



Friday, 29 June 2018

Lesson 1

# Computer Science Induction



# Course Structure

Content Overview	Assessment Overview	
<ul style="list-style-type: none"><li>• The characteristics of contemporary processors, input, output and storage devices</li><li>• Software and software development</li><li>• Exchanging data</li><li>• Data types, data structures and algorithms</li><li>• Legal, moral, cultural and ethical issues</li><li>• Elements of computational thinking</li><li>• Problem solving and programming</li><li>• Algorithms to solve problems and standard algorithms</li></ul> <p><i>The learner will choose a computing problem to work through according to the guidance in the specification.</i></p> <ul style="list-style-type: none"><li>• Analysis of the problem</li><li>• Design of the solution</li><li>• Developing the solution</li><li>• Evaluation</li></ul>	<p>Computer systems (01)</p> <p>140 marks</p> <p>2 hours and 30 minutes</p> <p>written paper</p>	<p><b>40%</b></p> <p>of total</p> <p><b>A level</b></p>
	<p>Algorithms and programming (02*)</p> <p>140 marks</p> <p>2 hours and 30 minutes</p> <p>written paper</p>	<p><b>40%</b></p> <p>of total</p> <p><b>A level</b></p>
	<p>Programming project (03* or 04**)</p> <p>70 marks</p> <p>Non-exam assessment</p>	<p><b>20%</b></p> <p>of total</p> <p><b>A level</b></p>



# Components

- Component 1 – Computer Systems **40%**
  - Knowledge and Understanding style questions. (short mark). Similar style to paper 2 GCSE. Computer Science theory
- Component 2 – Algorithms and Programming **40%**
  - Problem solving. Applying knowledge from paper 1. Pseudo Code programming. Tracing code etc
- Component 3 – Programming Project **20%**
  - Practical Project to solve a problem of your choice. This will need to be object orientated and include more complex techniques such as networking, file / database handling and graphics.



# Facts and Myths

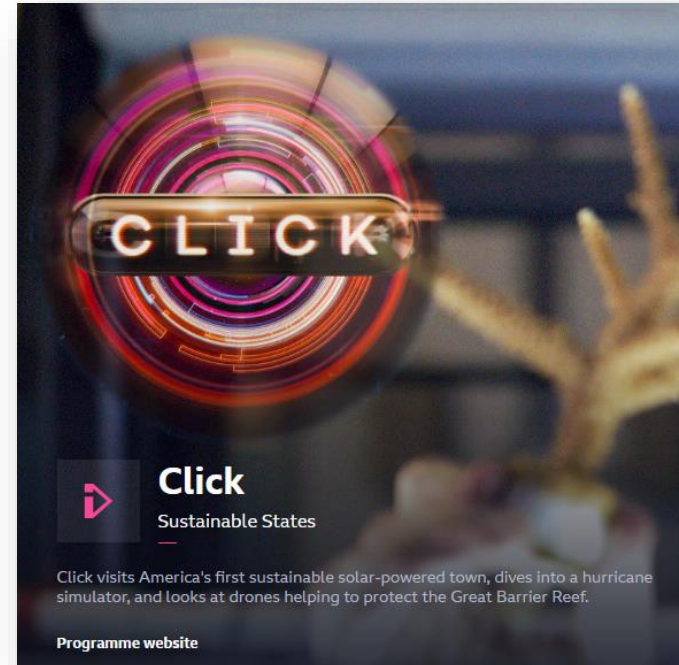
- Is it difficult?
  - Yes. AS / A2 has gone away, you will be doing A-Level material straight away. Lots of maths involved and more advanced concepts which may be mostly theory, or some really obscure industry reference. Get ready to research stuff!
- Is the coursework going to go away?
  - No, you will all be creating different applications for your coursework so you can't copy each other.
- What programming will I be expected to do?
  - Regular programming tasks will be given to you which you are expected to do in your own time. These will encourage you to research techniques and develop your skills



# Facts and Myths

- Are global variables banned?
  - Yes. You will be expected to quickly start passing parameters and using only local variables
- Will I have more than 1 teacher?
  - Yes, but all your work is kept in 1 folder

- Watch BBC click (the full version) each week over the summer *this is only 6 or 7 episodes...*
- For EACH episode, answer the following:
  - What were the main points of the episode?
  - Taking **ONE** of the stories from each show, **DISCUSS** the positives and negatives of that story in relation to modern society. (this should be about half a side of A4 for each episode)





# Homework

- Go outside from time to time and get some vitamin D
- *Life isn't all about just being in front of a computer!*





# Tasks

- Go to [www.bebas.uk](http://www.bebas.uk)
- Scroll down to “Past Challenges”
- Complete as many of the 2015 Elite problem solving exercises as you can

The screenshot shows a web browser window with the URL [https://challenge.bebas.uk/index.php?action=user\\_competitions](https://challenge.bebas.uk/index.php?action=user_competitions). The page features a blue header with the UK Bebras logo and navigation links for 'Welcome' and 'Challenges'. A green bar below the header is labeled 'Challenges'. The main content area is divided into three sections:

- Practice Challenge 2017**  
Available Groups:
  - Kits (age 6-8)
  - Castors (age 8-10)
  - Junior (age 10-12)
  - Intermediate (age 12-14)
  - Senior (age 14-16)
  - Elite (age 16-18)
- Practice Challenge 2016**  
Available Groups:
  - Kits (age 6-8)
  - Castor (age 8-10)
  - Junior (age 10-12)
  - Intermediate (age 12-14)
  - Senior (age 14-16)
  - Elite (age 16-18)
- 2015 Self-Marking Questions**  
Available Groups:
  - Kits (age 6-8)
  - Castors (age 8-10)
  - Junior (age 10-12)
  - Intermediate (age 12-14)
  - Senior (age 14-16)
  - Elite (age 16-18)

A large black arrow points from the text 'Complete as many of the 2015 Elite problem solving exercises as you can' to the 'Elite (age 16-18)' option in the 2015 Self-Marking Questions section.