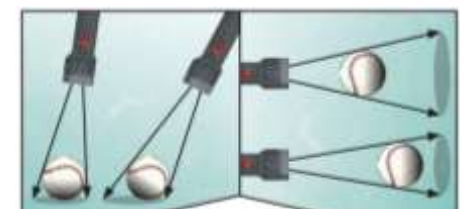
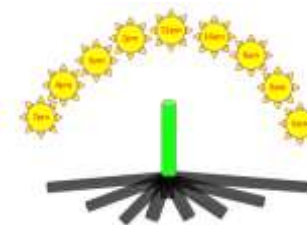
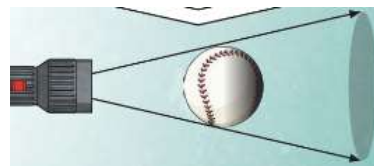


Shadows

Shadows are formed when light from a source is blocked by an opaque object. A shadow is not a reflection, even though it is often the same shape as the object.



Shadows can also be elongated or shortened depending on the angle of the light source. A shadow is also larger when the object is closer to the light source. This is because it blocks more of the light.



Knowledge Organiser – Light (Year 6)

Refraction

Light waves travel at a different speed when they go through other transparent materials, such as water or glass. This causes the rays of light to change direction and bend. This is known as **refraction**.

Refraction creates illusions. Because **light bends** when it travels between air and water or glass, objects seen through these materials **look bent or distorted**.

The spoon in this water looks as if it is bent. This is because light bends when it moves from air to water. When light bends in this way, it is called **refraction**.



The Colours of the Spectrum

Sir Isaac Newton shone a light through a transparent prism, separating out light into the colours of the rainbow (red, orange, yellow, green, blue, indigo and violet) - the colours of the **spectrum**. All the colours together merge and make visible light.

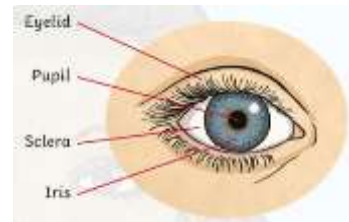


A **prism** is a **solid 3D shape with flat sides**. The two ends are an equal shape and size. A transparent prism separates out visible light into all the colours of the spectrum.

How do our eyes see?



Our eyes are amazing! From the moment we open our eyes in the morning, they are constantly at work. They take in information about the world around us, and constantly send images to the brain to be processed. The eye is made up of many different parts.



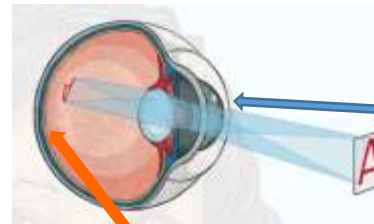
The **sclera** is the **white part** of the eye. It provides a **protective coating**, which covers most of the eye.



The **iris** is the **colourful part** of the eye. It can change in size to control how much light goes through the **pupil**.



The **pupil** looks like a **black circle** in the centre of the eye, but it is really an **opening in the iris** which lets light enter the eye. The pupil can change in size; it gets smaller in very bright conditions and larger in dark conditions.



The **cornea** is the **clear dome** that sits in front of the iris. It helps your eye focus as light passes through.

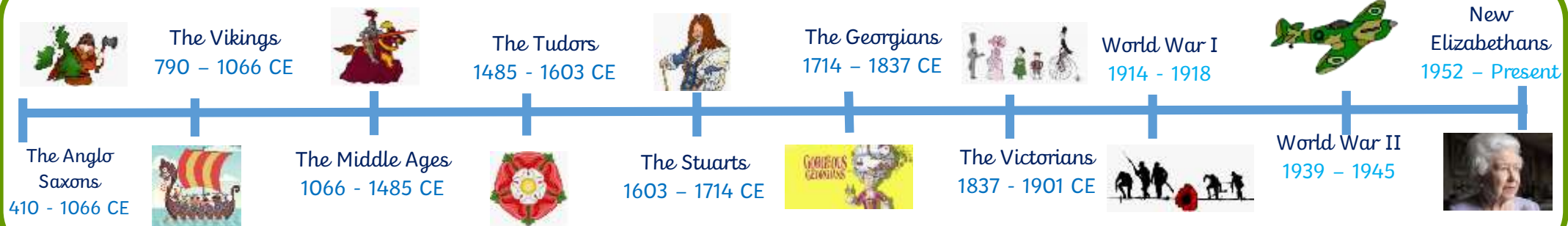
The **retina** is in the very back of the eye. The retina takes the light the eye receives and changes it into nerve signals so the brain can understand what the eye is seeing. When the image hits the retina, it is **actually upside down!**



The **optic nerve** carries the messages from the eye to the brain. The messages it sends to the brain are still upside down but amazingly the brain knows how to flip this image up the right way!



Knowledge Organiser – World War II (Year 6)



History Time Line (CE)

Key Vocabulary

Allies	The United Kingdom, France and Poland, later joined by other countries, including the USSR (Russia) and the United States of America.
Axis Powers	Nazi Germany, Italy and Japan.
Annex	To take another country's land and make it part of your country
Propaganda	Information designed to promote a political idea or opinion.
Rationing	To allow someone to only have a fixed amount of something
Evacuation	To take people from a dangerous place to a safer one
The Blitz	From the German 'Blitzkrieg' which means lightening war. The Blitz refers to the German bombing of Britain between September 1940 and May 1941.
Homefront	Doing things at home to support the war was called 'fighting on the home front'.
The Holocaust	The Holocaust is the term for the killing of over six million Jewish people before and during World War II

The events leading to the declaration of war

The leader of the Nazi party in Germany, Adolf Hitler, had plans to make Germany a great and very powerful country. In March 1938, Germany invaded and annexed Austria, which made other countries worried. On 29th September 1938, British, French, German and Italian leaders signed a treaty called the Munich Agreement. This allowed Hitler to annex the Sudetenland (an area of Czechoslovakia) if he agreed not to invade anywhere else. However, in August 1939, Hitler broke the agreement and invaded the rest of Czechoslovakia, followed by Poland on 1st September. Britain, France and Poland had made a pact to support each other, so Britain and France declared war on Germany.



The Blitz

It was dangerous living in a big city during the war. Cities were the target of enemy aircraft that flew over at night and dropped bombs which destroyed factories, and also over a million homes and killed over 40,000 people. When people heard the siren they would stop what they were doing and make for a shelter. One devastating raid on Coventry in November 1940 was the biggest air-raid the world had ever seen. 4,330 homes were destroyed and 554 people killed.



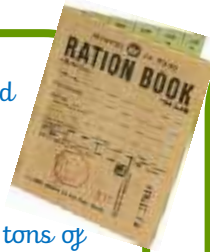
Evacuation

Nearly two million children were evacuated from their homes at the start of World War Two. They were evacuated to the countryside to escape the bombing. Children had labels attached to them, with their names on. They did not know where they were going nor if they would be split from brothers and sisters. They had to adjust to being away from their parents.



Rationing

To make the British weak, the Germans tried cut off supplies of food and other goods. German submarines attacked many of the ships that brought food to Britain. Before the war, Britain imported 55 million tons of food. A month after the war had started this figure had dropped to 12 million. Rationing was introduced to make sure that everyone had a fair share of the items that were hard to get hold of during the war. The Ration Book became the key to survival for nearly every household in Britain. Every member of the public was issued with a ration book, even the King! During World War II all sorts of essential and non-essential foods were rationed, as well as clothing, furniture and petrol.



Key Wartime leaders

Adolf Hitler - Under his leadership, the Nazis sought to make Germany the most powerful empire in the world and exterminate all they viewed as inferior. In pursuit of this, he ordered the extermination of over 11 million people who did not meet Hitler's standards for "racial purity."



Winston Churchill - Prime Minister of Great Britain during most of the war, from 1940 to 1945, Churchill led Britain to victory. During the Battle of Britain, Churchill's speeches boosted the British morale during the darkest moments.

F.D. Roosevelt - President of the United States of America (1933-1945). He declared war on Japan after the bombing at Pearl Harbour, but unfortunately he did not live long enough to celebrate the Allies' victory in September of 1945.



Joseph Stalin - Stalin was very brutal Communist leader of Russia (1928-1953). He was not a natural ally of Britain and the USA, but the allies needed the help of his army if they were to have a chance of defeating the Axis Powers.

War time Posters.

Posters provide a valuable insight into what life was like during WWII. Posters were used for propaganda, telling people what they needed to know to understand the war. That might be by telling people to wear visible clothing during black out or it might be by warning people against things that were bad for the war, such as discussing military secrets, e.g. where soldiers were fighting, or what workers were making in factories such as tanks. Posters were also created to stress the need to stop waste and unnecessary consumption, asking people to recycle materials that were in short supply. For example: tins and metal - for aircraft and tanks, weapons etc. kitchen waste - to feed pigs, goats and chickens. paper - for munitions, and rubber - for tyres. In October 1939 the Government launched 'The Dig for Victory' campaign. People were urged to use gardens and every spare piece of land, such as parks, golf clubs and tennis courts, to grow vegetables. Even the moat at the Tower of London was used to grow vegetables.



The role of women

Before the Second World War, women were expected to be 'housewives' or perhaps to do certain 'women's jobs', such as nursing or being a domestic servant or shop assistant. The war changed the world of work for women for ever. When men went to fight, women were called upon to fill their jobs and this included many jobs that were previously thought of unsuitable for women. Women were called up for war work from March 1941.



Jobs undertaken by women during the war included: intelligence, mechanics, engineers, tank drivers, building ships, pilots (taking planes from factories to RAF bases), working in factories - making bombs and aircraft parts, air raid wardens, driving fire engines, plumbers, ambulance drivers and farmers.



Anne Frank



Anne Frank is well known because of her diary. It was first published as a book, in 1947. Since then, millions of people have read the thoughts and hopes of one young girl and have been inspired by them. Through her diary "The Diary of Anne Frank", people all over the world are able to see what life as a persecuted Jew was like during World War II, helping them understand the sacrifices people made in the struggle to stay alive as she hid with her family in a tiny attic above a factory. Sadly, their hiding place is discovered and they are arrested. Anne died in March 1945, in Bergen-Belsen concentration camp, Germany, just 3 months before the end of WWII.