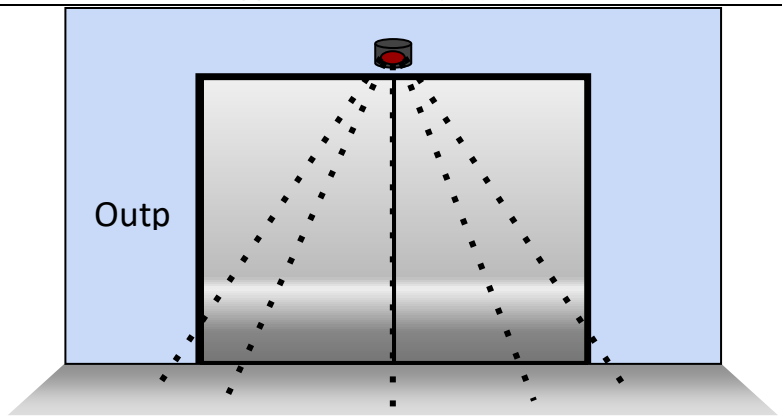
Jeavons Wood Primary School

Knowledge Organiser for Year 5

Big question: How do connected computer systems and search engines shape the way we find and use information?

KS2 National curriculum specification
• 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



In this unit, the children will:
Explain that computers can be connected together to form systems.
Recognise the role of computer systems in our lives.
Identify how to use a search engine.
Describe how search engines select results.
Explain how search results are ranked.
Recognise why the order of results is important, and to whom.

Key vocabulary:	
System	A set of connected parts that work together to perform a task or achieve a goal.
Input	Information or data that goes into a system for processing.
Process	The steps or actions a system takes to change input into output.
Output	The result produced by a system after processing the input.
Protocol	A set of rules that devices follow to communicate with each other.
IP Address	A unique number that identifies a device on a network or the internet.
Pocket	A small, contained piece of data sent across a network.
Reuse	Using something again instead of throwing it away or starting from scratch.
Explore	To investigate or look into something to learn more about it.
Collaboration	Working together with others to achieve a shared goal.

Systems	Computer System Examples
-Systems are a set of things working together as parts of a whole. -Computer systems are made up of inputs (something that sends a message to the device), processes (the way the device acts on the message) and outputs (something that is sent out by the device).	**Washing Machine:** Input: Dials and buttons. Process: The computer inside follows a program. Output: The clothes are washed and the display shows the remaining time.  **DVD Player:** Input: The disc is inserted and play is pressed on the remote. Process: The system reads the information on the disc Output: The screen displays the movie/ show.  **Smart Locker:** Input: The customer scans in a barcode. Process: The code is recognised by the system. Output: The correct locker is opened. 

Transferring Information	Working Together
Protocols and Packets -Protocols are an agreed way of doing something. When we communicate, we use an agreed set of protocols (greeting, speaking, listening, etc.). -In computing, agreed protocols are the way that computers communicate with one another. -The digital information they send is called a 'packet.' **IP Addresses** -Computers and their users are not always in the same place as one another. With billions of computers around the world, computers need to send the information to the correct place. -To do this, computers use special addresses called IP addresses. They may look like this: From: 216. 58. 1. 214 To: 216. 64. 1. 20	-Collaborating is another word for working together on something, to reach a shared goal. -The internet can be used to help people collaborate online, even when they are a long distance apart! -'Chat' functions can be used keep each other updated with new information. -Shared 'cloud' spaces and online drives can allow one or more person to have access to/ edit documents. -When building upon someone else's work, you need to be aware of copyright and intellectual property rules.

Teacher Information:	
Subject Knowledge	You will need be aware that digital systems are used in a wide range of public contexts and should be familiar with the concept of a computerised locker (which allows customers to collect parcels they have ordered online). You will need an awareness of internet searching and an understanding of the search engines introduced in the lessons. Basic searching skills are required, such as an understanding of how to refine search terms to get more relevant results and the fact there are two ways to conduct a web search: from within a search engine and using the address bar (omnibox). You will need to know how search engines use web crawlers to create an index of the World Wide Web. There is a useful guide here: https://www.bbc.co.uk/bitesize/topics/z7wtb9q/articles/ztbjq6f You will need to be aware that search engines use ranking to determine the order in which search results are displayed and that search engine optimisation (SEO) is applied to websites to help them rank as highly as possible. You should consider the impact that searchers, search engines, and webpage creators have on the effectiveness of a search: • Searchers: the search term, the links that they click on, the location of the searcher, the choice of search engine, and the settings that they have chosen • Search engines: the rules that their web crawlers follow to create an index, adverts and sponsored results, and the settings available • Webpage creators: the terms, text, and images used; and the links in and out of a page
Progression	This unit progresses learners' knowledge and understanding of computing systems. This unit progresses students' knowledge and understanding of the internet from that developed in the Year 4 The Internet unit In Year 6, they will continue to develop their knowledge and understanding of the internet, looking at how data is transferred and how the internet facilitates communication and collaboration online.
Misconceptions	Learners may have the misconception that a system is just a single device, however it is an interconnected set of components that work together to perform a function. They should understand the difference between the internet and the World Wide Web from year 3, however if they still have the misconception that these are the same thing, this will need to be explained. The internet is a global network of interconnected computers, while the World Wide Web is a collection of information accessed via the internet using web browsers. When looking at searching, leaners may have the misconception that search engines search the entire internet in real-time for their search. This is not the case. Search

	engines index the internet and retrieve information from their indexed database, they are not searching live. They may believe that search engines are just looking for words in documents, however in reality searching involves much more, considering relevance, keywords, links, and many other factors. Learners may have the misconception that the first result is always the best, or most relevant, however the first result is based on the search engine's ranking criteria, which may not always align with the user's need. When conducting searches, learners may have the misconception that using more keywords always leads to better search results. Although using relevant and specific keywords improves search accuracy, overloading with too many keywords can sometimes lead to less relevant results.