

Golden Thread	Definition
The Human Body	The cells, tissues, organs and systems which make up the human body.
Plant Anatomy	The structure of plants including their cells, tissues, organs and systems.
Taxonomy	Classifying living things (organisms) into different groups. This includes broader groups e.g. plants, animals or more refined groups including species.
Ecosystems	All the living things (plants, animals and organisms) in a given area, interacting with each other, and with their non-living environments (weather, earth, sun, soil, climate, atmosphere). In an ecosystem, each organism has its own role to play.
Earth and Space	The study of the planet Earth, including its rotation, seasons, its satellite (the moon) and its role in the wider solar system and relationship with other planets and the sun.
Energy	Something that is needed to power other things. Energy is transferred between different objects and can take on many forms: chemical, sound, light and electrical.
Materials	The properties of different types of material (both natural and synthetic) and how they might change when exposed to different situations.
Forces	Forces are actions that change or maintain the movement of a body or object. A force is a push or a pull. Forces can change an object's speed, its direction, and even its shape.



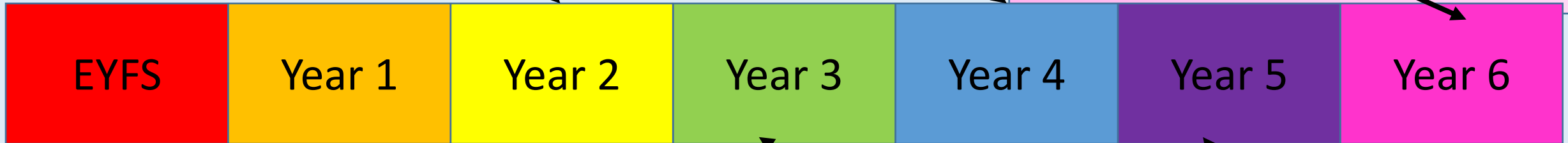
Definition

The cells, tissues, organs and systems which make up the human body.

How can I be healthy?
Pupils understand that humans have offspring which grow into adults. They understand basic needs for survival (food, water and air) and the importance of exercise, their diet and hygiene.

What happens to our food when we eat it?
Pupils can describe the function of the organs in digestion system (mouth, oesophagus, stomach, small and large intestine and anus). Pupils identify and explain the function of all the human teeth (incisors, canines, pre-molars molars).

Why is oxygen so important for our bodies?
Pupils identify, name and describe the function of the circulatory system (heart, blood vessels and blood). They can describe ways in which nutrients and water are transported in the body and the impact of diet, exercise, drugs and lifestyle on their body function.
How do we know there are seven colours in the rainbow?
Pupils know the structure of the eye is adapted see light/ light sources.



What can our bodies do?
Pupils can identify, draw and label the basic parts of the human body and which part is associated with each sense (sight, touch, hearing, taste, smell).

How do animals move?
Pupils identify that humans have skeletons and muscles for support, protection and movement. They understand that humans get nutrition from food and cannot make their own nutrition without eating. They also understand the importance of the right types of nutrition (the food groups).

What happens to humans as they get older?
Pupils can describe the changes to our bodies as humans develop from embryos until old age including changes that happen during puberty.



Definition

The structure of plants including their cells, tissues, organs and systems.

Jack & the Beanstalk

Pupils know that plants need water and light and have roots, stems, leaves and flowers.

Seasonal walks

Pupils know trees change in the seasons.

How do plants grow?

Pupils observe and describe how seeds and bulbs grow into mature plants. They can describe how plants need water, light and a suitable temperature to grow and stay healthy.

How can we group different living things?

Pupils identify that plants will look different based on their adaptations.

How have we become who we are today?

Pupils identify that plants are adapted to their environment in different ways and adaptation leads to evolution.

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What are plants?

Pupils can identify and describe the basic structure (leaves, trunk, bulb, roots, branches and flowers: fruit, petals, seeds) of a variety of flowering plants including trees.

What are the features of Spring, Summer, Autumn and Winter?

Pupils can identify that some plants may shed leaves during different seasons and other will retain these throughout the year.

How do plants survive?

Pupils can identify the function of different plant organs (roots, stem/trunk, leaves and flowers). They can explore the requirements for plants to survive (air, light, water, nutrients, space) and investigate how water is transported in plants. Children explore the role of flowers and seeds including pollination, seed formation and seed dispersal.

How do different organisms' lifecycles vary?

Pupils identify how flowering and non-flowering plants reproduce and explore plant organs associated with these. They will explore the structure of the flower in detail (sexual reproduction) and organs associated with asexual reproduction in plants.

Definition Classifying living things (organisms) into different groups. This includes broader groups e.g. plants, animals or more refined groups including species.

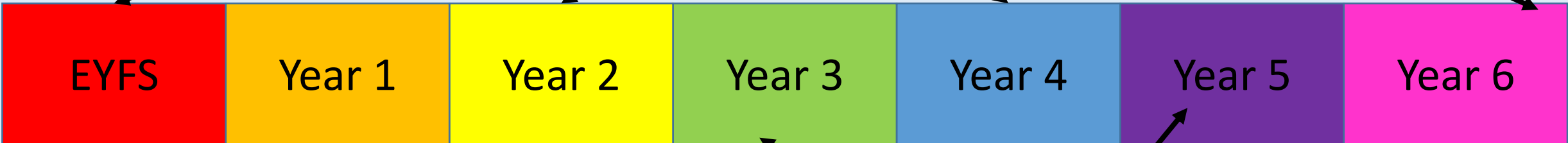
Emperor's Egg
Pupils know different types of animals.

What is a habitat?
Pupils explain the difference between living and non-living things. They can identify a name of variety of plants and animals in their habitats, including microhabitats.

How can we group different living things?
Pupils can recognise that living things can be grouped in a variety of ways. They can use classification keys to group, identify and name living things.

What are the differences between the kingdoms of life?
Pupils can describe how living things are classified into broad groups and give reasons for these groupings.

How have we become who we are today?
Fossils can provide information about living things in the past.



What are plants?
Pupils can identify wild and garden plants including deciduous and evergreen trees.

How are animals different from each other?
Pupils can identify, name and describe the structure of animals including fish, amphibians, reptiles, birds and mammals as well as carnivores, herbivores and omnivores.

How do animals move?
Pupils can identify that some animal have exoskeletons and others do not.

How do different organisms' lifecycles vary?
Pupils can describe the differences in the life cycle of mammals, amphibians, insects and birds. They can identify difference in plants which reproduce sexually and asexually.



Definition

All the living things (plants, animals and organisms) in a given area, interacting with each other, and with their non-living environments (weather, earth, sun, soil, climate, atmosphere). In an ecosystem, each organism has its own role to play.

Hatch a chick

Pupils know the lifecycle of a chick and they need to be incubated.

Seasonal Walks

Pupils know trees change.

Gruffalo, Owl Babies & Rainbow Fish

Children know the names of some habitats including woodland, ocean and polar and the animals which live there.

What is a habitat?

Children can identify living things live in habitats to which they are suited which provides their basic needs and how animals and plants depend on each other. They understand animals obtain food from plants and the concept of a food chain.

How can I be healthy?

Children know that animals have offspring and need food, water and air to survive.

How do plants grow?

Pupils know plants need water, light and the correct temperature to grow.

How can we group different living things?

Children recognise environments change and this can pose danger to living things.

What happens to our food when we eat it?

Children can construct and interpret a variety of food chains, identifying producers, predators and prey.

How have we become who we are today?

Children recognise that living things produce offspring of the same species, but normally offspring vary and are not identical to parents. Children identify that animals and plants are adapted to their environment in different ways and adaptation leads to evolution.

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How are animals different from each other?

Children understand the concept that animals can eat other living things (carnivores, herbivores, omnivores).

What are the features of Spring, Summer, Autumn and Winter?

Children can observe changes across the four seasons and observe and describe weather associated with the seasons and identify how day length changes.

How do animals move?

Pupils know that animals need nutrition to survive which is obtained by eating other living things.

How do plants survive?

Children know that plants need air, water, light, soil, space and nutrients to grow. Children understand pollination, seed formation and dispersal.

How do different organisms' lifecycles vary?

Children can identify life cycles of mammals, amphibians, insects and birds and the process of reproduction in plants and animals.

What happens to humans as they get older?

Children will look at the gestation period of different animals.

Why is oxygen so important for our bodies?

Children can describe the ways in which nutrients and water are transported within animals.

Definition The study of the planet Earth, including its rotation, seasons, its satellite (the moon) and its role in the wider solar system and relationship with other planets and the sun.

Seasonal Walks

Pupils know that trees change in the seasons, that the weather changes in each season and what to wear for the different seasons.

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What are the features of Spring, Summer, Autumn and Winter?

Pupils can observe changes across the four seasons. Pupils can observe and describe weather associated with the seasons and how day length varies.

How do different celestial bodies move in different ways?

Pupils can describe the shape and movement of the Earth, and other planets, relative to the sun in the solar system. They can describe the movement of the moon relative to the Earth. Pupils can understand the link between the Earth rotating to explain day and night (and its apparent 'movement' across the sky from our perspective).



Definition

Something that is needed to power other things. Energy is transferred between different objects and can take on many forms; for example, chemical (energy stored in the food we eat); sound (energy stored in a sound wave); light (energy our eyes can detect); and electrical (energy resulting from moving electric charges).

The Emperor's Egg

Ice is frozen water. Ice can be changed back to water through melting (energy change).

How can I be healthy?

All animals, including humans, have the basic need of feeding in order to survive. The right amounts of types of food and exercise is needed to grow into a healthy adult.

What is a habitat?

Habitats provide food (energy) for an organism.

What happens to our food when we eat it?

The digestive system and how nutrients are removed from the food we have eaten to be used elsewhere in the body as energy.

How do materials change from one state to another?

All matter is made up of tiny particles and how much energy these particles have determines the state of matter.

How does electricity flow?

Pupils learn that electricity is the flow of an electric current through a material and that many household devices and appliances run on electricity (both mains and batteries).

How do we hear?

Pupils learn that sound produces vibrations which travel through a medium from the source to our ears which cause parts of our ears to vibrate, allowing us to hear (sense) the sound.

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What are the features of the seasons?

Pupils are warned that it is not safe to look directly at the sun.

How do plants survive?

Plants, unlike animals, make their own food. Different parts of a plant have different functions, e.g. roots absorb nutrients, stems transport nutrients and leaves use sunlight and water.

How do animals move?

Different foods contain a range of different nutrients.

What can light do?

There are many different light sources (the sun, light bulbs and candles) that enable us to see, but some of these are dangerous for our eyes, e.g. uv rays.

How do we use materials in our everyday lives?

Pupils explore how heating and cooling (energy changes) can result in reversible/irreversible change.

Why is oxygen so important for our bodies?

The importance for humans of eating a balanced diet.

How can I make an ambulance's lights brighter and sirens louder?

Pupils learn that a cell is a device that stores energy until it is needed. They understand that the amount of voltage within a cell affects the force that moves the electric current through a circuit.

How do we know there are seven colours in the rainbow?

Pupils learn that visible light can be separated into the seven colours of the rainbow as each has a different wavelength.

Definition

The properties of different types of material (both natural and synthetic) and how they might change when exposed to different situations.

Rainbow Fish

Pupils explore a range of materials and some of their properties (soft, shiny, hard, magnetic, cold).

The Emperor's Egg

Ice is frozen water. Ice can be changed back to water through melting.

How can we use it?

Materials are chosen based on comparing their properties and their suitability to a task. Objects made from some materials can be changed in shape by bending, stretching, squashing and twisting.

What is a habitat?

Objects can be classified as living, dead and never having been alive. Children are introduced to rock as a material that objects can be made from.

How do materials change from one state to another?

Pupils are taught the three states of matter and properties of each of these. They understand that heating/cooling a material can change it from one state of matter to another. They are able to apply this to the water cycle.

How does electricity flow?

Some materials are conductors/insulators of electricity which allow/prevent electricity flowing through wires. They can name examples of each of these: metals/plastic/water

How do we hear?

Different mediums (states of matter) can carry sound.

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What are objects made from?

Objects are made from different materials which can be described by their properties.

What is beneath our feet?

Pupils understand that rock is a naturally occurring material and that there are many different types, e.g. sandstone, limestone and slate. They consider the different properties. They recognise that there are three types of naturally occurring rock: igneous, metamorphic and sedimentary, and these are all formed in different ways. Pupils are introduced to soil and fossils, understanding how rocks can be a part of both of these.

Why do some objects move and others stay still?

Magnets attract magnetic materials, such as iron and nickel. The texture of a surface can impact how an object moves across it.

How do we use materials in our everyday lives?

Pupils expand their knowledge of different properties of materials and their different uses, depending on their state. They explore the relationships between solutes, solvents and solutions, and the difference between a solution and a mixture. Children discover reversible and irreversible changes.

Definition

Forces are actions that change or maintain the movement of a body or object. A force is a push or a pull. Forces can change an object's speed, its direction, and even its shape.

Rainbow Fish

Different materials have different properties, e.g. magnetic

How can we use it?

Pupils find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

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Why do some objects move and others stay still?

Pupils compare how things move on different surfaces.
They notice that some forces need contact between two objects, but magnetic forces can act at a distance.
They observe how magnets attract or repel each other, and attract some materials and not others.

How do different forces impact the world around us?

Pupils explore gravity and contact forces (friction, air resistance and water resistance).
They consider the impact of surface area on contact forces.
They explore different mechanisms (such as pulleys, leavers and gears) to investigate how a small force can be increased to a larger force.

