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| **Term 1: ADVENT 1**  **Subject Computing: Computing systems and networks Year 5 Medium Term Planning** | | | | | | |
| **National Curriculum Objectives**   * 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 search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content | | | | | | |
|  | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 |
| **Learning intention for each lesson:** | I know that computers can be connected together to form systems  (Substantive knowledge) | I know the role of computer systems in our lives  (Substantive knowledge) | I know how to experiment with search engines  (Disciplinary knowledge) | I know how to describe how search engines select results  (Disciplinary knowledge) | I know how to explain how search results are ranked  (Disciplinary knowledge) | I know why the order of search engine results is important, and to whom  (Substantive knowledge) |
| **Recall and retrieval** |  | What is a digital system?  What is the input, process, output model? | What is a digital system? | * What can be shared on the WWW? Where are websites stored? | * How do search engines select results? Where are the indices stored? | * What do search engines use to rank them? What do web designers want with a search engine? |
| **Sequence of knowledge throughout the lesson** | **Key knowledge**   * To know what a ‘digital system’ is * To know that computers in a system allow for processes to happen * To know the input, process, output model of a digital system * To know a system is a number of things (parts, components, people) that work together to complete or perform a task. | **Key knowledge**   * To know the purpose of ‘sensors’ in a digital system. * To know the difference between manual and digital systems. * To know that some systems involve both manual and digital inputs | **Key knowledge**   * To know what a search engine is. * To know that search engines are systems and that in a search engine system for information. * To know the input is the entering of the search term and the outputs are the results displayed. * To know how searches on the WWW can be refined * To know how to compare search engines * To know that a range of devices can access the WWW * To know that searching the same information may produce different results depending on the search engine. | **Key knowledge**   * To know a brief history of the World Wide Web * To know that the WWW was invented by Sir Tim Behners-Lee to share information * To know that Yahoo! was the first search engine * To know how the growth of the WWW has developed over the past 30 years * To know that search engines use programs known as crawlers (they may also be referred to as web crawlers, spiders, or spiderbots). * To know that Crawlers create an index of the World Wide Web. They ‘crawl’ websites for searchable content and store where it is found in an index. * To know that the indices for large search engines are stored in huge data centres around the world. * To know that as the search terms are narrowed, fewer results will be returned. * To know the use of inverted commas to search the whole term. | **Key knowledge**   * To know how a webpage’s content can influence where it is ranked in search results. * To know that search engines use algorithms to rank webpages. * To know that the algorithm looks at a number of factors on the webpage and gives a score for each. The webpage with the highest score ranks the highest. * To know that when creating web pages, the designer will want ‘search engine optimisation’ so that their site is ranked highly and easily accessible | **Key knowledge**   * To know some of the limitations of web searches through using phrases that are ambiguous or have more than one meaning. * To know some of the things that cannot be found on the WWW * To know that parts of the web are hidden from search engines and are often involved in criminal activity * To know that search engines can generate money * To know that the results that are sponsored or adverts are ranked highly because companies have agreed to pay search engines for their links to be prominent for certain search terms. |
| **Scaffolding** | To know what a digital system is and write a sentence to explain this. | Order advantages and disadvantage statements. | To compare two search engines. | To know how to refine results with support. | To discuss as a group what they should consider when sharing an image online. | To discuss as a group how search engines are influenced . |
| **Challenge** | To explain how a digital system is linked to other devices and how the systems communicate | To explain the advantages and disadvantages of a digital system | To compare results from different search engines and identify any similarities or differences | To explain how a search engine selects results by crawling, indexing and ranking | To explain what they should consider when sharing an image online. | To explain how search engines are influenced |
| **Key Vocabulary** | System, connection, digital, input, process, output | System, connection, digital, input, process, output | Search, search engine, refine | Index, crawler, bot, search engine | Ordering, ranking, search engine, links, algorithm, search engine optimisation (SEO) | Searching, search engine, web crawler, content creator, selection, ranking |