***Generic Technology***

***Achievement Standard 91048****: Demonstrate understanding of how technological modelling supports decision-making*

Teachers please be aware there have been changes to the specifications for this standard. Refer to: <http://www.nzqa.govt.nz/about-us/publications/newsletters-and-circulars/assessment-matters/technology-specifications/>

**Points to aid teaching AS 1.5**

* Students may use a case study, their own practice or a combination of both, however the altered 2013 specifications now state;

*‘It is essential that the report is produced in relation to what the candidate has actually done to consider evidence from real modelling processes used to make actual decisions.*

*Reports produced without close reference to the individual candidate’s experience of modelling are unlikely to succeed.’* Reports that are not based in the candidate’s experience of modelling for decision making, produce generic information about modelling and decision making, or simply identify information, do not meet the standard.

To reliably establish understanding, the candidate must report on the use of information in an experience related to the standard.  The simplest most reliable experience for a candidate at Level 1 is their own practice while developing an outcome.

* Examples of modelling can be from more than one unit of work
* Modelling must be within technological practice and inform the development of an outcome
* Annotated diagrams/sketches and written explanations help students to demonstrate understanding of modelling practice
* Students need to focus on specific modelling techniques that lead onto the next steps in the development of their outcome
* Testing and trialling against specifications enables students to be specific about the particular modelling being carried out and what they are testing for.
* When describing their modelling students should give clear details about;
* What is being modelled
* Why the modelling is being done
* What decision/s have been made as a result of the modelling and then…
* Describe where these decisions have been used in the development (where they influenced what was happening) and how have these decisions been actioned? (what was done as a result)
* There are clear benefits when students use a case study and use this information to inform their own practice;
* Students have a deeper understanding of modelling practices
* This can help students to write explanations containing a breadth and depth of understanding of how modelling informs decision making
* Templates and writing frames are useful tools to help students gather initial information, develop paragraphs and write a draft *but may constrain* students if left in this format and presented as a final report

Food Technology

* Students need to be specific in their evidence and ensure it relates to fitness for purpose. Guide them to understand the concepts of functional (what could be done) and practical (what should be done) reasoning. It is all about what do they understand about modelling.

e.g. if cooking and icing a product within a set time frame, testing and trialling around; oven temperature, placement within the oven, cooling the product, time frames, types of icing used / – what (modelling) did I do / what did I learn from this / what decisions did I make because of this modelling/how did modelling enable me to go forward. From analysing the amount of sugar in the product students could analyse its acceptability in terms of obesity or diabetes.

e.g. a food product for the canteen – doing a survey to gain student input and ideas on needs and wants should include more than survey results/graphs or dead end statements. From surveys students can discuss their findings, annotate graphs and explain how this will inform further decisions and/or discuss the next steps required to overcome any risks (in choosing particular products) that may have been identified as a result of the survey.

* When carrying out sensory analysis – smell, appearance, texture, taste – students need to show through reflective dialogue (with the use of specific vocab to describe) clearly how this relates to the development of their product and its importance in the products fitness for purpose.

Teaching strategy

As a class/ small groups students could read and analyse a case study and identify types of modelling that have been used in different situations, why particular types of modelling were used and how this influenced or affected the development of the technological outcome. Teachers could provide related questions for students to discuss as they complete the analysis.

**Ideas for gathering & presenting information**

1. **Initial Information**

|  |  |  |  |
| --- | --- | --- | --- |
| **Why** – am I using this method of modelling? *(what did I want to find out / what specifications am I testing against?)* | **How** – did I do this *(method)* | **What –** happened as a result of my modelling? | **How** – did this inform *(change / improve / influence)* my practice? What further knowledge did I need to know? |
|  |  |  |  |
| **Questions to ask myself**   * Have I explained the purpose of my modelling and related this to my specifications? * Does my testing and trialling relate to fitness for purpose of my outcome? * Have I shown clear evidence of my testing / trialling (modelling) = photos / sketches / stakeholder feedback * Have I clearly justified (given reasons for) the decisions I have made? * What knowledge helped me with these decisions? * Have I explained / shown the links from my modelling to each stage of the development of my product. * Have I talked about ‘what could happen’ and ‘what should happen’ and any risks involved? | | | |

**2. Useful connective and signal words**

|  |  |
| --- | --- |
| Introduction | * The topic/issue/study area; this report |
| Describing procedures or time sequences | * The first step, to begin with, initially, before, at this point * Secondly, subsequently, following this step, next, then, another * When, meanwhile, after that, after a while, later, finally, consequently |
| Giving example | * For example, for instance, including, such as, another reason, another example, can be illustrated by, as follows |
| Comparing | * Both….and ……., similarly, in most cases, not only…. but also…. * More, most, less, least, less than, more than |
| Contrasting | * But, however, on the other hand, in contrast to, whereas, alternatively, is different from, differs from, on the contrary, although, yet, nevertheless, despite this |
| Adding information | * Also, as well as, another point, another factor, another reason, in addition, additionally, besides, furthermore, moreover |
| Cause and effect | * Due to, because of, the reason for, consequently, in that case, hence, s a result of, as a consequence of, since, the effect of, if …then…., therefore, stemmed from, an outcome of, accordingly |
| Interpreting data | * As can be seen by, according to, as shown in evidence indicates, as exemplified by, as a result of |
| Conclusion | * In conclusion, thus, therefore, for these reasons, these points lead to, as a result, the results indicate, accordingly, to summerise |

[[1]](#footnote-1)

1. **Composing text**

A possible template for writing a draft report with sentence starters.

This template could be used to help students write an explanatory paragraph. This will need to be adapted for use in a complete text.

|  |  |
| --- | --- |
| Possible paragraphs | Sentence starters |
| **Explain** the reason why the particular form of modelling was done | * I made ……..to test ………. * …….was used to show stakeholders……….. * To show my …. was fit for the purpose of …….I ………….. * …. is important to test because……….. * I need to know / find out ………. so I …… * I need to know…………………….so I …………………………. and the results told me…………. |
| **Describe** what you did | * To test whether ……….. would …. * I tested……… to see if ……… * In order to find out……. I ……… * When I ……. the ……… * To make sure my…(material)… was …(strong enough, suitable for..) ….I …….. |
| **Discuss** what you found out as a result of the modelling. Explain the effects of this on your outcome. Describe the evidence you have to support the results/effects. | * I made and example of ……. using …(materials)… but when I used …… instead I found out that…… * I trialled ……. and I decided ……..as a result of… (happening) * Using the evidence from ……. my stakeholder decided that…….. so this meant that I needed to……….. in order for my ……….. * As a result of trialling my …(product)….. with students, the feedback I got from them told me that ……….. and from this my next step was to……….. * …….could have happened if I used ……. the ideal solution is ……because…….. * …..should happen when ……… nut after completing ….(test)… I found that…….. * by ………. I found that……. and I learnt ….. so then I needed to …… * a problem with …..was that ….. so I needed to…….. Consequently this meant that……. * The effect of ……. on ….. showed that …… and then… |

1. Effective Literacy Strategies in Years 9-13, Ministry of Education [↑](#footnote-ref-1)