

### 1. Forces 3: Forces in action

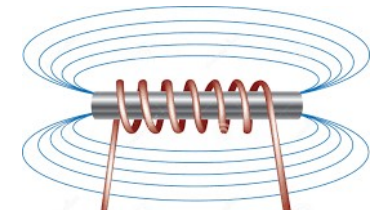
This unit builds on previous work from year 7 and 8 and links forces and energy together. We start by looking at turning forces and **calculating** the **moment** for different turning forces. This is then linked to how **levers** and **pulleys** can help to reduce the force needed in different situations. We recap calculating speed and then use data to **plot distance-time graphs** for different journeys and **analyse** them to be able to determine speed at different points. We then link back to previous work on balanced and unbalanced forces and calculate **acceleration** which leads on to how motion can be shown on a **velocity-time** graph.



**SUMMATIVE ASSESSMENT 1**  
(Organisms 5, matter 5, forces 3)  
week 9

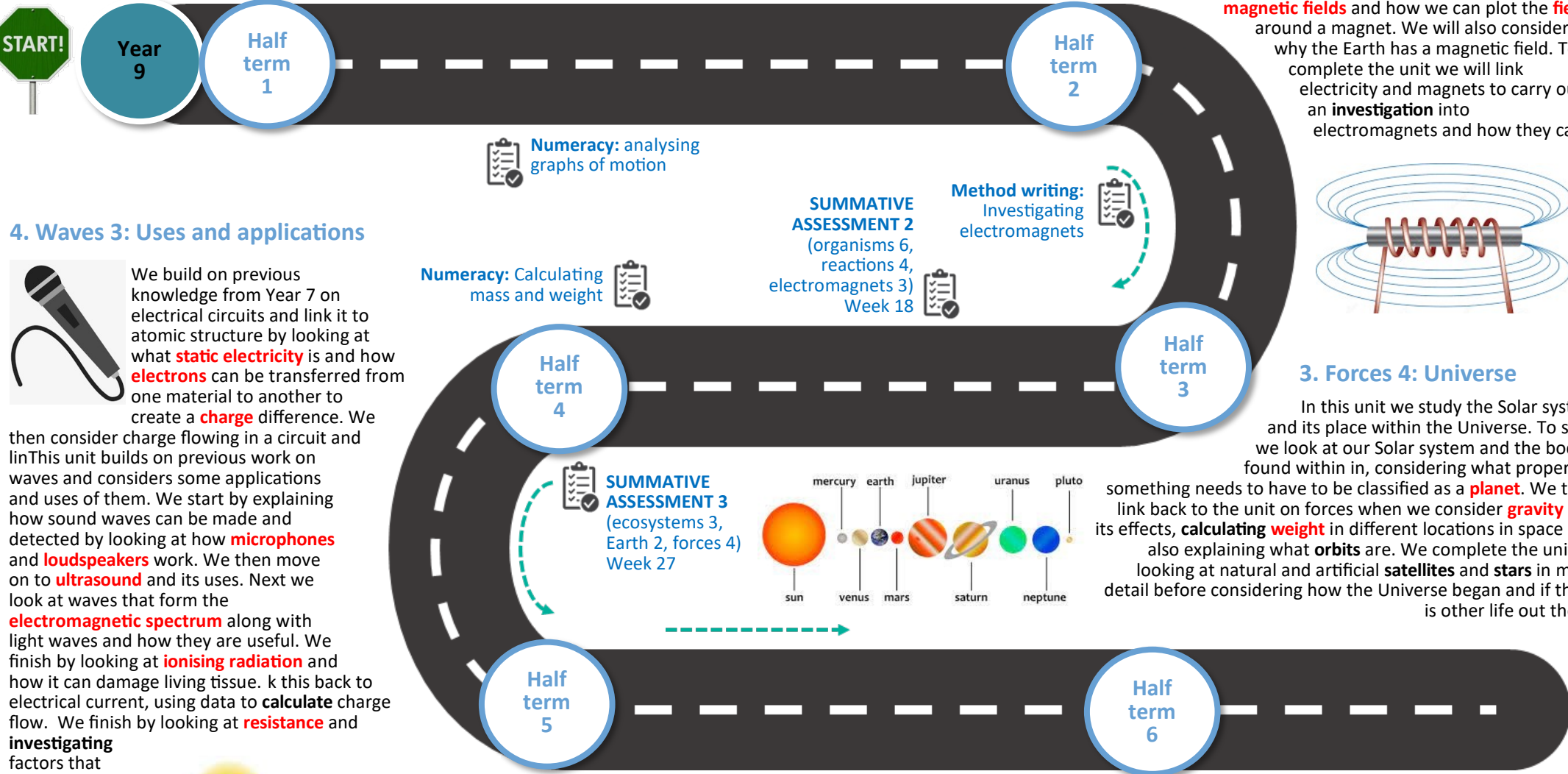
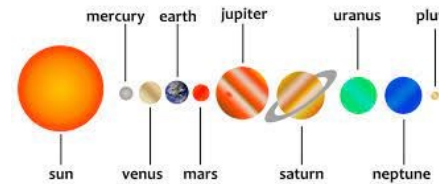
### 2. Electromagnets 3: magnets

We start by looking at the difference between **permanent** and **induced** magnets and which materials are **magnetic**. We then learn about **magnetic fields** and how we can plot the **field** around a magnet. We will also consider why the Earth has a magnetic field. To complete the unit we will link electricity and magnets to carry out an **investigation** into electromagnets and how they can be



### 3. Forces 4: Universe

In this unit we study the Solar system and its place within the Universe. To start we look at our Solar system and the bodies found within in, considering what properties something needs to have to be classified as a **planet**. We then link back to the unit on forces when we consider **gravity** and its effects, **calculating weight** in different locations in space and also explaining what **orbits** are. We complete the unit by looking at natural and artificial **satellites** and **stars** in more detail before considering how the Universe began and if there is other life out there.



**START!**

**Year 9**

**Half term 1**

**Half term 2**

**Numeracy: analysing graphs of motion**

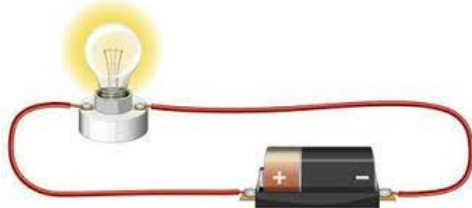
**SUMMATIVE ASSESSMENT 2**  
(organisms 6, reactions 4, electromagnets 3)  
Week 18

**Method writing: Investigating electromagnets**

### 4. Waves 3: Uses and applications

We build on previous knowledge from Year 7 on electrical circuits and link it to atomic structure by looking at what **static electricity** is and how **electrons** can be transferred from one material to another to create a **charge** difference. We then consider charge flowing in a circuit and

This unit builds on previous work on waves and considers some applications and uses of them. We start by explaining how sound waves can be made and detected by looking at how **microphones** and **loudspeakers** work. We then move on to **ultrasound** and its uses. Next we look at waves that form the **electromagnetic spectrum** along with light waves and how they are useful. We finish by looking at **ionising radiation** and how it can damage living tissue. k this back to electrical current, using data to **calculate** charge flow. We finish by looking at **resistance** and **investigating** factors that affect this in electrical circuits.



**Numeracy: Calculating mass and weight**

**Half term 4**

**SUMMATIVE ASSESSMENT 3**  
(ecosystems 3, Earth 2, forces 4)  
Week 27

**Half term 5**

**Communicating scientific ideas: evaluating risks of x-rays**

**Half term 3**

**Half term 6**

**SUMMATIVE ASSESSMENT 4**  
(genes 4, reactions 5, waves 3)  
Week 35

