

**Higham Lane School**  
**Computer Science Department**  
**Summer Tasks 2024**



**Hello Year 7! We hope you are looking forward to joining Higham Lane and starting your Computer Science lessons. We've created this workbook for you to start thinking about what Computer Science is and develop some skills and knowledge ready for September. We're sure you'll be fantastic at them! We're all looking forward to seeing you soon!**

**Team Computer Science at HLS.**

What is Computer Science?

- Computer Science is the study of computers and computational systems. At Higham Lane School we will complete projects based around Digital Literacy, ICT and Computing.

Why is Computer Science important?

- In the rapidly evolving landscape of technology, computer science shapes the way we live, work, and communicate. From powering our smartphones to driving advancements in artificial intelligence, computer science plays a pivotal role in our modern society. Expertise in computing enables you to solve complex, challenging problems. As the digital world is rapidly evolving, the need for computer scientists continues to grow. Computer science plays a vital role in developing and managing financial, communication, education and healthcare sectors all around the world.

## What do you need to do?

Complete at least 1 of the challenge tasks and upload to google classroom by September 27<sup>th</sup> 2024.

You will be added to your google classrooms when you join in September and your Computer Science teacher will demonstrate how to use it to upload work.

### **1. Computer basics**

- Complete this task by labelling the computer peripherals and components. Explain what each peripheral or component is used for.

### **2. Staying safe online**

- Create a presentation or poster aimed at year 7 students informing them about how to stay safe online. Include top tips for staying safe, how to get help if needed and make it as colourful and creative as possible. (Get help here <https://www.bbc.co.uk/bitesize/guides/zrtrd2p/revision/1>)

### **3. All about me**

- Create a presentation or poster which explains who you are, your hobbies and interests and most importantly how you used computers at primary school. Try to include details about what software you used and why and any computing devices you used.

### **4. My computing devices**

- Create a presentation or poster to explain the different types of computing devices you have at home and how you use them. Think about how you communicate, work, are entertained by music or films and also how you play games – I'm sure you have lots of different devices which fit these criteria.

### **5. Scratch online**

- Create a scratch account at <https://scratch.mit.edu/join> and try one of the tutorials at <https://scratch.mit.edu/projects/editor/?tutorial=all>. Take screenshots of your work and paste into a presentation to show to your teacher in September.

### **6. Hour of code**

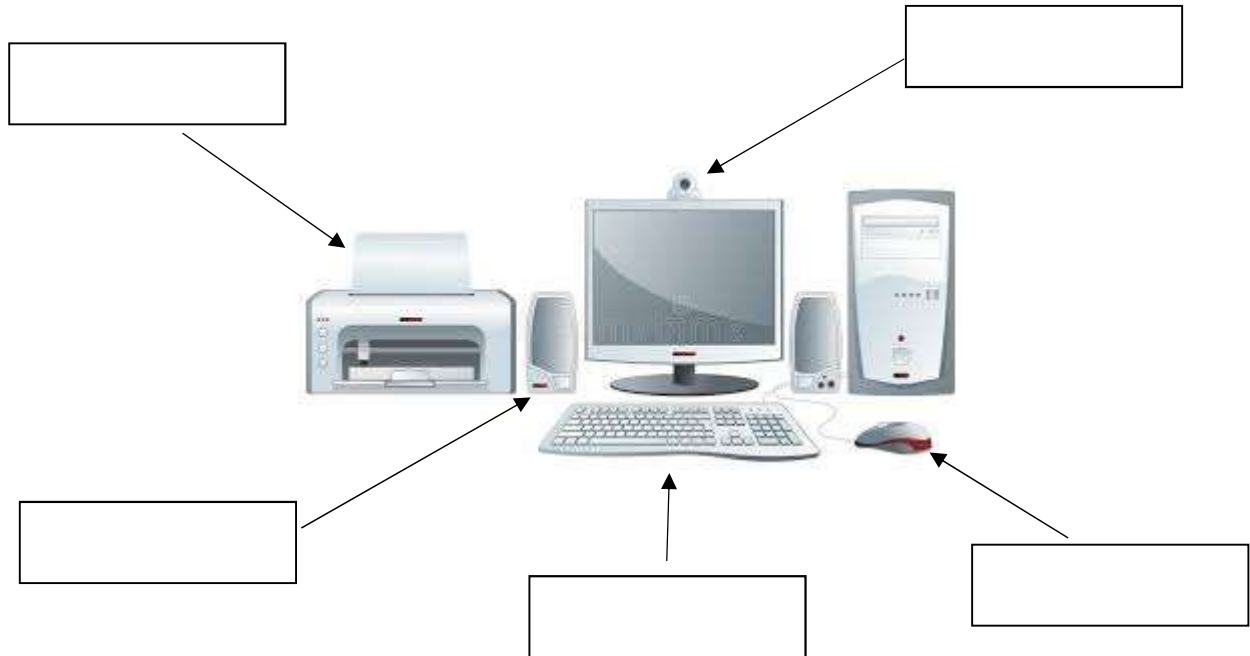
- Write your first computer program by completing the tutorial at <https://studio.code.org/hoc/1>. Take screenshots of your work and paste into a presentation to show to your teacher in September.

## Computer basics

Print these pages off and complete ready for September.

### 1. Parts of the computer

Label the computer parts using the keywords listed below.



Monitor

Speakers

Printer

Mouse

Webcam

## 2. Input and output devices

Identify and explain the purpose of 5 input devices and 5 output devices.

(If you get stuck use this link <https://www.bbc.co.uk/bitesize/guides/zxb72hv/revision/1>)



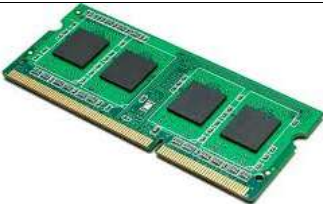



Input devices				
Name:	Name:	Name:	Name:	Name:
Purpose:	Purpose:	Purpose:	Purpose:	Purpose:

Output devices				
Name:	Name:	Name:	Name:	Name:
Purpose:	Purpose:	Purpose:	Purpose:	Purpose:

### 3. Inside the computer

Explain the purpose of the components listed below. (For help use this link

<https://edu.gcfglobal.org/en/computerbasics/inside-a-computer/1/>)

Component		Purpose
Motherboard		
CPU		
RAM		
ROM		
Hard drive		
Power supply unit		

## Computer Science reading list

Here is a list of books related to computer science you might be interested in.

Hello Ruby: adventures in coding - Linda Liukas	<ul style="list-style-type: none"><li>• Linda is the author and illustrator of Hello Ruby, a series of children's picture books about the whimsical world of computers</li></ul>
Once upon an algorithm - Martin Erwig, 2017	<ul style="list-style-type: none"><li>• . Erwig illustrates a series of concepts in computing with examples from daily life and familiar stories. Hansel and Gretel, for example, execute an algorithm to get home from the forest. The movie Groundhog Day illustrates the problem of unsolvability.</li></ul>
Lauren Ipsum - Carlos Bueno, 2011	<ul style="list-style-type: none"><li>• The blurb says "Lauren Ipsum is a children's story about computer science. In 20 chapters she encounters dozens of ideas from timing attacks to algorithm design, the subtle power of names, and how to get a fair flip out of even the most unfair coin. Laurie is lost in Userland. She knows where she is, or where she's going, but maybe not at the same time.</li></ul>
Computational fairy tales - Jeremy Kubica	<ul style="list-style-type: none"><li>• introduces dozens of aspects of computational design. Using analogies from fairy tales, Mr. Kubica inspires readers to take in each concept and then extend their learning on their own.</li></ul>
Best Practices of Spell Design - Jeremy Kubica	<ul style="list-style-type: none"><li>• A book set in the same world as Computational Fairy Tales and the story is every bit as good as the first book. Focussing this time on good programming practices - commenting, functions, ... - the book introduces the ideas in the familiar fairytale style.</li></ul>
Hackers - Stephen Levy	<ul style="list-style-type: none"><li>• This is a very enjoyable book. I found it inspirational and learned a lot about the development of the home computer (amongst other things).</li></ul>
Alan Turing: The Enigma - Andrew Hodges	<ul style="list-style-type: none"><li>• This is a great biography. A fascinating insight into the early history of computing.</li></ul>
What the Dormouse Said - John Markoff	<ul style="list-style-type: none"><li>• It's an in depth look at the early history of human-computer interfaces, amongst other things.</li></ul>
Algorithmic Puzzles - Levitin & Levitin, 2011	<ul style="list-style-type: none"><li>• Quite original, includes some of the most classic puzzles in Computer Science and contains special sections on problem-solving techniques.</li></ul>
Brown Dogs and Barbers Beecher - Karl (2014)	<ul style="list-style-type: none"><li>• Excellent, short, readable book that answers the question 'What's Computer Science all about?'</li></ul>