St Paul's C of E Primary School

Sugar, spice and all things nice... what are we made of?

This unit of work will focus on Scientific, Geographical and Design Technology skills and knowledge, supporting pupils in their view of the the wider world. Pupils will explore where their food comes from and how it travels before it reaches their plate. Pupils will explore the world's natural resources, how and where humans fit it into this. In addition, pupils will explore diet and nutrition, understanding how to stay healthy and the makeup of the human body.

Computing

Pathway 1

Programming and Algorithms

Discrete Lessons

RE: Glos Syllabus

PHSE: Being Me, In My World

Music: Pathway 4: Performance

PE: Flexibility and balance

MFL (KS2): Greetings and Feelings

Geography

Pathway 3

Food miles and Natural Resources

Science

Pathway 4

Animals and their environment (humans)

Design Technology

Pathway 3

Diet, Nutrition and Hygiene

	North Gate (N/R)	East Gate (1/2)	South Gate (3/4)	West Gate (5/6)
Biology –ANIMALS, Including Humans.	To identify, name, draw and label the basic parts of the human body (head, chest, eyes, nose, mouth, ears, feet, hands, arms, legs) ***WS: Identifying and Classifying***	To understand that although humans all look different they have the same body parts. ***Knowledge*** To understand that the nose, eyes, ears, mouth and skin are linked to the five senses *nose-smell, eyes-sight, hands-touch, ears-hearing, tongue-taste)* ***Knowledge***	To identify, name, draw and label parts of the human body (ankles, knees, elbows, joints, bones, muscle, brain) ***WS: Identifying and Classifying*** To begin to recognise that humans may have adaptations of their bodies based on disability or additional needs ***Knowledge***	To name human body parts – both external and internal using scientific vocabulary (femur, tibia, fibula, humorous, ulna, radius, cranium, sternum, scapula, spine, biceps, triceps, quadricep, calf, abdominal and gluteal muscles) ***Knowledge*** To explore human adaptations, understanding how this may impact an individual's life ***Knowledge*** To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. ***WS: Identifying and Classifying and Knowledge*** To recognise the impact of diet, exercise and drugs on the way human bodies function ***WS: Observation and Research***
	To begin to understand how to keep teeth clean. ***Knowledge***	To understand that the body changes as humans get older ***Knowledge*** To understand why humans have teeth ***Knowledge***	To give examples of how the human body changes as they grow older ***WS: Observation***	To describe and explain the changes as humans develop to old age. ***Knowledge***

		To begin to recognise that there are different types of teeth ***WS: Identifying and Classifying*** To know how to keep teeth clean, including through experimenting what happens to teeth when they are not kept clean. ***WS: Observation, Fair Test, Recording Data.*** To begin to understand the journey of food through the body (in mouth, chew, swallow, stomach/tummy, poo). ***Knowledge*** To understand that food needs to be cut up before eating to reduce risk of choking. ***Knowledge***	To know the different types of teeth in humans ***Knowledge*** To identify the different functions of each tooth type: incisors – cutting; canines –tearing; premolars & molars – chewing & grinding. ***WS: Identifying and Classifying*** To understand that the teeth are necessary as part of the digestive process in animals. ***Knowledge*** To know how to keep teeth clean and understand what might happen if they are not looked after ***WS: Observation, Fair Test and Recording Data.*** To know the simple functions of the digestive system in humans (mouth, stomach, intestines) ***Knowledge*** To understand the role of saliva and stomach acid in breaking down food to support digestion ***WS: Observation and Comparative*** To know that nutrients are absorbed by the body and waste is excreted through the anus via the rectum ***Knowledge***	To identify and recognise different types of teeth in humans and how this compares to different animals, based on their dietary requirements. ***Knowledge*** To understand that teeth decay with age and that they contribute to facial shape and structure. ***Knowledge and WS: Research*** To know that some foods e.g. sweet and acid and some drugs, including cigarettes) will accelerate dental decay. ***WS: Observation, Fair Test and Recording Data.*** To explore what happens if part of the human digestive system is compromised ***Knowledge*** To understand the link between food choices and the impact on the body, now and in later life e.g. impact of obesity and on risk of developing diseases such as diabetes. ***Knowledge***
	Working Scientifically			

	Identify and Classify: Identifying body parts and organs e.g. which organs of the body make up the circulatory system? **Comparative Testing**: Comparing teeth of different animals, comparing different exercises and their effect on our heart rate. **Fair Testing**: How does the length of time effect our heart rate? Can exercising regularly affect your lung capacity? How does the length of time we do not brush our teeth affect how fast our teeth decay? **Pattern Seeking**: Is there a pattern between what we eat for breakfast and how fast we can run? **Research**: What ideas did Edward Jenner have about small pox and how did he test them? What is the role of the dentist and how do you become a dentist? **Observation over time**: How does my heart rate change over the day? How much exercise do I do in a week? What happens if I do not brush my teeth for a long period of time?
	Famous Scientists: Claudius Galen – Anatomy Leonardo Da Vinci – Anatomy Sir Richard Doll – Linking smoking and health problems. Patricia Bath (BP Website) – saving sight (links to light). William Harvey (1578 – 1657) Discovery of the circulatory system.
	KS3: The consequences of imbalances in the diet, including obesity, starvation and deficiency diseases. The effects of recreational drugs (including substance misuse) on behaviour, health and life processes. Cells and organisation. The skeletal and muscular system. Nutrition and digestion. Gas Exchange stems Reproduction and health.

Geography Subject Pathway 3

(including climate change and resources/ volcanoes/ earthquakes/ Trade)

North Gate (N/R)	East Gate (1/2)	South Gate (3/4)	West Gate (5/6)
Global To recognise different types of weather. To be able to match plants and animals with their habitats. To begin thinking about things we can do to look after our environment e.g. tidying toys away, keeping equipment tidy. **Trade** To begin to understand where food comes from and that some foods grow from a plant or tree.	**Fieldwork:** Begin unit by conducting fieldwork in school to identify a suitable place to: - observe weather and seasonal changes monthly/ - place a rain gauge - place a wind vane Observe and measure changes monthly. **Climate Change and Resources** To understand that the weather is changing, temperatures are increasing due to human impact. To begin to understand the term 'global warming' and recognise how it is impacting our world To think of ways to slow down and reduce the impact of climate change (i.e. recycle, turn off lights, walk to school) To understand that the ice caps are melting due to climate change To give some reasons how climate change is affecting people in The Artic **(Identify the Artic and Antarctica on a map)**	**Climate Change and Resources** To identify renewable and non renewable energy sources To explain why non-renewable energy sources are contributing to climate change To identify the advantages and disadvantages of renewable sources of energy and form my own opinions about their merits To explain a range of actions people can take to reduce energy use **Trade** To understand that UK imports most of it's energy from other countries To identify different sources of food I can explain why food production is sometimes harmful to the planet I know what sustainable farming is I can explain why water is a precious resource and identify some of the threats to its availability and distribution.	**Climate Change and Resources** To explain what sustainability means To explain what a carbon footprint is and identify changes likely to make a positive difference. To explain which foods have the highest carbon footprint and suggest choices that can lower this. To explain what biodiversity is and give some reasons why nature matters for a sustainable world. To investigate how we are linked to other people and places through global trade in clothing. To use import and export data to investigate global trade in commodities and manufactured goods. I can explain how the choices we make can affect other people, places and environments, and reflect on my own opinions about ethical trade. **Trade**

	Trade To begin to understand where my food comes from (i.e. food that comes from the land, from animals, from another country) **Use food labels to identify where food comes from and find them on map**		To recognise and understand the distribution of natural resources worldwide and how this influences the wealth/ power of a country (oil, coal, precious metals) To explore and research how a country's economic growth is attributed to natural resources (The Middle East) Understand that natural resources are not always positive – explore and compare to diamond trade in Africa To know and understand how a country's natural resources may be depleted and the consequent impact on the country - human, animal, vegetation, physical effects, financial i.e. Palm Oil.

	North Gate (N/R)	East Gate (1/2)	South Gate (3/4)	West Gate (5/6)
Key Pathway 3: Diet, Nutrition and hygiene	To understand that we must wash our hands before eating and the reasons for this	To understand basic kitchen and hand hygiene and know kitchen safety rules. To be introduced to basic kitchen skills under supervision: grating, mixing, crushing, spreading, chopping soft food into large dice and Batonnet.	To build upon previous basic kitchen skills: chopping food into medium and small dice and Julienne, slicing, mashing, beating, using heat with the supervision of a responsible adult	To apply practical skills to develop a repertoire of predominantly savoury dishes to feed themselves and others.
	To know which foods are healthy and which are not	To understand the difference between healthy and non-healthy foods.	To identify the five main food groups grains and starches, fruits and vegetables, meat and fish, dairy, fats and sugars To begin to relate the five main food groups to the food pyramid and be able to relate this to appropriate portion sizing.	To differentiate between a healthy and an unhealthy diet relating to required energy intake, activity levels and lifestyle choices
	To know the importance of eating fruit and vegetables	To use the Eat Well plate to understand healthy portion sizes.	To relate food choices and consumption to exercise and lifestyle choices *e.g. a rugby player is likely to need more calories than an office worker*	To have an awareness and understanding of calories and relate this to energy expenditure *e.g. how many calories are in a chocolate bar? How long would you have to run/walk/ cycle to spend these?*
		To begin to understand the role of food for growth and development.	To begin to consider what affects food taste and how this can be changed e.g use of salt/ acid/ fat/heat	
		To be introduced to different food groups for appearance, feel, smell and taste.	To know some different styles of food eaten around the globe and be able to name examples *e.g. pizza is Italian*	

	To know that some foods can be grown on a farm and some comes from animals	To have an understanding of the farm to plate journey. To be able to orally describe and share foods commonly eaten in your home and at celebrations. To know that food travels from different countries, and can be grown in the UK – discuss which is better for the environment	*T*o recognise that food travels from different countries and this impacts on Global Warming (food miles)	To understand food seasonality and how the food we eat affects our world in terms of environmental impact

VISITS			
	FARM – ESSENTIAL VISIT In-house bakeries at supermarkets (Lidl, Sainsburys)	Bakeries/Restaurants (Pizza Express, Wagamamas etc)	Thermoformed Packaging, Futura Foods (Dursley, Phoenix Factory (Food), Unilever (Glos – icecream
CONTINUOUS PROVISION			
	Food and recipe designing Cutting and chopping station	• Investigation tables (what would/would not work) • Cutting and chopping station • Healthy eating menus and recipes	• Investigation tables (what would/would not work) • Cutting and chopping station • Designing a menu plan for an athlete compared to a diet plan for an office worker

North Gate Nursery/Reception	East Gate Year 1 and 2	South Gate Year 3 and 4	West Gate Year 5 and 6
Through exploration and application of the essential concepts, pupils will:			
Programming (including algorithm) To follow instructions as part of practical activities and games To follow instructions as part of practical activities and games Eg guide a friend through a maze To learn to give simple instructions To follow instructions as part of practical activities and games and to learn to debug when things go wrong To learn that an algorithm is a set of instructions to carry out a task, in a specific order To learn how to explore and tinker with hardware (Kindles, remote control cars) to develop familiarity and introduce relevant vocabulary associated with algorithms To understand the meaning of directional arrows To follow a simple sequence of instructions	**Programming (including algorithms)** *To use a programme to solve a simple problem (use of bee-bots/EARL)* *To understand what algorithms are, how they are implemented as programmes on digital devices and that programs execute by following precise and unambiguous instructions* *To create and debug simple programs* To understand that an algorithm is a sequence of commands To begin to explain what an algorithm can do and why they are used To begin to describe an algorithm to complete a simple task To begin to write a 3 step algorithm to complete a simple task To begin to explore outcomes (what happens when…) when commands are given in different orders	**Programming (including algorithms)** *To use reasoning to predict the behaviour of simple programs* To understand that an algorithm is a sequence of precise commands as a program on a digital device To describe and write an algorithm for a simple task (no more than 5 steps) To explain what a program is and understand that programs execute by following precise and unambiguous instructions To investigate how the sequence of commands can impact or change an algorithm and its outcome To begin to debug programs that accomplish specific goals To use repetition in programs To begin to use logical reasoning to predict behaviour of a simple, 4 step program and give reasons for this To reorder a sequence of instructions and correct errors in programs To understand that correcting errors is called debugging a program	**Programming (including algorithms)** *As Phase 2/3 and including…* *KS2: To design, write and debug programs that accomplish specific goals, including controlling or stimulating physical systems, solve problems by decomposing them into smaller parts* *KS2: To use sequence, selection and repetition in programs, work with variables and various forms of input and output* *KS2: To use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs* To understand that an algorithm is a sequence of precise commands as a program on a digital device To design programs that accomplish specific goals by creating a procedure (group of commands) to do a specific task i.e. draw a specific shape

	To experiment with programming a Bee-bot/EARL To explore and tinker with hardware to develop familiarity and introduce relevant vocabulary associated with programming a toy To experiment with programming a Bee-bot/EARL and to learn how to give simple commands To learn to debug instructions, with the help of an adult, when things go wrong To follow an algorithm as part of an unplugged game	To combine 3 commands to follow a route, controlling a range of electronic toys i.e. electric cars, bee bots To begin to understand that correcting errors is called debugging a program		To solve problems by decomposing them into smaller steps To reason about why the sequence of commands is important when creating an algorithm To work with variables and understand how a small change can alter an outcome To use logical reasoning to predict, detect and correct errors in algorithms, bulding to more complex sequences of commands. To use 'if…' then a command within a series of commands and discuss the potential changes, impacts of this command To plan and test algorithms and programs, detecting and correcting errors as required