

Information Technology

2014 Chief Assessor’s Report

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## Overview

Chief Assessors’ reports give an overview of how students performed in their school and external assessments in relation to the learning requirements, assessment design criteria, and performance standards set out in the relevant subject outline. They provide information and advice regarding the assessment types, the application of the performance standards in school and external assessments, the quality of student performance, and any relevant statistical information.

## School Assessment

Assessment Type 1: Folio

Assessments tasks for the folio should cover the core topics and the option topics. There should be at least three folio assessment tasks. The majority of teachers use four tasks that are clearly designed to focus on each core topic and the individual option topics. Task design clearly mapped against the performance standards and assessment design criteria provided scope for students to achieve at a higher band level.

Students responded to folio tasks using a range of forms including essays, oral presentations supported with video, and multimedia evidence. It is recommended that students assessed using tests are given opportunities to display their knowledge against the performance standards. Evidence provided at moderation of some test type tasks limited the student responses to short answer and recall, identifying only Knowledge and Understanding against the performance standards and limited Analysis and Evaluation. Teachers are advised to develop assessment tasks that enable students to show their ability against the performance standards and clearly map questions to specific features.

Students who undertook oral presentations were supported with appropriate audio recordings or video of the performance. This evidence supported the moderation process and moderators were able to review teachers’ judgments easily.

Students were more successful in case studies when offering Analysis and Evaluation as part of their justification of the information system. Students offering a recount of the information system of the business struggled to demonstrate higher performance against the performance standards.

Teachers are advised to design assessment tasks that enable students to directly demonstrate their abilities against the performance standards. It is suggested that teachers use different assessment forms and not just tests, as these can limit student success as previously mentioned.

Assessment Type 2: Skills and Applications Tasks

Students undertake one skills and applications task and one project for one option topic, and two skills and applications tasks for the other option topic.

This year we have seen a balance between development, analysis, evaluation, and validation. Again, task design that clearly identified the assessment design criteria to be addressed resulted in better student responses. Students this year included validation videos using a combination of Black, White, and Grey Box testing, desk-checks of design tools, and processing of algorithms using equations.

Students were limited when task design did not allow them to apply skills, concepts, and complex processes to a scenario. It is recommended that students either modify an existing computer-based application or develop a solution by building upon an existing framework and then develop a large application from the ground up. Teachers are reminded to develop assessment tasks using the subject outline and associated performance standards. In addition the skills checklists, available as support materials on the Information Technology minisite, can support this development.

Teachers are reminded that they can add skills to the optional column of the skills checklists to meet their teaching program. However, students must demonstrate the skills in the standard column to show competency at a general and considered level against the performance standards.

Students are required to demonstrate Analysis and Evaluation within this assessment type. Teachers must be mindful to develop assessment questions that do not inhibit the student to a ‘lock step’ approach. Students should not be restricted to following a recipe such as declare a local variable and then create a global variable. Students at Stage 2 level are required to be given a scenario to analyse and then to develop and implement a solution. When they have completed their solution, students are required to validate and evaluate their system. This can be achieved through a series of well-designed scenarios to enable students to achieve higher grade bands.

Students who undertook a single modal assessment such as query by example grids in the Relational Database topic and desk-checks in the Application Programming topic were limited in their ability to access the range of specific features. Students are encouraged to use a range of development tools and developer principles in their skills assessment.

This year students submitted validation videos to demonstrate their analysis, development, evaluation, and validation as part of their skills tasks. Teachers who used time codes with the appropriate performance standards enabled easy confirmation of standards awarded.

Assessment Type 3: Project

The project consists of the development of a test system, using representative data, and includes documentation. The solution must be portable and able to be validated on another computer or on devices. If this is not possible, the student must produce other evidence that the solution works, demonstrating the outputs of the system and any evidence used to award the grade.

Students apply the five stages of the systems development life cycle in designing and making a system: problem definition, analysis, design, development and validation, and evaluation. Evidence from the students demonstrated a better understanding of this process this year. The majority of students submitted both printed and digital versions of their projects, supporting the grade bands awarded.

Teachers are encouraged to use the skills checklists to help students understand the requirements of development. Students must demonstrate the skills in the standard column to show competency at a general and considered level against the performance standards.

Students who performed well against the grade bands developed outputs that clearly showed simple criteria, complex criteria, and statistical outputs based on varying depths of complexity. Students across all option topics are required to manage data, demonstrating their skills and ability. Teachers must ensure that students select their outputs carefully and that the outputs demonstrate complexity at a Stage 2 level and are documented appropriately.

Students must take more care with interface design of both input and output. The validation of user input and intuitive design is critical for the end user experience. Teachers are encouraged to guide students in developing interfaces that demonstrate varying methods of data collection. When information is presented back to the user, it is advisable for students to develop appropriate interfaces. Students who used wizards to generate outputs struggled to demonstrate their abilities against the higher performance standards.

In this assessment, students undertake an individual project. The teacher must ensure that where two or more students have a similar system, their projects have different outputs. Students who do not develop appropriate outputs (outcomes) will restrict their ability to access the higher performance standards. Teachers are advised to allow students to add to the skills checklists, to enable clear identification of complex development and to cater for the diversity within the class.

## External Assessment

Assessment Type 4: Examination

**Question 1**

1. Most students were able to correctly identify two pieces of data that Lottie could input for her hotel booking. The better responses clearly identified data such as ‘date of arrival’ or ‘credit card number’ instead of generalisations such as ‘bank details’ or ‘email’ (which should have been ‘email address’).
2. Students were able to identify hardware and software options but they often did not provide any discussion as to why these may be needed. About half of the responses mentioned the need for a server, which is a central element of this information system. Further, the students who did mention a server usually provided a general reason, such as ‘to store the programs and data’, rather than ‘to provide a service to host a database to manage the bookings’ or ‘web server software to provide Internet access to the database’. The weaker responses were very simplistic and identified basic components such as a computer with minimal discussion.
3. Students were expected to write an answer in a three-step process to outline the actions involved in a possible procedure. Most students were able to identify a procedure, with the better responses listed in numbered steps. Weaker responses involved the restatement of the overall process and the data that was required. Better responses included the imputation of payment information including a card verification value (CCV) number and checking whether a room was available for their intended stay. Some students struggled to identify the actual steps in the process and articulate these in their response.
4. This part was answered quite well, with many students correctly identifying that an incorrectly spelt email address was a constraint because an email sent to this address would not be delivered to Lottie. When answering a question like this, students should make sure that they give a specific constraint with a reason rather than a general ‘something went wrong’ constraint. Some responses were broad such as ‘the server crashed so it couldn’t send the email’; such a response should include a reason why the server might have crashed. Other responses referred to hardware deficiency at the server end, interception by a spam filter, or employees being ill and not being able to complete part of the process. Incorrect responses included too much Internet traffic causing a delay, or Lottie’s computer breaking down.
5. The better responses were written by students who carefully read the question and recognised that this question was about the secure storage of data on the server and not about the security of data during its transmission. Hence, students who wrote about HTTPs did not correctly identify a practice. Many students wrote about encryption, password protection, and firewalls, but they did not provide a clear and succinct explanation of how these practices can protect data on the hotel’s server. The weaker responses restated the question and often linked the practices together rather than explaining how they actually protect Lottie’s data.
6. This part was generally well answered by most students. The weaker responses were often simplistic, such as ‘a database developer develops a database for Nature Stay Hotels’. The better responses included reference to some of the actual tasks that the specialist would perform, such as ‘create or modify a range of queries and reports for the managers at the hotel to help them run the hotel more efficiently.’
7. An output was generally identified by most students, but many outputs were limited to the preparation for the arrival of guests. The weaker responses were broad and often did not identify an actual list nor state how it could be useful to the hotel managers. The better responses focused on future planning and referred to identifying popular times and places so that managers could ensure the hotels could be adequately prepared by hiring more staff if necessary or providing discounts during periods of low occupancy.

**Question 2**

1. (i) Most students correctly identified ‘satellite’ as the most appropriate communication medium; however, a surprisingly large number of these responses did not refer to the use of microwaves in this satellite medium. The justification of this medium was reasonably well answered, although the weaker responses referred to it being a cheaper or easier option. A few students ignored the feasibility of laying copper or optic fibre cable through the ocean to a floating oil rig.

(ii) Many students identified the congestion of network traffic as a factor of latency and could correctly explain its cause in such a network. Another common response was the impact of weather upon a microwave signal and that extreme weather conditions will affect the latency of satellite communication systems. A common incorrect response involved distance between the oil rig and the central server, as terrestrial distance is insignificant against satellite distance and the speed data can be transferred by this medium. The weaker responses did not give a factor that causes data packets to take longer, and often stated that a broken connection would cause high latency when in fact the packets would not be delivered at all.

1. Most students were able to identify the acronyms correctly, although the explanation of their functions varied quite a lot. The weaker responses did not offer a valid function for the protocol and were confused when trying to relate it to the oil rig scenario. The FTP protocol was answered reasonably well, with most students connecting the transfer of files to the central server with this protocol. Quite a few students referred to packets of data in responding to the TCP/IP protocol, when their response should have focused on the protocol providing the means to connect to the Internet via the oil rig’s LAN and satellite connection. It was disappointing that many students did not connect the SMTP protocol to the delivery of email messages via a mail server.
2. The identification of encryption as a method of protecting data during transmission was commonplace among students. A few students mentioned HTTPs in their response but they often lacked a discussion on why this is an appropriate method. Many students demonstrated a basic understanding of encryption (the scrambling of data); however, the better responses discussed how the combination of private and public key pairs guarantees the safe delivery of data to an intended recipient.
3. The responses from students varied to this part, with many students not including all of the essential components. The most common example of software that can deliver a video-telephony service was Skype or FaceTime. Of the hardware devices, a webcam, microphone, monitor, and speakers (or headset) are all required in addition to a computer. Students often mentioned combinations of these devices but did not often mention all of these devices. A common response to the protocol was ‘TCP/IP’, when it is VOIP that enables video-telephony to occur through a communication medium. The best responses were from students who immersed themselves in the question and wrote responses that covered the see/hear/talk scenario from all angles.
4. (i) A network was drawn and identified by most students, with a higher than expected number of responses. Responses were more complete than in previous years. Some students incorrectly identified the role of the router, possibly because many home ‘routers’ are a combination of modem/router/switch in one box, with a built-in wireless access point (WAP). The positioning of the server in the network was a common mistake, with many responses connecting the server directly to the router as the central device in the network. The better responses connected the servers to a switch that then connected to a router, as well as including a WAP connected to a switch to enable wireless connectivity for the laptops. In this year’s responses, the presence of a wireless signal from a WAP to laptops was more commonly shown in the form of a dotted line or series of rounded brackets ) ) ) rather than in the form of a solid line. A common mistake was the connection of a printer to a computer rather than to a switch, which is required to make the printer a true network device so that it can be used independently of any computer.

(ii) Most students made three or four suggestions in the form of a list. The responses varied, with a focus on privacy and use of the computers during operational hours of the oil rig. The better responses clearly identified ethical considerations in relation to the oil rig, whereas the weaker responses included broad statements that were often general rules for using a computer. Students should be able to outline four considerations in a question like this to be awarded four marks.

**Question 3**

1. The majority of students answered this part correctly. This indicates that most students are very familiar with the supplied block diagram of a computer.
2. Many of the responses clearly identified the data used by each of the components during Kate’s transaction. The responses to the ALU part were by far the best, with students demonstrating a good understanding of the arithmetic and logical functions of this component. The function of the input and output components, however, did not address the basic understanding of translating real-world data to machine-readable codes and vice-versa. The weaker responses to this part often did not refer to the function of the components at all.
3. Many students were able to relate aspects of the machine cycle to explain how the components work together to execute a successful transaction. There were very few responses that included a general explanation and did not relate aspects of this cycle to the automated teller machine (ATM) context. The weaker responses often included a loose interpretation of a part of the machine cycle. Some students wrote about the transaction from a verification of Kate’s personal identification number (PIN) point of view whilst the majority wrote about the successful withdraw of funds from her account. Some students struggled to demonstrate an understanding of the transfer of data throughout the embedded processor and instead wrote about isolated instances of data being processed. The better responses referred to the Control Unit being the director of the processor and clearly articulated the movement of data from Main Memory to the Registers as the transaction was being processed.

**Question 4**

Students wrote about a wide range of issues that need to be addressed in this scenario. The best responses identified and explained eight distinct measures that related directly to security, protection, and privacy. Some students focused too much on an assumed attached network rather than on the four new computers. Whilst written responses consisting of dot points highlights the number of measures being made, students are encouraged to use paragraphs in an extended response question like this so that they include an explanation of the measure rather than just list or identify it.

Students demonstrated their knowledge with good extended responses and identified measures such as virus protection and account profiles with sound explanations. Physical protection measures for the new computers such as tethering and the use of video surveillance were occasionally referred to. Students who struggled with this question drifted to server-based setups and security measures such as firewall, proxy server, and backup procedures.

**Question 5**

1. (i) Students demonstrated a clear understanding of the need for a relational database in this context by identifying the duplication of data in the table. Other responses referred to repeated data or data redundancy and the best responses gave reasons for the issue, such as data integrity issues, larger file sizes, and making it harder to update changes to the data.

(ii) Students were not as precise in their response to this part, as the weaker responses often re-stated the issue from part (i) without saying how a relational database resolves the issue. The better responses referred to the process of normalisation, which enables multiple tables based on entities and accessed through relationships, as the means of preventing the duplication of data.

1. (i) Students answered this part very well, with most correctly identifying the data types as Currency and Boolean respectively.

(ii) Most students were familiar with the storage of mobile telephone numbers in a database and correctly stated that the leading zero and the included spaces in a mobile phone number would be lost if stored as a number data type. In this question, it was the hyphen symbol that could not be stored in a number data type. The best responses included the extra fact that mathematical calculations are not performed on mobile telephone numbers.

(c) (i) (1) Students answered this part very well, with many responses inserting a new field, often called D\_ID, as the primary key to Table A. The weaker responses incorrectly used the D\_Telephone field as the primary key for Drivers — this field will not uniquely identify a driver, as it could store a shared home telephone number.

(2) Many students missed adding the Date and Location of the speeding fine in Table B and just added the fields required to relate it to Tables A and C.

(3) Students were generally successful in relating the Tables A and C to Table B. Most students used the C\_Number\_Plate field as the link between Tables C and Table B, with a few perceptive students inserting a new field called C\_VIN in Table C and using this as the linking field. The best responses had a single line connecting each of the linking fields with the type of relationship clearly marked on the line. The weaker responses drew lines without identifying the relationship and sometimes linked Table A directly to Table C.

(ii) Most students could identify the one-to-many relationship between Driver and Fines, but a variety of explanations was provided, many of which were incomplete or written in an awkward manner. The common error was writing a one-to-many relationship between Drivers and Fines and then writing plural (many) Fines belong to one Driver on the return discussion. The best responses explained the relationship with two sentences, beginning both sentences with the key word ‘Each’. For instance, ‘Each (one) driver can have many Fines’ and ‘Each (one) fine belongs to one Driver.’

(iii) Most students correctly identified the relationship between Table A and Table C as a ‘many-to-many’ relationship; however, quite a few students referred to a driver ‘owning’ many cars instead of a driver ‘being fined’ in many cars. Students are encouraged to refer to the name of the transaction table — in this question ‘Fines’ — when explaining a relationship. Some students wrote an awkward explanation for this relationship by stating that ‘many drivers can have many cars’ or ‘many cars can have many drivers’. Again, students are encouraged to start their explanation with the key word ‘Each’ to indicate the one-side of a relationship and include two sentences – one for each direction of the relationship. The best responses to this part were ‘Each Driver can be fined in many Cars and Each Car can be fined with many Drivers, hence the relationship is many-to-many’.

(iv) There was a large variation in the responses by students to this question on composite keys. Some students showed little or no understanding of the impact of a composite key upon a transaction table in a relational database. These students gave a broad answer, saying that it would prevent duplication but not identifying how. The better responses recognised that the composite key would restrict fines to one instance, often using the foreign keys to support their answer – such as ‘a driver could only have one fine recorded in each car’. Only the strong responses suggested an indexed autonumber or including Date/Time with the foreign keys.

(d) Most students presented their answer in structured query language (SQL) format or in a query by example grid and identified the correct data, but struggled with articulating a correct response to this question. Many students incorrectly used a ‘Sum’ function in their response. Only a few students realised that this query required a count function to be performed on a grouping by location. Teachers are recommended to focus on the SQL format of designing a query as this method is easily accessible across multiple database applications.

1. The responses to this question were varied. Students who read the question carefully correctly identified permissions for a variety of database users combined with passwords as an appropriate practice. Other students mentioned access rights and reports with full details being available to certain authorised users, and suggested that identifying a driver only by their primary key would keep their personal information private. The weaker responses struggled to find a second recommendation and often referred to hackers and other security measures.

**Question 6**

1. Most students were able to identify the code structures well. They correctly identified the FOR loop as the fixed loop and the REPEAT … UNTIL as the conditional loop; however, some students struggled to identify the CASE statement as a selection control structure, possibly because they were looking for an IF statement. Students who correctly identified all three code structures often scored a high mark for the rest of the parts in this question. Students are reminded to circle all of the lines that make up the control structure — not just the first and last line.
2. Most students correctly identified the condition loop as a post-test loop. Some students stated the condition of the loop instead and others named the REPEAT loop as listed in the algorithm. Students are reminded to use the terms fixed, pre-test, and post-test when discussing loops. Terms like REPEAT ... UNTIL are associated with pseudocode and programming language syntax.
3. A small percentage of students achieved full marks for this desk-check. Most students completed aspects of the desk-check, such as initialising the capPrices or inputting the data values. A common error was that students did not realise that the ‘X’ style caused the numberOfOrders to be incremented to 7 before the post-test loop ended. A few students displayed the style of the cap in the output rather than the styleIndex, that is, ‘style B’ instead of ‘style 1’.
4. The students who correctly answered part (c) were able to suggest that a pre-test loop would prevent the error from occurring, or that the inclusion of a selection statement inside the post-test loop would prevent the processing of the X data value. Some students discussed functionality that was missing from the algorithm and did not identify the problem caused by the use of a post-test loop. A number of students wrote that the capPrices were not used by the algorithm and that the output was unclear.
5. Nearly all students were able to correctly identify a local variable and justify their answer and they were usually correct in identifying the array structure.
6. (i) The responses to this question varied a lot — some students answered it with great precision, while others had parts of code missing or inaccurate statements. Students did, however, recognise the need for a fixed loop to traverse the array structure and included a variable to end the loop. The incrementing of the total was at times inaccurate, with student using = instead of += to replace the existing total, or not including the total variable in the calculation: total = capTotal[i] \* capPrices[i]. Another common error was to forget to initialise the total variable before using it inside the fixed loop.

(ii) Most students indicated where the procedure would execute; however, some students incorrectly showed where the procedure would be placed in the algorithm — not where it would be executed.

1. Students demonstrated a broad understanding of the implications of source and executable files. The successful responses realised that the issue was about distribution, use, and protection of rights. In general, student responses lacked depth in discussing the implications and often focused on the access of devices. The better responses related to the algorithm and highlighted specific implications with examples.

**Question 7**

1. Students found this desk-check very difficult to complete, as very few responses were totally correct and only relatively few could follow the logic of the program in the table. Even with the highlights in the algorithm to help the students follow it, only the students who practised the process of desk-checking were precise with their answer.
2. (i) Students tended to misread this question and often responded with ‘what’ programming conventions they followed instead of ‘why’ they used them. Hence, these responses missed the importance of communication within a team of programmers.

(ii) Most students were able to answers aspects of this question but tended to write broad, sweeping responses such as ‘it makes it easier’ without providing a succinct, technical reason such as ‘to re-use portions of code in many places’. The role of function was not widely understood, neither was the placing of constant declarations nor how the array functioned.

1. Student responses to this question did not always include reference to multimedia elements and platforms. The successful responses were able to refer to audio and motion and it is advisable for students to clearly identify the device such as a microphone for audio input.

(i) Most students successfully identified a sound or visual element but the explanations at times lacked depth.

(ii) Students generally responded well to this question, suggesting that voice input or movements such as shaking and sliding could be used. The weaker responses suggested text input, which ignored the nature of the multimedia platform.

(iii) Successful responses explained the need for compression-decompression to minimise storage and transmission times and the need for an appropriate codec. The weaker responses struggled to explain the term codec and its use in multimedia.

1. (i) Many students wrote a line that could be interpreted as incrementing a counter, or they did not read the question correctly and missed the use of the lionCount array. A few students interpreted this question to mean ‘if the correct lion was tapped’ and hence used an IF or CASE statement.

(ii) Students either correctly identified where the code would execute or did not.

(iii) Whilst there were not many successful responses to this question, the students who had correctly used the array in the desk-check were able to show a fixed loop to traverse the array to display the number of times the mouse was hidden. In general, students struggled to write pseudocode to express their thought processes in developing the required function.

1. The weaker responses did not refer to ‘distributing’ and ‘various’ and wrote a brief discussion on limited issues. The better responses answered this question by using cross-platform terminology and used examples to justify their discussion, such as the iPhone 6 or the Galaxy 3 screen size.

**Question 8**

1. (i) Most students correctly identified the inability of a radio button to be deselected as its disadvantage.

(ii) Most students correctly suggested a checkbox as the input mechanism.

1. Students were very clear and concise in answering this question, as they correctly identified a text box and a submit button, although some responses mentioned ‘button’ instead of submit button.
2. (i) The majority of students answered this question well, indicating the need for a decision structure to validate the input. Responses varied from checking that the input was numeric to checking that the value was between 1 and 100.

(ii) Nearly all students suggested a message box as a method of notification, but a number of students did not write an appropriate notification as indicated in the question. The best responses included a specific type of method such as an alert or echo and a friendly message with manners, for example, ‘please’.

(iii) Students responses to this question were strong, with many suggesting a drop-down box or even a slider, given the number of options. The weaker responses did not identify other input methods but suggested labels with instructions or error messages.

1. (i) Responses to this question varied. Many students did not demonstrate knowledge of arrays: ‘database’ was a common incorrect response. Several responses suggested a text box or list instead of an array.

(ii) Students who identified an array in their response to part (i) were rarely able to provide a good explanation that included traversing an array using a loop. Most successful responses went part way in terms of data organisation, ease of programming, or the number of related values to store and retrieve. Teachers are encouraged to investigate how the array structure is developed in code to create a dynamic resource for programmers.

1. Students struggled to clearly develop an algorithm that showed their logic to generate random numbers and display the required output. Very few students scored more than 3 marks for this question. The better responses correctly included the use of two random numbers and use of an array structure.
2. Most students wrote about the use of cookies to keep track of users’ scores; however, they did often not explain how they would or could be used or how they work. The better responses wrote about storing data on a user’s computer through the use of cookies but did not expand this to include different sessions. Teachers must ensure that their students understand the role and function of cookies in a Website Programming context.
3. Students demonstrated their knowledge with a variety of responses, with many students writing one or two points. A common response was to provide capabilities for hearing-impaired users. Only the better responses identified that the issue was client-sided and explored the subsequent implications for web developers by writing an extensive discussion.

**Question 9**

1. From the student responses, it was obvious which students understood what a dynamic website is because they showed an understanding of the changing nature of the data. The best responses acknowledged security of data, response to user requests, and a link between the PHP/ASP and the SQL database driving the information system. The weaker responses did not acknowledge the back-end processing of a dynamic website.
2. Many students identified ‘Activities’ or ‘Bookings’ but some were not able to justify their response as well as was expected, giving general answers such as ‘so it could update’. The better responses acknowledged that a dynamic website uses data stored on the server to present user options based upon their previous logins or request for appropriate activities.
3. Students generally struggled to use appropriate folders and clearly identify the folder structure using .html, .php or .asp and assets. This should have been a straightforward question for students who have studied this option topic. The weaker responses had folders without any real structure or organisation.
4. Many students drew a user interface that indicated a static web page as opposed to a dynamic web page. This question, therefore, distinguished between the dynamic website programmers and the static website programmers. The better responses used frames and grouped information that would be returned from a server with multiple activities available. The weaker responses include one option and a checkbox to select something.
5. The code written by most students was poorly expressed, although a number of students expressed the need for a condition in their response. A common mistake was to compare the password to six or twelve characters rather than the length of the password. The weaker responses used JavaScript and disregarded the response cycle request that is used for server side authentication, and instead referred to checking a username and password in a database to see if they match. The better responses used ASP or PHP when answering this question. Teachers are reminded to explicitly teach the response request cycle so that students understand part (ii) of this question.
6. Students were able to identify some techniques, but did not explain them to the required depth. The weaker responses tended to list enhancements rather than techniques that would to enhance the speed of delivery. The better responses identified the management of data and images, using thumbnails where possible, placing the CSS in a separate document, using stripped code, and consistent addressing.

## Operational Advice

Teachers are advised to develop assessment tasks using the subject outline, the performance standards, and the skills checklists.

When packaging assessment items, please bundle together all assessment types for a particular student as per subject operational information. The presentation of assessment items should be by student and then by assessment type. For example, all four folio tasks for a student should be presented together, rather than bundled with other students’ work and presented as ‘Essay 1’.

School assessment tasks are set and marked by teachers. Teachers’ assessment decisions are reviewed by moderators. Teacher grades/marks should be evident on all student school assessment work.

Teachers should include a copy of the learning and assessment plan and any assessment outline given to students. Teachers are encouraged to indicate where they have awarded performance standard grades and not just tick work.

For student submission of digital assessment items it is encouraged that each student supplies a DVD with a copy of their digital work (Folio, Skills, Project). This allows moderators to easily access evidence of the student work where required. If is helpful if teachers also collate this onto one DVD and USB to accompany the moderation bag. The DVD ensures no corruption of student work and cannot be infected or altered after the teacher has confirmed and awarded performance standards. The USB enables moderators to confirm outputs of student work that required write access to the storage medium, such as a database.

It is advisable that students use a footer on all printed materials and develop comments to identify their implemented work.

## General Comments

It is evident that teachers assessed consistently against the performance criteria. Additionally, students performed well in the external examination with more students attempting all questions with a higher level of success.

Teachers must develop assessment materials that relate to the performance standards and ensure that Knowledge and Understanding, Analysis and Evaluation, and Development and Validation are assessed in balance and to a Stage 2 level. Students need opportunities to show their ability against the grade bands and should not be locked into one mode of assessment such as four folio and three skills tests. Teachers must enable students to develop and demonstrate their ability in a range of assessment modes.

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