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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
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|  | 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?
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| **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.
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| **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 |