



test - programming concepts

Strands, Domains, Dimensions and Standards covered by this assessment task**Discipline Based Learning*****Mathematics******Working mathematically*****(Level 6)**

Students choose, use and develop mathematical models and procedures to investigate and solve problems set in a wide range of practical, theoretical and historical contexts (for example, exact and approximate measurement formulas for the volumes of various three dimensional objects such as truncated pyramids). They generalise from one situation to another, and investigate it further by changing the initial constraints or other boundary conditions. They judge the reasonableness of their results based on the context under consideration.

Inter Disciplinary Learning***Communication******Listening, viewing and responding*****(Level 6)**

At Level 6, students identify the ways in which complex messages are effectively conveyed and apply this knowledge to their communication. When listening, viewing and responding, they consider alternative views, recognise multiple possible interpretations and respond with insight. They use complex verbal and non-verbal cues, subject-specific language, and a wide range of communication forms. Students use pertinent questions to explore, clarify and elaborate complex meaning.

Inter Disciplinary Learning***Communication******Presenting*****(Level 6)**

At Level 6, students demonstrate their understanding of the relationship between form, content and mode, and select suitable resources and technologies to effectively communicate. They use subject-specific language and conventions in accordance with the purpose of their presentation to communicate complex information. They provide constructive feedback to others and use feedback and reflection in order to inform their future presentations.

Inter Disciplinary Learning *Design, Creativity and Technology* *Analysing and evaluating* (Level 6)

At Level 6, students use evaluation criteria they have previously developed, and critically analyse processes, materials/ingredients, systems components and equipment used, and make appropriate suggestions for changes to these that would lead to an improved outcome. They use a range of suitable safe testing methods in this analysis. They relate their findings to the purpose for which the product and/or system was designed and the appropriate and ethical use of resources.

Inter Disciplinary Learning *Design, Creativity and Technology* *Investigating and designing* (Level 6)

At Level 6, students identify considerations and constraints within a design brief. They undertake research relevant to the design brief. They locate and use relevant information to help their design thinking and identify the needs of a variety of client/user groups. When designing, they generate a range of alternative possibilities, use appropriate technical language, and justify their preferred option, explaining how it provides a solution to the problem, need or opportunity. They make critical decisions on materials/ingredients, systems components and techniques based on their understanding of the properties and characteristics of materials/ingredients and/or of the relationship between inputs, processes and outputs. They effectively use information and communications technology equipment, techniques and procedures to support the development of their design and planning. Students take account of function and performance, energy requirements, aesthetics, costs, and ethical and legal considerations that address the requirements of design briefs. They identify a range of criteria for evaluating their products and/or technological systems. Students plan a realistic and logical sequence of the production stages, incorporating time, cost and resources needed for production.

Inter Disciplinary Learning *Design, Creativity and Technology* *Producing* (Level 6)

In response to changing circumstances, they adapt their methods of production and provide a sound explanation for deviation from the design proposal. They make products/systems that meet the quality, aesthetic, functionality and performance requirements outlined in the design brief.

Inter Disciplinary Learning *Information and Communications Technology* *ICT for communicating* (Level 6)

At Level 6, students exchange ideas and considered opinions with others through online forums and websites. Students apply techniques to locate more precise information from websites, including searching general and specialised directories, and applying proximity operators. They use accepted protocols to communicate regularly online with peers, experts, and others, expressing their messages in language appropriate to the selected form of communication, and demonstrating respect for cultural differences.

Inter Disciplinary Learning *Thinking Processes**Reasoning, processing and inquiry***(Level 6)**

At Level 6, students discriminate in the way they use a variety of sources. They generate questions that explore perspectives. They process and synthesise complex information and complete activities focusing on problem solving and decision making which involve a wide range and complexity of variables and solutions. They employ appropriate methodologies for creating and verifying knowledge in different disciplines. They make informed decisions based on their analysis of various perspectives and, sometimes contradictory, information.

Inter Disciplinary Learning *Thinking Processes**Reflection, evaluation and metacognition***(Level 6)**

At Level 6, when reviewing information and refining ideas and beliefs, students explain conscious changes that may occur in their own and others' thinking and analyse alternative perspectives and perceptions. They explain the different methodologies used by different disciplines to create and verify knowledge. They use specific terms to discuss their thinking, select and use thinking processes and tools appropriate to particular tasks, and evaluate their effectiveness.

Physical, Personal & Social *Interpersonal Development**Working in teams***(Level 6)**

At Level 6, students work collaboratively, negotiate roles and delegate tasks to complete complex tasks in teams. Working with the strengths of a team they achieve agreed goals within set timeframes. Students describe how they respect and build on the ideas and opinions of team members and clearly articulate or record their reflections on the effectiveness of learning in a team. They develop and implement strategies for improving their contributions to achieving the team goals.

Physical, Personal & Social *Personal Learning**Managing personal learning***(Level 6)**

At Level 6, students initiate personal short-term and long-term learning goals and negotiate appropriate courses of action to achieve them. Students allocate appropriate time and identify and utilise appropriate resources to manage competing priorities and complete tasks, including learner-directed projects, within set timeframes. They initiate and negotiate a range of independent activities with their teachers, providing progress and summative reports for teachers and stakeholders. They monitor and evaluate the effectiveness of their task and resource management skills, reflecting on their progress and suggesting and implementing appropriate management strategies for improvement. They take responsibility for their learning environments, both at school and at home, anticipating the consequences of their actions. They demonstrate control of impulses and mood modulation. Students review and modify the criteria they use to check that their work is relevant, accurate and meets task objectives and make appropriate changes to completed tasks using these criteria. They identify and refine the strategies they use to study, organise and revise their work, both at school and at home.



Discipline Based Learning *Science*

Science at work

(Level 6)

Students formulate their own hypotheses and plan and conduct investigations in order to prove or disprove them. They use chemicals (including biomaterials), equipment, electronic components and instruments responsibly and safely. They select appropriate equipment and measurement procedures that will ensure a high degree of reliability in data collected and enable valid conclusions to be drawn. They construct working models and visual aids that demonstrate scientific ideas. They present experimental results using appropriate data presentation formats, and comment on the nature of experimental errors. They use Material Safety Data Sheets (MSDS) and risk assessment to evaluate the safety of their investigations. They evaluate the appropriateness of the experimental design and methodology used to investigate their predictions.