Y8 revision checklist 2014-15

Y8 Topic 1 - Basic Hardware & Software

- To be able to discuss common input and output devices
- To be able to define/distinguish between automatic and non-automatic input devices
- To be able to define categories of software including system software & application software
- To be able to define categories of hardware including input, output and storage devices
- To be able to justify the selection of appropriate hardware devices for a given scenario

Y8 Topic 2 - Boolean logic

- To understand that many situations can be defined in terms of yes/no, on/off (Boolean) values
- To be able to recall truth tables for the common logic gates (OR, AND, NOT, XOR)
- To be able to identify and draw Venn diagrams to represent the common logic gates
- To be able to use truth tables to solve complex logic problems
- To recognize logic problems using logic gate symbols
- To recognize how BIDMAS (particularly brackets) applies to Boolean logic

Y8 Topic 3 - CSS

- Be able to recognize and use HTML5 in simple situations
- Be able to describe what CSS is.
- Be able to describe the three ways of applying CSS styles to a web-page.
- Be able to describe at least three different benefits of using styles/external style-sheets.

Y8 Topic 4 - Networks

- To describe advantages and disadvantages of networks (compared to stand-alone machines)
- To define and describe the difference between a LAN and a WAN, and that the Internet is a massive WAN
- Be able to describe both peer-to-peer and client-server network models
- Be able to define a server and describe the purpose of web, print and file server machines within a network
- To be able to describe the purpose of network-related hardware including: Network Interface Cards, hub, switch, router, repeater & modem.
- Be able to define what a protocol means, and give at least one example of a common protocol used over the Internet
- Describe what 'handshaking' means, and describe at least one characteristic that might be agreed upon during this process
- Understand what MAC addresses and IP addresses are, and why it is beneficial to have both
- Understand the difference between 'physical' and 'logical' in the sense of Computing
- Understand the difference between static & dynamic IP allocation within a network

Y8 Topic 5 - Internal hardware
- To know the definition of a Von Neumann machine, and describe its key parts, including the ALU, the control unit and the memory

- To understand that memory could contain program instructions or data
- To be able to describe the Fetch-Decode-Execute cycle

Y8 Topic 6 - Computational Thinking skills

- To be able to describe the meaning of each of the following terms:
    - Decomposition
    - Algorithmic thinking
    - Abstraction
    - Evaluation
    - Generalisation

Y8 Topic 7 - Searching the Internet

- Be able to describe the basic steps of how a web crawler works
- Be able to explain why different search engines might produce different results
- Understand that Boolean terms like AND, OR and NOT can be used to construct more efficient searches
- Understand that quotes can be used to search for particular phrases

Y8 Topic 8 - Relational databases

- Be able to describe the advantages of relational databases over flat-file databases
- Be able to give definitions for, and use: table, field, record, file, primary key, foreign key, attribute, data redundancy & atomic data
- Be able to identify suitable opportunities for validating fields, choosing types of validation, and to explain why this is useful
- Be able to identify the three different relationships between entities
- Be able to use standard notation for showing entities, attributes, and primary keys.
- Be able to avoid many-to-many relationships through the insertion of a link table
- Be able to draw an Entity Relationship Diagram to represent a scenario
- Understand the benefits of SQL
- Be able to create an SQL SELECT statement to retrieve specified information from a single database table.

Y8 Topic 9 - Project Management

- Be able to interpret or draw a Gantt chart
- Be able to identify the critical path on a Gantt chart and discuss what this means
- Be able to define/use vocabulary including dependent task, contingency, float, milestone

Year 7 work (we will assume you also know this!)

Y7 Topic 1 – Intro to Camp Hill Systems

- School network rules;
- Use of school email;
- Use of Moodle

Y7 Topic 2 – Touch-typing

- Awareness that that there are different keyboard layouts (e.g. Dvorak, AZERTY) and advantages of these.

Y7 Topic 3 – Spreadsheets & modelling

- Be able to explain what a model is and why modelling is useful.
- Spreadsheet skills including:
  - replication,
  - simple functions (SUM, MIN, MAX, AVERAGE),
  - more complex functions (IF, COUNT functions);
  - goal seek;
  - relative & absolute cell references.

Y7 Topic 4 – Flowcharting/Logicator (Control)

- Be able to define 'control' in an ICT sense, and give advantages and real-life examples of where it is used
- Be able to reflect on uses of ICT at Jaguar Land Rover (including for 'control', communication and organisation/logistics)
- Be able to draw and understand flowcharts, correctly using decision diamonds
- Be able to define feedback and give an example
- Be able to describe the use of subroutines, and why this is useful
- Vocabulary including: iteration/loop; IF statement & idea of selection; variable; subroutine; flowchart; sequence; input; output.

Y7 Topic 5 – Databases

- Be able to select appropriate data types for fields
- Understand the purpose of tables, queries, forms and reports
- Be able to create simple queries, and complex queries (those using both AND or OR)
- Understand types of validation and how to create validation rules
- Vocabulary including: field; record; validation; form; table; report; query; verification; primary key

Y7 Topic 6 - Binary

- To understand terms such as binary, denary, bit, byte & nibble

- To know and be able to use the common computer prefixes kilo-, mega-, giga- & tera- as related to bytes (it is acceptable to use this as multiples of 1000 or of 1024)
- To be able to convert between denary & binary (in either direction)
- To be able to add and subtract any two binary numbers (marks given for showing working)
- Some may be able to do similar with octal, but this will not be tested in the end of year test

Y7 Topic 7 – the Internet

- To be able to describe the internet, including the distinction between the internet and the world wide web
- To be able to describe URLs, IP addresses (IP4) and what a DNS does
- To be able to describe what happens 'behind the scenes' when we choose to view a web page
- To be able to describe data transfer in terms of data packets, and to describe and compare circuit switching with packet switching
- To be able to define what a protocol is, and to give examples of at least two different protocols used on the internet
- To be able to describe the server-client model
- To be able to describe what a proxy server is, and how using one benefits the school
- To be able to describe what the simple network commands PING and TRACEROUTE do

Y7 Topic 8 – HTML5

- To be able to describe what HTML is
- To be able to explain the differences between a word processor and a text editor
- To be able to recall the structure of an HTML5 file
- To be able to use common HTML5 tags, including nesting tags inside one another
- To be able to describe the benefits of using styles rather than applying formatting directly
- To be able to create simple websites including multiple pages, using only a simple text editor

Y7 Topic 9 – e-safety

- Basics of staying safe online
- Understand that people may not be who they say they are