

**A Level Chemistry
Answer Sheet**

Well done for completing the activities, here we shall give you some guidance. There are no exact answers to the questions/tasks given, so below I will outline some of the discussion points I would have raised.

If you have any questions about this work, or the course, please do not hesitate to contact one of your lecturers with the contact details provided below:

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**Activity 1 –** Networking

Mesh topologies are fantastic for increasing the redundancy, efficiency and security of a networked system. We typically do not use them to connect end-devices on a network, as this would be very complex and expensive! They can also be trickier to maintain, as we cannot be sure when a connection has failed if the service is still available through a redundant link. In organisations, we typically use a mesh topology when connecting key bits of networking hardware, such as routers, switches and servers. This way, if one link - or device - fails, there will be a redundant connection that can take over.

The IPv6 protocol is much more efficient than IPv4, each packet of data has less ‘header’ information (meta-data) and therefore has more room for the actual data we want to send; this also reduces the processing time at each end of the transmission. There are also 2128 available addresses (massive number!) in IPv6, compared to *only* 232 (~4bn) available addresses for IPv4.

**Activity 2 –** Program Design

We will discuss this task in more detail if you decide to study with us at Bridgwater and Taunton College, as it is the basis of thought for your software project Non-Exam Assessment (NEA). Any good idea should be followed by this kind of planning, analysis and design, before we start thinking about implementation (coding), testing and reviewing; this is called the Software Development Life Cycle (SDLC).

You should ensure that your design incorporates all the elements from the given stellar-simulation scenario. Do not worry if you could not justify a suitable programming language, this will become more evident as we discuss programming languages and approaches throughout the course.