VicPhys

Vicphysics Teachers' Network

Checklists Version 2

The statements for four types of assessment tasks are a significant change from previous assessment tasks. Some teachers have interpreted the statements in terms of their experience of assessing students in recent years. The task type 'application of physics concepts to explain a model, theory, device, design or innovation' is similar to that in the previous study design, but the other tasks have been modified or are completely new.

Vicphysics has prepared a set of checklists for each of the four assessment task types to assist teachers in thinking of the aspects of each type of assessment task. The check lists are not intended to be exhaustive, **nor authoritative**, but more a guide to the aspects worth considering when designing an assessment task or evaluating commercial tasks and those of other teachers.

Explaining: application of physics concepts to explain a model, theory, device, design or innovation

Aspect	Comment
Front cover	A front cover is expected. One in the style of the sample exam is preferable, with information on reading time, start and finishing times, what to bring, etc, usually distributed before the day.
Content:	The task should not attempt to cover all the content in the Area of Study. It should focus on a subset of the content, but in depth. It is the role of the end of year exam to aim from breadth of content coverage, but at times with less depth.
Topic	The task should focus on one topic, that one device, one model, etc. A collection of questions on different devices, etc, is not considered consistent with the task. It is possible for each student have their own device to research and on which to answer questions, but you should ensure that the various devices are comparable in challenge.
Style of questions:	The focus of the task is on explanation and discussion, so any calculations should be in support of explanations. To differentiate the students, the questions should also use a range of command terms e.g. 'state, describe and explain, etc
Resources:	Stimulus material could be provided. Also, a student's research summary with a critique of each source could be assessed as well or accessed during the assessment task.
SAC Score:	Any method is valid, whether marking scheme or a rubric with performance descriptors. The score may not be that useful as a contribution to determining an indicative grade. But there will be other information that teachers gather on their students' progress through an Area of Study which could assist in this regard.

Analysing: analysis and evaluation of primary and/or secondary data, including data plotting, identified assumptions or data limitations, and conclusions

Aspect	Comment
Front cover	A front cover is expected. One in the style of the sample exam is preferable, with information on reading time, start and finishing times, what to bring, etc, usually distributed before the day.
Design of task	One comprehensive data set that should include outlier(s), rather than data sets for multiple scenarios. Which of the following information on the data would you provide? • A number of readings of the dependent variable for each of several values of the independent variable, • Average of the readings of the dependent variable, • Uncertainty of the data values, • Values for uncertainty bars?
Focus of task	Task is expected to include: 1. Plotting of data 2. Questions about the data, trend, relationship, link to theory 3. Addressing assumptions and limitation of the data 4. Extensive use of measurement terminology 5. Conclusion
Plotting data	Which of the following do the students start with: a. A blank sheet of graph paper, b. Labelled axes, with units and scales c. Labelled axes and some data, or d. Labelled axes, some data and some uncertainty bars?
Questions about the data	• Trends in the data • Gradient and intercepts of line of best fit • Value of physical quantities derived from the abobe values with appropriate units • Is use of uncertainty bars to determine a range for the gradient and intercepts feasible within the time constraint of an assessment task? • Questions linking the data analysis to theory • What discussion questions are possible?
Assumptions and limitations of the data	Identify the assumptions being made when interpreting the data and evaluate the limitations of the data
Extensive use of measurement terminology	How is this to be assessed? • Question on definitions of terms, and /or • Opening instruction to students that a specified number of the terms be used in answering questions, how many?
Conclusion	A summing up of what the data analysis reveals should be part of the task
Style of questions	To differentiate the students, the questions should also use a range of command terms e.g. ‘state, describe and explain, etc
Resourcing	Primary data: students’ data from a recently completed experiment, Secondary data: Real data from another source or constructed data
SAC Score	Any method is valid, whether marking scheme or a rubric with performance descriptors. The score may not be that useful as a contribution to determining an indicative grade. But there will be other information that teachers gather on their students’ progress through an Area of Study which could assist in this regard.

Applying: problem-solving, applying physics concepts and skills to real-world contexts

Aspect	Comment
Front cover	A front cover is expected. One in the style of the sample exam is preferable, with information on reading time, start and finishing times, what to bring, etc, usually distributed before the day.
Design of task	Focus should be on a particular real-world problem in some detail, not a range of problems, each superficially addressed. The focus should not be on just calculating answers. Note: 'real-world' can mean the every-day, not necessarily local challenges or global issues, as opposed to exam-style constructs. The task could focus on a design challenge. Is the task defined with a question? Which? Why? What if?
Style of questions:	The focus of the task is applying an understanding of physics concepts and a range of skills, so a range of question styles should be evident. A preponderance of exam style calculation questions is not appropriate. To differentiate the students, the questions should also use a range of command terms e.g. 'state, describe and explain, etc What skills are being assessed? Interpretation of graphical and tabulated data? Others? See skills listed in p11 and 12 of Study Design.
Conclusion:	A summing of the solution to the problem should be part of the task
Conducting the task	Are students doing the task unseen or is it being done with some pre-reading or other activities?
Resources	Does the question have a few resources with different approaches?
SAC Score	Any method is valid, whether marking scheme or a rubric with performance descriptors. The score may not be that useful as a contribution to determining an indicative grade. But there will be other information that teachers gather on their students' progress through an Area of Study which could assist in this regard.

Comparing: comparison and evaluation of two solutions to a problem, two explanations of a physics phenomenon or concept, or two methods and/or findings from practical activities

Aspect	Comment
Front cover	A front cover is expected. One in the style of the sample exam is preferable, with information on reading time, start and finishing times, what to bring, etc, usually distributed before the day.
Design of task	Which of the three alternatives does the task use? Does the topic have two definable perspectives and do these two approaches have sufficient depth to enable substantial comparison? What are the different aspects of two approaches that are compared Must be a comparison and include evaluation as well.
Style of questions:	Do the questions present the different aspects of the two approaches in a table format that enable effective comparison? To differentiate the students, the questions should also use a range of command terms e.g. 'state, describe and explain, etc Are there structured questions that make the comparisons?
Conclusion:	Is the evaluation of the two approaches effectively addressed?
Resources	Do the students need access to additional resources, before or during the task?
SAC Score	Any method is valid, whether marking scheme or a rubric with performance descriptors. The score may not be that useful as a contribution to determining an indicative grade. But there will be other information that teachers gather on their students' progress through an Area of Study which could assist in this regard.