

## Nova Primary Knowledge Organiser

**Line of Enquiry:** How has STEM (Science, Technology, Engineering and Maths) changed the world?

Year 4: Term 3 and 4

**Big Idea:** Design and Legacy

**Key Subject Areas:** DT and Science

### What should I already know?

#### Science (Electricity):

- Common appliances that run on electricity
- Know how a simple electrical circuit works
- Recognise how a switch works with a circuits
- Recognise some common conductors

#### DT (Design, Make, Evaluate Technical Knowledge):

- Know how to research products.
- Experience of selecting from and using a wider range of tools and equipment
- Evaluated ideas and products
- Know how to stiffen or strengthen structures
- Understanding of electrical systems in products.

### What will I know by the end of this line of enquiry?

I will know...

- What STEM stands for.
- What careers there are involving STEM.
- Five reasons of how STEM has changed the world.
- How we hear sound.
- What a light source is.
- How we could make a motorised vehicle.
- What a mechanical system is.

### Key Facts:

**What does STEM stand for?** Science, Technology, Engineering and Science.

**What STEM careers are there?** Aeronautical engineers doctor, nurse, pilot, software developer, meteorologist, surveyor, electrician, vet, archaeologist, computer scientist, computer hardware engineer, chemist dentist, marine biologist, pharmacist, mechanical engineer, sport scientist, builder, architect, astronaut, paleologist and lots more!

**How has STEM changed the world?** The invention of so many things—wheels, telephones, light-bulbs, the internet, medicines, cars, technology.

**How do we hear sound?** Sounds are made when objects vibrate. The vibration makes the air around the object vibrate and the air vibrations enter your ear. You hear them as sounds.

**What is a light source?** A light source is something that emits light by burning, electricity or chemical reactions. Burning light sources include the Sun, flames from a fire and stars.

**How does a motorised vehicle work?** Battery electric vehicles use electricity stored in a battery pack to power an electric motor and turn the wheels.

### Chronology of Key Events

*Previous Topic: Romans in Britain AD43—AD410: (1610 Years Ago)*

Thomas Edison invented the light bulb: 1879 (141 Years Ago)

Invention of Motorised Cars: 1885 (133 Years Ago)

Rolls Royce Cars Established: 1906 (114 Years Ago)

Mars Landing: 1971 (49 Years Ago)

Invention of the Concorde 1976 (44 Years ago)

### Key vocabulary

<b>Circuit</b>	A set of electrical components, connected to perform a function.
<b>Dark</b>	The absence of light
<b>Design</b>	To create a plan or scheme either from new ideas or by presenting existing materials in a new way.
<b>Electricity</b>	A form of energy that can be carried by wires and is used for heating and lighting, and to provide power for machines
<b>Engineering</b>	Process of applying scientific principles to designing and making products and solving problems
<b>Gears</b>	Rotating wheel with teeth (or cogs) cut into the edge. • the fit into the teeth of a second wheel. • can change speed and direction of applied forces
<b>Leavers</b>	Load: the weight (force) that is being moved effort: the force being used to move the load fulcrum: the point about which the lever pivots
<b>Light</b>	A brightness that lets you see things.
<b>Opaque</b>	If an object or substance is opaque, you cannot see through it
<b>Pitch</b>	Measure of how high or low a sound is. The faster the vibration, the higher the pitch.
<b>Power</b>	Power is energy, especially electricity, that is obtained in large quantities from a fuel source and used to operate lights, heating, and machinery
<b>Pulleys</b>	Fixed or moveable
<b>Reflects</b>	Sent back from the surface and not pass through it
<b>Shadows</b>	A dark shape on a surface that is made when something stands between a light and the surface
<b>Source</b>	Where something comes from
<b>Stem</b>	The overarching name given to science, technology, engineering and Maths
<b>Translucent</b>	If a material is translucent, some light can pass through it
<b>Transparent</b>	If an object or substance is transparent, you can see through it
<b>Vibration</b>	To move back and forth. To vibrate.
<b>Volume</b>	Measure of how loud or quiet a sound is. The bigger the vibration, the louder the volume.