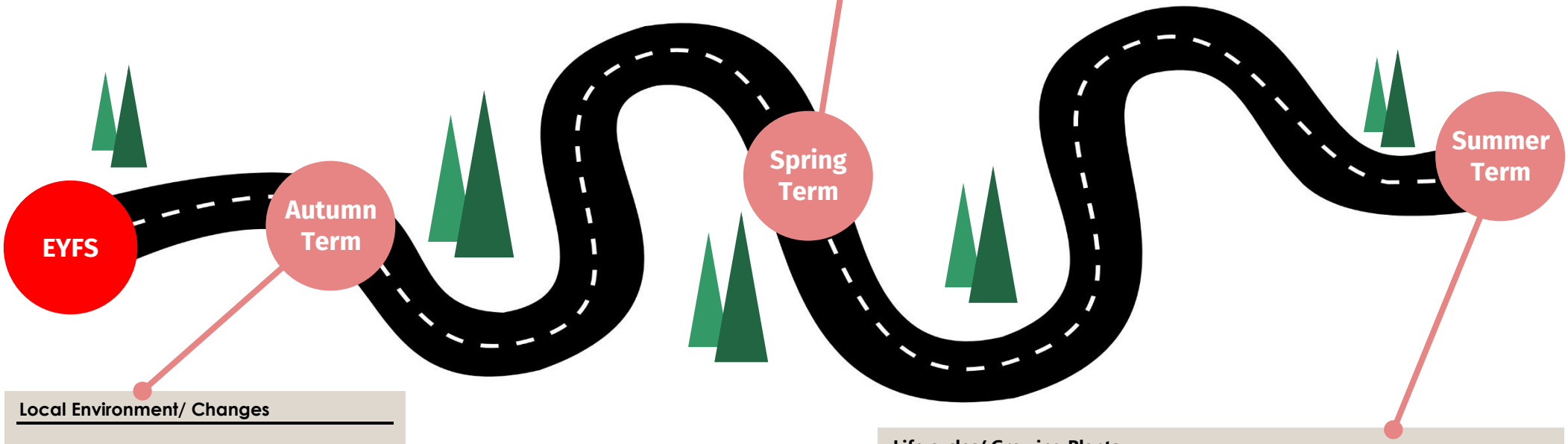
Science Curriculum Map

Key Vocabulary

Autumn, Winter, Spring, Summer, season, plant, flower, seed, grow, butterfly, caterpillar, cocoon, frog, tadpole, froglet, egg, change, different, same, ice, snow, water, animal, climate, environment.

Changes/ Adaptation

We will show an understanding of seasonal changes (Winter) observing the immediate environment, including changing states of matter (Ice/snow to water). We will follow this up later in the term by looking at seasonal changes relating to Spring. We will observe features of, and changes in, the outdoor environment.
We will find out about how certain animals adapt to climate. We will look at polar lands and how penguins live and survive. We will understand some differences between our contrasting environments. We will learn about different climates and wildlife found there, and then consider and compare how our own environment differs to that of the dinosaurs (history focus).



Local Environment/ Changes

We will go on local walks around the school to explore the local environment and compare it with our homes and gardens, looking at plants and fruit.
We will look at seasonal changes and talk about Autumn, creating an 'interest' table to study Autumn items found. We will explore how we can see our environment changing.
We will look at changes in materials through cooking activities, such as making gingerbread men and porridge.

Life cycles/ Growing Plants

We will talk about living things and what they need to grow well. We will be introduced to the life cycle of a butterfly, frog and chick. We will study butterflies, observing the eggs hatch; the growing caterpillars change into butterflies and then be able to talk about the life cycle using appropriate vocabulary. We will observe the changes that occur from spawn to tadpole to frog.
We will know about the features our environment, making observations of plants and flowers. We will be able to explain why some things occur and talk about the changes. We will discuss what grows in our garden and plant sunflowers to observe seed changes.

Science Curriculum Map

Key Vocabulary

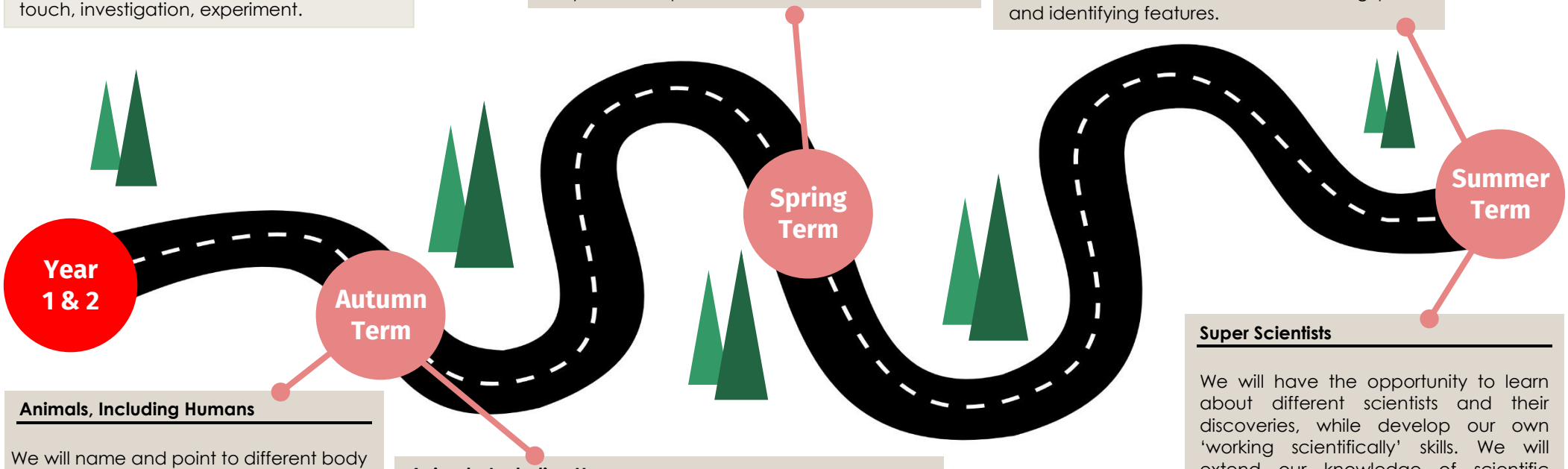
Plant, tree, flower, leaf, root, stem, trunk, petal, seed, grow, material, wood, metal, plastic, glass, fabric, waterproof, absorbent, hard, soft, animal, fish, bird, mammal, reptile, amphibian, insect, carnivore, herbivore, omnivore, body, skeleton, sense, sight, hearing, taste, smell, touch, investigation, experiment.

Everyday Materials

We will learn what materials are, identify some common materials, and describe some of their uses. We will look at a variety of objects and identify some of the materials they are made from. We will use words such as 'soft', 'smooth', 'hard', or 'bendy' to describe and/or sort a variety of materials and objects. We will consider why the properties of materials make them suitable for certain uses, then select appropriate materials for use in a range of objects. We will devise methods for testing materials to determine whether or not they are waterproof, then test these materials.

Identifying Plants

We will learn about what a plant is, and go plant hunting. We will learn about a variety of common garden plants, identify some of their features, and consider why they are appealing to people, e.g. easy to grow, or attracts insects. We will identify some wild plants, and begin to consider how their seeds — which they grew from — came to be there. We will identify and name trees, then learn some differences between deciduous and evergreen trees, before going tree hunting. We will identify the main parts of a variety of plants and describe their functions, examining plants and identifying features.



Animals, Including Humans

We will name and point to different body parts on ourselves. We will think about which body parts we use for different activities and how they move. We will learn why sight is important and do activities using our sense of sight. We will explore how we use touch, especially with our hands, by feeling and describing different objects. We will find out what our sense of smell helps us with and do a smell investigation. We will talk about different food tastes, using words to describe them, and do a taste investigation. We will also learn how we use our hearing and carry out a sound investigation.

Animals, Including Humans

We will identify, name and describe a variety of common animals kept as pets, before going on to identify a variety of mammals and compare and describe some of their features. We will compare the characteristics of a variety of birds and reptiles, then answer questions or describe animals. We will consider similarities and differences between some fish and amphibians. We will also learn about and describe some fish/amphibian life cycles. We will describe what a variety of different animals eat, then sort animals using Venn diagrams or tables. We will consider the needs of a variety of animals, and explain how best to care for them. We will collect, present and interpret data about pets or mini beasts.

Super Scientists

We will have the opportunity to learn about different scientists and their discoveries, while develop our own 'working scientifically' skills. We will extend our knowledge of scientific discoveries through investigations around gravity, light, sound and medical science, including reflexes and germs.

Science Curriculum Map

Key Vocabulary

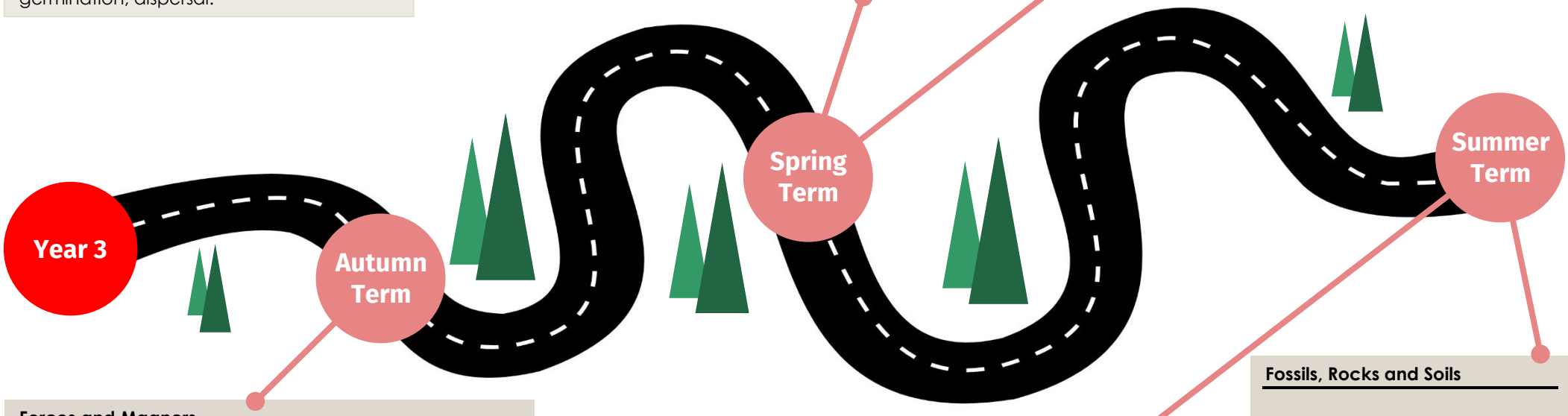
Light, dark, shadow, source, reflect, mirror, transparent, opaque, translucent, force, push, pull, friction, magnet, magnetic, pole, attract, repel, rock, soil, fossil, erosion, sedimentary, igneous, metamorphic, skeleton, muscle, joint, vertebrate, invertebrate, nutrition, balanced diet, root, stem, leaf, flower, seed, pollination, germination, dispersal.

Health and Movement

We will learn why we need a varied, balanced diet and sort foods into groups. We will look at healthy eating plates, plan our own healthy meals, and think about how people with dietary needs can still eat healthily. We will find out what different animals eat, describe their habitats and diets, and think of questions about what pets eat, collecting and showing data. We will learn about the bones in humans and other animals, labelling skeleton diagrams. We will find out what the skeleton does, and how invertebrates move and protect themselves in other ways. We will also learn how our muscles help us to move.

Plants

We will recap the main parts of flowering plants and learn about how roots grow and what they do. We will plan and carry out an experiment to measure how bean roots grow. We will learn how roots take up water, which travels through the stem, and do experiments to see this in action. We will start to learn how plants make their own food using air and sunlight, and test why light is important for growth. We will identify the parts of a flower and find out how pollination happens, dissecting flowers and labelling their parts. We will learn how the ovary becomes seeds, how seeds are spread, and how they grow into new plants.



Forces and Magners

We will learn that forces are pushes or pulls that can make things move or stop. We will spot forces in different situations and know that most forces need contact. We will investigate how surfaces affect how things move, using a force meter to measure how much force is needed to move objects. We will test how far a toy car travels on different surfaces. We will explore magnets and learn that they can pull some objects without touching them. We will find out about magnetic poles and how they attract or repel. We will predict and test which materials are magnetic, and see what these materials have in common. We will talk about how magnets are used in everyday life and investigate how strong different magnets are.

Light and Shadows

We will learn that darkness means no light, and we cannot see without light. We will identify and sort different light sources. We will share ideas about which objects might make a shadow, then test them. We will investigate how shadows are made, predicting, testing, and recording what we find. We will explore how a shadow from a stick changes in sunlight during the day, carrying out an investigation and presenting our results. We will also learn that some surfaces reflect more light than others.

Fossils, Rocks and Soils

We will learn where rocks come from and how they are different from man-made materials. We will identify, describe, and sort rocks and similar objects in different ways. We will learn about erosion and test how quickly rocks wear away or let water through. We will research what rocks are used for and their properties. We will find out how soil is made, its uses, and the types of soil. We will learn how fossils form and look at fossil pictures to discover what they can tell us about animals from the past.

Science Curriculum Map

Key Vocabulary

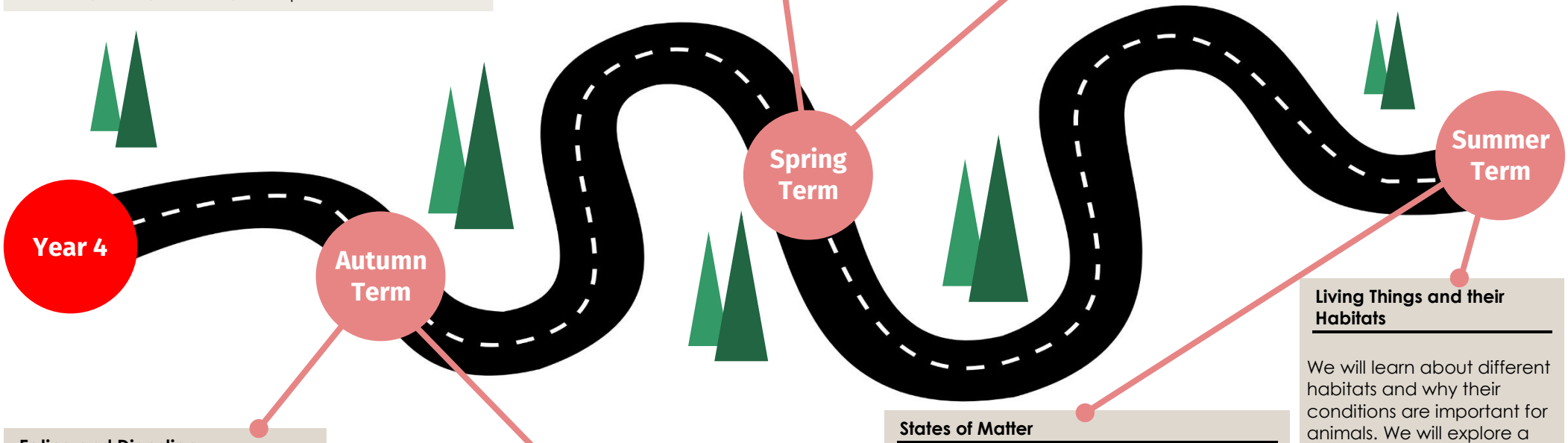
Solid, liquid, gas, melting, freezing, evaporation, boiling, condensation, particle, temperature, sound, vibration, pitch, volume, soundproof, insulator, conductor (of sound), habitat, environment, classification, vertebrate, invertebrate, predator, prey, food chain, circuit, switch, battery, cell, wire, bulb, conductor (of electricity), insulator (of electricity), digestive system, oesophagus, stomach, intestine, saliva, nutrients, absorption.

Changing Sound

We will learn how sounds are made and explore how different instruments and objects produce them. We will find out how sounds travel through materials and test which materials carry sound best. We will investigate how sounds change as you move away from them, and why it is sometimes helpful to block sound, testing soundproofing materials. We will learn about pitch and volume and how to change them using instruments. We will explore how string instruments change pitch, and how sounds can be made by vibrating air and altered in pitch.

What Do Scientists Do?

We will be challenged to think about our own idea of what a scientist is and does before exploring the three different branches of science and what each branch involves. We will then look into the process of the scientific method for conducting investigations and experiments, thinking about what each step involves and why each one is important to the process.



Eating and Digestion

We will learn about the diets of different animals and sort them as herbivores, carnivores, or omnivores. We will explore food chains and organise animals within them. We will identify and describe different human teeth and their functions, and learn how to keep our teeth healthy. We will start to learn about the organs of the digestive system and what they do.

Circuit and Conductors

We will learn what electricity is and how we use it every day. We will talk about electrical appliances, batteries, and plugs, and learn how to stay safe with electricity by spotting hazards. We will build simple circuits with different components and find out what a complete circuit is. We will learn the names of circuit parts and what a short circuit means. We will test which materials let electricity flow (conductors) and which do not (insulators), sorting them. We will create a circuit to power a simple device.

States of Matter

We will learn what solids, liquids, and gases are, and sort materials into these groups. We will look at tricky materials like rice and sand. We will explore how gases have mass and are useful in everyday life. We will learn how particles behave in each state, and explain freezing, melting, and melting points. We will find out how liquids turn into gases, with examples like puddles drying up. We will learn about evaporation and boiling, know the boiling point of water, and investigate what affects how fast things evaporate.

Living Things and their Habitats

We will learn about different habitats and why their conditions are important for animals. We will explore a local habitat. We will group animals by their characteristics and use classification keys to help sort and identify them, including making our own keys. We will also use Venn and Carroll diagrams to sort plants. We will think about how human behaviour affects animals and suggest ways to help protect habitats.

Science Curriculum Map

Key Vocabulary

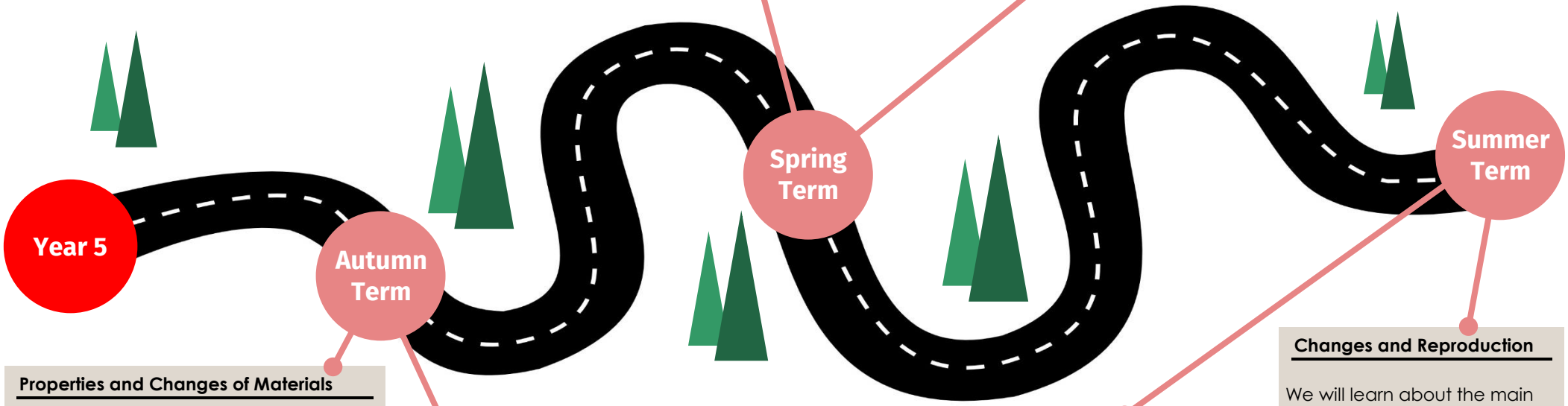
Orbit, rotation, axis, hemisphere, phases (of the Moon), solar system, planet, star, gravity, friction, air resistance, water resistance, lever, pulley, gear, life cycle, reproduction, fertilisation, gestation, puberty, adolescence, hormone, adulthood, soluble, insoluble, evaporation, filter, conductor, insulator, reversible, irreversible, material, dissolve, solution, mixture, naturalist, classification, metamorphosis, force, mass.

Great British Scientists

We will learn about a range of scientists. We will think about representation, privilege and bias in science. We will think about why so many famous historical scientists in Britain were white men. We will be encouraged to think about the impact this has had on scientific priorities and the impact representation had on societal preconceptions of the field of science.

Earth and Space

We will learn about the Sun, Moon, and Earth, their shapes, and what *orbit* means. We will find out how Earth's rotation causes day and night, and how its tilt creates different seasons in each hemisphere. We will also explore and name the eight phases of the Moon. We will find out how ideas about the solar system have changed over time, comparing the geocentric and heliocentric models. We will also learn about other objects in our solar system, such as planets, dwarf planets, asteroids, comets, and natural satellites.



Properties and Changes of Materials

We will investigate what happens when substances mix with water, testing which are soluble or insoluble. We will explore how to separate mixtures using evaporation, sieving, or filtering. We will learn about solutions made by irreversible reactions and carry out investigations on these. We will explore reversible and irreversible changes caused by heating or cooling, and find out what happens when materials burn. We will also identify and discuss different properties of materials, such as being conductive, magnetic, soluble, flexible, or transparent.

Forces in Action

We will learn what weight is and how falling objects are affected by size, shape, mass, and height. We will explore friction, air resistance, and water resistance, and investigate how they change movement. We will find out how simple machines like levers, pulleys, and gears make moving objects easier, building and testing models to see this.

Living Things and their Habitats

We will recap the parts of a flower and learn how flowering plants reproduce, labelling and dissecting flowers. We will also find out how some non-flowering plants reproduce asexually. We will learn about sexual reproduction in animals, including reptiles and fish, and compare their life expectancies and gestation times. We will study and compare the life cycles of animals in different environments. We will also learn about the work of naturalists and animal behaviourists, finding out more about a famous naturalist.

Changes and Reproduction

We will learn about the main stages of the human life cycle and what affects how we grow. We will find out about human reproduction, fertilisation, pregnancy, and how children's needs change as they grow. We will learn about hormones and changes during puberty, including sperm production and menstruation, and how to stay healthy. We will also explore changes in adulthood and old age, and how people change as they get older.

Science Curriculum Map

Key Vocabulary

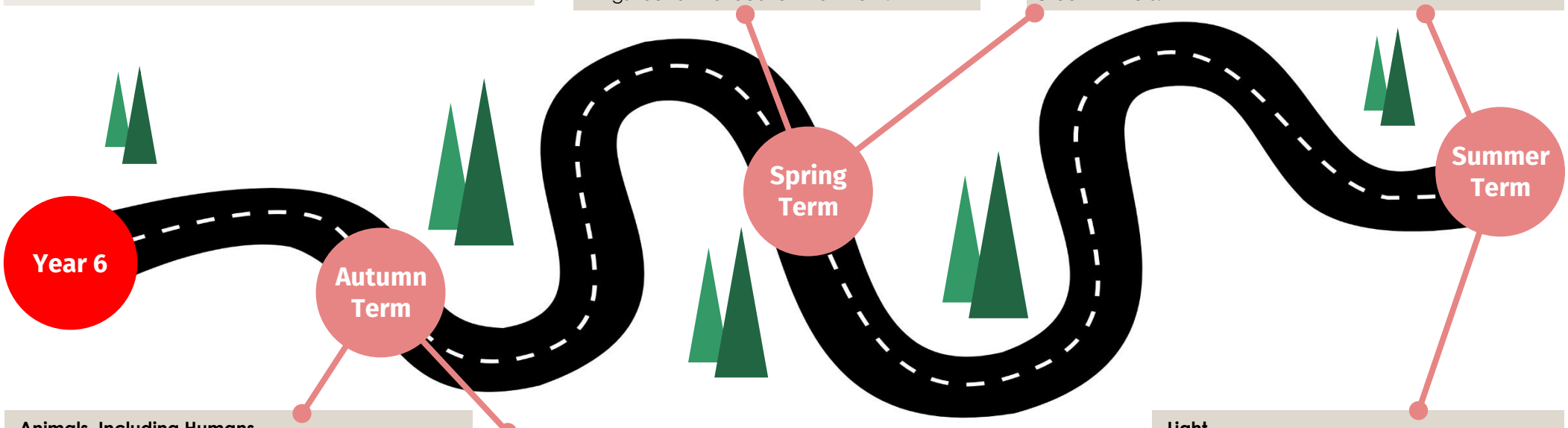
Light, shadow, reflection, refraction, angle of incidence, angle of reflection, retina, lens, pupil, cornea, balanced diet, nutrients, circulatory system, heart, lungs, pulse, exercise, drug, circuit, parallel circuit, component, voltage, current, resistance, switch, evolution, inheritance, trait, variation, adaptation, natural selection, mutation, classify, characteristic, vertebrate, invertebrate, microorganism, species, Linnaeus, Darwin.

Living Things and Their Habitats

We will learn about groups used to classify animals and describe their characteristics. We will explore how animals in the same group can be further classified. We will find out how botanists classify plants, then collect and sort our own plant samples. We will learn about Linnaeus' classification system and use it to identify and classify different organisms. We will explore how microorganisms are classified and what they need to survive, then investigate what food they prefer or write about them. Finally, we will classify living things found in a local environment.

Evolution and Inheritance

We will learn how traits are passed from one generation to the next and how inherited characteristics can vary. We will look at similarities within families and groups. We will explore how random mutations cause variation, and think about whether some variations are helpful. We will learn how advantageous traits can lead to evolution over time. We will identify helpful adaptations in species and describe the process of evolution. We will learn about human adaptations and how our behaviour can affect other species. We will also learn about how mutations and external factors influence evolution, and study the work of scientists like Carl Linnaeus, Charles Darwin, and ancient Greek thinkers.



Animals, Including Humans

We will learn how poor diet caused health problems in the past and how scientists like James Lind helped improve understanding. We will think about how medical tests and trials work. We will learn about food groups, what they give our bodies, and how much we need for a balanced diet. We will learn about the heart, lungs, and circulatory system, and draw diagrams to show how they work. We will investigate what happens to heart rate during exercise and learn how muscles move the skeleton and how blood flow changes with exercise. We will also learn about drugs, including which are helpful or harmful, and think about their side effects.

Electricity

We will recap what we know about electricity and learn about static electricity. We will develop our understanding of circuits, including parallel circuits, and build them using correct symbols. We will explore why some circuits work and others do not. We will investigate how the number of components and batteries affects voltage and the brightness of a bulb. We will also look at how different wires affect circuits. We will learn how to spot unusual results in experiments and suggest ways to improve investigations. Finally, we will use our skills to make a burglar alarm or another device.

Light

We will revisit how shadows are formed and explore how to change their shape, size, and intensity. We will carry out an experiment, identify key variables, and draw conclusions. We will learn about the parts of the eye and how they help us see, completing diagrams and explanations. We will find out how objects reflect and absorb light, allowing us to see them. We will learn about the law of reflection, predict light paths using angles, and try a light maze. We will also learn how refraction bends light rays and work out whether an object will reflect or refract light.