Year 6 Pegasus Class — Tomorrow's World — Cycle A 2020-2021 Term 6

St Peter's PRIMARY SCHOOL

	Computing	Design and technology	Science	History
Programme of Study	Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. **Relationships Education:** Know that people sometimes behave differently online, including by pretending to be someone they are not. Know that the same principles apply to online relationships as to face to face relationships, including the importance of respect for others online including when we are anonymous. Know the rules and principles for keeping safe online, how to recognise risks, harmful content and contact, and how to report them. **Health Education:** Know that bullying (including cyberbullying) has a negative and often lasting impact on mental wellbeing. Know that for most people the internet is an integral part of life and has many benefits. Know that the internet can also be a negative place where online abuse, trolling, bullying and harassment can take place, which can have a negative impact on mental health. Know how to be a discerning consumer of information online including understanding that information, including that from search engines, is ranked, selected and targeted. Know how to consider the effect of their online actions on others and know how to recognise and display respectful behaviour online and the importance of keeping personal information private. Know why social media, some computer games and online gaming, for example, are age restricted.	Understand how key events and individuals in design and technology have helped shape the world. Investigate and analyse a range of existing products. Apply their understanding of computing to program, monitor and control their products. Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.	Recognise that light appears to travel in straight lines. Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future. Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Use recognised symbols when representing a simple circuit in a diagram. Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.	Know and understand significant aspects of the history of the wider world: the nature of ancient civilisations; the expansion and dissolution of empires; characteristic features of past non-European societies; achievements and follies of mankind.

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Year 6 Learning Intention (skills)	Name some of the positives and negatives of communicating with others online. Critically evaluate search engine results and identify factors that may affect ranking, such as how long the site has existed, the number of links to the site and whether the organisation has paid to have their site promoted Demonstrate how programs run in an exact order by following a sequence of instructions, and test and debug programs. Select, use and combine a variety of software, including internet services, to meet a goal. Design, write and debug a program to control a physical system, which may include output devices, such as motors, lights and buzzers. Exchange online communications, making use of a growing range of available features and being aware of security settings.	Present a detailed account of the significance of a favourite designer or inventor. Analyse how an invention or product has significantly changed or improved people's lives. Use a sensor to monitor an environmental variable, such as temperature, sound or light. Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others. Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways	Identify that light travels in straight lines. Describe, using diagrams, how light behaves when reflected off a mirror (plane, convex or concave) and when passing through a lens (concave or convex). Explain that, due to how light travels, we can see things because they give out or reflect light into the eye. Create circuits using a range of components and record diagrammatically using the recognised symbols for electrical components. Explain how the brightness of a lamp or volume of a buzzer is affected by the number and voltage of cells used in a circuit. Plan and carry out a range of enquiries, including writing methods, identifying and controlling variables, deciding on equipment and data to collect and making predictions based on prior knowledge and understanding.	Articulate and present a clear, chronological world history narrative within and across historical periods studied.

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Year 6 Knowledge	The positives of communicating online include the speed, low cost and ability to communicate globally. The negatives of communicating online include the threat to privacy, influencing of others, access to technology and anonymity. Search engines take many factors into account, such as the quality of the site, number of updates or number of matches to keywords. However, search engines do not consider whether the content is true, age-appropriate or relevant, and so users need to be aware of these things when searching. Decomposition is breaking down a problem down into smaller parts to make it easier to process and following a sequence of instructions. Decomposition is useful for checking programs and debugging because it saves time. A variety of software, such as word processing software, image editing software or internet services, can be selected, used and combined to meet a goal. Input and output devices can be combined with programming software to control a physical system, such as using sensors to create a sensory station that incorporates motors, lights and buzzers. There are a wide variety of online communication platforms, such as social media, blogs, vlogs, email or messaging, which have different available features, including the option to comment. It is important to be aware of security settings, such as age restrictions or property rights.	The significance of a designer or inventor can be measured in various ways. Their work may benefit society in health, transport, communication, education, the built environment or technology. It may enhance culture in different areas, such as fashion, ceramics or computer games. People's lives have been improved in countless ways due to new inventions and designs. For example, the Morrison shelter, designed by John Baker in 1941, was an indoor air-raid shelter used in over half a million homes during the Second World War. It saved the lives of many people caught in bombing raids. Computer monitoring uses sensors as a scientific tool to record information about environmental changes over time. Computer monitoring can also log data from sensors and record the resulting information in a table or graph. Design is an iterative process, meaning alterations and improvements are made continually throughout the manufacturing process. Evaluating a product while it's being manufactured, and explaining these evaluations to others, can help to refine it. Design criteria should cover the intended use of the product, age range targeted and final appearance. Ideas can be communicated in a range of ways, including through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.	Light travels in straight lines. Mirrors and lenses are used in a range of everyday objects (telescopes, periscopes, cards and on roads). The human eye has a lens that bends and focuses light on the back of the eye (retina) so that we can see. Light sources give out light. They can be natural or artificial. When light hits an object, it is absorbed, scattered, reflected or a combination of all three. Light from a source or reflected light enter the eye. Vertebrates, such as mammals, birds and reptiles, have a cornea and lens that refracts light that enters the eye and focuses it on the nerve tissue at the back of the eye, which is called the retina. Once light reaches the retina, it is transmitted to the brain via the optic nerve. There are recognised symbols for different components of circuits. Voltage is measured in volts (V) and is a measure of the difference in electrical energy between two parts of a circuit. The bigger the voltage, the more electrons are pushed through the circuit. The more voltage flowing through a lamp, buzzer or motor, the brighter the lamp, the louder the buzzer and the faster the motor. A method is a set of clear instructions for how to carry out a scientific investigation, including what equipment to use and observations to make. A variable is something that can be changed during a fair test. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.	Timelines demonstrate the chronology and links between key civilisations, events and significant inventions in world history.