



B O A R D O F S T U D I E S
NEW SOUTH WALES

2013 HSC Design and Technology Marking Guidelines

Section I

Multiple-choice Answer Key

Question	Answer
1	D
2	D
3	C
4	A
5	D
6	C
7	C
8	B
9	A
10	B

Section II

Question 11

Criteria	Marks
• Sketches in general terms why consideration of function is important during the development of a product	2
• Identifies a functional factor	1

Sample answer:

In designing a new product, a designer must ensure that it meets its intended purpose. For example, a sports water bottle must be light, easy to carry and not leak. Factors such as these are important considerations for the designer in the development of the sports water bottle.

Question 12

Criteria	Marks
• Explains the importance of the use of hand-sketching to the design process in preference to computer-based graphics programs with reference to the characteristics and features of hand-sketching processes	3
• Sketches in general terms how hand-sketching processes are important in the design process	2
• Identifies a feature of hand-sketching	1

Sample answer:

The use of hand sketches allows the designer to externalise their visual thoughts and ideas which cannot be expressed accurately and appropriately in verbal terms. These quick sketches allow the designer to evolve their design ideas and indeed their understanding of the problem. This, in turn, leads to other new ideas to be expressed in almost 'real time'. In addition, the sketches allow others to visualise the non-verbal ideas of the designer. Computer-based graphics programs may not allow for the immediate 'real-time' feedback that a hand sketch may give the design/communication situation.

Question 13

Criteria	Marks
<ul style="list-style-type: none">Provides characteristics and features of how action plans AND ongoing evaluation processes work together to contribute to a successful design	4
<ul style="list-style-type: none">Provides characteristics and features of how action plans AND/OR evaluation processes contribute to a successful design	3
<ul style="list-style-type: none">Sketches in general terms how action plans AND/OR evaluation processes contribute to a successful design OR	2
<ul style="list-style-type: none">Identifies a feature of action plans AND a feature of evaluation processes	
<ul style="list-style-type: none">Identifies a feature of action plans OR evaluation processes	1

Sample answer:

As part of the design process, the designer will develop an action plan for the purpose of organising an appropriate and efficient operation. The action planning will help to organise a correct sequence of operations in order to allow an efficient design process. This, in conjunction with an ongoing evaluation structure, will help to ensure a successful design. If ongoing evaluation is not carried out then design development may not address issues of concern with regard to the intended product. These issues could relate to important design factors which may include function, cost or safety in relation to the product. Together they ensure that the end product will best meet the needs of the client and the consumer.

Question 14

Criteria	Marks
• Identifies issues and provides points for and/or against how the use of technology has changed designers' work practices	6
• Shows sound understanding of how the use of technology has changed the designers' work practices positively and/or negatively	4–5
• Shows some understanding of how the use of technology has changed designers' work practices	2–3
• Shows a basic understanding of the use of technology in designers' work practices	1

Sample answer:

Currently designers have access to a range of technologies to assist with their day to day work. This technology can be seen to have an effect on their work practices both in a positive and negative sense. A positive example would be that of computer modelling technology, which has allowed the designer to electronically send their design ideas to almost anywhere in the world. This has had the effect of allowing other stakeholders in the design to collaborate in the design development process. The fact that designers may be situated in other parts of the world allows for a continuous (24 hour) input to the design via their collaboration. A negative aspect of this though may be the initial establishment costs involved in setting up the technology and ongoing upgrade and training costs to maintain or access the level of technology.

Section III

Question 15 (a)

Criteria	Marks
<ul style="list-style-type: none">• Makes clear the relationship between Australian lifestyles and new technologies• Shows thorough understanding of how new technologies are affecting Australian lifestyles	6
<ul style="list-style-type: none">• Provides advantages AND/OR disadvantages of new technologies with direct reference to the impact on Australian lifestyles	4–5
<ul style="list-style-type: none">• Shows some understanding of new technologies AND/OR how they are affecting Australian lifestyles	2–3
<ul style="list-style-type: none">• Identifies a feature of new technologies OR <ul style="list-style-type: none">• Identifies one of the effects of new technologies on Australian lifestyles	1

Sample answer:

The introduction of advanced technologies in Australia has changed lifestyles in both positive and negative ways. For example, technologies such as the tablet computer, smart phone and MP3 player have allowed people travelling on public transport to listen to music, watch television programs, catch up with news of the day, check social media sites such as Facebook or Twitter or video chat with a friend. This allows them to relax on their journey. However the negative effect is that the same technology allows them to check their work emails, video conference with their work colleagues and look at spreadsheets and sales forecasts, not allowing them to relax and have leisure time in a time that would normally be expected or allowed for leisure.

Question 15 (b)

Criteria	Marks
<ul style="list-style-type: none"> Draws out and relates implications of the relationship between a designer's vision, emerging technologies and society with a direct link to the development of a new product, system or environment 	9
<ul style="list-style-type: none"> Provides reasons why and/or how a designer's vision, emerging technologies and society affect the development of a new product/system or environment 	7–8
<ul style="list-style-type: none"> Identifies issues and provides evidence of how a designer's vision, emerging technologies and society affect the development of a new product/system or environment 	5–6
<ul style="list-style-type: none"> Provides characteristics and features of how TWO or more of the following: emerging technologies; designer's vision or society affect the development of a new product, system or environment 	3–4
<ul style="list-style-type: none"> Sketches in general terms how a designer's vision AND/OR emerging technologies AND/OR society affect the development of a new product, system or environment 	2
<ul style="list-style-type: none"> Identifies a feature of a designer's vision, emerging technology or societal impact 	1

Sample answer:

A unique and dependent relationship exists between a designer's vision, emerging technologies and society, as each element is reliant on the other for attainment of a successful new product/system or environment.

A designer's vision to create or invent a new product that saves time in food preparation is often inspired by the feedback received from working parents who complain about inadequate time to cook evening meals. Changes in society have resulted in the economic requirement that both parents work in order to ensure sufficient funds to support family and household costs. Therefore, as families are busier and time poor, a designer is provided with the stimulus for developing design ideas related to preparing and cooking food items within a limited timeframe. Designers may brainstorm ideas related to electronic devices that cook meats and vegetable ingredients within short time periods. Ideas may evolve from being time efficient, to built-in timers that permit householders to prepare and set a time for meals to cook, as indicated by electronic/digital slowcooker devices and food processors that not only cook the food, but also wash, peel and prepare prior to cooking all within the one device. These features also ensure minimal time required for cleaning at conclusion of cooking. Designers may release one version of their food cooking device and then further improve this first version after consumer feedback, and modify version one. This newer version will be released to the market with improved features that better suit the needs and wants of the society that provided feedback.

Critical to the ability of the designer to produce their creative solution is the emerging technology that is required to produce the final product. As observed in the instance of a one-device food processor that prepares and cooks food within short, pre-determined and timed periods, these features of the food processor are only made possible by the emerging digital and mechanical technologies that are incorporated into existing food processor technologies. In this instance, the digital computerised microchips required to permit the food processor to have pre-set timings and time-controlled cooking must be available for a designer to use in the product. The microchips need to be miniaturised in order to fit within the food processor machine. Thus, emerging technologies are crucial for the processor to provide these functions.

Similarly, emerging technologies are also critical to the food processor's ability to mechanically peel, chop and cook the food within the one device. Without the mechanical blades, mixers and heating elements, this processor machine would not be able to fulfil the function of combined food preparation and cooking.

A designer's vision to create a device that saves families time in food preparation and cooking is therefore purely inspired by the needs of the lifestyles of families within society and made possible by the availability of emerging technologies that make it possible for a food processor to conduct many functions within one device.

Design and Technology

2013 HSC Examination Mapping Grid

Section I

Question	Marks	Content	Syllabus outcomes
1	1	Design factors	1.1
2	1	Intellectual property	2.2
3	1	Sustainable technology	2.2
4	1	Emerging Technologies	6.2
5	1	Designing and Producing	3.2
6	1	Needs Analysis	4.1
7	1	Innovation	3.1
8	1	Obsolescence	1.1
9	1	Communication	5.2
10	1	Ethical issues	2.2

Section II

Question	Marks	Content	Syllabus outcomes
11	2	Design Factors	1.1
12	3	Communication	5.2
13	4	Creative design process	3.2
14	6	Design practice	1.2, 6.1

Section III

Question	Marks	Content	Syllabus outcomes
15 (a)	6	Emerging technologies	6.2
15 (b)	9	Social impact of technologies and design development	3.1, 3.2, 6.2