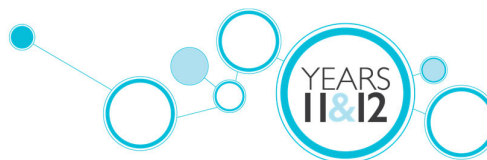


# 2018 September Moderation - Report



## Meeting Details

Meeting took place in:

South

AM or PM session?

PM

Which PM Meeting is this report for?

Science - Biology Level 3

Moderation Leader Name

Rebecca Clifford

Moderation Leader Email

rclifford@gyc.tas.edu.au

Minute Keeper

Rebecca Clifford

Minute Keeper Email

rclifford@gyc.tas.edu.au

## Attendance

Please enter the name and school for all attendees. This can be copied and pasted from the registration list sent to the Moderation Leader.

Carly	Brouwer
Will	Walker
Kathy	Foster
Nicola	Anderson
Lisa	Arthur
Jen	MacGibbon
Rebecca	Clifford
Rosemary	Beswick
Rhys	Endall
Brett	Smith
Heather	Omant
Glenn	Carmichael

Apologies/absences - please enter the names of teachers and their schools who appeared on the moderation

William	Albion
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leaders list who did not attend the meeting.

## Moderation Details for Calibration - Sample 1

Sample 1 - Please identify each criterion being moderated and IF SELECTED the elements within that criterion

Criterion 2 = Overall

Sample 1 - What rating (or ratings) has the group assigned this sample?

B-/C+

Sample 1 - What evidence supports the rating (or ratings) the group has given?

From the standards documents we found the student:

- 1) expresses a hypothesis to explain observations, meeting most of the criteria of a testable hypothesis - they could not identify the source of catalase which was the IV. They also failed to identify the DV. The hypothesis was not testable.
- 2) based on data, provides some explanation and draws a conclusion that relates to a hypothesis that has some validity
- 3) identifies some limitations and sources of error in experimental design
- 4) evaluates an experimental design and describes a number of possible valid improvements.

Sample 1 - What evidence would you need to see in order to assign a higher rating (or ratings)?

- 1) Students would be expected to: express a hypothesis to explain observations, as a precise and testable statement that can be supported or refuted by an experiment
- 2) analyses, interprets and explains data to draw a valid conclusion that relates to a hypothesis
- 3) identifies significant limitations and sources of error in experimental design
- 4) critically analyses an experimental design and provides an

**Sample 1 - Summary of group consensus at element level with comments**

evidence-based critique and discussion on valid improvements and alternatives

The final rating was difficult to determine as schools have different cut offs with regards to marks. Therefore C+/B-rating.

When developing a moderation task the standards document must be used and a rubric developed so that ratings can be applied more directly. The group felt the task was limited in its ability to gather a range of ratings. At best "full marks" would be a B standard for Level 3 Biology.

The task was not designed well which did not allow the students to demonstrate their potential in this criterion.

Some of the questions had poor wording ie Qu 7

**Sample 1 - What actions would you recommend for teachers to help the student attain a higher rating (or ratings)?**

Writing an hypothesis - it was recommended from the group to include more than is stated in the standards document.

Hypothesis should: contain an IV and a DV and how they are manipulated, be testable, have a cause and effect relationship, not a question.

A problem exists when students choose their IV and DV then construct an hypothesis from their choices. We had to apply 'carry over' marks for this sample.

Students when discussing the need to be very careful when discussing the need for repeats. 'The results weren't accurate' is unacceptable. Results are simply collected in an experiment - repeats are required to identify anomalies and be able to obtain an accurate average from lots of data, this leads to greater statistical validity.

## Moderation Details for Calibration - Sample 2

**Sample 2 - Please identify each criterion being moderated and IF SELECTED the elements within that criterion**

Crit 2 = All elements

**Sample 2 - What rating (or ratings) has the group**

C

assigned this sample?

Sample 2 - What evidence supports the rating (or ratings) the group has given?

From the standards documents we found the student:

- 1) expresses a hypothesis to explain observations, meeting most of the criteria of a testable hypothesis - they failed to identify the DV. The hypothesis was not testable.
- 2) based on data, provides some explanation and draws a conclusion that relates to a hypothesis that has some validity
- 3) identifies some limitations and sources of error in experimental design
- 4) evaluates an experimental design and describes a number of possible valid improvements.

Sample 2 - What evidence would you need to see in order to assign a higher rating (or ratings)?

- 1) Students would be expected to: express a hypothesis to explain observations, as a precise and testable statement that can be supported or refuted by an experiment
- 2) analyses, interprets and explains data to draw a valid conclusion that relates to a hypothesis
- 3) identifies significant limitations and sources of error in experimental design
- 4) critically analyses an experimental design and provides an evidence-based critique and discussion on valid improvements and alternatives

Sample 2 - Summary of group consensus at element level with comments

The group suggested that when creating questions regarding the IV and DV that we ask " what is the IV and how is it manipulated", "what is the DV and how is it manipulated". This prevents students from only identifying how the DV is measured eg the 'amount of foam produced'. This would improve the student's ability to write an hypothesis.

Sample 2 - What actions would you recommend for teachers to help the student attain a higher rating (or ratings)?

Hypothesis should: contain an IV and a DV and how they are manipulated, be testable, have a cause and effect relationship, not a question.

A problem exists when students choose their IV and DV then construct an hypothesis from their choices. We had to apply 'carry over' marks for this sample.

The students clearly did not understand the last two questions and as a result lost 4 marks. Qu. 7d) was poorly worded and did not direct the students to consider variation within results. Teachers need to consider when

developing questions that it allows the students to show their knowledge.

## Moderation Details for Calibration - Sample 3

Sample 3 - Please identify each criterion being moderated and IF SELECTED the elements within that criterion

Crit 2 = All elements

Sample 3 - What rating (or ratings) has the group assigned this sample?

B

Sample 3 - What evidence supports the rating (or ratings) the group has given?

The student:

- 1) was not able to identify IV and DV correctly even though the rest of their answers demonstrated that they understood the experiment.
- 2) critically analyses, interprets and explains data to draw a valid conclusion that relates to a hypothesis
- 3) evaluates an experimental design and describes a number of possible valid improvements.

Sample 3 - What evidence would you need to see in order to assign a higher rating (or ratings)?

- 1) be able to identify and IV and DV correctly.
- 2) critically analyses an experimental design and provides an evidence-based critique and discussion on valid improvements and alternatives.

Sample 3 - Summary of group consensus at element level with comments

Group felt the task allowed scope for students to receive an A rating but was challenging enough to obtain a range of ratings.

Sample 3- What actions would you recommend for teachers to help the student attain

Students need to read questions carefully to address all parts of the question. Qu 1b and 1d had two components to the question. To gain full marks both parts must be answered.

a higher rating (or ratings)?

## Moderation Details for Calibration - Sample 4

Sample 4 - Please identify each criterion being moderated and IF SELECTED the elements within that criterion

Crit 2 = All elements

Sample 4 - What rating (or ratings) has the group assigned this sample?

C-

Sample 4 - What evidence supports the rating (or ratings) the group has given?

The student:

- 1) based on data, did not provide explanation and could not draw a conclusion.
- 2) Did not correctly identify the IV
- 3) identifies some limitations and sources of error in experimental design and was able to identify a control and importance of repeats.
- 4) could not identify a valid improvement (ie control measures) in an experimental design.

Sample 4 - What evidence would you need to see in order to assign a higher rating (or ratings)?

- 1) based on data, provides some explanation and draws a conclusion that relates to a hypothesis that has some validity
- 2) Be able to identify IV - temperature of the chamber
- 3) identifies significant limitations and sources of error in experimental design
- 4) evaluates an experimental design and describes a number of possible valid improvements.

Sample 4 - Summary of group consensus at element level

The student did not understand the experiment which was evident with answers to 1d (ii). This significantly dropped the student's rating as the question was worth 4 marks. The student also could not extrapolate information from

with comments

the data which further dropped the rating.

Sample 4 - What actions would you recommend for teachers to help the student attain a higher rating (or ratings)?

When students are asked to use graphical data they must show their understanding by giving examples of data directly from the graph/ table etc. They will not gain full marks if they do not use the data correctly.

Teacher's could develop student's understanding of experimentation on invertebrates. Whilst we tend to focus on vertebrates and the ethics associated with this we probably don't discuss how we treat invertebrates. As a result it's likely the students won't think of the well being of the cockroach eg diet, activity, diurnal patterns etc Considering much experimental work in the larger scientific community is first done on nematodes, fruit flies and yeast it is worth the discussion.

## Planning for March Moderation 2019 - Statewide Samples

Please select all that apply

Level 3 or 4

For Level 3 and 4 courses please suggest criteria for consideration by CTL's.

C7

Please enter the name and email address of the person providing the samples:

Rebecca Clifford

Email

rclifford@gyc.tas.edu.au

## Sharing Resources

Please record any links to or details of resources that were shared, or describe any assessment strategies that were discussed.

Discussion was had about the 2019 BIOTA conference. To be held on Friday 29th March 2019 at GYC Glenorchy. GTAC (Gene Technology Access Centre) have been invited to deliver a 'Pathogens/Outbreak' hand on interactive science program. Other speakers, likely from Menzies, will also join us.

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## Course Support

Please provide details of any future focus and ways forward you would like Curriculum Services to consider in relation to this course:

Consideration of bringing Biology Level 3 Curriculum in to the 21st century with inclusion of Biotechnology within the examinable criteria.