Introduction
I want to present some ideas about how a valid and reliable process for assessing deep thinking is not a function of the assessment regime (such as external or internal, standardised or teacher-devised), but is actually a product of the successful application of certain design criteria and the interplay of three essential elements.

The argument I present rests on one simple belief that I hold: the capacity to design good assessment tasks is a vital part of an extensive professional repertoire and, as such, demands space and time, ritual and respect. (Teacher-assessors should not let anybody tell them that designing assessment tasks for deep thinking is a job for a rainy Sunday afternoon.)

Playing with words
Someone once said that Wagner’s music has depth, but only on the surface; deep down it is shallow. Someone else once said that everything in life is deeper than it looks; except for the Matrix movies.

Depth and shallowness – some psychologists use two-dimensional (that is, really shallow) Rorschach inkblots to open up otherwise inaccessible depths in people’s psyches. Important decisions (for example, child custody decisions) are sometimes based on this psychological assessment (relevant word!).

Assessment tasks for deep thinking – this topic is like an inkblot in the Rorschach test. Different people will read different things into it. ‘Is this a dagger which I see before me?’ No, it’s obviously a ruler. It’s a tunnel leading to very deep places. It’s a ladder leading to some higher-order places.

Let’s admit that those psychologists who administer the Rorschach inkblot test are finding out deep things about their patients/clients, and that their psychological assessments are deep. But are their patients/clients actually doing deep thinking? No. That’s not the idea. There’s nothing deep about saying, ‘That bit looks like a well-endowed rabbit.’

If we talk about assessment for deep thinking, we don’t mean that students identify two-dimensional well-endowed rabbits, which we read deep things into. We mean the students do the deep stuff, and we identify it. Of course they have to bring some nuggets back from the depths for us to identify, and we have to know a genuine nugget when we see one, which brings in the whole question of evidence and standards (another big discussion for some other time).

I think it is easier for us to agree on the meaning of the terms ‘deep thinking’ and ‘design’ than it is for us to have congruent images of an assessment task. In what follows I first put forward my working definition of deep thinking; second, I put the case that what many of us are
referring to as an ‘assessment task’ is really a teacher-devised ‘student task’; third, I discuss some ‘live’ tasks that assess deep thinking; and, finally, I return to the process of design.

Deep thinking
We cannot know whether deep thinking is taking place, we can only infer it from the evidence of student work – the ‘nuggets’ that students have trawled from the depths of their thinking and understanding, and which they display to the world.

Deep knowledge and deep understanding
I take deep knowledge to be the acquisition of facts, concepts, theories, perspectives, and *modus operandi* that are critical to a significant topic or discipline and that extend beyond the superficial, the routine or the trivial.

I take deep understanding to be the application of knowledge to constructing explanations, drawing conclusions, discovering relationships, making complex connections around a central theme, solving problems, asking new questions, and formulating and testing out hypotheses.

Intellectual depth in student work
The Queensland School Reform Longitudinal Study (The University of Queensland School of Education, 2001) found that much student work is of limited intellectual quality or ‘richness’. In a more recent research activity (Department of Education and the Arts, 2004, #01), we tried to find out if richness (a proxy for rigour) could validly and reliably be identified in student work. To do this we used a range of people from both inside and outside the education arena and came up with three dimensions of richness.

1. Intellectual engagement – that is:
   - deep thinking and understanding
   - considering aesthetics
   - going beyond the data presented.

2. Engagement in specific disciplines and trans-disciplinary learning – that is:
   - demonstrating deep and coherent knowledge of a field
   - drawing on and exploiting knowledge from a range of fields
   - drawing on and exploiting practices and skills across fields.

3. Engagement in significant problem-solving, decision-making and action – that is:
   - identifying, analysing and resolving significant problems and issues
   - tackling problems individually and collaboratively
   - making significant decisions and judgments based on information and discussion
   - engaging in pragmatic social action, including purposefully communicating in different media.

This elaboration of richness gives us some clues about how to promote intellectual depth in student work, and how we can advance deep thinking through our assessment tasks. It is quite a tall order, but not one that is beyond our teachers in designing tasks, and not one that is beyond our students in producing evidence of their learning.

Deep approach to learning
There is another ‘depth’ to keep in mind. This depth is a psychological attribute of the student, not a characteristic of the assessment *per se*. Research shows that a deep approach to learning correlates with achieving motive and academic self-concept, which in turn correlate with academic success (Matters, 1998). Students who have a deep (as opposed to a ‘surface’ or superficial) approach to learning are likely to agree with the

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1 Or domain, or KLA syllabus strand, or discipline or, in common parlance, subject.
following statements (Burnett & Dart, 1998):

- I find at times my schoolwork can give me a feeling of deep personal satisfaction.
- In reading new material I am often reminded of material I already know, and I see the latter in a new light.
- I find that many subjects can become very interesting once you get into them.
- I find that I have to do enough work on a topic that I can form my own point of view before I am satisfied.
- I find that studying some topics can be really exciting.
- I try to relate what I have learned in one subject to what I already know in other subjects.
- I find most new topics interesting, and often spend extra time trying to find out more about them.

Students with a deep approach to learning refer to the excitement and satisfaction of schoolwork and study, whereas students with a superficial approach to learning often refer to a ‘don’t-do-anything-extra’ strategy for studying. We owe it to our students to create an environment where it is considered ‘cool’ to be excited by learning.

**Examination, test and assessment**

It is important that we spend some time getting a common understanding of one of our key terms: ‘assessment task’. Where does it fit into the conventional array of assessment instruments? In fact, what is ‘assessment’ vis-à-vis ‘examination’ and ‘test’?

Vernon (1964, p. 2) provides a distinction between examination and test. An examination is devised to assess the attainment and skill of pupils or students in a particular subject, whether by objective-type or by conventional written, oral or practical questions. All the questions refer to a syllabus, which has been defined by teachers or examiners.

By a test we mean a published instrument which has been constructed by persons technically trained in mental testing and statistical methods. Its items have been thoroughly tried out beforehand, and the test is accompanied by norms or standards of performance which enable the tester to interpret how far a pupil’s score or mark is superior or inferior to those of other similar pupils.

Calfee (1993, p. 3) could find no clear meaning in educational literature of the term ‘assessment’, and synthesised an etymological meaning in which assessment ‘leads a hierarchy in which testing and measurement are in the service of a greater purpose’. In the Australian context in the 21st century, the following definition suits us. **Assessment is the collection of information for a purpose, as in assessing the nature of student learning for the dual purposes of monitoring performance and improving learning.**

But Calfee does not provide a definition to suit the type of teacher-devised assessments used in schools, so ‘assessment task’ has become a convenient tag for the type of assessment that occurs in school tasks, and ‘testing’ is an equally convenient tag for describing the type of measurement that occurs in external tests. Adopting these definitions, the NSW Higher School Certificate (HSC) Examination in Physics is correctly described as an examination, and the Scholastic Aptitude Test (SAT) is correctly styled as a test. The words are included in the names of these instruments, but words alone are not enough proof. Not only their titles but also their actualisations are true to Vernon’s definitions. The Queensland Core Skills (QCS) Test and the primary literacy/numeracy testing program are examples of testing. When we talk about the type of assessment that is devised by teachers, often in the form of some
superstructure, I think we are talking about a ‘student task’ as a particular sort of assessment task. Let’s put them all under the assessment species umbrella and discuss our assessment task in more detail.

Assessment task

An assessment task is a tool or device or constructed situation that creates the opportunity for learners to demonstrate or display the nature and quality of their learning. The primary aim of an assessment task is to call forth evidence of student achievement that can be judged by teacher-assessors. The collection of the substantive products of student learning in and/or across curriculum areas, completed in response to an assessment task, is student work. The notion of assessment tasks making work for students (student work) is not in conflict with the person-in-the-street understanding of ‘tasks’ and ‘work’. Assessment tasks can be long or short, not necessarily written, done in a controlled assessment space or not, completed in a specified time or not, by students working individually or in groups, with or without certain levels of teacher assistance, and so on. Student work may be artefact, performance, oral presentation, computer program, extended writing, project work, field work, practical work, or other demonstration of mastery. As well, the teacher-assessor is usually a class teacher.

This description of assessment task has connotations of internal assessment because of the nature of the evidence and the conditions under which evidence can be gathered. It does not, however, exclude external assessment where evidence of learning comes in the form of test response, examination answer or viva voce. Such assessment is a subset of ‘tool or device or constructed situation that creates the opportunity for learners to demonstrate or display the nature and quality of their learning’. Those external assessments are usually written, done under controlled conditions, completed in a specified time by students working individually and without teacher assistance. The teacher-assessor is anonymous.

The defining aspect of our so-called assessment task (teacher-devised assessments used in schools) is that it does not have to be time-restricted. Some would also list ‘connectedness to the real world’ as a second defining aspect. As
well, it has curriculum planning bits attached to it. On those three properties alone it qualifies as a special type of assessment task – a student task. The conversation is complicated enough so I will not talk about the place of observation and other comparatively unstructured assessments. I do acknowledge, however, that observation is an assessment technique. Nor will I talk about measurement which kicks in when we assign a number to represent the worth of student work.

**Examples of assessment tasks for deep thinking**

My original heading for this subsection was ‘Examples of “live” student tasks’, meaning real tasks, tasks that have actually been touched by real students and real teachers, and also emphasising the term ‘student task’ rather than assessment task. What follows is a description of three different exemplifications of student task, all purporting to assess deep thinking.

The first is a Rich Task (a multi-disciplinary task as in New Basics) (Education Queensland, 2001); the second is a Mathematics Task derived from the corresponding 1–10 Key Learning Area (KLA) syllabus (Queensland Studies Authority, 2004); and the third is a Teacher-Generated Task (TGT) (Education Queensland, 2002) that assesses a processing skill – transforming ideas and information – across two KLA’s: Study of Society & the Environment and The Arts.

**Rich Task**

Although devised centrally (albeit with teacher input), and enacted in similar ways at different school sites, the Rich Task, which represents curriculum and assessment intertwined, is an assessment task because it can be completed over an extended period of time and echoes a real-life problem. It is also a student task because it includes a planning element (as in its task specs). See Appendix 1 for extracts from Rich Task 9#3: ‘The Built Environment: Designing a Structure’. The complete task is presented diagrammatically and in colour in an A3 art book (Education Queensland, 2001).

**Mathematics Task**

The second example of a student task can be found in material released by the Queensland Studies Authority as a resource for teachers implementing the new Mathematics syllabus for Years 1–10. To view ‘Finding the Gingerbread Man’, see <http://www.qsa.qld.edu.au/yrs1to10/kla/mathematics/support.html>.

**Teacher-Generated Task**

For a third example, I draw on Education Queensland’s pilot study of two complementary assessments for Years 3, 6 and 9: the common assessment task or Queensland Assessment Task (QAT) and the Teacher-Generated Task (TGT). The TGT is devised by classroom teachers according to formal task specifications and submitted to a central agency for accreditation before being administered in classrooms to provide results for reporting. To view work in progress, see <http://education.qld.gov.au/curriculum/assessment/framework/index.html>.

The QAT Design Brief 2004–5 and the TGT Design Brief 2004–5 appear in Appendix 2. Appendix 3 provides a diagram that summarises the cross-curriculum skills underlying ‘Transforming ideas and/or information’, an example of deep thinking which is assessed in the 2005 Year 9 QAT and TGT. The QAT will be undertaken in September 2005. The TGT process has already occurred. Each TGT pilot school

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2 Method of gathering evidence about student achievement. You can look at them (observation); consult with them (viva voce); oranalyse the products of their learning (student work).
generated the following products: planner, student task, task-specific criteria/standards, aspirational response, and a description of the school’s internal standards assurance process. Appendix 4 contains one school’s student task, titled ‘Can art have a social impact?’ [Appendix 4 is not compatible with PDF format. If you wish to obtain a copy, email martin.murley@curriculum.edu.au.]

Superstructure

Earlier in this paper I used the term ‘superstructure’ to refer to a form of assessment task that often appears in the early and middle years of schooling. I ask myself, and I would be interested to hear what you think, whether big is necessarily better (that is, the superstructure genre as opposed to, say, the genre of little gems). Assessment is ultimately about making inferences about student achievement on the basis of the evidence before the teacher–assessor. In this country we delight in putting the teacher at the heart of the assessment process. We also know how important it is to align curriculum, pedagogy and assessment. But I wonder if we are drowning in the creative process, covering all the outcomes statements and dreaming up great themes and units of work, but losing simplicity and impact (as epitomised by the works of JS Bach).

Design

When JS Bach composed his 24 preludes and fugues, he used the imagination of an artist and the discipline of a scientist. Imagination and discipline are the hallmarks of any design process, including the teacher–assessor’s process for designing assessment tasks that are capable of producing evidence of deep thinking and that promote intellectual depth in student work. The design process is not merely the application of a set of mechanical rules. That would give you Andrew Lloyd-Webber’s formulaic approach to composition (to sustain the musical metaphor). The design decisions that one confronts when setting an assessment task apply to the whole gamut of assessment instruments, from good old point-in-time subject-specific multiple-choice tests to complex, open-ended tasks completed over an extended period of time; from external examinations to teacher-devised assessments; and from assessing knowledge and understanding in the disciplines to assessing generic skills or dispositions. How do you design a good assessment task? The answer to this question lies in responding to the series of subsidiary questions in the diagram provided in Appendix 5, ‘Design decisions for quality tasks’.

Design criteria

A design process requires design criteria. In a nutshell, the design criteria for assessment are intellectual rigour, authenticity, accessibility, and credibility (as per the quadrants in the diagram in Appendix 5). The features of good assessment tasks are many and varied, but there are four themes threading the design decisions in that diagram:
1) The task must be based in the curriculum.
2) Students must know what is expected.
3) Students must recognise the task as worthwhile and relevant.
4) The task must be capable of eliciting an optimal performance from students.

The design decisions that I put before you respect the decision-making aspect of a teacher’s role as assessor.

Interplay of three essential elements

In a good assessment task there is an effective interplay of three simple elements distilled from the four themes above.

- What is taught/learnt (the intentions of the curriculum)
- What is assessed (knowledge/skills/dispositions in the domain being sampled)
• What is rewarded (high-quality performance on the criteria set down in the marking scheme and incorporated in an associated exemplar or indicative solution)

This interplay can be seen in action in Question 27 on the 2004 HSC Physics Examination (NSW Board of Studies, 2004), which appears as Appendix 6. ‘What is assessed’ reflects the syllabus outcome statements – ‘what is taught’. (We assume that what is taught in classrooms is an enactment of the intended curriculum.) Also, the criteria in the marking guidelines reflect the commands in the examination question (e.g. assess/critique, calculate, argue a position), so that ‘what is rewarded’ (what gets the most marks, in this case) is student work that matches the verbal descriptors. By applying the test for ‘depth’ according to our earlier working definitions of deep thinking, we can see that this task (examination question) requires students to demonstrate deep knowledge and understanding in Physics.

From Appendix 1, it can be seen that what is assessed in Rich Task 9#3 (targeted repertoires of practice as evidenced by task products) reflects ‘what is taught’ (the New Basics referents as expressed in the task description). Also, the desirable features for high-quality performance (‘what is rewarded’ by high grades) match the description of student products in the Rich Task demonstrations. Further,

Appendix 7 contains extracts from Rich Task 6#6: ‘Design, make and display a product’ which also demonstrate the interplay of the three essential elements of task design. Both of these Rich Tasks will be referred to in the ‘show me’ session.

In conclusion

How low can you go? It’s a question from Limbo. What about, ‘How deep can you go?’ In Dante’s Inferno, Virgil, representing rational thinking and humane learning, led Dante down to the very core of Hell and beyond, until he came out the other side to see the stars. That must be why this session is called Beyond the core.

But, Ezra Pound (much influenced by Dante and penned up in an American military prison in Pisa) scoffed at those who think they will ‘get through hell in a hurry’.

I repeat my message to teacher-assessors: don’t let anybody tell you that you can hurry through the process of designing a good assessment task on a rainy Sunday afternoon. But, just so you don’t lose sight of how far we have come in the world of discussions about deep and meaningful assessment, here is an exchange about open-book examinations. (I won’t identify the country or the institution so don’t go looking in the list of references.)

First Participant: We can do something with regard to the assessment. Why don’t we, as a faculty policy, make tests and examinations open-book? If they are all open-book, this will prevent teachers asking questions that are just relying on rote memory.

Second Participant: Open-book examinations will force lecturers to ask questions where there is an application orientation. Why don’t we do that?

Faculty Head: I’ll tell you the difficulty. I’ve set open-book exams. It is much, much, much more difficult to set open-book exams. It’s a real challenge.

First Participant: It is a challenge. But why don’t we face the challenge?
Faculty Head: I’m with you, but I don’t think that we want to make it a faculty policy, like ‘thou shalt set open-book exams’. I take your point on that. Let’s promote much more use of open-book exams in the faculty. Let’s move on with Snider’s topic.

References
Burnett, P. C., & Dart, B. C. (1998), The study process questionnaire: A construct validation study, Unpublished manuscript, Queensland University of Technology, Brisbane.
Education Queensland (2003), Assessment and Reporting Framework Years 1–10 in Education Queensland Schools, [Propositions Paper], Queensland Department of Education (Assessment & New Basics Branch), Brisbane.
The University of Queensland School of Education (2001), The Queensland school reform longitudinal study, Queensland Department of Education, Brisbane.
Appendix 1:

Extracts from Rich Task³ 9#3⁴

The Built Environment: Designing a Structure

Students will identify a client’s need and take these and other factors into account in preparing a design brief for a structure. They will design an environmentally sensitive and aesthetic structure to fulfil this brief and communicate the design through sketches, plans and models. They will give due consideration to structure and materials, quantities and costs.

What is being assessed

New Basics⁵ referents⁶

- collaborating with peers and others
- mastering literacy and numeracy
- interacting within local … communities
- operating within shifting cultural identities
- working with design and engineering technologies
- building and sustaining environments.

Targeted repertoires of practice⁷

- analysing client needs
- applying the technologies and procedures of financial mathematics to costing
- appreciating the imperative of environmental sustainability
- composing extended written text (design brief)
- estimating quantities
- explaining the cultural and aesthetic appropriateness of a structure

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³ Rich Tasks: Specific transdisciplinary activities which students undertake that have real-world value and use. Each Rich Task is a culminating performance or demonstration that is purposeful and models a life role; most Rich Tasks demand multiple products. Within the New Basics Trial (2000–2004), Rich Tasks were the assessable and reportable outcomes of an enacted 3-year curriculum plan; thus Rich Tasks represent curriculum and assessment intertwined. There are three suites of Rich Tasks in the full set of 21: five in the suite undertaken by students across the span of Years 1–3; seven in the suite offered across Years 4–6; and eight (one of which has two options) in Years 7–9. (See <http://education.qld.gov.au/corporate/newbasics/html/richtasks/richtasks.html>.)

⁴ 9#3: In the suite of eight Rich Tasks offered to students over the span of Years 7–9, this is number 3.

⁵ New Basics: The New Basics Trial (2000–04) was an initiative of the State Department of Education in Queensland, Australia.

⁶ New Basics Framework: One model of integrating curriculum, pedagogy and assessment that deals with new student identities, new economies and complex cultures. The Framework triad is made up of 4 New Basics curriculum categories; 20 Productive Pedagogies (in 4 categories), and 21 Rich Tasks (in 3 suites).

⁷ Repertoire of Practice: One of the skills—cognitive and cultural, linguistic and social—that students need for New Times (specifically, that students need to develop in order to do the Rich Tasks). New Times: The combined phenomena of globalisation, the shift towards local and service-based economies, new and constantly changing technologies, complex transformations in cultural and social relationships, fluid demographics, and a sense of uncertainty about the future.
• giving acknowledgment to the ideas of others
• justifying design decisions
• knowing and utilising conventions and techniques of graphical communication of a building
• measuring
• negotiating in a group
• scale drawing
• translating information from one form to another
• understanding and using a design process
• understanding basic engineering concepts (e.g. strength of materials, balancing forces)
• understanding the effect of the seasons—climate/weather, night/day, light/shade—on living conditions
• utilising the language of architectural form and style
• visualising.

Products of learning
• written design brief
• concept sketches/models/plans for chosen structure
• quantity survey and cost estimate for chosen structure.

What is rewarded

High-quality performance
• faithful interpretation of client needs via comprehensive and well-organised job specifications
• cogent rationalisation in a design brief of environmental sustainability, aesthetic appeal, cultural appropriateness, financial viability and social significance, via the discourse of architecture
• vivid ideation in conceptualising a structure for a selected site.
Appendix 2:
Queensland Assessment Task (QAT) and Teacher-Generated Task (TGT) Design Briefs: 2004–5

QAT Design Brief: 2004–5

1. A single QAT will be produced for 2004–5.
2. The QAT is designed for administration to Year 9 students.
3. The QAT will be made up of three Standardised Assessment Tasks (SATs) in different assessment modes, namely:
   I. interactive, computer-based
   II. constructed response
   III. performance-based.
4. The QAT will be complemented by the corresponding Teacher-Generated Task (TGT) for 2004–5.
5. The QAT will be intellectually challenging and have connections to the wide world.
6. The QAT will assess the student’s achievements in Transforming ideas and information and in the underlying generic skills and dispositions.
7. The QAT will draw on Studies of Society and Environment (SOSE) and The Arts.
8. The QAT will be pitched at the typical Levels for Year 9, namely around Level 5.
9. The QAT will incorporate the Multiliteracies (including ICTs).
10. The QAT must provide assessment data on Processing; in particular, Transforming ideas and/or information.
11. The QAT may provide assessment data on Knowledges (facts, concepts, procedures) from SOSE; Knowledges (facts, concepts, procedures) from The Arts; and Self & Others.
12. The QAT must also allow for the extraction of measures of performance in literacy and numeracy.
13. The evidence of achievement will be the student’s responses to the tasks (student work).
14. Where the assigning of grades is not automated, the quality of student work will be judged by teacher-assessors who will assign grades after referring to centrally-set, task-specific marking guides containing verbal descriptors of available grades.

TGT Design Brief: 2004–5

1. The TGT for 2004–5 will be made up of one integrated task.
2. The TGT will complement the QAT for 2004–5.
3. The TGT will be intellectually challenging and connected to the wide world.
4. The TGT will assess the student’s ability to work in multiple modes to transform ideas and/or information.
5. The TGT will draw on SOSE and The Arts. Selection of particular syllabus strands will be at the school’s discretion (while complementing the QAT).
6. The TGT will be pitched at the typical Levels (1 to 6) for the corresponding year level (e.g. Year 4 or Year 9).
7. The TGT will provide material in various forms (where form encompasses genre and medium), or have students gather such material, and require students to generate material in new forms. The TGT will incorporate the Multiliteracies (including ICTs and Active citizenship).
8. The TGT must provide assessment data on Processing; in particular, Transforming ideas and/or information.
9. The TGT may provide assessment data on Knowledges (facts, concepts, procedures) from SOSE; Knowledges (facts, concepts, procedures) from The Arts; and Self & Others.

10. The evidence of achievement in the domain will be the student’s response to the task (student work). The judges of the quality of student work will be the teachers (internal assessment). Judgments will be standards-based. Teachers will determine criteria and write standards descriptors for their school-specific tasks.

COMPOSITION OF A SCHOOL’S TGT PACKAGE FOR ACCREDITATION

- Final form of the task as it will be presented to students
- Task parameters (conditions under which students will undertake the task)
- Number of grades that will be available for assessment
- Criteria/standards in an appropriate format
- Clear indication of the ideal response (example of what would be expected for a student to be awarded the highest available grade)
- Brief description of the school’s intended quality assurance procedures (e.g. double marking, or teacher dialogue about standards)
- Details of constructs for which information can be extracted.
Appendix 3: Transforming ideas and/or information
Appendix 5: Design decisions for quality tasks

Is the task intellectually challenging?
- Does the task draw in sufficient depth & breadth upon the targeted knowledge, concepts and skills of the domain?
- Does the task require students to engage in a range of thinking skills and to demonstrate critical analysis?
- Does the task allow students to demonstrate their thinking and understanding?
- Does the task offer opportunities for students to demonstrate valued attributes and attitudes?
- The intended cognitive expectations of the task must be clear to students.

Is the task authentic?
- Is the content of the task appropriate for the cognitive demand?
- Is the content appropriate for the students?
- Does the context and mode of the task elicit and engage students and target realistic audiences?
- Does the task have a genuine and valued purpose?
- Do students have opportunities to negotiate the assessment?
- Students must recognise and be motivated by the purpose and relevance of the task.

How trustworthy is the task for generating sound evidence about student performances?
- Does the task require performances that are relevant and adequate for the targeted intentions?
- Does the task have clear and explicit criteria for the types of evidence students will be required to provide?
- Have sufficient and clear standards been developed to provide advice to students (and other assessors) on the bases for making judgments?
- Does the task provide sufficient opportunity for students of all races, ethnicity, gender and socio-economic background to demonstrate their achievement?
- Does the task contribute to students experiencing a balanced and varied collection of tasks as part of the school assessment plan?
- The connections to the educational intentions must be clear to all audiences.
- The consequences of assessment for students and institutions must be considered.

Does the task support all students in the production of a performance of best quality?
- Does the task have a complete set of guidelines (including models) that allow students to reflect on relevance and review their responses?
- Do your choices relating to the layout, cues, visual design, format and choice of words (including technical language or jargon) facilitate engagement with the task and reinforce student understanding of what is valued in their responses?
- All students must be confident that they understand the intent and specific requirements of the task.

ACCESSIBILITY

DESIGN DECISIONS FOR QUALITY ASSESSMENT TASKS
Appendix 6:

Extract from NSW HSC Physics Examination

<table>
<thead>
<tr>
<th>Question 27 (4 marks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A sports magazine commenting on the athletic ability of Michael Jordan, the famous basketball player said:</td>
</tr>
<tr>
<td>‘Being an athlete takes more brains than brawn. It takes time and effort. It takes endurance and commitment. It takes an athlete who can stay in the air for 2.5 seconds while shooting a goal; an athlete who knows which laws of physics keep him there.’</td>
</tr>
<tr>
<td>Assess the information presented in this magazine, using appropriate calculations to support your argument.</td>
</tr>
<tr>
<td>[21 lines provided for written response]</td>
</tr>
</tbody>
</table>

[100 marks in 3 hr + 5 min reading time]
Appendix 7:

Extracts from Rich Task 6#6

Design, make and display a product

Students will design, or improve the design of, a purposeful product. They will make the product or a working model or prototype. As part of a public display promoting their product, they will flesh out a (restricted) marketing plan and explore the suitability of materials for mass manufacture.

What is being assessed

New Basics referents

- developing initiative and enterprise
- blending traditional and new communication media
- mastering literacy and numeracy
- understanding local and global economic forces
- working with design and engineering technologies.

Targeted repertoires of practice

- applying a theoretical model (in this case, of marketing) to a real situation
- conceptualising and creating an original design or adaptation of an existing design
- consulting with experts about processes for a purpose
- displaying detailed information in visual forms (e.g. diagrammatic, tabular, graphical)
- identifying shapes in two and three dimensions
- influencing opinion through informative and engaging displays
- investigating physical and chemical properties of materials (e.g. melting pt, boiling pt, density, malleability, ductility, transparency, conductivity, flammability, reactivity)
- recognising available options and making choices according to predetermined criteria
- understanding and applying design principles
- using the techniques and skills of construction and model-making
- visualising (e.g. object from different perspectives, physical appearance from detailed verbal description).

Products of learning

- Product design (creation, utility)
- Material justification (content, justification)
- Model or prototype (structure, aesthetics)
- Display (content, structure, aesthetics)

What is rewarded

High-quality performance

- logical, comprehensible and considered design (for model, marketing and display) that shows initiative and that highlights important aspects of the product with respect to purpose, materials, process and potential
- incorporation of aesthetic and persuasive elements into model, marketing plan and display
- refined application of technological processes and skills to the production of a well-constructed model and display.