



# Belfairs Academy

## Computing Year 9 Fundamentals

Knowledge	Skills
<b>Systems Architecture</b>	Aware of: <ul style="list-style-type: none"> <li>• The purpose of the CPU</li> <li>• Von Neumann Architecture</li> <li>• Common CPU components and their function</li> <li>• The function of the CPU as fetch, decode, execute</li> <li>• How common characteristics of CPUs affect their performance</li> <li>• Embedded Systems</li> </ul>
<b>Memory</b>	<ul style="list-style-type: none"> <li>• Difference between RAM and ROM</li> <li>• Purpose of ROM</li> <li>• Purpose of RAM</li> <li>• Need for Virtual Memory</li> <li>• Flash Memory</li> </ul>
<b>Storage</b>	<ul style="list-style-type: none"> <li>• The need for secondary storage</li> <li>• Data Capacity and calculation of requirements</li> <li>• Suitable storage devices for a given application and the advantages and disadvantages of them.</li> </ul>
<b>Wired and Wireless Networks</b>	<ul style="list-style-type: none"> <li>• Types of networks</li> <li>• Factors affecting the performance of networks</li> <li>• Role of computers in client-server and peer-to-peer networks</li> <li>• Hardware needed to connect standalone computers into Local Area Networks</li> <li>• The Internet as a global collection of computer networks</li> <li>• Virtual Networks</li> </ul>
<b>Network Topologies, Protocols and Layers</b>	<ul style="list-style-type: none"> <li>• Star and Mesh topologies</li> <li>• WiFi and Uses of IP and MAC addresses and protocols</li> <li>• The concept of layers</li> <li>• Packet switching vs circuit switching</li> </ul>
<b>System Security</b>	<ul style="list-style-type: none"> <li>• Forms of attack</li> <li>• Threats to networks</li> <li>• Identifying and preventing vulnerabilities</li> </ul>
<b>Systems Software</b>	<ul style="list-style-type: none"> <li>• Purpose and functionality of systems software</li> <li>• Operating Systems</li> <li>• Utility Systems Software</li> </ul>
<b>Ethical, Legal, cultural and environmental concerns</b>	<ul style="list-style-type: none"> <li>• Ethical and Legal issues</li> <li>• Cultural and Environmental issues</li> <li>• Privacy issues</li> <li>• How key stakeholders are affected by technologies</li> <li>• Environmental Impact of Computer Science</li> <li>• Cultural implications of Computer Science</li> <li>• Open Source vs Proprietary Software</li> <li>• Legal Acts and Creative Commons</li> </ul>