

Key Stage 1/2

Science **Learning Journey**

important for survival? Use the idea that light travels in straight lines to explain

Describe the way in which nutrients and water are transported within animals including humans

Recognize the impact of diet, exercise, drugs and lifestyle on the way bodies function

Describe how living things are classified into broad groups according to common observable characteristics, based on similarities and differences, including Identify and name the main parts of the microorganisms, plants and animals and human circulatory system and describe give reasons why we classify animals and the functions of the heart, blood vessels and blood

Identify the effects of air and water resistance and friction. that act between moving surfaces and that some mechanisms, including levers, pulleys and force to have a greater effect

Explain that unsupported

objects fall towards the Earth because of the force of gravi-

ty acting between the Earth

and the falling object

Explore the part

that flowers play

in the life cycle of

flowering plants,

including

pollination, seed

seed dispersal

О

way water is

transported

within plants

and recognize

that soils are

made from rocks and

What was life like in

Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of

How do different How high can I travel countries and religions on Earth? celebrate?

system

Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit

Recognize that living things have changed over time and that fossils provide information about living things which inhabited the Earth millions of

How are skills

from the iron/

stone age still

used today?

Use the idea of the Earth's

2025

rotation to explain day and night and the apparent movement of the sun across the sky

Describe the changes

as humans develop

to old age

adapted to suit their environment in different ways and that adaptation may lead to evolution

A)

Construct a simple series

Identify that animals and plants are

Identify that a switch open and closes a circuit and Describe the differences identify whether or not a land of the life cycles of a will light in a simple circuit_ mammal, amphibian, based on switch or batter insect and bird

Use classifications to group, identify and name environments, producers, in don thrive predators and prev and the associated food chains

Construct and

interpret a

variety of food

chains, 👞

identifying

producers,

predators and

Observe that some

materials change

state when they are

onduct experiments associated with objects. pitch, volume and distance to identify how sounds are made, recognizing that vibrations

> Find patterns between the pitch of a sound and the object that produced it and patterns between the volume of a sound and the strength of vibrations that produced it and recognise that sounds get greater with distance

> > Identify the

different types of

teeth in humans

and their simple

functions

What was life like during

Identify and compare the suitability of

everyday materials and find out how

the shapes of solid objects, made from

some materials can be changed

How have

significant people

changed our

the turn of BC to AD?

Identify the part played by of sounds travel through a medium to the ear evaporation and water cycle and

Identify common appliances that

run on electricity and recognize

some common conductors and

insulators, and associated metals

with being good conductors

⇔ •.∘

How did the

Romans change

our world?

Identify that a switch open

Identify how sounds are made, associating some of them with something vibrating and recognize that vibrations of sounds travel through a medium

Construct a simple series

electrical circuit, identifying

and name its basic

parts - cells, wires, bulbs,

switches and buzzers

Describe the life processes of reproduction in some

plants and animals

Can you travel the whole

way around the world?

Use knowledge of solids,

liquids and gases to decide

how materials might be

separated, including filtering,

sieving and evaporating

Identify common appliances that run on electricity and recognize some common conductors and insulators, and associated metals with

being good conductors

Describe the simple

functions of the basic

parts of the digestive

systems in humans

Demonstrate that dissolving, mixing and changes of state are reversible and explain that some changes in state result in the formation of new

Did the Vikings

change our

world?

Compare and group

materials together,

are solid, liquid or gas

have habitats to which they

are suited and how different

habitats provide different

basic needs for animals and

Describe the Sun, Earth and Moon as

approximately spherical bodies, and

describe the movement of the Moon

relative to the Earth

Are the Pyramids of Giza

an important part of

world history?

materials are not usually reversible Recognize that living things can be

Identify and name grouped in a variety of ways and a variety of plants explore and use classification to and animals in group, identify and name things including

micro-habitats

2023

according to whether they Recognize that shadows are formed

when the light from a light source is blocked by an opaque object and find patterns in the way that shadows Identify that most living things

change plants for life and growth

and how they vary from

Why was the year 1666 important to London?

> Recognize that the sun emits light and that light from the sun can be dangerous and ways we can protect against this

terms how fossils are formed when living things are trapped in a rock

Describe in simple

their food from plants and other animals, using the idea of a simple food chain and that animals, including humans need the right types and amount of nutrition and cannot make their own food they need to eat!

Describe how animals obtain

Identify and name a variety of common wild and garden plants, including

What makes a person significant? 2021

why shadows have the same shape as the object who cast

medieval times?

buzzers and the on/off switches

give out or reflect light into the eye

Recognize that light appears to

travel in straight lines to explain

Compare and group together everyday materials on the basis of their properties, including hard-Describe the movement of ness, solubility, transparents, the Earth, and other planets, conductivity (electrical and relative to the Sun in the solar thermal) and magnetism

> How does it feel to be part of a carnival?

Know that some materials will dissolve in a liquid to form a solution, and from a solution

condensation in the associate the rate of temperature

and closes a circuit and lamp will light in a simple circuit based on switch or battery position

Could you survive in a How does it feel to be part of a carnival? rainforest?

Recognize that the environment can change and this can sometimes pose dangers to living things

Notice that animals have offspring which grow into adults and describe the basic needs of

animals, including humans, for

survival (water, food, air)

Identify and name different sources of food and describe

Recognize that you

be reflected

the importance for humans of exercise, eating the right amount of different types of food and hygiene and that humans and some other animals have skeletons and muscles for support, protection and movement

Would you like to live in

How has history changed the way we celebrate?

Find out and differences between things that are living, dead and non-living

need light in order to see and dark is plants need water, the absence of light light and a suitable and notice light can temperature to

Identify and name a variety of everyday materials and distinguish between an object and the material from which it is made

roots, stem/trunk, leaves,

Identify and describe the

functions of different

parts of flowering plants:

Observe changes across the four seasons, observe and describe the weather associated with the seasons and day length

Where in the world are you?

How has history changed the way we celebrate?

Identify and name a Describe the simple

Observe changes across the four seasons, observe and describe the

Identify and name a variety of everyday materials and distinguish material from which it is made

identifying and name its basic parts - cells, wires, bulbs, switches and buzzers

Observe changes across the four seasons, observe associated with the seasons and day length

Compare and group together a variety of everyday materials on the basis of their simple physical

Describe the simple physical properties of a variety of everyday

materials

Le difference is the and climate? that are carnivores erbivores and omnivores

variety of common animals

Identify and name a

2022

Identify, name, draw and label

body and say which part is

essential with each sense

the basic parts of the human bulbs grow into

of common flowering plants, including trees

Identify and describe

describe how

mature plants

How was life different

when Queen Victoria

four seasons, observe and describe the weather associated with the seasons and day length

the structure of a variety of common animal (fish, amphibians, reptiles, birds and mammals, including pets)

Compare and group together a variety of everyday materials on the basis of their simple physical properties

variety of common animals, including fish amphibians, reptiles, birds and mammals

physical properties

everyday materials weather associated with the seasons and day length

group together

different types of

rocks based on

properties







gas exchange and the mechanisms of breathing, including lung volume measurements and the impact of exercise.

Understand the

adaptations of

organisms and

hierarchical

organisation of

multicellular organisms: from

Understand the

importance of bacteria

in the human digestive

cells to tissues to organs to systems to organisms

structural

unicellular

2026

Understand that plants make carbohydrates in their leaves by photosynthesis and gaining mineral nutrients and water from the soil via their roots

Understand the reproduction Understand the in plants, including flower structure, wind and insect pollination, fertilisation, seed Atany for survival? and fruit formation and dispersal

functions of

examples of antagonistic

Understand the importance of bacteria, particularly in the human digestive system

differences between plant and animal cells and understand the role of diffusion in the movement of materials in and between cells and the role of the leaf stomata in gas exchange in plants

How high can I travel

on Earth?

Identify the similarities and differences

between plant and animal cells and

understand the role of diffusion in the

movement of materials in and between

cells and the role of the leaf stomata in

gas exchange in plants

How does it feel to be

part of a carnival?

Could you survive in a

rainforest?

Living organisms, species and

ecosystems interact with each other

and show adaptations to their

environment; the characteristics of a

living organism are influenced by its

Living organisms, species and ecosystems

interact with each other and show adaptations

to their environment; the characteristics of a

living organism are influenced by its genome

and its environment

Identify the similarities and

Understand the effects of negative recreational decisions, including obesity, alcohol, drugs on behaviour, health and life processes

Identify the structure and functions of the human skeleton to support, protect, move and making blood cells and understand the biomechanics of interaction between skeleton and muscles

How do different

countries and religions

celebrate?

Know how to calculate the

energy requirements in a

healthy daily diet and the

ance e.g. obesity, starvation,

deficiency diseases

the content of a healthy human diet and why each is needed

Understand cells as the fundamental unit of living organisms and observe, interpret and record the cell structure using a light microscope and identify their functions

Key Stage 3/4

How are skills from the iron/ stone age still used today?

reproduce, including the structure and function of the male and female reproductive

Ecosystems - life on Earth is dependent on photosynthesis is and make organic compounds and oxygen which are used as fuels in cellular respiration; continually cycling through the

photosynthesis; importance of biodiversity and positive and negative effect of humans

natural world and factors affecting the rate of

Are the Pyramids of Giza

an important part of

Understanding cells are the basic unit of organisms, adaptations to

cells, stem cells in animals and meristems in plants, enzymes, factors

affecting the rate of enzymatic reactions and the importance of

aerobic and anaerobic respiration

world history?

coordination and control, relationship between the structure and function of the nervous system and a reflex arc; hormonal

coordination and control in humans: hormone in human reproduction and

Principles of nervous

2025

contraception

2023

between multicellular organisms

depend on structure is related to their function and the fundamental units of living organisms are cells, who are parts of tissues, organs and systems and the need for transport systems between multicellular organisms, including plants

Principles of nervous coordination and control, relationship between the structure and function of the nervous system and a reflex arc; hormonal coordination and control in humans; hormone in human reproduction and

contraception

Science—Biology

Learning Journey

What was life like in medieval times?

Understand the effects of

negative recreational

decisions, including obesity,

alcohol, drugs on behaviour,

health and life processes

and recessive genes, evidence for

evolution, natural selection, modern

biotechnology and the ethics

The relationship between health and disease - including sexually

transmitted infections (HIV/AIDS), non-communicable diseases,

bacteria, viruses and fungi as pathogens, defences and the process

of discovering new medicines and the impact of lifestyle factors

Identify the similarities and

differences between plant and

animal cells and understand

the role of diffusion in the

movement of materials in and

between cells and the role of

the leaf stomata in gas

exchange in plants

Understand the menstrual cycle,

gametes, fertilisation, gestation

and birth, including the effect of

maternal lifestyle of the foetus

How did the

Romans change

our world?

Understand the effects of

negative recreational

decisions, including obesity,

alcohol, drugs on behaviour,

health and life processes

Understand the

functions of muscles

and examples of

antagonistic muscles

The relationship between health and disease

- including sexually transmitted infections

(HIV/AIDS), non-communicable diseases,

bacteria, viruses and fungi as pathogens,

defences and the process of discovering new

dicines and the impact of lifestyle factors

How have

significant people

changed our

What was life like during

the turn of BC to AD?

Understand the tissues and organs of the human digestive system including adaptations to system digests food

Understand that plants make carbohydrates Evolution, inheritance and variation - the in their leaves by photosynthesis and gaining mineral nutrients and water from genome, impact on medicine, dominant the soil via their roots

Understand the structural

adaptations of some

unicellular organisms and

understand the

hierarchical organisation

of multicellular

organisms: from cells to

tissues to organs to

systems to organisms C

Understand the tissues and organs

of the human digestive system

including adaptations to function

and how the digestive system

digests food

Understand the structure and function of gas exchange and the mechanisms of breathing, including lung indon thinie volume measurements and the impact of exercise, asthma and smoking

bacteria in the human digestive system

like to like Understand the reproduction in plants, including flower structure, pollination, fertilisation, seed and fruit formation and dispersal

> Understand the structure and the mechanisms of breathing, including lung volume measurements and the impact of exercise,

effects of negative recreational decisions, including drugs on behaviour health and life

in Strong Parties of Strong Pa Understand the reproduction in plants, including flower structure wind and insect

pollination, fertilisation, seed and fruit formation and dispersal Understand the structural

adaptations of some unicellular organisms and understand the hierarchical organisation of multicellular organisms: from cells to tissues to organs to systems to

organisms

Understand the

importance of

bacteria in the

human digestive

Understand the tissues and organs of the human digestive system including adaptations to function and how the digestive system digests food

Understand that plants make carbohy-

drates in their leaves by photosynthesis

and gaining mineral nutrients and water

from the soil via their roots

Understand the effects of

negative recreational

decisions, including

obesity, alcohol, drugs on

behaviour, health and life

How was life different

when Queen Victoria

ruled?

Understand the portance of bacteria, particularly in the human digestive system

functions of muscles

and examples of

antagonistic muscles

cycle, gametes, fertilisation, gestation and birth, including the effect of maternal lifestyle of the foetus through the placenta Can you travel the whole way around the world?

Understand the Identify the structure effects of and functions of the negative recreational decisions, including obesity, alcohol, drugs on behaviour health and life

processes

importance of

bacteria, particularly

in the human digestive

system

human skeleton to support, protect, move and making blood cells and understand the interaction between skeleton and muscles

Understand how humans reproduce, including the structure and function of the male and female

Understand cells as the fundamental unit of living organisms and observe, interpret and record the cell structure using a light microscope and identify their functions

Did the Vikings change our world?

molecules whose structure is related to their function and the fundamental units of living organisms are cells, who are parts of tissues, organs and systems and the need for transport systems

Why was the year 1666

Understanding cells are the basic unit of organisms, adaptations to cells, stem cells in animals and meristems in plants, enzymes, factors affecting the rate of enzymatic reactions and the

energy requirements in a healthy daily diet and the consequences of an imbal-

Understand how humans reproduce. including the structure and function of the male and female reproductive systems

What makes a

Understand cells as the fundamental unit of living organisms and observe, interpret and record the cell structure using a light microscope and identify

How does it feel to be part of a carnival?

Know how to calculate the energy Understand the content of requirements in a healthy daily diet a healthy human diet and imbalance e.g. obesity, starvation deficiency diseases

Ecosystems - life on Earth is dependant on photosynthesis is and make organic compounds and oxygen which are used as fuels in cellular respiration; continually cycling through the natural world and factors affecting the rate of photosynthesis; importance of biodiversity and positive and negative effect of humans

How has history Would you like to changed the way we live in Kenya? celebrate?

Evolution, inheritance and variation - the genome, impact on medicine, dominant and recessive genes, evidence for evolution, natural selection, modern biotechnology and the ethics

> Identify the similarities and differences between plant and animal cells and understand the role of diffusion in the movement of materials in and between cells and

Where in the world are you?

the role of the leaf stomata in gas

exchange in plants

Understand the menstrual

important to London?

importance of aerobic and anaerobic respiration

Know how to calculate the

deficiency diseases

ance e.g. obesity, starvation,

Understand the content of a each is needed

the way we celebrate? Identify the structure and

making blood cells and

functions of the human skeleton to support, protect, move and understand the biomechanics of interaction between skeleton and

How has history changed

recreational decisions. including obesity, alcohol, drugs on behaviour, health and life processes

Understand the

effects of negative

healthy human diet and why



their functions





between aerobic and anaerobic reactants, the products formed and the implications for

process of

anaerobic

respirations in

humans and

nicroorganisms

including

fermentation

and a word

summary for

anaerobic

respiration

Understand that

some organisms

compete more

successfully,

which can drive

natural selection

. species and between individuals of the same species means th

Understand that changes in the

environment may lead individuals

within a species, and some entire

species, less well adapted to compete

successfully and reproduce, which in

turn may lead to extinction and the

importance of biodiversity

Understand the difference

anaerobic respiration in

terms of the reactants, the

products formed and the implications for the organism

the organism Understand that the variation Understand the

means that some organisms



and anaerobic respiration in living organisms and a word summary for aerobic respiration

Understand a simple model of

heredity, including the part played by

Warson, Crick, Wilkins and Franklin in

the development of the DNA model

How did the

Romans change

our world?

Understand the dependence of almost all life on Earth on the ability of photosynthetic organisms, carbon dioxide in the atmosphere

such as plants and algae, to use sunlight in photosynthesis to build organic molecules that are an essential energy store and to maintain levels of oxygen and

How high can I travel on Earth?

Understand how organisms affect, and are affected by, their environment, including the

Understand importance of plant reproduction through inspect pollination in human food security

> Understand how organisms affect, and are affected by, their environment, including the accumulation of toxic

Can you travel the whole

way around the world?

on Earth on the ability of photosynthetic

organisms, such as plants and algae, to use

sunlight in photosynthesis to build organic

molecules that are an essential energy store

and to maintain levels of oxygen and carbon

dioxide in the atmosphere

Understand the reactants in and

products of photosynthesis, and a word

summary and the adaptations of leaves

for photosynthesis

How does it feel to be

part of a carnival?

Understand importance of

plant reproduction through

inspect pollination in human

food security

products of photosynthesis, and a word

summary and the adaptations of leaves

for photosynthesis

How do different

countries and religions

celebrate?

Understand the aerobic and anaerobic respiration in living organisms and a word summary for aerobic respiration

Understand a simple model of

chromosomes, genes and DNA in

heredity, including the part played by

development of the DNA model

Warson, Crick, Wilkins and Franklin in the

Are the Pyramids of Giza an important part of world history? Understand the dependence of almost all life

> Understand the hereditary process by which genetic information is transmitted from one generation to the next and the differences between species

Key Stage 3/4

Science - Material,

Cycles and Energy

How are skills

from the iron/

stone age still

used today?

Learning Journey

Understand the interdependence of

organisms in the ecosystem, including

food webs and insect pollinated crops

2025

Understand the

process of anaerobic

respirations in humans

and microorganisms,

including fermentation

and a word summary

for anaerobic

2023

Understand the difference between aerobic

and anaerobic respiration in terms of the

reactants, the products formed and the

implications for the organism

by which genetic information is

transmitted from one generation

to the next and the differences

between species

Why was the year 1666

important to London?

Understand the aerobic

and anaerobic

respiration in living

organisms and a word

summary for aerobic

respiration

Understand a simple model of

chromosomes, genes and DNA ir

heredity, including the part played

by Warson, Crick, Wilkins and Franklin in

the development of the DNA model

Understand the difference

between aerobic and

anaerobic respiration in

terms of the reactants, the

products formed and the

implications for the organism

that the

variation

between

species and

individuals of

species means

that some

organisms

compete more

successfully,

which can

drive natural

Understand that changes

in the environment may

lead individuals within a

species, and some entire species, less

well adapted to compete successfully

and reproduce, which in turn may lead

Understand that the

variation between

species and between

individuals of the same

species means that

some organisms

compete more successfully, which can

drive natural selection

Understand the

respirations in

humans and

including fermentation and a

word summary for

anaerobic respiration

rocess of anaerobic

to extinction and the importance of

biodiversity

Understand a simple model of chromosomes genes and DNA in heredity, including the part played by Warson, Crick, Wilkins and Franklin in the development of the DNA mode

Did the Vikings change our world?

Understand the interdependence of organisms in the ecosystem, including food webs and insect

Understand the dependence of almost all life on Earth on the ability of photosynthetic organisms, such as plants and algae, to use sunlight in photosynthesis to build organic molecules that are an essential energy store and to maintain levels of oxygen and carbon

Would you like to live in

dioxide in the atmosphere

their environment. of toxic materials

Understand importance of plant reproduction through inspect

What makes a

person significant?

Understand that changes in the environment

may lead individuals within a species, and

some entire species, less well adapted to

compete successfully and reproduce, which in

turn may lead to extinction and the

importance of biodiversity

Understand the interdependence of organisms in the ecosystem. including food webs and insect pollinated crops

2026

between species and between individuals of the same species important for survival? compete more successfully, which Understand the aerobic can drive natural selection



What was life like in medieval times?

Understand the hereditary process by which genetic information is transmitted from one generation to the next and the differences between species

Understand that the variation

between species and between

individuals of the same species

means that some organisms

compete more successfully, which

accumulation of toxic materials

Understand the reactants in and products of photosynthesis, and a word

summary and the adaptations of leaves for photosynthesis

Understand importance of

plant reproduction through

inspect pollination in human

food security

How does it feel to be part of a carnival?

Understand the interdependence of organisms in the ecosystem, including food webs and insect pollinated crops

> Understand the dependence of almost all life on Earth on the ability of photosynthetic organisms, such as plants and algae, to use sunlight in photosynthesis to build organic molecules that are an

Understand the process of anaerobic respirations in humans and microorganisms, essential energy store and to maintain levels of including fermentation and a word summary for oxygen and carbon dioxide in the atmosphere anaerobic respiration

What was life like during the turn of BC to AD?

Understand that changes in the environment may species, less well adapted to compete successfully and reproduce, which in turn may lead to

> Understand the interdependence of organisms in the ecosystem, including food webs and insect pollinated crops

> > How have

significant people changed our

Understand a simple model of

chromosomes, genes and DNA in

heredity, including the part played by

Warson, Crick, Wilkins and Franklin in

the development of the DNA model

Understand the difference between aerobic and anaerobic respiration in terms of the reactants, the products formed and the implications for the organism

Understand the process of anaerobic respirations in humans and microorganisms, including fermentation and a vord summary for anaerobic

respiration

Understand the aerobic and anaerobic respiration in living organisms and a word summary for aerobic respiration

Understand how organisms affect, and are affected by, their environment, including the accumulation of toxic materials

Where in the world are you?

Understand the hereditary process by which genetic information is transmitted from one generation to the next and the differences between species

Understand the dependence of almost all life on Earth on the ability of photosynthetic organisms, such as plants and algae, to use sunlight in photosynthesis to build organic molecules that are an essential energy store and to maintain levels of

Could you survive in a

rainforest?

Understand the hereditary process by which genetic information is transmitted from one generation to the next and the differences between species

Understand the reactants in and products of photosynthesis, and a word summary and the adaptations

of leaves for photosynthesis

celebrate?

How has history changed the way we

Understand importance

of plant reproduction

through inspect

pollination in human food

security

Understand how organisms affect, and are affected by, including the accumulation

pollination in human food security

How has history changed

the way we celebrate?



Understand the reactants in and products of photosynthesis, and a word summary and the adaptations of leaves for photosynthesis

extinction and the importance of biodiversity

selection

Understand that the that some organisms which can drive natural

variation between species and between individuals of the same species means compete more successfully,

Understand the difference hetween aerobic and

anaerobic respiration in terms

of the reactants, the products

formed and the implications

for the organism

Street And is the between simate' e and climate?

Understand that changes in the individuals within a species, and some entire species, less well adapted to compete successfully and reproduce. which in turn may lead to

extinction and the importance of biodiversity

How was life different

when Queen Victoria

ruled?

oxygen and carbon dioxide in the atmosphere



reaction of acids with metals to produce salt plus hydrogen and the reaction of acids with alkalis to produce salt

plus water

important for survival? Understand energetics energy changes on changes of state (qualitative) and exothermic and endothermic chemical reactions (qualitative)

Understand materials - the order of metals and carbon in the reactivity series, the use of carbon in obtaining metals from metal oxides and the properties of ceramics, polymers and composites

Understand and identify the concept of pure and impure dissolving and diffusion in terms of particles, simple terminologies for separation mixtures e.g. filtration, evaporation, distillation and chromatography

Understand combustion, thermal decomposition, oxidation and displacement reactions

Understand materials - the order of metals and carbon in the reactivity series, the use of carbon in obtaining • metals from metal oxides and the properties of ceramics.

polymers and

composites

concept of pure and impure substances, mixtures including dissolving and diffusion in terms of particles, simple terminologies for separation mixtures e.g. filtration, evaporation, distillation and chromatography Understand

the reaction of acids with metals to produce salt plus hydrogen and the reaction of acids with alkalis to produce salt plus water

te of the sure of Understand energetics - energy changes on changes of state (qualitative) and exothermic and endothermic

(qualitative)

Understand the pH scale for measuring acidity/ alkalinity and indicators

Understand materials -

the order of metals and

carbon in the reactivity

series, the use of carbon

in obtaining metals from

metal oxides and the

properties of ceramics, olymers and composites



Understand and identify the concept of pure and impure substances, mixtures including dissolving and diffusion in terms of particles, simple terminologies for separation mixtures e.g. filtration, evaporation, distillation and chromatography

Understand the principles underpinning the Mendeleev Periodic Table, the varying physical and chemical properties of different elements, periods and groups and how patterns in reactions can be predicted with reference to the table

What was life like in

medieval times?

Define acids and alkalis in terms of

neutralisation reactions and under-

stand what catalysts do

of matter - the properties of differ-

ent states of matter e.g. solid,

liquid and gas, in terms of the

particle model and changes in state

2024

Understand the reaction of

acids with metals to produce

salt plus hydrogen and the

reaction of acids with alkalis to

produce salt plus water

Understand the pH

cidity/alkalinity and

indicators

like to live

Understand energetics - energy changes

on changes of state (qualitative) and

exothermic and endothermic chemical

reactions (qualitative)

Understand and identify the

elating to particles

How did the

Romans change

our world?

Use empirical formulae

from the ratio of atoms of

different kinds, balanced

chemical and ionic

equations, chemistry of

Understand the principles underpinning

the Mendeleev Periodic Table, the varying

physical and chemical properties of

with reference to the table

What was life like during

the turn of BC to AD?

Define acids and alkalis in

terms of neutralisation

reactions and understand

what catalysts do

Understand the particulate

nature of matter - the

matter e.g. solid, liquid and gas.

in terms of the particle model

and changes in state relating to

particles

2022

decomposition, oxidation and

displacement reactions

2026

oustion, thermal

cement reactions

Understand the pH

acidity/alkalinity and

indicators

decomposition.

xidation and

Earth and atmosphere - Understand the the rock cycle and formation on igneous, sedimentary and metamorphic rocks, the carbon cycle and composition of the atmosphere and the limited resources of the Earth, the impact of human activity on climate and the efficacy of

recycling

How high can I travel on Earth?

Understand evidence for composition and evolution of the Earth's atmosphere and the evidence for climate change, linked to atmospheric pollutants Understand the particulate nature

> **Understand chemical** reactions and the rearrangement of atoms and types of chemical bonding - ionic, covalent

different elements, periods and groups and atmosphere and the limited resources of

how patterns in reactions can be predicted the Earth, the impact of human activity on

Understand chemica

reactions and the

atoms and types of

chemical bonding -

ionic, covalent and

metallic

How have

significant people

changed our

Understand the principles underpinning

the Mendeleev Periodic Table, the

varying physical and chemical properties

of different elements, periods and

groups and how patterns in reactions can

be predicted with reference to the table

How was life different

when Queen Victoria

ruled?

Define acids and alkalis in terms of

neutralisation reactions and

understand what catalysts do

Use empirical formulae

from the ratio of atoms of

different kinds, balanced

chemical and ionic equa-

tions, chemistry of reactions

How does it feel to be

part of a carnival?

Understand how to find the atomic mass, charges,

isotopes and number of particles and properties

and trends of elements in the same group and

characteristics of metals and non-metals

Earth and atmosphere - Understand the

composition and structure of the Earth;

the rock cycle and formation on igneous.

sedimentary and metamorphic rocks, the

carbon cycle and composition of the

climate and the efficacy of recycling

Understand evidence for composition and

evolution of the Earth's atmosphere and the

evidence for climate change, linked to

atmospheric pollutants

Could you survive in a

rainforest?

Understand a simple atomic model, the compounds, chemical symbols and formulas and conservation of mass changes in state and chemical reactions relating to position

using formula and equations

Understand a simple atomic

model, the difference between

atoms, elements and

compounds, chemical symbols

and formulas and conservation

of mass changes in state and

chemical reactions relating to

Understand how to find the atomic mass,

charges, isotopes and number of particles

and properties and trends of elements in

the same group and characteristics of

metals and non-metals

tions using formula and equations

Understand evidence for composition

and evolution of the Earth's atmosphere

and the evidence for climate change,

linked to atmospheric pollutants

How do different

countries and religions

chemical reac-

Represent

climate and the efficacy of recycling

Can you travel the whole way around the world? world history?

> Understand the principles underpinning the Mendeleev Periodic Table, the of different elements, periods and groups and how patterns in reactions can be predicted with reference to the table

Use empirical formulae from the ratio of atoms nature of matter - the properties of different kinds, balanced chemical and ionic equations, in state relating to particle chemistry of reactions

change our

Understand chemical reactions and the

rearrangement of atoms and types of chemical bonding - ionic, covalent and metallic

Understand the reaction of acids with metals to produce salt plus hydrogen and the reaction of acids with alkalis to produce salt plus water

2023

Understand the principles underpinning the Mendeleev Periodic Table, the varying physical and chemical properties of different elements periods and groups and how patterns in reactions can be predicted with reference to the

Why was the year 1666 important to London?

Understand evidence for composition and evolution of the Earth's atmosphere and the evidence for climate change, linked to

> Use empirical formulae from the ratio of atoms of different kinds, balanced

chemical and ionic equations, chemistry

of reactions

Understand chemical reactions and the rearrangement of atoms

properties of different states of matter e.g. solid, liquid and gas, in terms of the particle model and changes in state relating to particles

Use empirical

formulae from the

ratio of atoms of

different kinds,

and ionic equations,

hemistry of reactions

Science—Chemistry

Understand the particulate nature of matter - the properties of different states of matter e.g. solid, liquid and gas, in terms of the particle model and changes

in state relating to particles

2025

Understand materials - the orde

of metals and carbon in the

reactivity series, the use of carbon

in obtaining metals from metal

oxides and the properties of

ramics, polymers and composites

Define acids and alkalis in

terms of neutralisation

reactions and understand

Learning Journey

Key Stage 3/4

Understand and identify the concept of pure

and impure substances, mixtures including

dissolving and diffusion in terms of particles.

simple terminologies for separation mixtures

e.g. filtration, evaporation, distillation and

Understand the reaction of

acids with metals to produce

salt plus hydrogen and the

eaction of acids with alkalis

to produce salt plus water

Understand

thermal

decomposition

oxidation and

displacement

reactions

Understand the

pH scale for

measuring

acidity/alkalinity

and indicators

energetics - energy

changes on changes of

state (qualitative) and

exothermic and

endothermic chemical

reactions (qualitative)

Understand

thermal

decomposition

displacement

pH scale for

measuring

acidity/

alkalinity and

indicators

impure substances, mixtures including dissolving and

diffusion in Understand and identify the concept of

pure and impure substances, mixtures including

dissolving and diffusion in terms of particles, simple

evaporation, distillation and chromatography terms

of particles, simple terminologies for separation

mixtures e.g. filtration, evaporation, distillation and

chromatography

How are skills

from the iron/ stone age still used today?

Understand chemical reactions and the rear rangement of atoms and types of chemical bonding - ionic, covalent and metallic

Earth and atmosphere - Understand the rock cycle and formation on igneous, sedimentary and metamorphic rocks, the carbon cycle and composition of the

composition and structure of the Earth: the atmosphere and the limited resources of

celebrate?

what catalysts do. Are the Pyramids of Giza an important part of

of different states of matter e.g solid, liquid and gas, in terms of the particle model and changes

Did the Vikings

world?

part of a carnival?

Earth and atmosphere - Understand the

composition and structure of the Earth; the rock

cycle and formation on igneous, sedimentary and

metamorphic rocks, the carbon cycle and

composition of the atmosphere and the limited

resources of the Earth, the impact of human activity

on climate and the efficacy of recycling

How does it feel to be

Understand how to find the atomic mass, charges, isotopes and number of particles

Understand a simple atomic

model, the difference between

compounds, chemical symbols

and formulas and conservation

of mass changes in state and

chemical reactions relating to

and properties and trends of elements in the same group and characteristics of

Understand a simple atomic model the difference between atoms. elements and compounds, chemical symbols and formulas and conservation of mass changes in

relating to position

How has history changed the way we celebrate?

Represent chemical reactions using formula and equations

Understand how to find the atomic mass, charges, isotopes and number of particles and properties and trends of elements in the same group and characteristics of metals and non-metals

composition and structure of the Earth; the rock cycle and formation on igneous, sedimentary and metamorphic rocks, the carbon cycle and composition of the atmosphere and the limited resources of the Earth, the impact of human activity on climate and the efficacy of recycling

Where in the world are you?

Understand evidence for composition and evolution of the Earth's atmosphere and the evidence for climate change. linked to atmospheric pollutants



Represent chemical reactions using formula and equations

Understand how to find the and number of particles and properties and trends of

atomic mass, charges, isotopes and characteristics of metals

and non-metals

Would you like to live in

Earth and atmosphere - Understand the

Understand a simple atomic model, the atmospheric pollutants difference between atoms, elements and compounds, chemical symbols and formulas and conservation of mass changes in state and chemical reactions

relating to position

How has history changed the way we celebrate?

ionic, covalent and metallic

Understand materials - the order of series, the use of carbon in obtain-

Define acids and alkalis in terms of neutralisation what catalysts do



ing metals from metal oxides and

the properties of ceramics, poly-

mers and composites



What makes a person significant?



Understand energetics - energy

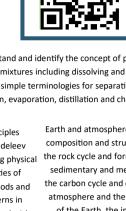
changes on changes of state

(qualitative) and exothermic and

endothermic chemical reactions

(qualitative)

and types of chemical bonding - Understand the particulate nature of matter - the





2026

and mass and observability, similarities and

Our Sun as a star, other

stars in our galaxy, other

galaxies and the light

year as a unit of

astronomical distance

What was life like in

medieval times?

Similarities and differences between light speed or direction

requencies of light

Calculation of fuel uses and costs - food physiotherapy by ultrasound and

What was life like during

Electrical currents -

difference measured in

volts, differences in

changed our

Forces - pushes and pulls; force arrows in

diagrams; stretching and squashing; friction

and resistance; forces measured in new-

tons: force-extension linear relation: work

done and energy changes; non-contact

forces e.g. gravity, electrostatic, gravity

How was life different

when Queen Victoria

ruled?

Our Sun as a star,

other stars in our

galaxy, other

galaxies and the light

year as a unit of

astronomical

distance

the turn of BC to AD?

How did the

Romans change

our world?

The seasons and the

Earth's tilt, day length

at different times of

year, in different

hemispheres

Electrical currents -

measures, circuits, difference

measured in volts,

differences in resistance;

static electricity and causes.

electrical fields

2024

labels (kJ), power rating in appliances (W,

kW), energy transferred (J, kJ, kW hour),

omestic fuel bills, fuels and energy resources

Forces - pushes and pulls; force arrows in dia-

grams; stretching and squashing; friction and

resistance; forces measured in newtons; force-

extension linear relation; work done and

energy changes; non-contact forces e.g. gravity, electrostatic

Our Sun as a star,

waves and waves in matter; speed of light

and travelling through a vacuum;

transmission through materials; ray model;

Calculation of fuel uses and costs - food labels (kJ), power rating in appliances (W, kW), energy transferred (J, kJ, kW hour), domestic fuel bills, fuels

and energy resources atmospheric

important for survival? decreases with increase of height as weight of air above decreases with height; pressure in liquids, increasing with depth; pressure measured by ratio

Magnetism - poles, attraction and repulsion, magnetic fields by plotting with compass, represented by field lines, Earth's magnetism, compass and navigation, magnetic effects of a current Physical changes of matter - conservation

similarities and differences, including density between solid, liquids and gases, Brownian motion in gases, diffusion in liquids and gases, difference between chemical and physical

The seasons and the Earth's tilt, day length at different times of year in different hemispheres

Magnetism poles, attraction and repulsion, like to live magnetic fields by plotting with by field lines, Earth's magnetism, compass and navigation, magnetic effects of a

Pressure in fluids - atmospheric pressure, decreases with increase of height as weight of air above decreases with height; pressure in liquids, increasing with depth; pressure measured by ratio of force over area

galaxy, other galaxies and the light year as a distance

The seasons and the

at different times of

year, in different

hemispheres

Electrical currents -

measures, circuits.

difference

measured in volts.

resistance; static

electricity and

causes, electrical

fields

Earth's tilt, day length

Similarities and differences between light waves and waves in matter; speed of light and travelling through a vacuum; transmission through materials; ray model; light transferring energy from a source; colours and

2022

Physical changes of matter - conservation of material and

mass and observability, similarities and differences.

including density between solid, liquids and gases,

Brownian motion in gases, diffusion in liquids and gases

difference between chemical and physical changes

Calculation of fuel uses and power rating in appliances (W, kW), energy transferred (J, kJ, kW hour), domestic fuel bills, fuels and energy

Pressure in fluids atmospheric ent Republic of the sure of th pressure. decreases with increase of height as weight of air above decreases with height; pressure in liquids, increasing with depth; pressure measured by ratio of force over area

> Magnetism - poles, attraction and repulsion, magnetic fields by plotting with compass, represented by field lines, Earth's magnetism, compass and navigation, magnetic effects of a current



Forces - pushes and nulls: force arrows in diagrams; stretching and Physical changes of matter - conservation of material squashing; friction and resistance; forces differences, including density between solid, liquids and measured in gases, Brownian motion in gases, diffusion in liquids and newtons: forcegases, difference between chemical and physical changes. و

forces e.g. gravity,

electrostatic

Motion and forces - describing motion -

speed = distance/time; representation

of a journey on a time-distance graph;

relative motion: trains and cars passing

one another: forces needed to cause

objects to start or stop moving, change

ring energy; use for cleaning and

for conversion to electrical

signals by microphone

speed = distance/time; representation

speed or direction

motion and closeness of

participles explaining

displacement unchanged; heating and thermal equilibrium: other processes that involve energy transfer - the amount of energy; using work done and energy changing motion, dropping an changes; non-contact object, electrical circuits, springs, metabolism of food, burning of fuel

as a quantity that can be quantified and calculated; comparing the starting with the final conditions of a system and describing

physical processes and mechanisms, rather than energy, to explain changes

Learning Journey Use of pressure waves transferring energy; use for cleaning and physiotherapy by ultrasound and waves transferring

> transmission through materials; ray source; colours and frequencies of light

> > How are skills

information for conversion to electrical signals by microphone

Similarities and differences between Calculation of fuel uses and costs - food light waves and waves in matter; speed labels (kJ), power rating in appliances (W, of light and travelling through a vacuum; kW), energy transferred (J, kJ, kW hour), domestic fuel bills, fuels and energy

Key Stage 3/4

matter - conservation of material

including density between solid.

and mass and observability,

similarities and differences,

motion in gases, diffusion in

liquids and gases, difference

Pressure in fluids - atmospheric

pressure, decreases with

pressure

measured by ratio

of force over area

the Earth's tilt,

day length at

vear, in different

Magnetism - poles.

repulsion, magnetic fields

by plotting with compass

Earth's magnetism, compass

and navigation, magnetic

conservation of material and

mass and observability,

similarities and differences

including density between

solid, liquids and gases,

Brownian motion in gases,

diffusion in liquids and gases,

difference between chemical

and the

Earth's tilt.

day length at

different

times of year

hemispheres

Magnetism -

and repulsion,

effects of a current

effects of a current

increase of height as weight of air above decreases with height; pressure

between chemical and physical

Science—Physics

How do different countries and religions celebrate?

Motion and forces describing motion speed = distance/time; representation of a journey on a timedistance graph; relative passing one another: objects to start or stop

from the iron/ stone age still used today? Waves - observed waves as undulations: sound waves - frequencies; the need for

medium to travel; sound produced by vibrations; auditory range of human and animals Produce of force and displacement unchanged; heating and thermal equilibrium; other processes that involve energy transfer

changing motion, dropping an object,

electrical circuits, springs, metabolism of

forces e.g. gravity, electrostatic food, burning of fuel Gravity force, weight = mass x gravitational field strength. comparing Earth and other planets; gravitational forces between Earth and Moon, and Earth and Sun

Are the Pyramids of Giza an important part of

world history?

Electrical currents measures, circuits, difference measured in volts, differences in resistance; static electricity

undulations; sound waves frequencies; the need for medium to travel; sound produced by vibrations: energy stored in auditory range of human and

animals $^{\ \ }$ Did the Vikings change our world?

Gravity force, weight =

Similarities and differences betwee and causes, electrical fields light waves and waves in matter:

speed of light and travelling through a Physical changes of matter vacuum; transmission through materials; ray model; light transferring energy from a source; colours and frequencies of light

Our Sun as a star, other stars in our

galaxy, other galaxies and the light

2025

arrows in diagrams; stretching and

squashing; friction and resistance;

forces measured in newtons; force-

extension linear relation: work done

and energy changes; non-contact

2023

physiotherapy by ultrasound and waves transferring information for conversion to electrical signals by microphone Calculation of fuel uses and costs - food

labels (kJ), power rating in appliances (W, kW), energy transferred (J, kJ, kW hour), domestic fuel bills, fuels and energy resources Forces - pushes and pulls; force arrows in mass x gravitational field diagrams; stretching and squashing; friction and energy changes; non-contact forces

galaxies and the light

astronomical distance

Waves - observed waves as undulations; sound waves - frequencies; the need for medium to travel; sound produced by vibrations auditory range of huma



What makes a

person significant?

Similarities and differences between light waves and waves in matter: speed of light and travelling through a vacuum: transmission through materials; ray model; light transferring

energy from a source; colours and frequencies of light

How high can I travel on Earth?

Gravity force, weight = mass x gravitational field strength. comparing Earth and other planets

Changes in systems - energy as a of a system and describing changes of state, shape and

Waves - observed waves as

undulations: sound waves -

to travel; sound produced by

vibrations; auditory range of

quantity that can be quantified and calculated; comparing the increases and decreases in the amount of energy; using physical th transferring energy from density of ice-water; internal processes and mechanisms, rather moving, change speed than energy, to explain changes

How does it feel to be Can you travel the whole part of a carnival? way around the world?

Changes in systems energy as a quantity that can be quantified and calculated; comparing the starting with the final conditions of a in the amount of energy; using physical processes and mechanisms, rather objects to start or stop moving, change Earth and Moon, and Earth

Differences in arrangements increases and decreases than energy, to explain

closeness of participles explaining changes of state, shape and density of icechanges

water; internal

motion and

How does it feel to be part of a carnival?

Motion and forces - describing

motion - speed = distance/

time: representation of a

graph: relative motion: trains

and cars passing one another;

^sforces needed to cause objects

Use of pressure waves transferring energy; use for cleaning and

thermal equilibrium; other processes that involve energy transfer - changing motion, dropping an object, electrical circuits,

tional forces between

Could you survive in a

rainforest?

resistance: static electricity springs, metabolism of food, burning of fuel and causes, electrical fields Changes in systems - energy as a quantity that Waves - observed waves the starting with the final conditions of a system and describing increases and decrease

as undulations; sound waves - frequencies; the need for medium to in the amount of energy; using physical travel; sound produced by vibrations; auditory range

Motion and forces - describing motion - Gravity force, weight =

of a journey on a time-distance graph; strength, comparing Earth

relative motion: trains and cars passing and other planets; gravita-

processes and mechanisms, rather than energy, of human and animals How have

How has history significant people changed the way we celebrate?

> Use of pressure waves transferring energy; use for cleaning and physiotherapy by ultrasound and waves transferring information for conversion to electrical signals by microphone

> > Motion and forces - describing motion - speed = distance/time; representation of a journey on a time-distance graph; relative motion: needed to cause objects to start or stop

moving, change speed or direction Where in the world are

= mass x gravitational field strength, comparing Earth and other planets; gravitational forces between Earth and Moon,

and Earth and Sun

motion, dropping an object. electrical circuits, springs, metabolism of food, burning of fuel

Differences in arrangements, motion and closeness of participles explaining changes of

the way we celebrate?

water; internal energy stored in by microphone

Would you like to live in Produce of force and displacement Differences in arrangements,

motion and closeness of participles explaining changes of state, shape and density of ice-water; internal energy

trains and cars passing one another; forces

you?

Gravity force, weight

Produce of force and displacement unchanged; heating and thermal equilibrium; other processes that involve energy transfer - changing

state, shape and density of ice-

unchanged; heating and thermal equilibrium; other processes that stars in our galaxy, other involve energy transfer - changing motion, dropping an object, electrical circuits, springs, metabolism of food, burning of fuel

Changes in systems - energy as a quantity that can be quantified and calculated; comparing the starting with the final conditions of a system and describing increases and decreases in the amount of energy; using physical processes

and mechanisms, rather than energy, to explain changes How has history changed

> Use of pressure waves transferring energy; use for cleaning and physiotherapy by ultrasound and waves transferring information for conversion to electrical signals

strength, comparing Earth and resistance; forces measured in newtons; force-extension linear relation: work done e.g. gravity, electrostatic, gravity magnetic fields by plotting with compass, represented by field lines. Earth's magnetism, compass and navigation, magnetic

and other planets: to start or stop moving, change between Earth and Moon, and Farth and Sun

Why was the year 1666 important to London?

> Electrical currents measures, circuits, difference measured in volts, differences in resistance; static electricity

with depth; pressure measured by ratio and causes, electrical fields of force over area





Pressure in fluids - atmospheric pres-

sure, decreases with increase of height

as weight of air above decreases with

height; pressure in liquids, increasing



