Subject	Year 8 Threshold Knowledge – Autumn/Spring/Summer term	How to support students' learning
IT	**Autumn Term** **Computer components -** 1. Identify the different components of a computer. 2. Explain the purpose of each component of a computer. 3. Understand the order of different measures of storage and speed in computing. 4. Justify their choice of computer hardware for a given scenario. 5. Identify different computer peripherals. 6. Identify different input and output devices. 7. Understand the function of a range of input and output devices. 8. Explain how data can be input into, and captured by, a computer. 9. Explain the difference between storage devices and storage media. 10. Explain the difference between primary and secondary storage. 11. Identify different types of storage devices/media. 12. Justify the most appropriate storage device/storage medium for a given scenario. 13. Identify the different Internet of Things (IoT) devices available. 14. Is able to explain how Internet of Things (IoT) devices can be used with sensors to create automation. 15. Can discuss the benefits and drawbacks of Internet of Things (IoT) devices. **Python Programming -** 16. Know how to output strings into a program. 17. Understand how to use arithmetic operators to output integers into a program. 18. Know how to input data into a program. 19. Know how to store variables and understands how they're different to constants.	• Categorise devices at home as inputs/outputs and storage to practice and reiterate the learning. • Use the BBC Bitesize information to reinforce learning in this topic: https://www.bbc.co.uk/bitesize/guides/zxgkxnb/revision/1 • Use this website to further your knowledge of how computers work: https://www.bbc.co.uk/teach/class-clips-video/computing-ks3-ks4-megabits/zmp3nrd • Encourage your child to practice programming skills using https://www.online-python.com/ • Use this website to find tutorials to help stretch and challenge their Python programming skills: https://www.w3schools.com/python/ • Use the BBC Bitesize information to reinforce learning in this topic:

	20. Know how to use casting to change the data type. 21. Know how to write an IF statement using a two-step procedure: IF-ELSE. 22. Understand how to use a range of comparison operators. 23. Know how to write an IF statement using a three-step procedure: IF-ELIF-ELSE. 24. Know how to write a basic FOR loop. 25. Understand how to adapt the FOR loop for a different purpose (i.e. draw a different shape). 26. Successfully write a range of programs that draw different shapes using the Turtle module. 27. Know how to write a basic WHILE loop. 28. Understand how to adapt the WHILE loop for a different purpose (i.e. draw a different shape). 29. Successfully write a range of programs that draw different shapes using the Turtle module. 30. Confidently use Python to create a range of different working programs. **Spring Term** **Developing for the web -** 31. Describe what HTML is. 32. Know how to use HTML to structure static web pages. 33. Modify HTML tags using inline styling to improve the appearance of web pages. 34. Know how to display images within a web page. 35. Apply HTML tags to construct a web page structure from a provided design. 36. Describe what CSS is. 37. Use CSS to style static web pages. 38. Understand the benefits of using CSS to style pages instead of in-line formatting. 39. Describe what a search engine is.	https://www.bbc.co.uk/bitesize/guides/zwmbgk7/revision/1 • Use this website to reinforce the basics of HTML and website design: https://www.codewizardshq.com/html-for-kids/ • Use this website to find tutorials to help stretch and challenge their skills in HTML and CSS: https://www.w3schools.com/html/	

40. Explain how search engines 'crawl' through the World Wide Web and how they select and rank results.
41. Analyse how search engines select and rank results when searches are made.
42. Use search technologies effectively.
43. Discuss the impact of search technologies and the issues that arise by the way they function and the way they are used.
44. Create hyperlinks to allow users to navigate between multiple web pages.
45. Know how to implement navigation to complete a functioning website.

Website Project -
46. Apply basic HTML tags to create a website page.
47. Identify key features of a basic website layout.
48. Create a simple homepage using HTML coding.
49. Create a number of pages using appropriate HTML learnt codes.
50. Independently create a consistent website design.
51. Apply a range of sources into website design including images, text, animation.
52. Identify the key requirements from a given scenario to implement in own work.
53. Use a range of resources to populate a website with topic specific information.
54. Edit HTML code using the source to make this fit for purpose.
55. Provide suitable feedback to a peer on how to improve work based on the success criteria.

Summer Term
History of Computing -
56. Identify the history of computing and how this has developed through the decades.
57. Recognise the key influencers in the field of computing.

- Use this website to reinforce the basics of HTML and website design: https://www.codewizardshq.com/html-for-kids/
- Use this website to find tutorials to help stretch and challenge their skills in HTML and CSS: https://www.w3schools.com/html/

- Do some wider reading into the history of computers using this website: https://www.computerhistory.org/timeline/computers/
- Do some wider reading into the key figures in the world of computing using this website:

| | | 58. Know how the key influencers have made an impact in computing.
59. Understand the positive and significant impact women have had in computing.
60. Research how the people of different ethnicities have contributed to the culture of computing.
61. Recognise, through a timeline, how technology has changed from the 1980s to the present day.
62. Know who is who in the world of technology.
63. Identify a range of social media platforms available.
64. Know the definition of social media.
65. Investigate the rise of social media.
66. Identify the PROs and CONs of social media.
67. Investigate how the digital world has exploded and how to keep up.

Artificial Intelligence & Robotics -
68. Understand the meaning of Artificial intelligence.
69. Describe how and what AI is used for.
70. Identify a range of different working sectors that are using AI.
71. Recognise the ethics related to AI.
72. Understand the basic legislation that surrounds AI.
73. Independently research a range of topics surrounding AI and Robotics.
74. Know what is meant by robotics.
75. Recognise how robotics has developed over the decades.
76. Understand the evolving use of technology in a digital world.
77. Know the different uses of Robotics and how they are implemented in the working industry.
78. Show an understanding of the concept of a Metaverse through conducting research.
79. Create a presentation identifying the PROS and CONS of AI technology. | https://www.computerhistory.org/babbage/people/

• Watch this website to enhance understanding of this topic that introduces Ai and Robotics to students: https://www.youtube.com/watch?v=HvMQONnCXbE
• Use this website and watch the videos at the bottom to reinforce learning in this topic: https://machinelearningforkids.co.uk/#!/links
• This website contains useful information and tutorials for children and beginner programmers for building Ai programs: https://ecraft2learn.github.io/ai/ |

		80. Demonstrate an understanding of how AI and Robotics have a significant presence within the world at large. 81. Present findings and to conclude with a written opinion about the topic covered.	