

GETTING AHEAD



ALTON

Start to develop skills that are relevant to your course before you join HSDC this September!

Computer Science – A Level

TASK 1 - TRANSITION TO A LEVEL

A set of five pieces of work has been set to help you with the transition from GCSE to A Level via the following link: <https://isaacomputerscience.org/home>.

Once you have created an account, you can access the work via 'My Assignments' in the main menu.

The work has been set on 'Isaac Computer Science' which will be used during your A Level studies. To access the series of questions that have been set either:

Enter the following link into your web browser and follow the on-screen instructions: <https://isaacomputerscience.org/account?authToken=Nv8TBY>

Or Google 'Isaac Computer Science' and set up a student account. Under the menu, select 'My account', then 'Teacher connections'. Enter the code **NV8TBY** to join the summer work classroom.

Read through the content and answer the corresponding questions at the end of each section.

1. Networking
2. Systems
3. Data Representation
4. Programming Concepts
5. Boolean Logic

TASK 2 - UNDERSTANDING YOUR COURSE

The AQA exam board specification is a useful resource for helping you to understand the different sections of the A Level course you will be studying. Spend some time reading about the content of the course and how it will be assessed by clicking the link below:

<https://www.aqa.org.uk/subjects/computer-science-and-it/as-and-a-level/computer-science-7516-7517/specification-at-a-glance>

We look forward to seeing you in September!

For further information about your College and being a student at HSDC, please visit hsdc.ac.uk/Alton

TASK 3 - ALGORITHMS (PLEASE COMPLETE AND BRING TO YOUR FIRST LESSON)

One of the fundamental cornerstones of Computer Science concerns the concept of Algorithms.

Use the links below to help you investigate Algorithms and write a 10-line summary for each video, making note of any examples to help with task 3.2 below:

HOW ALGORITHMS SHAPE OUR WORLD.

<https://www.youtube.com/watch?v=ENWVRcMGDoU>

ALGORITHMS ARE TAKING OVER THE WORLD.

https://www.youtube.com/watch?v=H_aLU-NOdHM

HOW POWERFUL ARE ALGORITHMS? (FIRST 5 MINUTES).

<https://www.youtube.com/watch?v=vSi6YoTPWLw>

TASK 3.1 You should now be able to produce a concise definition of an Algorithm using exactly 10 words. Highlight the three most important words in your definition.

TASK 3.2 List 20 examples of where Algorithms are used (watching the videos should have helped).

TASK 3.3 Produce an Algorithm for making a cup of tea. Try not to leave out any of the many stages (there are at least 20!). How would you modify your 'Tea' algorithm in order to make 'Coffee' instead?

TASK 3.4 Try to write detailed Algorithms for the following calculations:

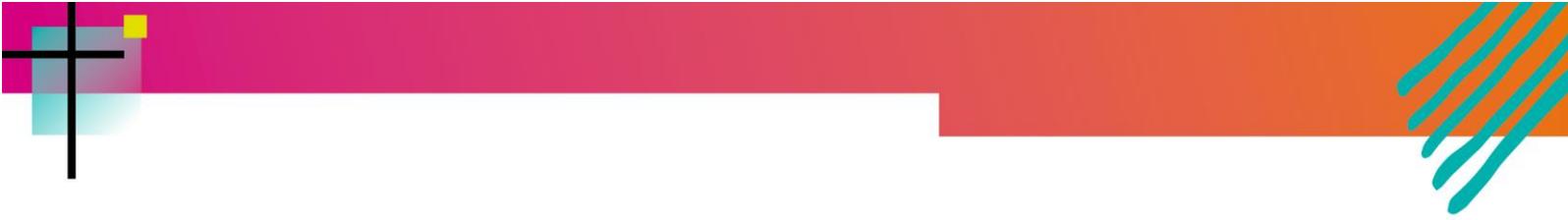
- Calculate the area and circumference of a circle from either the radius or diameter.
- Find the average, minimum and maximum of a set of numbers.

TASK 4 - EXTENSION INVESTIGATION

You may have played the game 'Twenty Questions', where one person tries to guess an item that another person has chosen by asking a series of questions such as 'Is it an animal?', 'Does it live underground?', 'Is it black and white?' etc.

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This simple game introduces a core concept of Computer Science where the response to a particular process is used to decide the next process to execute. You can play an online version of the game at <http://www.20q.net/>.

Try to work out how the 20q website works before attempting to write an Algorithm and create a program for a basic version that works in a similar way.

TASK 5 - HAVE A VIRTUAL TOUR

Investigate the history of Computer Science by having a virtual tour of the National Museum of Computing at: <https://my.matterport.com/show/?m=Vz8kCqGRjQA>

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