**Deconstruct & Design** – Advice from Chief Assessor

The more **successful** responses commonly:

* provided detailed evidence of their deconstruction within the maximum of four sides of an A4 page (IAE1/KA4)
* constructed hypothesises using appropriate scientific conventions rather than forms such as: “I guess that X will happen” or “The reaction will increase as the temperature rises because there is an increase in kinetic energy and velocity resulting in molecules reaching the activation energy and increasing the reaction of the enzyme.” (IAE1)
* provided an individual, creative, and thoughtful deconstruction of a problem for which **the outcome was uncertain.** (IAE1)
* from their deconstruction, developed a clear, logical design to investigation one aspect of the problem in which a single variable was manipulated (IAE1)
* produced a design which included a detailed list of materials and a method in a well-structured format and with sufficient detail that it could be implemented without further information. There were also justifications for the materials chosen and the method suggested. For example, reasons for choosing a particular range of pHs, or a specific number of samples for each concentration of plant hormone. (IAE1)
* identified factors which could not be controlled and **why** they could not be controlled (IAE1/KA4)
* included a blank data table with correct columns and headings (including units) that could be used to record the data collected. This provides evidence of both an understanding of sample size, measurement to be made and representation of data (IAE1/IAE2)
* made it clear where the four A4 pages of their deconstruction and design finished and where the report on their investigation began (KA4)

The **less successful** responses commonly:

* deconstructed a problem that had little connection to a Stage 2 Biology topic or even, in some cases, to a Stage 1 Biology topic (IAE1)
* omitted to identify the deconstruction question (IAE1)
* designed investigations with multiple independent or dependant variables (IAE1)
* ‘deconstructed’ a problem for which the outcome was well-known (e.g. the effect of pH on enzyme activity) or used a ‘design’ that simply repeated existing experiments (e.g. using liver and hydrogen peroxide) (IAE1)
* based their deconstruction and design investigation on a heavily scaffolded or structured ‘question and answer’ task sheet. This restricted the student’s potential to demonstrate depth in their problem-solving or creative deconstruction and design (IAE1)
* provided very vague deconstruction and design elements with an aim and hypothesis that were not specific and often included multiple variables (IAE1)
* failed to use a suitable sample size and offered sparse instructions for the method (IAE1)
* repeated much of the information from their deconstruction in the report of their investigation whereas a summary would be sufficient