EMPLOYMENT-RELATED KEY COMPETENCIES:
A PROPOSAL FOR CONSULTATION
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Background
The Mayer Committee was set up by the Australian Education Council (AEC) and the Ministers responsible for Vocational Education, Employment and Training (MOVEET) to undertake further work on the employment-related Key Competencies concept contained in the Review of Young People's Participation in Postcompulsory Education and Training (Finn Report).

The Finn Report took the view that there are certain essential things that all young people need to learn in their preparation for employment and that they should be able to develop these employment-related Key Competencies regardless of the pathway they follow through education and training in the postcompulsory years.

The Report proposed that these Key Competencies are in the areas of language and communication, mathematics, scientific and technological understanding, cultural understanding, problem solving and personal and interpersonal skills.

To assist in the development of the Key Competencies across the range of education and training pathways, the Finn Report recommended the development of a national 'standards framework' for the Key Competencies. The framework would be composed of 'profiles' of the Key Competencies describing clearly the nature of each Key Competency at a range of levels of performance. The 'standards framework' would provide a common reference point for teachers and trainers in the school and training sectors to focus on the desired outcomes and develop curriculum and teaching approaches to suit. It would also provide the basis for nationally-consistent approaches to assessing and reporting on young people's achievements in the Key Competencies. Such a framework, the Finn Report argued, would offer new opportunities for creating clearer linkages between education, training and the world of work, and new ways for industry to clarify its expectations of young people and the education and training system.

Terms of reference
The terms of reference for the Mayer Committee are to:
• undertake further exploratory work on the Key Competencies concept to assist AEC and MOVEET in their consideration of the Finn Committee recommendations on these matters;
• survey work underway in the school and training sectors in the areas of Language and Communication and Mathematics, and advise on the feasibility of bringing it together to develop useful national profiles in these Key Areas of Competence; and
• advise on the feasibility of a similar exercise in relation to each of the other Key Areas of Competence.

The Committee has interpreted its terms of reference to include consideration of Recommendations 4.1 - 4.11 and 4.13 of the Finn Report and to include consideration of the needs of all young people, including young people from disadvantaged groups and young people with disabilities.

Committee membership
The Committee is chaired by Mr Eric Mayer, Chair of the Business/Higher Education Round Table and former Chief Executive Officer of National Mutual. It has 27 members, including representatives of the school and training sectors in each State and Territory, the Commonwealth, unions and the business community, teacher organisations, Catholic education, higher education and the National Training Board. Continuity with the work of the committee which produced the Finn Report is provided through membership of two nominees of that committee. The membership is provided at Appendix 1.

Reference groups
The Committee has established two reference groups to assist with its work, one drawn from industry and the other from higher education. Membership of the reference groups is provided at Appendix 2.

Secretariat
The Committee is supported by a Secretariat based in Melbourne and comprising officers drawn from the school and training sectors in New South Wales, Victoria, the Commonwealth and from the Australian Vice-Chancellors' Committee. Additional assistance has been provided from the Australian Capital Territory, South Australia, Western Australia and the National Training Board. Membership of the Secretariat is provided at Appendix 3.
Timeline
The Committee met for the first time in September 1991; though membership was not finalised until December 1991. The Committee is scheduled to complete its work and report to AEC and MOVEET in July 1992.

The Committee has adopted a phased approach to the completion of its task.

The first discussion paper
The first phase was the preparation of a discussion paper entitled Employment-Related Key Competencies for Postcompulsory Education and Training. This paper outlined the Committee’s initial proposals for defining the Key Competencies and developing ‘profiles’ to inform curriculum development and teaching and to provide a basis for nationally-consistent assessment and reporting.

The discussion paper was published at the beginning of February 1992 as the basis for consultation during February and March. A total of 8000 copies of the discussion paper and 10000 copies of the executive summary were distributed within constituencies represented in the membership of the Committee, to organisations and individuals who have registered interest in receiving information about the work of the Committee, and in response to direct requests. Distribution of the discussion paper was supported by briefings conducted by Committee members with key groups in their constituencies.

Outcomes of consultation
Committee members obtained responses to the discussion paper through extensive consultations within their constituencies. Consultations were also held with key national organisations. In addition almost 200 written responses were received. A list of sources of responses is provided at Appendix 3.

The responses demonstrated broad support for development of the Key Competencies concept.

They also provided a wide range of commentary on details of the proposed approach; some of it critical, some of it supportive, and much of it offering valuable insights into matters for further consideration. These comments have been considered carefully by the Committee in setting the directions for further developmental work and in the preparation of this second paper.

This paper
This paper presents a draft proposal for the set of Key Competencies and the development of nationally-consistent approaches to assessment and reporting on young people’s achievements in the Key Competencies.

The paper identifies those aspects of the initial proposal which have been confirmed through consultation. It also explains aspects of the proposal that have been modified and refined in light of responses to the first discussion paper and through further developmental work.

Consultation
Consultation on this paper will be organised by Committee members within the constituencies they represent.

The Committee also welcomes written responses. Responses may be forwarded through individual Committee members or sent direct to the Secretariat at the following address.

The Secretariat
Mayer Committee
Tel. (03) 628 3485
Fax. (03) 628 2108
GPO Box 4367-
MELBOURNE 3001

The final date for responses is Friday 26 June 1992.

During the period of consultation the Committee will develop a range of options for implementation of the Key Competencies, including estimates of associated costs. These options will be canvassed with constituencies during the process of consultation.

Reporting to AEC and MOVEET
Responses to this paper will be considered by the Committee in the preparation of its report to AEC and MOVEET in July 1992. It is envisaged that the report will contain recommendations on the set of Key Competencies, together with a draft description of each Key Competency, principles for assessment and reporting, options for approaches to implementation, further work to be done in preparation for implementation, and a proposed process and timeline for this work to be done.
Support for the directions proposed by the Committee

The discussion paper described benefits to be gained from developing the employment-related Key Competencies. These can be distilled into the following objectives.

1. **To provide young people with better preparation for initial employment and a foundation for their continuing vocational education and training by identifying the competencies which are essential for participation in work and enabling all young people to develop these competencies regardless of the school or training pathway they follow in the immediate postcompulsory years.**

2. **To contribute to the development of clearer and more flexible pathways between education, training and employment by establishing nationally-agreed standards of performance in the employment-related key competencies and nationally-consistent approaches to assessing and reporting on young people’s achievements.**

3. **To improve the capacity to report nationally on the outcomes of education and training to meet public accountability needs and to inform policy and program development and review.**

The responses to consultation demonstrated substantial support from all sectors for the major directions indicated by these objectives.

Support for these directions was, however, frequently accompanied by a request for more information about the context for the Committee’s work. This was particularly evident in responses from the school sector, especially those from individual schools, which specifically requested more information about the national reforms in vocational education and training.

There were also numerous requests for information about the ways in which the various national initiatives in education and training relate to one another, and for assurance that they are being coordinated effectively.

It is clear that priority needs to be given to the development of an information program explaining the background to the national reforms in vocational education and training and their connections with related initiatives in the school, training, higher education sectors and in industry. The Committee has drawn this matter to the attention of AEC and MOVEET.

Endorsement of the definition of competence

Responses to consultation reflected support for the broad definition of competence presented in the first discussion paper. Many respondents particularly acknowledged the importance of transferability to the concept of competence. Some added a note of caution that assumptions about transfer of knowledge and skills should be examined carefully.

The Committee has confirmed its position on the meaning of competence.

The term competence focuses attention on outcomes. It is about what people can do.

Competence can be defined narrowly to mean the demonstrated capacity to do a specific task, and even more narrowly by detailed specification of the conditions under which performance on the task is to be demonstrated. In definitions such as this, the term competence is sometimes used interchangeably with skill and generally distinguished from knowledge and understanding. The Committee has rejected narrow behaviourist definitions of this sort. The concern is to identify competencies required for effective participation in employment generally rather than those required to undertake specific tasks. A broader definition is needed for this purpose.

*The Committee has adopted a broad definition of competence which recognises that performance is underpinned not only by skill but also by knowledge and understanding, and that competence involves both the ability to perform in a given context and the capacity to transfer knowledge and skills to new tasks and situations.*

The concept of competence adopted by the National Training Board includes these elements: ‘it embodies the ability to transfer and apply skills and knowledge to new situations and environments. This is a broad concept of competency in that all aspects of work performance, not only narrow task skills, are included’. 
This broader definition emphasises that competencies, especially if they are to be transferable, are not automated, 'trained' behaviours. They are mindful, thoughtful capabilities. In this sense, they cannot be explained or inculcated through the use of behaviourist learning theories which rely on low-level drill and reinforcement. They must incorporate a sense of the learner as one who builds concepts and develops understandings which inform technical applications. Competence requires both 'heads on' and 'hands on'; the capacity to think about performance and also to perform; it goes beyond pure or abstracted thinking to the skilled application of understanding. Because the competent performer has grasped the principles behind actions the possibility of transferability to new contexts is heightened.

Need for clarification of the meaning of 'employment-related'

A strongly held view by respondents from all sectors was that the Committee's initial position on the meaning of 'employment-related' needed clarification. Some were of the view that the definition failed to recognise that the key competencies described in the discussion paper were not only relevant to employment but relevant to life more generally. Many also expressed concern that the discussion paper could be interpreted as saying that the employment-related Key Competencies would need to be demonstrated in a workplace context which would not be feasible for the majority of young people in schools.

The Committee has taken account of these responses in clarifying its position on the meaning of 'employment-related'.

Employment-related Key Competencies are competencies which are essential for effective participation in work. They focus on the capacity to apply knowledge and skills in an integrated way in work situations. The Key Competencies are generic in that they apply to work generally rather than being specific to work in particular occupations or industries. This characteristic means that the competencies are not only essential for effective participation in work but are also essential for effective participation in other social settings. The Key Competencies also have use and value for young people entering further vocational education and training and higher education.

The Key Competencies are important outcomes of general education. There are also other important outcomes of general education which are valued by the community and which contribute to young people's development as individuals and as members of Australian society. These outcomes include a wide range of knowledge, understanding, skills and values including, for example, the culture and history of Australia and knowledge of a language other than English.
Development of the Key Competencies is essential for all young people. The Key Competencies have immediate relevance for young people intending to enter employment direct from school or entry-level vocational education and training programs. For young people intending to undertake further vocational education and training or higher education prior to entering employment, the Key Competencies will lay a foundation for effective participation in work in the longer term and have immediate use and value by developing their capacity to take increasing responsibility for their learning.

The range of settings in which young people undertake education and training in the immediate postcompulsory years provides a variety of opportunities for developing and demonstrating the employment-related Key Competencies. TAFE and workplace-based vocational education and training programs provide clear opportunities for the Key Competencies to be developed and demonstrated in work contexts. A variety of opportunities is also readily available to young people studying in school settings. This is being taken into account in the development of descriptions of the Key Competencies through the identification of contexts in which the competencies could be developed and demonstrated. These contexts will draw on the applicability of the competencies to a wide range of social settings in addition to specific workplace contexts. The focus on effective preparation for participation in work is, however, critical to the purpose of giving greater emphasis to these competencies and increased value will be realised when the competencies can be developed in contexts in which links to their application in the workplace can be made direct and explicit.

Schools and industry have developed a wide range of strategies to help young people make connections between what they learn at school and its application in the workplace. Examples of these strategies are work experience, work shadowing, enterprise programs and programs combining school, work and training over an extended period. In recent times a number of projects and reviews have been undertaken to examine the effectiveness of these strategies and their feasibility for large-scale and long-term implementation. The Committee is examining the findings of these analyses with a view to including recommendations in its final report on ways by which the development of the Key Competencies by young people in schools can be supported and enhanced.

Need for clarification of the target group

A number of responses sought clarification of the target group of young people and the reference point for identifying competencies which are essential for effective participation in work situations.

The Finn Review recommendations identified young people in the 15 - 19 age group. In terms of the focus for development of the Key Competencies and for the establishment of nationally-consistent approaches to assessment and reporting on achievement of the Key Competencies, the Committee has interpreted this age group as all young people participating in:

- school programs at the postcompulsory level: Years 11 - 12; and
- recognised entry-level programs in vocational education and training, delivered both on and off the job.

In 1989, 85% of 16 year olds and 45% of 19 year olds were participating in recognised education and training programs. It can be expected that these figures will have risen since 1989 and will continue to do so. Reasons for this include increasing retention rates in schools and the processes of recognition of private providers in the training sector. Nevertheless, some young people are not and will not be participating in the programs identified above. An analysis of the characteristics of young people not participating in recognised education and training is currently being undertaken. The Committee will examine this analysis with a view to recommending ways by which these young people might be supported to develop the Key Competencies and to have their achievements recognised.

The reference points for identifying the Key Competencies are:

- occupations at industry entry levels; and
- competencies identified as providing foundations for further vocational education and training.
Support for approach to defining the Key Competencies

While views differed widely as to what should constitute the set of Key Areas of Competence, the most common response was that the number of areas should not be increased and that the six areas proposed in the Finn Report were appropriate.

The approach adopted in defining strands of the Key Competencies was generally well received. The applied nature of the strands and the move beyond conventional discipline and subject boundaries was welcomed by many respondents. Specifically, the direction adopted in Using Mathematics was endorsed by almost all respondents from professional mathematics areas as having identified ways in which mathematical knowledge and skills have broad application to work and to life more generally.

Need for simplification of the Key Competency Structure

The single most overwhelming response to the discussion paper was that the structure proposed for describing the Key Competencies needed to be simplified both from the point of view of ease of interpretation and in terms of feasibility of implementation. Much of this paper is devoted to presentation of the Committee's revised proposal for the Key Competency Structure.

Confirmation of areas requiring further work

Responses to the discussion paper acknowledged that work on development of the Key Competencies was at an early stage and that further work would need to take up matters relating to access and equity, validation of the Key Competencies by industry, assessment and reporting and factors affecting implementation. This paper describes the lines of enquiry adopted by the Committee in each of these areas.
The Key Competency Structure

It is proposed that there will be a single Key Competency Structure comprising a set of Key Competency Strands each of which will be described at a number of Performance Levels.

This section explains the proposed Key Competency Strands, including their relationship to the Key Areas of Competence, and the proposed number of Performance Levels and approach to defining the levels.

Appendix 5 contains notes on these proposals.

Key Competency Strands

Key Competency Strands are general descriptions of competencies which are essential for effective participation in work and other social settings. They focus on the capacity to apply knowledge and skills in an integrated way in work situations.

The proposed Key Competency Strands are as follows:

- **Collecting, analysing and organising ideas and information**
  This strand focuses on processes for gathering, evaluating and presenting ideas and information for a range of practical purposes.

- **Expressing ideas and information**
  This strand focuses on the capacity to use a range of forms of communication, oral, written and graphic, to communicate ideas and information effectively to others.

- **Planning and organising activities**
  This strand focuses on planning, organisation and self-management. It includes the capacity to complete a task, with some degree of independence, monitoring one's own performance and ensuring effective communication, reporting and recording of processes and outcomes.

- **Working with others and in teams**
  This strand focuses on processes of working with others and working in teams, including setting common goals, deciding on the allocation of tasks, monitoring achievement of the goals and checking the quality of the final product.

- **Using mathematical ideas and techniques**
  This strand focuses on the capacity to select, apply and use mathematical ideas and techniques to complete tasks in a wide range of contexts.

- **Solving problems**
  This strand focuses on problem solving as a process. Problem solving is defined broadly to include identifying and framing the nature of problems and devising suitable strategies of response.

- **Using technology**
  This strand focuses on the capacity to use technological processes, systems, equipment and materials and the capacity to transfer knowledge and skills to new situations.
Key Areas of Competence

The Key Competency Strands have been drawn from the Key Areas of Competence recommended in the Finn Report. These are as follows.

Language and Communication
This area includes knowledge and skills related to:
- speaking
- listening
- reading
- writing
- accessing and using information.

Using Mathematics
This area includes knowledge and skills related to:
- computation
- measurement
- understanding mathematical symbols.

Scientific and Technological Understanding
This area includes knowledge and skills related to:
- understanding scientific and technological concepts
- understanding the impact of science and technology on society
- scientific and technological skills, including computing skills.

Cultural Understanding
This area includes knowledge and skills related to:
- understanding and knowledge of Australia's historical, geographical and political context.
- understanding of major global issues, e.g. competing environmental, technological and social priorities
- understanding of the world of work, its importance and requirements.

Problem Solving
This area includes knowledge and skills related to:
- analysis
- critical thinking
- decision making
- creative thinking
- skills transfer to new contexts.

Personal and Interpersonal
This area includes knowledge and skills related to:
- personal management and planning, including career planning
- negotiating and team skills
- initiative and leadership
- adaptability to change
- self esteem
- ethics.

Relationship between the Key Competency Strands and the Key Areas

The integrated and applied nature of the Key Competency Strands means that there is not a simple one-to-one relationship between a particular strand and a Key Area.

Collecting, analysing and organising ideas and information, for example, was identified initially as a Key Competency Strand drawn from the Language and Communication area. As development has proceeded, it has become evident that this strand also draws to some extent on knowledge and skills of the Cultural Understanding, Problem Solving and the Personal and Interpersonal areas. Furthermore, depending on the context, Collecting, analysing and organising ideas and information may also involve ideas and information drawn from the areas of Using Mathematics and Scientific and Technological Understanding.

Similarly, Using mathematical ideas and techniques was drawn initially from the area of Using Mathematics. However, competence in Using mathematical ideas and techniques involves more than the application of knowledge and skills of Using Mathematics. It also requires use of some knowledge and skills drawn from the Language and Communication, Cultural Understanding, Problem Solving and Personal and Interpersonal areas. Again, depending on the context, it may also involve applying knowledge and skills drawn from the area of Scientific and Technological Understanding.

In other words, while each strand was identified initially through examination of one of the Key Areas of Competence, it has become apparent that each of the strands draws to some extent on knowledge and skills of all of the Key Areas.

The following table illustrates the way the Committee expects these relationships will emerge for each of the proposed Key Competency Strands.
Four of the Key Areas are represented in the table as comprising knowledge, skills and understanding which are applied across all of the Key Competency Strands. Each of the Key Competencies necessarily involves application of aspects of the Language and Communication, Problem Solving and the Personal and Interpersonal areas. Cultural Understanding provides an essential frame of reference for understanding the social and cultural dimensions of all contexts within which the Key Competencies are applied, regardless of whether a particular activity explicitly involves applying knowledge and understanding drawn from this area.

At the same time as identifying Language and Communication, Problem Solving and Personal and Interpersonal as areas which cross all of the Key Competency Strands, it has been possible to identify Key Competency Strands which focus specifically on those Key Areas of Competence. After lengthy deliberation, the Committee has concluded that it is not possible to identify Key Competency Strands which focus specifically on Cultural Understanding.

Of the six key areas, Cultural Understanding and Scientific and Technological Understanding may be distinguished as constituting bodies of knowledge. In the case of Scientific and Technological Understanding, the technological aspect of the area with its essentially applied orientation provided a basis for proposing Using technology as a Key Competency Strand focusing on application of scientific and technological knowledge and skills. The Committee explored a number of avenues to identify Key Competency Strands focusing specifically on application of knowledge and understanding encompassed by the area of Cultural Understanding. Each of these lines of investigation demonstrated the integral place of this knowledge and understanding as a part of all the proposed Key Competency Strands but none led to the identification of a strand which was consistent with the definition of competence but which had not been identified already through investigation of the other Key Areas.
While the proposed set of Key Competency Strands does not include strands which focus specifically on knowledge and understanding of the areas of Cultural Understanding and Scientific and Technological Understanding, these bodies of knowledge provide an essential foundation for the set of Key Competencies.

Assumptions about foundation knowledge, skills and understanding

As the preceding discussion indicates, the set of Key Competency Strands assumes a foundation of knowledge, skills and understanding. The Committee believes that these assumptions should be made explicit to maximise opportunities for young people to acquire the foundations. This will be assisted by the development of a national curriculum framework for schools currently in progress under the auspices of the Australian Education Council. The framework will provide national statements and profiles for the eight key learning areas identified in the National Goals for Australian Schools: English, Mathematics, Science, Studies of Society and Environment, Languages other than English, Health, Technology and the Arts.

The first product of this work, A National Statement on Mathematics for Australian Schools, sets out clear expectations for the mathematical knowledge, skills and understanding which young people should progressively acquire during the years of schooling. This statement has provided a basis for the Committee to articulate the mathematical knowledge, skills and understanding assumed as a foundation for the Key Competencies. This foundation includes the capacity to:

- read, write and say whole numbers of any practical size;
- decimal fractions which occur in the context of measures and money;
- simple common fractions in regular use;
- use these numbers to count and order and to make an appropriate selection from addition, subtraction, multiplication and division for dealing with everyday arithmetic problems involving whole numbers, money and measures;
- interpret percentages and produce simple equivalences;
- use reliable but not necessarily standard methods to ensure necessary degrees of accuracy;
- make efficient use of a calculator for performing required computations;
- use basic measuring equipment and the standard metric units of length mass and liquid volume (capacity) and of area and volume;
- use familiar things as reference points for making estimates;
- read both analogue and digital clocks, make reasonable estimates of durations of time, and work with and produce timetables and calendars;
- recognise basic geometrical shapes, make simple models and plans, pay some attention to scale and use common conventions for interpreting everyday maps and diagrams of three-dimensional shapes;
- extract numerical information from tables and bar graphs and interpret information provided in averages and simple tables, bar graphs and diagrams.

As work proceeds on preparation of the national statements and profiles for the other seven key learning areas it will become possible to identify foundation knowledge, skills and understanding which inform and underpin the set of Key Competency Strands from across the eight key learning areas.

Characteristics of the Key Competency Strands

The following characteristics are being used to guide development of descriptions of the Key Competency Strands:

- The set of Key Competency Strands is intended to embrace the Key Competencies essential for effective participation in work. They do not and are not intended to encompass the full range of outcomes of general education.
- The Key Competency Strands describe ways in which knowledge and skills are applied in an integrated way in work situations. They are not disciplines or subjects.
- The Key Competency Strands describe outcomes of learning. They do not prescribe the ways by which these outcomes will be achieved. They do not and are not intended to comprise a curriculum.
- The Key Competency Strands assume a basis of knowledge, skills and understanding to be integrated and applied. They do not describe the development of these foundations of knowledge, skills and understanding.
- The Key Competency Strands overlap to some extent with each other. Some work activities involve only one of the Key Competency Strands but many involve more than one. It is possible to think of work activities which involve all of the Key Competency Strands.
Performance Levels

Performance Levels describe levels in the development of competence within each of the Key Competency Strands.

It is proposed that three levels of performance will be described for each Key Competency Strand.

- **Performance Level 1** (lowest)
- **Performance Level 2**
- **Performance Level 3** (highest)

Each level of performance will be defined by a description of the characteristics of the general competency defined by the Key Competency Strand when it is performed at that level.

**Identifying a reference point for establishing the Performance Levels**

Given the intention that levels of performance in the Key Competencies should provide a basis for articulation between school and training programs and employment, it is proposed that the competency requirements identified by industries for occupations at entry levels should be used as the reference point for anchoring the Performance Levels.

The Australian Standards Framework provides a common reference point for industries in the development of national competency standards. Its purpose is to ensure that standards properly relate to the range of competencies required for particular occupations and classifications on the one hand and to formal vocational education and training qualifications on the other. Entry level occupations are related to Levels 1 - 3/4 of the framework.

The National Training Board's *Policy and Guidelines* provides the following descriptions of these levels of the Australian Standards Framework.

**Level 1** The person has an established work orientation, and the knowledge and skills required to perform routine, predictable, repetitive and proceduralised tasks involving very limited theoretical knowledge and motor skills, and under close supervision.

This level corresponds to a competent operative or service sector worker.

Current preparation for this level is generally obtained through job specific training, mainly in the workplace, which may be certified by relevant authorities.

**Level 2** The person has an established work orientation, and the knowledge, skills and demonstrated capacity to perform proceduralised tasks under general supervision and more complex tasks involving the use of theoretical knowledge and motor skills under close supervision.

This level corresponds to an advanced operative or service sector worker.

Current preparation for employment at this level is generally obtained through job-specific or general training which may be certified by appropriate authorities.

**Notes**

The National Training Board is currently reviewing its formulation of the Australian Standards Framework, especially Levels 1 and 2. The review is scheduled to be completed by the end of August 1992. This may lead to revision of the descriptions of these levels. The findings obtained from the preliminary industry validation of the proposed Key Competency Strands and Performance Levels (see page 46) will be forwarded to the National Training Board to inform its review.
Level 3 The person has an established work orientation, and the knowledge, skills and demonstrated capacity for self-directed application (including the selection and use of appropriate techniques and equipment) required to perform tasks of some complexity involving the use of applied theoretical knowledge and motor skills.

This level corresponds to a competent skilled autonomous worker.

Current courses of formal vocational education and training available to assist in preparing for employment at this level generally are those leading to a trade certificate or equivalent in a non-trade occupation.

Level 4 The person has highly developed knowledge, skill and capacity for self-directed application (including the selection and use of appropriate techniques and equipment) required to perform highly complex tasks involving substantial applied theoretical knowledge and motor skills. May perform complex tasks without supervision or engage in some supervision of the work of others.

This level corresponds to an advanced skilled autonomous worker.

Current courses of formal vocational education and training available to assist in preparing for employment at this level generally are those leading to initial post-trade or equivalent certificates. In some States or occupations existing advanced certificates may apply.

It is recognised that requirements in the Key Competencies will comprise only part of the competency requirements of industries for occupations in this range. Achievement of the required Performance Levels in the Key Competency Strands will not of itself qualify young people for such occupations. Achievement of these Performance Levels will need to be complemented by the relevant industry- and occupation-specific competency standards.

Using the Australian Standards Framework as a reference point

It is expected that requirements in the Key Competencies for occupations classified at a given level of the Australian Standards Framework will vary between industries. For example, in some industries the requirements within particular Key Competency Strands for occupations at Australian Standards Framework Levels 3 - 4 may equate with Performance Level 3. For other industries, these requirements may equate with a performance level below Performance Level 3.

In other words, it cannot be assumed that each level of performance in the Key Competency Strands will relate to the same level in the Australian Standards Framework for all industries. For this reason it is not proposed to place a predetermined 'cap' on the definition of the Performance Levels in relation to the levels of the Australian Standards Framework. Rather, the ways in which the Performance Levels are likely to relate to the levels in the Australian Standards Framework for different industries will be identified following consultation with industry, initially through the preliminary validation process outlined on page 46.

However, it is necessary to establish a reference point to guide the process of consultation with the various industries. One assumption which can be made is that the range of Performance Levels must encompass industry requirements for Australian Standards Framework Level 1 (ASF 1) and that it would be inappropriate for the range of Performance Levels to extend below industry requirements for ASF 1 since this ASF level is intended to define the lowest standard for effective performance in the workplace. Accordingly, it is proposed that the reference point used to anchor Performance Level 1 in the Key Competency Strands will be Key Competency requirements identified by industries for occupational classifications related to ASF 1.
The proposed Key Competency Structure

The proposed Key Competency Structure thus comprises seven Key Competency Strands, each of which will be described at three Performance Levels.

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<th>Key Competency Strand</th>
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<th>Performance Level 2</th>
<th>Performance Level 3</th>
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<td>Using mathematical ideas and techniques</td>
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<td>Using technology</td>
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The next section presents draft descriptions of the Key Competency Strands.
Draft Descriptions of the Proposed Key Competency Strands

The following descriptions of the proposed Key Competency Strands are intended to provide a basis for consultation. Further development will be informed by responses to consultation and outcomes of the processes adopted for checking the draft descriptions which are described in the next section.

By the time the Committee presents its report to AEC and MOVEET, it is intended that the description of each Key Competency Strand will include:

- an explanation of the scope and nature of the strand, including a rationale for its inclusion within the set Key Competencies;
- performance criteria for judging achievement of competence within the strand;
- draft descriptions of each of the Performance Levels; and
- for each Performance Level:
  - examples of ways in which the competency is applied in work situations;
  - examples of ways in which the competency could be developed in school settings;
  - examples of ways in which the competency could be developed in training settings.

In their final form for implementation, the descriptions will also need to include, for each Performance Level:

- examples of performances on assessments which have been judged as having met the requirements for the Performance Level and which will serve as benchmarks for assessment.

(See pp.49 for discussion of principles for assessment of the Key Competencies.)

At this stage, for the purposes of consultation on the proposed Key Competency Strands, the description of each strand is confined to:

- a draft explanation of the nature and scope of the strand and reasons for its inclusion as a Key Competency;
- some applications of the Key Competency in workplace, school and training settings;
- identification of the factors which have been used to distinguish levels of performance within the Key Competency Strand;
- identification of draft performance criteria for assessing achievement of competence within the strand. The performance criteria identified for each strand are common to all Performance Levels within the strand and all performance criteria would need to be satisfied for achievement of a given Performance Level;
- initial draft descriptions of the Performance Levels, including explanations of the ways in which the factors used to distinguish levels of performance within the strand are expected to apply at each Performance Level;
- two examples of ways in which competence at each Performance Level might be applied in work situations. These examples are provided for the purpose of illustration only and should not be regarded as indicating the range of possible applications of competence at each Performance Level.

Work on the proposed final format for describing the strands is continuing. Precedents have been set by the format used by the National Training Board for national industry competency standards, the format used for the AEC profiles and formats used in other countries, such as the one used for the General National Vocational Qualifications in the United Kingdom.

The format for describing the Key Competency Strands will take account of these and, in particular, attempt to ensure consistent use of terms for the range of users of the descriptions; for example, teachers in the school sector who will need to be able to use these descriptions in conjunction with the AEC profiles and the curriculum, assessment and reporting arrangements in their particular State or Territory, and trainers and people in industry who will need to be able to use the descriptions in conjunction with national industry competency standards.
Collecting, analysing and organising ideas and information

Processes for gathering and managing information are constantly changing and evolving under the impact of technological development. These processes and technologies are widespread in most workplaces and increasingly being used in schools.

Information technologies are used in all areas of knowledge for a range of practical purposes. These purposes are the organisation, storage and presentation of information. It is important to understand that the way information is collected, stored and presented is usually related to the information needs of users. It is also important that young people understand that the ability to access and organise information is crucial to their continuing education and training and development of competence. Competence in collecting, analysing and organising information is central to all acquisition of knowledge and skills.

This process can include matters as simple as accessing a library book which contains the information sought, asking a number of people for their opinions on an issue or using the operating instructions for a washing machine. It also refers to more complex activities such as collecting a variety of points of view on the causes of traffic accidents, checking them against known facts and making an assessment of their validity, or to collecting and providing data in an accessible and relevant form on the basis of which decisions can be made. Schools which are currently involved in developing projections of future student numbers in their catchment area are engaged in this sort of activity.

Information can come in a variety of forms. Much information is communicated orally and it is conventional to think of information as being contained in text. But information is also rendered statistically, graphically and pictorially, in tabular form, on spreadsheets, in databases, diagrams, ledgers, graphs and so on. There are times when differing kinds of information, of this type, need to be accessed and combined.

Information is useless if it is unintelligible or if it is submerged in much irrelevant data. This strand is concerned with the effective analysis, organisation and presentation of ideas and information as well as their collection.

The factors which have been used to distinguish levels of performance in this strand are:

- the degree of specificity of the purpose(s) for which the information is collected;
- the number of sources from which information is gathered;
- the amount of variety in the kinds of information gathered;
- the range and sophistication of techniques required to analyse, interpret and organise the information.

Performance criteria applying to all levels

All of the following performance criteria must be met for achievement of a given Performance Level.

- The purpose(s) and audience for the information were clarified.
- The sources of information appropriate to the task were located.
- Appropriate access and retrieval techniques were used.
- The information was extracted, organised, evaluated and checked as required.
Collecting, analysing and organising ideas and information

Performance Level 1

Access and record pieces of information from a single source

At this level, competence means being able to collect specified pieces of information and ideas from a single source. The information retrieved will have been checked for accuracy and to ensure that the purpose for accessing it has been met.

It will have been be recorded according to a specified format for presentation.

Performance Level 2

Access, select and organise information from more than one source

At this level, competence means being able to collect ideas and information from more than one source and of more than one kind, according to a specific purpose.

The ideas and information collected will have been considered and selected for relevance and usefulness according to an understanding of that purpose and the needs of those who are going to use the material.

The product will have been arranged according to a format which has been described in general terms but which will have required some modification to produce the best result in light of the purpose of the activity and the needs of the user(s).

Performance Level 3

Access, evaluate and organise information from a range of sources

At this level, competence means being able to collect ideas and information in accord with a generally-described purpose. Further work will have been required to develop the details.

The ideas and information will have come from a range of sources, on topics with several sub-themes, and will include a number of kinds of information.

The process of selection of relevant and useful information will have required some interpretation, analysis and checking against other sources.

The needs of the intended audience will have been assessed and a format developed for the organisation and presentation of the information according to those needs.
Examples
These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

• **Being able to access routine personnel information from a computerised database and record staff recreation leave.**
  This involves accessing specified information related to internal personnel information from a single computerised database. The information covers one topic and one type of information source is used. The information is presented as a list of staff and recreation leave dates.

• **Being able to file invoices by checking a list of file numbers and names.**
  This involves adapting one specific type of information to an established filing system by checking the invoices so that they match the correct number and name. The format for recording the filing process is specified so that the records can be accessed for later use.

Examples
These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

• **Being able to compile a participants' folder of relevant papers and information for a meeting.**
  This involves collecting different types of information from different sources including an agenda or program, a list of participants, particular papers and information related to the venue for the meeting. The purpose is specific and the material gathered is selected for relevance and usefulness. Some of the material may have to be modified for the purposes of the meeting or to suit the needs of individual participants.

• **Being able to compile menus of 'specials' in a cafe according to market produce availability and records of customer demand.**
  This involves collecting information on the availability of produce and ingredients from a range of suppliers and restaurant buyers, selecting materials by matching this information with customer order patterns and presenting the list of specials as a display of additions to the set menu.

Examples
These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

• **Being able to construct a computerised database such as a stock inventory.**
  This involves assembling information from stocktakes and a range of sources and deciding on the best database for the purpose. The information is selected and tailored to the particular database format. The information is checked against other sources and entered. Ongoing monitoring processes are established.
Expressing ideas and information

This strand is about competence in activities ranging from filling in forms accurately to explaining and illustrating ideas to groups of people who are unfamiliar.

The process of expressing ideas and information to others is of obvious and fundamental importance in the workplace as it is in all social settings. There must be a close conjunction between what is expressed and what is understood, not just for the sake of efficiency, productivity and harmonious understanding of goals, but for welfare and safety.

This 'close conjunction' relies on the ability to say what is meant, to express oneself in a way that makes sense and conveys the intended meaning to the listener. This means having some understanding of the needs and expectations of the listeners or readers and an understanding that there is a variety of ways of getting messages across.

Sometimes 'saying' will be the most appropriate way of doing that. Almost as frequently, writing will be an appropriate form of expression. But developing the capacity to choose the right sort of writing to suit different situations is a communication skill in itself. Graphic forms of communication — pictures, illustrations, cartoons, symbols, signs, diagrams, plans, codes — have a long history. Newer visual forms of communication, especially television, have amplified their importance.

This strand is therefore about use of a range of forms of communication — talking, writing and using graphics — to communicate ideas and information, either in combination or separately.

Effective communication relies on carefully selected and structured expression. It also involves the observation of conventions which apply to various forms of discourse or expression. In the case of writing, for example, this involves checking for technical correctness of spelling, punctuation and sentence construction.

The factors which have been used to distinguish levels of performance in this strand are:

- the degree of guidance provided;
- the degree of familiarity with the situation or with those for whom the communication is intended;
- the variety and level of sophistication of the ideas or information being expressed;
- the degree of expertise required to select and structure the ideas and information effectively.

Performance criteria applying to all levels

All of the following performance criteria must be met for achievement of a given Performance Level.

- The information needs of the audience were identified.
- The form and style of expression used were appropriate to the purpose, audience and situation.
- The information and ideas were arranged clearly and expressed coherently.
- The effectiveness of the communication was checked and revision was undertaken where necessary.
Expressing ideas and information

Performance Level 1

Express routine ideas and information in familiar situations

At this level, competence means being able to express ideas and information which are familiar and/or have a single theme requiring no or minimal research.

The ideas and information will have been structured according to a pre-specified format, and the contexts in which this level of performance will be demonstrated will be predictable or familiar.

Performance Level 2

Express complex ideas and information in familiar situations

At this level, competence means being able to express ideas and information, guided by a brief or instructions which include guidance about purpose and strategy, to audiences whose requirements are clearly identifiable.

Information from more than one source will have been used and arranged, and decisions about the selection and sequencing of information will have been made prior to communicating it and will have been explained.

Performance Level 3

Express complex ideas and information in unpredictable or unfamiliar situations

At this level, competence means being able to express multiple pieces of information or ideas in a suitable and effective structure, explicitly chosen in order to communicate effectively to members of an audience who have variable levels of understanding of the ideas and information involved. The content and form of the communication will have been framed with this in mind.

Competence at this level of performance will be demonstrated through participation in activities which are guided by a broad functional brief, or general instructions, which provide little if any detail. The capacity to develop the detail of the brief will be required.
Examples
These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

• **Being able to interview a person and fill out a structured form (e.g. accident report form, club application form, Medicare form) accurately on his or her behalf.**

  This involves minimal research through verbal questioning to record information in response to a structured and specific format. The information recorded is based on a single topic. The elicited information is predictable and the completed form requires checking for readability and accuracy.

• **Being able to explain a set procedure so that others can carry out the procedure successfully.**

  This involves the expression of information that is familiar and requires an understanding of the information so that it can be repeated accurately. Minimal research is required and the situation is familiar. Questioning of the recipient of the information will verify that the information has been understood.

Examples
These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

• **Being able to complete a written account within a structured format, such as a work report form.**

  This involves arranging information from more than one source and writing an account, in point form or in extended prose. Information is integrated within a format where the requirements are identified clearly. The decision making required relates to selection and sequencing of the information, and to the use of graphics, so that the report is clear and precise to the reader.

• **Being able to make a presentation to a familiar small group comparing the features of several products.**

  This involves making decisions about the selection of information and ideas, and the sequence in which to present them in relation to the perceived needs of the audience. The means of communication will have been considered, including the style of speech and the use of graphics.

Examples
These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

• **Being able to prepare and present a report from a workplace safety committee on recent meetings and decisions.**

  This involves a clear identification of the needs and level of understanding of the audience of the report so that the committee’s discussion and decisions are conveyed accurately and usefully. The selection and sequencing of the information and the methods of presenting it (prose, point form, graphics) will need to be decided. The report will need to be proof read and corrected. Verbal comment might be required to support the written report.

• **Being able to prepare recommendations and supporting arguments for the purchase of a new computer software program.**

  This involves outlining an issue and some options for action that have been sequenced in a suitable and effective structure and with a clear knowledge of the varying levels of understanding of the audience. The level of guidance in the brief is minimal and decision making relates to the form and the selection of the information.
Planning and organising activities

In the workplace, as in other spheres of life, individuals are expected to take some responsibility for planning and organising activities. This strand is about competence in this area.

All organisations rely on their members to carry out allocated functions and tasks in a way which contributes to collective goals. In some cases, this means carrying out a clear and simple instruction to complete a routine task. In others, it includes initiating, planning and monitoring the activity and evaluating one's own performance. In either case, responsibility has to be taken for the management of work, even if it is only at the level of ensuring that the routine task is completed in accordance with the given instructions.

The strand incorporates the capacity to complete an activity, or some element of an activity, with a degree of independence. It involves monitoring of one's own performance to ensure that it is in keeping with instructions or guidance. It also involves ensuring that the work is linked with other work being done through effective communication, reporting or recording.

Most work includes requirements for communication, explanation, reporting or recording of some kind. Management of one's own work does not mean working outside these requirements. It means managing those elements for which relatively independent responsibility is taken.

Planning and organising single specific projects or tasks to completion on one's own is an element of all school, training and work settings. Within school and training settings it may concern matters as familiar as establishing what has to be done at home over a given period of time, setting priorities and budgeting time, meeting and responding to unforeseen difficulties and achieving completion of all tasks.

The factors which have been used to distinguish levels of performance in this strand are:

- the degree of responsibility taken for all aspects of the task, or level of supervision and guidance;
- the extent of planning required, including the need to set priorities, sequence activities and budget time and effort;
- the extent to which the task requires innovation;
- differences in the number and complexity of developments which may arise requiring the exercise of judgment;
- the extent to which the individual is responsible for evaluation of outcomes.

Performance criteria applying to all levels

All of the following performance criteria must be met for achievement of a given Performance Level.

- The activity was planned and organised.
- The planning and organisation was completed according to specifications and within the given timeline.
- The outcome and other relevant information were communicated as required.
Planning and organising activities

Performance Level 1

Plan and organise a routine activity under supervision

At this level, competence means being able to plan, organise and complete a simple task according to clearly established specifications.

A check will have been made to ensure that the outcome is in line with the specifications, and a simple report will have been provided.

The contexts in which this level of performance will be demonstrated will require no setting of priorities, and time management will be restricted to ensuring that the task is completed by a set time.

Performance Level 2

With guidance, plan and organise a complex activity

At this level, competence means being able to plan and organise a significant activity within an established set of specifications and management structure while being supervised periodically or at key points.

Evidence will have been provided that the criteria for acceptable completion have been understood and that the outcome meets the specifications. The outcome will have been reported appropriately.

The contexts in which this level of performance will be demonstrated will:

- have pre-specified priorities;
- require parts of the activity to be ordered and sequenced to ensure that the timeline is met;
- require a choice from differing established approaches, but no innovation.

Performance Level 3

Initiate, perform and evaluate a complex activity independently

At this level, competence means being able to initiate a task and to take the primary responsibility for managing it through to completion.

It requires consistent self-monitoring and evaluation of performance, and adjustment of the plan of activities as needed.

The outcomes of the activity will be evaluated against quality criteria. What has taken place will have been communicated to an appropriate audience.

The contexts in which this level of performance will be demonstrated will:

- require setting of priorities among competing elements of the activity;
- require allocation and management of time in order to ensure that the whole activity is completed on time;
- require a degree of innovation, flexibility of response and the exercise of judgment in responding to unforeseen developments, resistance or difficulties;
- require setting criteria for the judgment of quality.
Examples
These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

- **Being able to complete repetitive tasks on an industrial sewing machine.**
  This involves routine procedures for sewing part of a garment within well-established specifications. The explicit instruction is to repeat this task for many identical garments, and planning and organising occurs within this framework. The completed garment pieces are then given to the supervisor. Decision making required is in respect of quality control, to ensure that the completed pieces are in line with specifications.

- **Being able to deliver circulars to each house in a neighbourhood.**
  This involves following a well-established routine for delivery of the circulars on a familiar route. The task is discrete, requiring minimal establishment of priorities and monitoring of the timeline to complete the delivery. Responsibility relates to the requirement that every house receives a circular. Some report or indication is required when the task is completed.

Examples
These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

- **Being able to cut carpet according to given dimensions and then lay it.**
  This involves the completion of a complex activity. The management structure of this task is established but planning and organising significant elements of the task are matters of individual responsibility, including measuring the area, cutting the carpet and laying it. Planning involves sequencing events to ensure that the established timeline is met, and organisation of the materials, transport and timeline is required. The outcome must meet specifications and result in customer satisfaction.

- **Being able to manage a variety of clerical responsibilities.**
  This involves responsibility for several areas of work: word processing, setting appointments, and organising travel. There is a clear management structure within which the tasks are to be completed, and there is general supervision. Planning and organisation of each task and its timeline is required to ensure that tasks are completed.

Examples
These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

- **Being able to diagnose a fault, on-site, in an appliance and repair it.**
  This involves the application of appropriate knowledge and skills. The primary responsibility is to diagnose the problem and to manage the task through to successful completion. This involves priority setting and an ability to respond to unforeseen developments or difficulties, such as the revelation of other and larger faults. The task requires the monitoring and management of time and an evaluation of the outcome. This is communicated to the customer and, if necessary, reported to the supervisor.

- **Being able to manage secretarial responsibilities when working for two or three different people.**
  This involves the management of conflicting demands and requires tasks to be prioritised and the planning and organising of timelines and work schedules. Close monitoring and evaluation of the tasks, and communicating difficulties when they arise, are required. This work requires a high level of self-management.
Working with others and in teams

This strand is based on two assumptions: firstly, that the ability to work closely with others to achieve common goals is important in all forms of work; and secondly, that new forms of work organisation will increasingly demand this capacity of workers at all levels.

Most work involves working with others. This can range from incidental interaction to organised teamwork.

Incidental interaction includes activities like checking your answers against someone else’s, or asking for help from a friend or work colleague to understand an idea or an activity. But it is also common to find projects, in both school and training settings, which require a number of students or trainees to participate.

The project has to be organised for progress to be made. This requires the allocation of tasks on the basis of relevant skills and of sharing the development of new skills, and fairness in the amount of work required from each member of the team or group. Problems, like interpersonal conflicts, differences in understanding, about what is required, slowness or failure to deliver, and/or disagreements about the suitability of what is being produced, are almost certain to arise at some stage and will need to be resolved through negotiation and discussion. There will be a need to include some collectively agreed process of quality assurance of the final product.

Teamwork is not only evident in small team or group structures. Its elements are essential for effective participation in larger organisations even when they are organised along hierarchical lines.

This strand focuses on competencies which should lead to workplaces where teams and groups work towards goals which are shared and understood, where lines of communication are open and healthy, where workers know each other and can work together effectively and in harmony, and where all members of the workforce feel part of an institutional culture which shapes, supports and recognises their efforts.

The factors which have been used to distinguish levels of performance in this strand are:

- the complexity of the activity;
- the length of time over which it has to be sustained;
- the degree to which operating procedures and relationships are already established;
- the size of the team, diversity of membership and prospective conflict of interests between team members;
- the level of involvement.

Performance criteria applying to all levels

All of the following performance criteria must be met for achievement of a given Performance Level.

- The capacities and contributions of other members of the team were recognised in ways which contributed to the effective operation of the group.
- Participation contributed to the attainment of common goals.
- Communication was appropriate to work effectively with others.
Working with others and in teams

Performance Level 1

Work with others to undertake familiar activities

At this level, competence means being able to work with others undertaking familiar or routine activities with a sharp focus and a clear outcome, or undertaking a special task achievable within a period of a few days to a week.

The groups in which this level of performance will be demonstrated will:

- have a small number of members (up to three or four) in which roles are readily defined or specified roles are relatively unnecessary;
- require responsiveness to the capacities and contributions of others for effective performance.

Performance Level 2

Help formulate and achieve group goals

This level of performance can be demonstrated in two ways.

In the first way, competence means being able to complete a 'one-off', well-defined task, achievable within the space of a few weeks, as part of a small team consisting of a small number of members (about four). The contexts in which this level of performance will be demonstrated will:

- require some planning and thought by the team, including the setting of goals, although the nature of the task and the purpose will be pre-specified;
- involve some challenge in the setting of goals and need to differentiate roles and responsibilities;
- require responsiveness to the capacities and contributions of others for effective performance.

In the second way, competence means being able to participate effectively in longer term, more routine activities where the task is relatively well known by all members of the team which can be of a larger size (up to 12 or 15). The contexts in which this level of performance will be demonstrated will:

- require guidance by a leader (which may be a role for a supervisor/teacher/trainer);
- involve the collective framing of goals which will have some effect on the work practices of all members;
- require responsiveness to the capacities and contributions of others for effective performance.

Performance Level 3

Collaborate with others to complete complex activities

At this level, competence means being able to complete an activity with a number of sub-components as a member of a team in which no member is familiar with the skills and capacities of all other members. Individual team members will assume responsibility for specified activities. Leadership roles will be assumed at different times by varying members of the team as appropriate. The length of time for completion will be longer than that for the other levels.

The contexts in which this level of performance will be demonstrated will:

- involve a clearly defined outcome, which requires the development of some new skills and knowledge by members of the team;
- require goals and plans to be reviewed regularly and changed as necessary;
- require the manipulation of a number of variables, some of which may be unpredictable;
- require the exercise of collective judgment about appropriate courses of action to pursue.
Examples

These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

• **Being able to serve behind a counter in a fast-food outlet.**
  This involves sharply focused routine activities - orders are taken and conveyed to kitchen staff; food is collected and sold to the customer. Team roles are clearly defined and interactions with customers are generally predictable. Outcomes are clearly achievable. Responsiveness to the contributions of others is shown in the need to coordinate the time of cooking and serving, and to organise priorities according to the pressure of work.

• **Being able to check prices in a supermarket in response to request.**
  This involves an effective response to the expectations of others in a routine situation. The checking of prices requires a high level of accuracy and some prioritising of tasks. Other workers, the check-out operators, are dependent on the outcome to undertake their work.

Examples

These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

• **Being able, as part of a team of staff of a large hotel, to respond to the needs of a convention.**
  This involves the planning of activities by the team with differentiated roles and responsibilities. The activities might be shared or separate, but are organised to best obtain the shared goals. It requires responsiveness to the capacities and contributions of others - each area adjusts its operations to accommodate the needs and resources of other areas, e.g. staff from one area could be temporarily co-opted to another area.

• **Being able to work with others to prepare a stage set for a performance.**
  This involves effective coordination across members of a group to ensure that all elements of the set are completed and constructed within timelines. Members of the group and their leader discuss their roles and responsibilities. Timelines and the sequencing of activities are agreed to by the group and the level of interdependency defined. The sharing of materials and the nature of the goal requires a high level of responsiveness to the capacities and contributions of others.

Examples

These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

• **Being able to work effectively in a team on a multi-storey building site.**
  This involves a team of workers, under the leadership of a leading hand, with varying areas of expertise in building construction. The team decides how it is to proceed on a floor-by-floor building plan. The outcomes are clearly defined and responsibilities are clearly established. The team contains members for whom English is not their first language, so it establishes mechanisms to ensure information is clearly communicated and understood. The team monitors completion of work regularly to ensure the common goals are fulfilled.

• **Being able to participate as an active member of a consultative committee in a workplace undergoing restructuring.**
  This involves effective participation in a restructuring consultative committee to ensure that the needs of both the employer and the employees are considered. Members of the group need to develop new skills and knowledge in order to complete the task. The committee determines related activities and monitors their completion. Each member displays leadership in different areas and is responsible for representing viewpoints and issues. The committee exercises collective judgment in recommending appropriate courses of action to pursue.
Using mathematical ideas and techniques

There are recurring patterns of activities in the workplace as in life in general which demand or draw on mathematics in a wide range of contexts. These activities may involve evaluating by assigning costs and benefits in terms of money, time and materials; handling the information needed to undertake a task, making appropriate use of mathematical concepts, expressions, representations and technology; planning in order to ensure that tasks are undertaken and successfully completed within identified constraints; and designing by conceiving of a means of achieving a particular purpose.

A shop assistant may prepare an itemised account for customers; a bricklayer will make the necessary measurements in order to estimate a quantity of cement; a courier will plan a delivery route for the day’s parcels; and a laboratory assistant will extract information from a chemical handbook. More complex activities include, for example, a maintenance worker installs a ducted heating system for a house having compared alternative systems on the basis of published information about specification and costs; designed the system, planned the stages of installation, estimated quantities needed and quoted costs.

In general the process of using mathematics involves: recognising that mathematics may usefully be applied to the situation; choosing appropriate mathematical ideas or procedures from those available; making decisions about the level of precision and accuracy needed; doing the mathematics; interpreting the results and judging their reasonableness in the situation. People frequently apply mathematics to a situation more or less automatically and may not consciously undertake these processes. On the other hand, some situations require that assumptions be made explicit in order to choose or develop an appropriate mathematical representation.

The activities described above draw upon a wide range of mathematical ideas involving number, space, measurement, chance, and data handling, which may be encountered across the whole school curriculum and in a range of training and work contexts.

The levels of performance in this strand are influenced by the complexity of the activity, the situation in which the activity takes place and the processes of using mathematics required to do the activity.

The factors which have been used to distinguish levels of performance in this strand are:

- the degree of familiarity with the situation and with the ideas and techniques needed;
- the extent to which supervision is provided or required;
- the number of variables and sources of information;
- the degree of interaction with wider systems;
- the extent to which judgment is needed and the level of explanation and justification required.

Performance criteria applying to all levels

All of the following performance criteria must be met for achievement of a given Performance Level.

- Mathematical ideas and techniques applicable to the situation were recognised.
- Mathematical ideas and techniques were selected and applied reliably and efficiently.
- Judgments were made about the levels of precision and accuracy required, and specifications were met.
- Solutions were interpreted and evaluated.
- Information was represented and communicated mathematically in appropriate forms.
Using mathematical ideas and techniques

Performance Level 1

*Use mathematical ideas and techniques for completing simple tasks in familiar situations*

At this level, competence means being able to use mathematical ideas to deal with familiar situations where the requirements are unambiguous, and to apply standard techniques efficiently and reliably.

This includes being able to:
- identify mathematical ideas and techniques which are routinely applied to a situation;
- restate a familiar problem type in mathematical terms and apply mathematical techniques reliably;
- meet specifications described in terms of levels of approximation and accuracy;
- substitute into familiar formulae;
- check that answers make sense in the context;
- extract mathematical information from various sources;
- represent information in simple tables, graphs, maps, diagrams, databases and spreadsheets as specified.

Performance Level 2

*Select and use mathematical ideas and techniques for completing complex tasks*

At this level, competence means being able to select and use mathematical ideas and techniques to deal with situations where the solution and methods are not immediately obvious and the task requires some recasting into an appropriate form for solution.

This includes being able to:
- identify mathematical ideas and techniques which are applicable to a situation but not immediately obvious;
- restate a problem in mathematical terms;
- select and sequence techniques;
- make decisions, with guidance, about level of approximation and accuracy needed and achievable;
- interpret solutions and comment on results;
- use formulae which may be unfamiliar but contain only familiar mathematical symbols;
- integrate and interpret mathematical information from a variety of sources;
- select and use an appropriate form for representing mathematical information.

Performance Level 3

*Evaluate, adapt and use mathematical ideas and techniques in completing tasks*

At this level, competence means being able to evaluate the use of mathematical ideas and techniques, choosing the best strategy for a situation, and making necessary adaptations to available techniques.

This includes being able to:
- recognise the assumptions which need to be made in order to apply a technique;
- adapt techniques to fit the constraints of a situation;
- make decisions independently about levels of accuracy and estimation needed or achievable and identify and resolve conflicting demands;
- interpret solutions in terms of the original context in order to evaluate the use of techniques;
- interpret familiar and unfamiliar formulae by interpreting the relationships involved;
- transform mathematical information from one form to another;
- select the most appropriate form for communicating data taking into account the nature of the data and the audience;
- explain and justify decisions.
Examples
These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

- **Being able to make up a bill in a restaurant and give customers their change.**
  This involves extracting information about prices from a menu, identifying and applying techniques by using addition to calculate the bill, checking that the bill seems reasonable for the food ordered and, if it doesn’t, finding the source of error or re-doing the calculation, and accurately counting money to provide change.

- **Being able to work out the amount of angle iron required to make the frame (skeleton) of a box given a diagram of a box with the dimensions provided.**
  This involves extracting the information about the lengths from the diagram, identifying which lengths are to be added in order to apply the technique in finding the total length, performing the necessary additions, checking the accuracy of the calculation and representing the information in reporting the result to the supervisor.

Examples
These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

- **Being able to develop a design for a bathroom floor, calculate the quantity of tiles required and estimate costs.**
  This involves identifying, selecting and sequencing the mathematical ideas and techniques to be used; using the basic tile shapes to design a floor pattern; restating the problem mathematically and representing the information in a sketch of the bathroom floor with a sample of the pattern; making decisions about the level of accuracy needed when measuring all the lengths, marking them in on the plan, determining the length of the border by calculating the perimeter, and dividing the remaining region into rectangles to calculate the area of the central part of the floor; making decisions about the level of approximation and selecting and applying mathematical techniques to estimate the cost of the tiles. A plan and estimate are provided to the customer.

- **Being able to provide a quote for production of a metal box, given specifications and the required profit margin.**
  This involves identifying mathematical ideas and techniques, restating the problem in mathematical terms and selecting, sequencing and applying the techniques to determine the material needed for the frame and faces; taking necessary measurements, applying appropriate measurement formulae to determine quantities of materials. Decisions about the level of accuracy are made when estimating the time needed to produce the box. This also involves calculating labour and material costs and adding a percentage for overheads and profit margin. This information is extracted from a database. Solutions are interpreted and the written quotation is provided.

Examples
These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

- **Being able to develop a small business stock control system**
  This involves recognising and listing the stock control system has to take into account including money tied up in stock, storage cost, and loss of custom if unable to supply. Assumptions about the company’s previous patterns of ordering need to be made. This involves making decisions about levels of accuracy and estimation needed, transforming mathematical information and adapting techniques to fit the constraints. In choosing appropriate computer software to manage the system it is necessary to model the effect of various assumptions on stock levels and costs, then adapt the software. The results must be explained and justified, and reported in an appropriate form.

- **Being able to design and make a feed container to hold a specified amount and fit within a specified location.**
  This involves recognising the factors to be taken into account in designing the shape, particularly cost, durability and usability. To get a good fit to the space available at a reasonable cost involves adapting techniques to fit the constraints, making decisions about the level of accuracy needed and resolving and interpreting solutions. The process of comparing costs of alternatives involves measuring and calculating to a sensible level of accuracy, and transforming mathematical information. The farmer is presented with an explanation of the alternatives and analysis of costs and benefits.
Solving problems

Solving problems is not concerned solely with responding to problems as they present themselves. It is also about the identification and framing of problems and devising suitable strategies of response.

Productivity is closely tied to the capacity to solve problems effectively. The results of problem solving have the potential to generate creative or innovative solutions that offer new approaches. But ‘problems’ also have to be solved even to keep outcomes in a steady state. This process is a consistent component of managing activities, meeting briefs and servicing client needs.

Solving problems is an integral part of all the other Key Competency Strands. However, this strand emphasises the importance of problem solving as a process and the level of control a person can exert over this process. Part of this control over the process is knowing when the need to solve a problem has passed, or when the time and resources required to pursue a solution are unwarranted. At times, the appropriate course of action is to end a particular problem-solving activity.

At the same time, consideration needs to be given to the nature of the particular problem to be solved.

The application of knowledge and skills in this strand is influenced by the knowledge and skills related to the nature of the particular problem as well as the knowledge and skills related to the process of solving the problem.

The term ‘problem’ is interpreted here very broadly. It can refer to a practical situation where something is obviously wrong, or it can mean a task requiring a search for a suitable strategy to achieve a desired outcome. It also refers to a situation in which there may be no obvious problem requiring immediate attention, only a perception that productivity could be improved.

Some definition of terms used in this strand to identify types of problems is required: Simple problems involve few variables, complex problems involve many variables. Either of these may have one or many possible solutions. Routine problems include regular breakdowns in an established system, processes, or machinery which may be familiar to individuals or outside of their experience, but expected within the particular work context. Exploratory problems are ‘non-routine’ and unusual within the workplace context. The questioning of accepted work practices, searching for improvements and ‘challenging of the adequate’ are also types of exploratory problem solving.

Problem-solving skills can be developed through a combination of practical experience and a focus on the thinking processes employed, and occur in school, training and work settings. Solving problems involves an awareness of creative thinking, critical thinking and decision making. It is not enough to give people problems to be solved. They also need to develop an understanding of the thinking processes they use in different situations. This knowledge can then be transferred to other situations, both familiar and unfamiliar.

The factors which have been used to distinguish levels of performance in this strand are:

- the nature of the problem — from simple to complex, routine to exploratory;
- the degree of guidance or supervision provided;
- the level of control over the processes used to solve problems.

Performance criteria applying to all levels

All of the following performance criteria must be met for achievement of a given Performance Level.

- The problem was recognised and identified.
- Appropriate strategies for investigating the problem were developed.
- An appropriate strategy to achieve a solution was implemented.
- Decisions about appropriate courses of action were based on evaluation of outcomes.
Solving problems

Performance Level 1

**Solve routine problems with minimal supervision or tackle exploratory problems with close supervision**

At this level, there are two ways in which competence can be demonstrated.

The first way means being able to recognise that a routine problem exists and to solve that problem with minimal supervision. The contexts in which this level of performance will be demonstrated will:

- involve establishment of the desired outcome;
- require identification of an appropriate strategy for investigating the problem;
- require decisions to be made about an appropriate course of action and implementation of that course of action.

The second way means being able to tackle exploratory problems with close guidance and supervision. The contexts in which this level of performance will be demonstrated will:

- involve provision of assistance to define the problem and identify the desired outcome;
- require suggestion and development of alternative solutions independently;
- require a decision to be made independently regarding an appropriate course of action;
- involve provision of assistance in designing and implementing that course of action.

Performance Level 2

**Solve routine problems without supervision and exploratory problems with some guidance**

At this level, competence means being able to solve routine problems without supervision, to recognise situations with potential for innovative solutions and to solve exploratory problems with some guidance.

The contexts in which this level of performance will be demonstrated will:

- require definition of the problem;
- require identification of the desired outcomes;
- require suggestion of several alternative solutions;
- require selection of a solution and explanation of why it was chosen;
- require design and implementation of action.

Performance Level 3

**Implement a systematic approach to the solving of complex problems and explain processes used**

At this level, competence means being able to implement a systematic approach to problem solving in a range of situations, to reflect on the processes used and to recognise general areas in which innovative ideas could improve productivity, and having the confidence to challenge accepted approaches in search of more innovative solutions.

The contexts in which this level of performance will be demonstrated will:

- require analysis of whether the perceived problem is a symptom or a cause, and getting past peripheral issues to outlining the real basis of the problem;
- require establishment of the desired outcomes (in consultation with others where appropriate);
- require description and clarification of the context after collecting and analysing information;
- require generation of a range of alternatives;
- require evaluation of options against a set of criteria, independently established to accord with the brief;
- require development of a plan of action for implementation.
Examples

These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

- **Being able to follow procedures to have a photocopier repaired.**
  This involves identifying and clarifying the routine procedure to ensure the photocopier is repaired. Where alternative strategies are available a decision is made about the most appropriate course of action. The process for repair of the photocopier is implemented to ensure the identified desired outcome: a working photocopier. The level of supervision is minimal.

- **Being able to provide food for a group's overnight hike.**
  This involves defining the problem in a routine way; i.e. the need to buy enough food which most people like while staying within the budget. Food is selected on the basis of the funds available and personal preference. The amounts of food required are estimated on a per person basis.

- **Being able to monitor the repair rate of a photocopier and suggest some alternative solutions.**
  This involves following routine procedures for having the photocopier repaired which are implemented independently. A broader consideration of the problem requires questions about the frequent repair of the photocopier, and the costs involved, to be raised and alternative solutions identified (e.g. a new photocopier, use of outside printer companies). Some guidance is provided in the generation of alternative solutions.

- **Being able to generate alternatives in the provision of food for a group's overnight hike.**
  This involves defining the problem; i.e. the need to buy enough food appropriate for the situation while staying within budget. Key issues are identified that influence food selection (e.g. weight, bulkiness, perishability) and advice is sought on this. A selection is based on the advice and the criteria.

- **Being able to investigate photocopying needs, and develop alternative proposals and action plans.**
  The frequent breakdown of the photocopier is identified as a symptom of a wider problem. Information is gathered and evaluated on the quantity and type of printing being undertaken. Alternative strategies are investigated that will change the workload or work method in order to accommodate these increased printing needs. The alternatives are evaluated and prioritised for decision making. An implementation plan for each preferred option is included.

- **Being able to achieve innovations that provide appropriate food for a group on an overnight hike.**
  This involves researching handbooks for advice on food choice and recipes, collecting information on preserved and fresh food, considering fire restrictions and fuel availability, seeking information on personal preferences and the possibilities of the hikers providing their own food. A range of alternatives is generated and these are evaluated for presentation to the group. The group's suggestions are taken into account in the final decision.
Using technology

Using technology focuses on the capacity to use technological processes, systems, equipment and materials. The notion of 'using' extends from the skills of operating equipment to the use of technology to explore ideas, to pursue understanding, to undertake tasks and activities, and to respond to personal and community concerns and needs.

More specifically, it focuses on:
- proficiency and confidence in the selection and use of technological processes, systems, equipment and materials;
- the ability to use technological processes, systems, equipment and materials in both procedural and innovative ways;
- the ability to interpret and use the symbols, codes and other representations used in technological processes, systems, equipment, and materials;
- social responsibility in the use of technological knowledge, skills, processes, systems, equipment and materials, especially in relation to occupational health and safety, and economic and environmental concerns.

Using technology draws primarily on the knowledge and skills of scientific and technological understanding and problem solving. However, the nature of the strand is such that effective performance of the competence requires, at least in part, the application of knowledge and skills drawn from many other areas. The notion of competence involves both the ability to perform in a given context and the capacity to transfer knowledge and skills to new tasks and situations. Technological processes, systems, equipment and materials provide useful vehicles for this and for integrating knowledge and skills from a variety of areas.

The competence involved in this strand is applicable in settings beyond the school and workplace, including the home, the community, and higher education. They include some of the basics of independent living and being 'able to manage' daily life. They are also about seeing and developing systems and relationships in learning.

They also include some of the foundations for continuing vocational education and training. This is particularly important under the requirements of award restructuring and multiskilling. In the future, as manufacturing technology becomes more routinised, market advantage will be obtained through 'tailoring', or 'customising' products and services according to the needs and wishes of individual clients or customers.

Using technology provides the training ground and basis for that process.

In both on- and off-the-job settings in the training sector it is likely that the contexts in which competence is developed and displayed will be more clearly workplace-related than in schools. In schools there are opportunities for competence to be developed and displayed in a wide variety of contexts across the curriculum.

The factors which have been used to distinguish levels of performance in this strand are:
- the degree of independence, based on the level of supervision and assistance provided;
- the degree of structure provided, including the extent to which outcomes are predetermined and the extent of responsibility for decision making and judgment;
- the degree of complexity of the activity, based on the degree of abstract conceptualisation involved, the degree of interaction of the elements of the activity with broader systems, projects or tasks; and the number and arrangement of the elements specific to the activity.

Performance criteria applying to all levels

All of the following performance criteria must be met for achievement of a given Performance Level.

- Requirements were met in respect of factors such as:
  - satisfactory completion in terms of the brief
  - quality control
  - time management
  - work practices
  - safety
  - maintenance of facilities, equipment and materials.
- Technological processes, systems, equipment, materials and services were appraised and selected for suitability to selected applications.
- Technological symbols, codes and other representations were interpreted and used correctly.
- Judgment and decision making led to socially responsible uses of technological knowledge, skills, processes and systems, especially in respect of factors such as:
  - economic issues (e.g. cost efficiency, client demand, sustainability)
  - environment issues (e.g. energy usage, waste, physical pollution, noise, visual impact)
  - occupational health and safety issues.
Using technology

Performance Level 1

*Reproduce or present a basic product or service*

At this level, competence means being able to use technological processes, systems, equipment and materials to reproduce or present a product or a service that is familiar, according to explicit and detailed instructions or plans and, as appropriate, samples or models, with predetermined and clearly articulated outcomes.

The contexts in which this level of performance will be demonstrated will:

- be familiar;
- contain a small number of elements and routine procedures;
- require guided decision making in the selection of materials, technological processes, systems and equipment;
- require the use of knowledge and skills from a small range of areas;
- require guided decision making in respect of economic, environmental and occupational health and safety issues.

Performance Level 2

*Construct, organise or operate products or services*

At this level, competence means being able to use technological processes, systems, equipment and materials to construct, organise or operate products or services in ways which are familiar, guided by instructions or plans, to reach predetermined, including multiple acceptable outcomes.

The contexts in which this level of performance will be demonstrated will:

- be unfamiliar;
- be compound, in that they contain a number of interacting elements;
- require guided decision making in the selection of materials, technological processes, systems and equipment;
- require the use of knowledge and skills from a range of areas;
- require guided decision making in respect of economic, environmental and occupational health and safety issues.

Performance Level 3

*Design or tailor products or services*

At this level, competence means being able to use technological processes, systems, equipment and materials to design or tailor products or services in ways which are innovative and exploratory, guided by a broad functional brief to reach multiple, including unpredictable, acceptable outcomes.

The contexts in which this level of performance will be demonstrated will:

- be complex in that they contain several interacting elements and the activities interact with a range of other system elements, projects or tasks;
- require exploration, innovation and variation from routine procedures and uses;
- require independent decision making in the selection of materials, technological processes, systems and equipment;
- require the use of knowledge, including abstract concepts, and skills from a range of areas;
- require independent decision making in respect of economic, environmental and occupational health and safety issues.
Examples

These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

- **Being able to repair damaged paintwork on a cane chair.**
  This involves a small number of routine procedures to prepare, mask and paint the damaged surface, and clearly articulated outcomes in respect of final surface finish and condition of the worksite at completion. The instruction explicitly is to make good the damaged area. The knowledge required includes elements of materials technology, occupational health and safety and technical codes. The decision making required relates to surface preparation, masking and paint application techniques, work conditions, health and safety, and waste minimisation.

- **Being able to sort common materials by their second-use capacity, e.g. recyclable, reusable.**
  This involves a small number of elements (establish an operating process, organise materials and equipment, and completion checks) and clearly articulated outcomes (accurate and complete classification of materials, condition of the worksite at completion). The knowledge required includes classification systems and concepts such as biodegradable, hazardous, recyclable. Decision making required relates to operating processes, handling and safety equipment, containers and storage, work conditions, health and safety, and waste minimisation.

Examples

These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

- **Being able to implement a schedule for monitoring the safety and operating condition of equipment and facilities.**
  This involves several interacting elements, including operating over an extended time, incorporating manufacturers' specifications, integrating equipment and facilities, developing a schedule, responding to outcomes of previous actions. Instructions are explicit, but leave room for multiple acceptable outcomes (ways of presenting the report and conducting the monitoring). Knowledge required includes technical codes, measurement, units of measurement. Decision making relates to process, contingencies, reporting, health and safety, efficiency of work conditions.

- **Being able to assemble to full operating condition a kit-form fitness machine.**
  This involves a number of interacting elements, including organising the worksite and equipment, checking of components, interpreting instructions, establishing a vision of the task and the procedure, testing and adjusting, and organisation of worksite at completion. The task is explicit and the outcomes are predictable and predetermined. The knowledge required includes technical codes, basic machines, hand tools. The decision making required relates to procedure, contingencies, health and safety and efficiency of work conditions.

Examples

These examples are for purposes of illustration only and should not be regarded as representing the range of possible applications of competence at this level.

- **Being able to prepare clothing design options for a restaurant.**
  This is a complex activity which interacts with decisions about the image and decor of the restaurant and budget limitations. The brief is broad and allows for negotiation with the client. The outcomes are not predetermined, but emanate from decisions about design sources, exploration of ideas and negotiation. The knowledge required includes principles and elements of design, garment assembly and textile technology. The decision making required relates to design and presentation of options, cost effectiveness, health and safety and efficiency of work conditions.

- **Being able to use 2D and 3D models to explain complex phenomena (e.g. continental drift, cloning, migration patterns, functioning of a playgroup) to an audience unfamiliar with the concepts involved.**
  This is a complex activity which interacts with decisions about the nature of the audience, purpose of the presentation and how the display will be used. The brief provides only broad guidelines without predetermined outcomes. Exploration and innovation are needed to develop the models. Outcomes vary according to decisions about which are the important ideas to be conveyed, and the sequence, style and medium for presentation. Decision making also relates to efficiency, health and safety. The knowledge involved includes conventions of meaning (cross-section, exploded views), design, and the concepts being portrayed.
### Summary of the proposed set of Key Competency Strands

<table>
<thead>
<tr>
<th>Key Competency Strand</th>
<th>Performance Level 1</th>
<th>Performance Level 2</th>
<th>Performance Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Collecting, analysing and organising ideas and information</strong></td>
<td>Access and record pieces of information from a single source</td>
<td>Access, select and organise information from more than one source</td>
<td>Access, evaluate and organise information from a range of sources</td>
</tr>
<tr>
<td><strong>Expressing ideas and information</strong></td>
<td>Express routine ideas and information in familiar situations</td>
<td>Express complex ideas and information in familiar situations</td>
<td>Express complex ideas and information in unpredictable or unfamiliar situations</td>
</tr>
<tr>
<td><strong>Planning and organising activities</strong></td>
<td>Plan and organise a routine activity under supervision</td>
<td>With guidance, plan and organise a complex activity</td>
<td>Initiate, perform, and evaluate a complex activity independently</td>
</tr>
<tr>
<td><strong>Working with others and in teams</strong></td>
<td>Work with others to undertake familiar activities</td>
<td>Help formulate and achieve group goals</td>
<td>Collaborate with others to complete complex activities</td>
</tr>
<tr>
<td><strong>Using mathematical ideas and techniques</strong></td>
<td>Use mathematical ideas and techniques for completing simple tasks in familiar situations</td>
<td>Select and use mathematical ideas and techniques for completing complex tasks</td>
<td>Evaluate, adapt and use mathematical ideas, and techniques in completing tasks</td>
</tr>
<tr>
<td><strong>Solving problems</strong></td>
<td>Solve routine problems with minimal supervision or tackle exploratory problems with close supervision</td>
<td>Solve routine problems without supervision and exploratory problems with some guidance</td>
<td>Implement a systematic approach to the solving of complex problems and explain processes used</td>
</tr>
<tr>
<td><strong>Using technology</strong></td>
<td>Reproduce or present a basic product or service</td>
<td>Construct, organise or operate products or services</td>
<td>Design or tailor products or services</td>
</tr>
</tbody>
</table>
In conjunction with the continuing work on refining and filling out the descriptions of the Key Competency Strands outlined on page 15, the Committee has established two major projects to provide advice on the appropriateness of the proposed Key Competency Strands and draft Performance Levels.

**Access and equity audit**

In interpreting its terms of reference, the Committee identified the need to give careful attention to the needs of all young people, including young people from disadvantaged groups and young people with disabilities. Both in regard to the whole population of young people and in regard to groups with special needs, the gender equity dimension of the Key Competencies is a matter of fundamental importance. The first discussion paper highlighted the differing needs of groups of young people and the need for further work on defining and describing the Key Competencies to take these into account.

A number of respondents to the discussion paper raised issues and questions about implications for young people from disadvantaged groups. Some responses from groups representing the interests of identified groups of disadvantaged young people took the view that the development of nationally-agreed descriptions of the Key Competencies would help to combat disadvantage by making the expected outcomes in relation to these competencies explicit. This could, it was argued, assist in ensuring learning entitlements for all young people. The opening up of clearer pathways between education, training and employment was also seen to offer the prospect of better opportunities for young people from groups which have been traditionally disadvantaged in their access to further education and training. These views are supported by recent research on the social justice implications of competency-based approaches.

There was also a wide range of concerns raised by respondents in relation to the equity implications of the Committee’s proposals. Some took the view that developing nationally-agreed standards in the Key Competencies and nationally-consistent approaches for assessing and reporting on achievement against those standards may only serve to further entrench disadvantage. It was argued that the Key Competencies will inevitably be defined in terms of the dominant culture and in relation to assumptions about learning which have traditionally marginalised disadvantaged groups. Many of the responses concentrated on the impact which different methods of assessment may have on different groups of disadvantaged young people and drew particular attention to the need for this to be taken into account in the development of performance criteria and principles for assessment.

In response to these concerns the Committee is undertaking an audit of the proposed Key Competency Strands.

The purpose of the audit is to examine the following questions.

- What are the potential advantages and disadvantages of a competency-based approach in relation to access to postcompulsory education and training for different groups of young people?
- What barriers exist and how can they be overcome in the identification of the Key Competency Strands?
- What barriers exist and how can they be overcome in the description of Performance Levels?
- What barriers exist and how can they be overcome in the implementation of the Key Competencies?

Specific examination of the nature of the Key Competencies and for their assessment and reporting is being undertaken to ensure that they are genuinely inclusive of women and girls and serve the education and training entitlements of the whole cohort. The considerable expertise now available in regard to gender equity in curriculum and assessment generally is being utilised as part of this audit. Key national organisations are being consulted. In particular, the audit is examining the utility of the Key Competencies and associated proposals for improving pathways and access for women and girls.

The audit is also being undertaken in consultation with key national organisations representing the interests of the following identified groups:

- Aboriginal and Torres Strait Islander young people
- young people learning English as a second language and of diverse cultural backgrounds
- young people from low socio-economic groups
- young people with disabilities
- young people in geographically isolated settings
- young people at risk.
The findings will be fed into the process of refinement and review of the proposed Key Competency Strands and draft Performance Levels and into the development of principles for assessment and reporting on individual performance and principles for national reporting. It will also inform the development of the Committee's advice to AEC and MOVEET on further work on matters relating to access and equity that will need to be undertaken during the next stages of development and implementation of the Key Competencies.

Preliminary validation by industry

The proposed set of Key Competency Strands has been based on analysis of the Key Areas in relation to reports on the generic competencies required and valued most highly by industry, reference to other projects involving the development of generic competencies, and responses from industry to the first discussion paper. The draft descriptions of the proposed set of Key Competency Strands is providing the basis for consultation with industry in order to validate the Key Competency Strands and Performance Levels.

Preliminary validation by industry is being undertaken in the following industry sectors:
- Building and Construction
- Travel and Tourism
- Metals and Engineering
- Office/Clerical
- Wholesale/Retail

Collectively, these industry sectors cover a very significant proportion of employment of 15 - 19 year olds and 20 - 24 year olds and include a wide range of occupational classifications.

The projects are based in New South Wales (Building and Construction, Travel and Tourism) and Victoria (Metals and Engineering, Office/Clerical and Wholesale/Retail) but are also making cross-state links in order to provide an indication of the extent to which the findings can be considered to reflect a national picture.

For each industry sector, a project reference group has been established comprising representatives of employers and employees and nominees of the relevant State training authority.

The preliminary validation process is being based on discussion forums with industry representatives and structured interviews conducted in a selection of workplaces. Two discussion forums are being conducted: one involving representatives of key employer groups; the second involving union representatives. The workplaces have been selected to ensure coverage of large and small organisations and organisations at the leading edge within each industry sector. The interviews are being conducted with young people in occupations at the range of entry levels within the organisation and their immediate supervisors, as well as personnel managers.

The forums and interviews focus on:
- the perceived meaning and relevance of the proposed Key Competency Strands
- whether the set of strands covers the range of Key Competency requirements
- identifying applications of the Key Competencies in the workplace and examining their relationship to the draft Performance Levels.

Interviewees are being asked to consider the proposed Key Competency Strands in terms of occupations at entry levels both at and above base, and in terms of the foundations required for continuing vocational education and training within the industry. They are also being asked to consider the ways in which Key Competency requirements are likely to change in response to the changing needs of the industry.

The findings will be fed into the process of review and refinement of the proposed Key Competency Strands. This will provide the basis of establishing indicative Performance Levels in each of the Key Competency Strands for inclusion in the Committee's report to AEC and MOVEET. The Committee will also review the strategy adopted for the preliminary validation by industry in the preparation of its advice to AEC and MOVEET on a timeline and process for industry validation of the Key Competency Strands and Performance Levels across industries during the next stage of development and implementation of the Key Competencies.
The Committee is using the term 'record of performance' to refer to a report on the Performance Levels in the Key Competencies achieved by an individual.

Purposes

The first discussion paper canvassed a range of possibilities for the timing of production of records of performance and the level of detail that these records might contain. Discussion of the possibilities included consideration of their relative merits for reporting to individuals both for the purpose of providing progressive feedback on performance and for the purpose of providing young people with a record which they can present as evidence of their competence to potential employers and for the purposes of credit transfer into further vocational education and training.

Need for a nationally-consistent approach

The Committee has since confined its focus to the second of these purposes. This should not be taken as implying disregard for the importance of providing young people with progressive feedback on their achievement of the Key Competencies during the course of an education or training program. Reporting of this sort is an essential means of contributing to future learning by enabling learners to reflect on their past performance and set future goals. But there are no grounds for suggesting the need for a nationally-consistent approach to reporting for this purpose.

National consistency in reporting for the second purpose of providing young people with evidence of their competence to present to potential employers and for the purpose of credit transfer into further vocational education and training is necessary for reasons of portability, consistent credit transfer arrangements and ease of interpretation by users. Confining consideration of reporting on individual performance to this purpose also assists in focusing on the necessary elements of a nationally-consistent approach.

Principles for reporting on individual performance

It is proposed that the following principles provide the basis for nationally-consistent reporting to individuals on their performance in the Key Competencies.

1. An individual record of performance showing Performance Levels in the Key Competencies not previously reported should be made available to students/trainees at any point at which they exit from a school program at Years 11-12 level or a recognised entry-level program of vocational education and training.

The provision of records of performance at the point of exit is consistent with the purpose of these records. Responses to the discussion paper also reflected a clear preference for this option over options based on age or year levels.

The reference to students/trainees generally rather than those in a particular age group reflects a number of responses to the discussion paper which drew attention to the fact that participants in postcompulsory school and entry-level training programs not only include young people in the 15-19 age group but also adults who would benefit from developing the Key Competencies and from having access to a record of their performance.

The provision of records of performance at any point of exit implies that students and trainees should be provided with a record on exit regardless of whether this is at the completion of a program or at any other stage. It also implies that a student or trainee may receive a record of performance on more than one occasion, depending on the pathway followed through school education and entry-level vocational education and training.
It is intended, however, that each successive record of performance should be confined to recording assessments of Performance Levels not previously reported. Hence, for example, a young person who enrolls in an entry-level vocational education and training program having already achieved Performance Level 3 in each of the Key Competencies would not receive another record of performance on exit from that program. On the other hand, a young person who leaves school during Year 11 having achieved Performance Level 2 in each of the Key Competencies and returns later to complete Year 12 during which time he or she is assessed as having achieved Performance Level 3 in four of the Key Competencies would receive a record of performance on exit reporting these assessments.

Further consideration is being given to ways by which young people might seek to update their record of performance while not currently participating in an education or training program. This might include accrediting agencies, in addition to schools and training providers, to assess performance in the Key Competencies and issue records of performance.

2. **Assessment of levels of performance in the Key Competencies should be consistent with nationally-agreed principles.**

The credibility of records of performance depends on the degree of confidence which can be placed in the assessments on which those records are based. Pursuing national consistency through nationally-agreed principles, rather than common assessment instruments or methods, reflects the need to accommodate the diverse range of programs and settings through which postcompulsory education and entry-level vocational education and training are delivered.

See next page for draft principles for assessment.

3. **Records of performance should be based on a common format.**

This principle is necessary to support the purposes of portability, consistency of credit transfer arrangements and ease of interpretation by users. The adoption of a common format for records of performance would help users to make sense of records being generated by a wide range of providers. It would also overcome the need for each school or school system and each training system or public or private training provider to design its own format.

The adoption of common format would not preclude the possibility of different systems choosing to incorporate the record of performance within their reporting package in different ways as appropriate to their other reporting arrangements.

4. **The issuing of records of performance should be subject to consistent provisions regarding confidentiality and the maintenance of databases of records.**

It is understood that like any other record containing personal information, a record of performance will be the property of the student or trainee to use as he or she sees fit and would not be provided to any other person without explicit permission.

The need for maintenance of databases of records of performance will depend on the degree to which performance in the Key Competencies becomes a recognised part of credit transfer arrangements and the information used to make decisions about entry to particular programs, and the degree to which industry recognises the records as providing information to contribute to decisions about selection and further training needs. If this does occur, databases will be required to enable young people to retrieve lost records and to provide a means for users to check the authenticity of records. In this event, decisions would need to be made about locus of responsibility and conditions for the maintenance of databases of records.
Principles for assessment

A set of nationally-agreed principles for assessment must provide a framework which accommodates the need for consistent approaches to assessment of the Key Competencies but also recognises the need for flexibility to allow for the diverse range of postcompulsory school and entry-level vocational education and training programs, settings and modes of program delivery through which the Key Competencies will be developed. The principles need to cover not only those which apply to assessment generally but also principles which arise from the nature of the Key Competencies.

Common reference point for assessment

National consistency in reporting on individual performance depends on the use of nationally-agreed standards as the basis for assessment and reporting.

1. Assessments of Performance Levels in the Key Competencies should be based on the standards defined by the Key Competency Structure.

Validity

2. Assessment methods should be valid; that is, they should assess what they claim to assess.

This principle applies to assessment generally. In the case of the Key Competencies it implies the need to pay careful attention to the differing requirements for valid assessment of the various Key Competency Strands. It also requires consideration of the characteristics of the notion of competence and their implications for the methods used to assess it. The Key Competencies are based on a concept of competence which focuses on what people can do, recognises that performance is underpinned not only by skill but also by knowledge and understanding, and includes the idea of transferability. This concept implies the need for two further principles relating to validity.

3. Assessment should be undertaken as an holistic process which integrates knowledge and skills with their practical application.

This principle reflects the focus on performance and the need for assessment methods which will provide valid measures of performance, incorporating underlying knowledge and skills, rather than assessment methods which measure the elements of knowledge and skill separately.

4. Assessment methods should provide for judgments to be made across a range of contexts.

It is likely that this principle will need to be spelt out more fully. Making judgments about the capacity to transfer knowledge and skills to new tasks and situations inevitably involves inferring from what is known about performance to what might be expected of learners in situations they have yet to encounter. The question is on what basis such an inference might be made. One possibility being explored is of requiring that assessment of a given Performance Level should be based on demonstrated performance at that level in a variety of contexts.

Fairness

One aspect of fairness relates to assessment methods generally.

5. Assessment methods should, insofar as is possible, ensure that students/trainees are not disadvantaged by gender, ethnicity, disability, socio-economic status or other social circumstance.

Other aspects of fairness relate more particularly to assessment of the Key Competencies.

6. The requirements of the Key Competencies, assessment procedures and criteria for judging performance should be made explicit to the student/trainee.

7. Assessment procedures should be designed to provide all students/trainees with opportunities to demonstrate their performance across the full range of Performance Levels.

8. Assessment procedures should provide students/trainees with more than one opportunity to meet the requirements for assessment at a given Performance Level.

9. Assessment procedures should provide for the recognition of competencies, no matter how, where or when they have been acquired. Students/trainees who, for whatever reason, do not take part in the learning process associated with development of a competency should have opportunities to demonstrate their performance and obtain an assessment.
Reliability

In the case of the Key Competencies, reliability refers to the need to adopt procedures to provide a reasonable degree of confidence that Performance Levels are interpreted and applied consistently. This will be assisted by the provision, as part of the Key Competency Structure, of examples of performances at each level which have been judged as having met the requirements for the Performance Level and which will serve as benchmarks for assessment. However, teachers and trainers will need to be given opportunities to practise applying the Performance Levels and to check that they are interpreting and applying them consistently.

10. Assessment methods should be accompanied by procedures designed to promote and monitor reliability in interpretation and application of the Performance Levels.

The relationship between assessment and learning

A direct relationship between the objectives and content of programs and assessment procedures is necessary to ensure that assessment procedures properly reflect the intended outcomes.

11. Assessment procedures should be designed to provide maximum coherence between learning and assessment.

A further aspect of the relationship between assessment and learning is the capacity for assessment to contribute to improvements in teaching and learning.

12. Assessment methods should be designed to inform and contribute to improvements in teaching and learning.

This principle has implications for the development of practices which provide opportunities for young people to obtain feedback on their performance. Similarly, assessment practices should be designed to enable teachers/trainers to monitor and improve their practice by reflecting on outcomes.

The place of assessment in program delivery

It is intended that development of the Key Competencies should be incorporated within school and training programs rather than developed through separate, add-on programs. This is clearly desirable on both educational and practical grounds. It is also sensible given that many existing programs already incorporate development of some if not all of the proposed Key Competencies. Likewise, it is desirable that assessment of the Key Competencies is integrated, where possible, with assessments undertaken for other purposes.

13. Assessment procedures should be designed so that, as far as possible, assessments of performance on the Key Competencies are undertaken as part of, or in conjunction with, assessments undertaken for other purposes.

In some cases this might mean that assessment of the Key Competencies is subsumed within existing assessment procedures which are consistent with the other proposed principles for assessment. In other cases this principle might be met by rationalising the overall set of assessment procedures associated with a particular school or training program to allow for assessment of the Key Competencies.

A related principle refers to record-keeping demands associated with assessment of the Key Competencies.

14. Record-keeping requirements associated with procedures for assessment of the Key Competencies should be designed so that, as far as possible, these records are integrated with records maintained for other assessment purposes.

Again, in some cases this might be achieved by subsuming record-keeping demands for assessment of the Key Competencies within arrangements for existing assessment procedures; in others it might be achieved by some rationalisation of existing requirements.

The principles highlighted above form a draft set of principles for assessment of the Key Competencies for the purposes of consultation.
The Committee is using the term 'national' report to mean a statistical analysis of the levels of performance achieved in the Key Competencies by a given cohort of young people.

A number of responses to the discussion paper indicated strong support for collecting and reporting better information on the outcomes of education and training. Some made specific reference to the need for such reporting to monitor the effectiveness of strategies designed to improve access and equity in education and training. While few responses expressed opposition to national reporting, some voiced concerns about the purposes for which national reporting might be used. In particular, there was concern among some organisations in the school sector that national reporting might provide the potential to report data on a school by school basis.

**Principles for national reporting**

It is proposed that the following principles provide the basis for development of a detailed proposal for national reporting on outcomes in relation to the Key Competencies:

1. **The collection of data for the purpose of national reporting should be designed to provide a publicly credible means of reporting on the extent to which the Key Competencies are being achieved in order to meet public accountability needs and provide an improved basis for evaluating the effectiveness of education and training programs.**

2. **The collection of data for the purpose of national reporting should be undertaken on the basis of sample statistics.**

3. **The collection of data for the purpose of national reporting should incorporate procedures to protect the confidentiality of individuals and the identity of individual schools and training providers.**

In addition, establishing a process for national reporting on the Key Competencies depends on achieving national agreement in relation to the specific purposes for reporting and, consequently, agreement on the categories on which reporting will be based (e.g. female/male, age, language background, Aboriginal and Torres Strait Islander), the method to be used to identify these categories, and on the reporting cycle.

**Options for collecting data for national reporting**

The discussion paper described a range of possible approaches to the collection of data for the purposes of national reporting. From this range, two options have been identified as the basis for further development and consultation.

**Option 1:** Data for national reporting are extracted from databases of individual records of performance for collation into a national report.

This would involve:
- the maintenance of centralised databases of individual records of performance on a State/Territory basis;
- ensuring that databases of individual records of performance provide a means of identifying categories selected for reporting;
- reaching agreement among States and Territories on a consistent basis for sampling from databases of individual records of performance;
- establishing procedures to ensure comparability of data for the purposes of statistical analysis on a national basis.

**Option 2:** Data for national reporting are collected by means of 'standard assessment tasks' administered to an agreed sample of young people specifically for the purpose of gathering data for national reporting.

The term 'standard assessment tasks' is used to describe tasks which are defined more broadly than standardised paper and pencil tests. In the case of the Key Competencies, these would necessarily include performance-based assessments.

This would involve:
- reaching agreement on the basis for identification of the national sample;
- establishing a mechanism for developing 'standard assessment tasks' capable of providing valid and reliable assessments of levels of performance in the Key Competencies;
- establishing a mechanism for administering the 'standard assessment tasks' to the national sample and for analysing and reporting on the findings.
The Committee has commissioned advice on the these approaches from a range of sources. This includes advice on the capacity of each approach to: provide valid and reliable measures of performance on the Key Competencies for the purpose of statistical analysis on a national basis; generate reports which will inform policy and program development and evaluation; and to inform curriculum, teaching and assessment practice in relation to the Key Competencies. It also includes advice on the costs associated with the two broad options and their feasibility for implementation, taking into account the range of school and training programs, types of providers and modes of program delivery, and the structures that would need to be put in place to support national reporting.

The Committee will consider this advice in conjunction with responses to consultation in preparing its advice to AEC and MOVEET on national reporting of achievement in the Key Competencies.
FACTORS SHAPING DEVELOPMENT OF OPTIONS FOR IMPLEMENTATION

In its report to AEC and MOVEET, the Committee proposes to identify a range of options for implementation, outline a program for the further work to be done in preparation for implementation and propose a process and timeline for this work to be done. This section outlines factors that will need to be taken into account in the development of this advice.

Validation of the Key Competency Structure

- The preliminary validation of the Key Competency Structure by industry will provide the basis for refining the Key Competency Strands and establishing indicative Performance Levels. Plans for further work will need to include a procedure for validation of the Key Competency Structure across industries.
- The access and equity audit may yield findings indicating the need for further investigations to be undertaken into the implications of the Key Competency Structure for access for young people from groups with differing needs. This will need to be taken into account in plans for further work.

Integration with related national initiatives

- The recently released Report of the Employment and Skills Formation Council on a New Entry-Level Training System (Carmichael Report) proposes the establishment of an Australian Vocational Certificate Training System providing competency-based training through multiple pathways leading to the attainment of the Key Competencies as part of nationally-consistent Australian Vocational Certificates. The timetable for further development and implementation of the Key Competencies needs to be integrated with the timetable for implementation of recommendations accepted from the Carmichael Report.

- The National Training Board is currently reviewing its policy and guidelines including the formulation of the Australian Standards Framework, especially at Levels 1 and 2. The findings of the preliminary industry validation of the proposed Key Competency Structure will be forwarded to the National Training Board to inform its review. In turn, the outcomes of the Board’s review will need to be taken into account in plans for further work on the Key Competency Structure.

- The Curriculum and Assessment Committee of the AEC Standing Committee (Schools) is developing a national curriculum framework comprising national statements and profiles in eight key learning areas. A range of ways of relating the proposed Key Competency Structure to the national profiles is under consideration. It can be expected that greater resolution on this matter will have been achieved by the time this Committee completes its report to AEC and MOVEET. This will need to be taken into account in plans for further work on the Key Competency Structure and in plans for implementation.

- The Ministers for Vocational Education, Employment and Training (MOVEET) have agreed that competency-based training will be substantially implemented in Australia by 1993. As a result of this agreement, vocational education and training systems are developing new curriculum consistent with the competency-based approach, implementing nationally-agreed principles for the recognition of training and establishing mechanisms for assessment and certification based on agreed competency standards. Plans for implementation of the Key Competency Structure and principles for assessment and reporting will need to take account of and be reflected in the competency-based training arrangements for the new vocational education and training system.

- Plans for implementation need to include strategies by which the development of the Key Competencies by young people in schools can be supported and enhanced through improved links between schools and industry. The development of these strategies needs to be coordinated with work being undertaken by the recently-established working party of AEC, MOVEET and the National Industry Education Forum.

The Key Competencies in industry

- Competency Standards Bodies are being established within each industry with responsibility for the development of national competency standards for endorsement by the National Training Board. Plans for implementation will need to include a process for incorporating the Key Competencies within each industry’s package of competency standards. Advice on this process is being developed in consultation with the Committee’s Industry Reference Group and the National Training Board.
The Key Competencies in school and training programs

Integration with curriculum, assessment and reporting arrangements

- Plans for further work and options for implementation will need to take account of the implications of integrating the Key competencies with curriculum, assessment and reporting arrangements in postcompulsory school and entry-level vocational education and training programs. To inform these plans, school and training systems are undertaking preliminary examinations of curriculum, assessment and reporting arrangements in order to obtain indications of:
  - the extent to which programs currently provide for development of the proposed set of Key Competencies;
  - the extent to which programs currently provide for all participants to develop their competence in each of the Key Competency Strands;
  - the extent to which current assessment and reporting arrangements allow for explicit reporting against Performance Levels in the Key Competency Strands;
  - any modifications to curriculum, assessment and reporting arrangements that would be required to incorporate the Key Competencies.

- The Curriculum and Assessment Committee of the AEC Standing Committee (Schools) and the Australian Committee for Training Curriculum, a committee of the Vocational Education, Employment and Training Advisory Committee, will need to consider the outcomes of this work in order to determine the most effective and cost-efficient approach to meeting the needs identified.

Professional development and training

- Plans for implementation need to be informed by an assessment of the professional development and training that will be required to meet the needs of teachers and trainers in implementing the Key Competencies, and of effective strategies by which these needs can be met. This work is being undertaken in conjunction with the National Project on the Quality of Teaching and Learning in schools and the Vocational Education, Employment and Training Advisory Committee working party on TAFE Staff and Related Issues.

Support for young people at risk

- Plans for further work and implementation need to take account of the needs of young people who leave school prior to Years 11-12 and who do not participate in recognised entry-level vocational education and training. An analysis of the characteristics of young people not participating in recognised education and training is currently being undertaken. This analysis will be examined with a view to identifying ways by which these young people might be supported to develop the Key Competencies and to have their achievements recognised.

- It is also recognised that some young people undertaking immediate postcompulsory level school and entry-level training programs will exit from those programs having not yet achieved Performance Level 1 in one or more of the Key Competency Strands. Plans for implementation will need to include the development of strategies to ensure that such young people continue to receive systematic assistance and support to develop the Key Competencies.

Higher education

- Plans for further work and implementation will need to take account of advice provided by the Committee's Higher Education Reference Group on possible relationships between assessment and reporting on the Key Competencies and processes for selection to higher education.

National reporting

- Plans for implementation will need to take account of arrangements to be put in place for national reporting. The nature of those arrangements will depend on the approach adopted for collecting data for national reporting.

- The arrangements will need to take account of existing national projects for developing standard ways of collecting data in the training sector through the Committee on TAFE and Training Statistics and of arrangements in place for annual production of the National Report on Schooling in Australia by the AEC.
Maintenance of the Key Competency Structure

- Plans for implementation will need to include arrangements to provide for continuing review of the Key Competency Structure including the definition of the Key Competency Strands and the number and range of Performance Levels. These arrangements will need to allow for appropriate participation by the school and training sectors and industry, and take account of existing structures within and across these sectors.

Resources

- Plans for further work and options for implementation will need to include an assessment of the resource requirements for implementation of the Key Competencies and the means by which these resources could be obtained.

Information program

- Plans for further work and implementation will need to incorporate development of a program designed to inform the school and training sectors, industry and the general community about plans for the Key Competencies and to provide regular updates on developments.
The Committee is chaired by Mr Eric Mayer, Chair of the Business/Higher Education Round Table and former Chief Executive Officer of National Mutual.

The members are:

**Mr Garth Boomer**  
Associate Director-General of Education (Curriculum), South Australia

**Ms Sharan Burrow**  
Senior Vice President, NSW Teachers Federation (nominee of the Australian Teachers Union)

**Mr Laurie Carmichael**  
Chair, Employment and Skills Formation Council, National Board of Employment, Education and Training (nominee of the Finn Review Committee)

**Ms Sue Christopher**  
Manager, Vocational Education and Training Policy Branch, State Training Board, Victoria

**Mr Graham Fish**  
Director, Curriculum Services, Department of Education and the Arts, Tasmania

**Mr Alan Godfrey**  
Chief Executive, National Training Board Ltd

**Dr Susan Holland**  
General Manager, Quality Assurance and Customer Services, NSW TAFE Commission

**Mr Alan Houston**  
Director, Personnel, Coles Myer Ltd (nominee of the Finn Review Committee)

**Ms Martha Kinsman**  
Associate Director (Education Services), ACT Institute of TAFE

**Mr Mal Lee**  
A/Executive Director, Belconnen Schools, Department of Education and Training, ACT

**Mr Patrick Lee**  
Deputy General Secretary, NSW Independent Teachers Association (nominee of the Independent Teachers Federation of Australia)

**Dr Lesley Lynch**  
Director, Curriculum, Department of School Education, NSW

**Mr Allan McKechnie**  
Manager, Organisational Change and Development, BP Australia Ltd (nominee of the Business Council of Australia)

**Ms Susan Pascoe**  
Coordinating Chairperson (Policy), Catholic Education Office, Victoria (nominee of the National Catholic Education Commission)

**Dr Harry Payne**  
Assistant Secretary, Curriculum and Assessment, Department of Education, Northern Territory

**Dr Helen Praetz**  
Director, School Improvement Branch, Department of School Education, Victoria

**Mr Paul Roberts**  
Chair, Skills Standards and Accreditation Board, State Employment Skills Development Authority, Western Australia

**Mr Dave Robson**  
Federal Secretary, Australian Teachers Union

**Mr Greg Robson**  
Director of Curriculum, Ministry of Education, Western Australia

**Mr Alan Ruby**  
First Assistant Secretary, Schools and Curriculum Division, Commonwealth Department of Employment, Education and Training

**Mr Martin Schutz**  
National Industrial Officer, Metals and Engineering Workers' Union (nominee of the ACTU)

**Dr Larry Smith**  
Director, Vocational Education and Training Queensland, TAFTEQ

**Ms Robin Sullivan**  
Director, Studies Directorate, Department of Education, Queensland
Mr Brian Turner
Manager, Design and Development, Training Division,
Department of Employment, Industrial Relations and
Training, Tasmania

Dr Don Watts
Chairman, Employment and Training Authority,
Northern Territory

Dr Geoff Wood
Director of Curriculum Services, Department of
Employment and Technical and Further Education,
South Australia

Professor Di Yerbury
Vice-Chancellor, Macquarie University (nominee of the
Australian Vice-Chancellors' Committee)
REFERENCE GROUPS

Industry Reference Group

Role
To advise the Committee on the construction of competency standards, industry requirements in relation to the proposed Key Competencies and approaches to industry validation of descriptions of the Key Competencies.

Membership

Ms Jane Carnegie
Education/Industrial Officer, Australian Council of Trade Unions

Ms Jenni Colwell
Assistant Commissioner, Human Resource Development Policy and Projects, Public Service Commission

Ms Cassandra Parkinson
Executive Director, Australian Textiles, Clothing and Footwear Industry Training Board

Ms Anne Rein
Chief Executive, Tourism Training Australia

Mr Julius Roe
National Industrial Officer, Metals and Engineering Workers’ Union

Dr Percy Worsnop
Project Manager, Confederation of Australian Industry

Higher Education Reference Group

Role
To assist the Committee to examine the relationship between assessment and reporting on the key competencies and processes of selection for higher education.

Membership

Nominees of the Australian Vice-Chancellors’ Committee

Associate Professor John Mack
University of Sydney

Professor Ian Rae
Monash University

Dr Mary Dove
University of Melbourne

Dr Tony Haydon
Australian Vice-Chancellors’ Committee

Mr Doug Porter
University of Queensland
Ms Ann Borthwick (Secretary)
Ministry of School Education, Victoria

Ms Natalie Conyer
NSW TAFE Commission (from April 1992)

Ms Joy Corben
NSW Board of Studies (September 1991 - March 1992)

Mr Colin Ducker
Vocational Education and Training Division
Commonwealth Department of Employment, Education and Training

Mr Geof Hawke
NSW TAFE Commission (September 1991 - April 1992)

Mr Peter Jones
State Training Board, Victoria

Mr John Nancarrow
Schools and Curriculum Division
Commonwealth Department of Employment, Education and Training

Ms Mary O'Sullivan
NSW Board of Studies (from March 1992)

Mr Adrian Stephens
Department of School Education, Victoria

Mr Bruce Wilson
Department of School Education, Victoria

Ms Christine Wise
Australian Vice-Chancellors' Committee
(September 1991 - March 1992)
RESPONSES TO THE DISCUSSION PAPER

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### New South Wales

- Art Education Society (NSW)
- Asquith Girls' High School
- Association of Heads of Independent Schools of Australia (NSW Branch)
- Australian Library and Information Association - School Libraries Section (NSW Group)
- Board of Studies, Division of Secondary Education, NSW Chapter of the Australian Catholic University
- Casino High School P&C Association
- Catholic Education Commission of New South Wales
- Catholic Education Office, Diocese of Armidale
- Catholic Education Office, Diocese of Parramatta
- Central Coast Grammar School
- Cowra High School
- Department of School Education
- Dunheved High School
- Dusseldorp Skills Forum
- Ethnic Communities' Council of New South Wales
- Faculty of Education, University of Technology Sydney
- Faculty of Education, University of Western Sydney - Nepean
- Federation of Parents and Citizens Associations of NSW
- Glenaeon Rudolf Steiner School Limited
- Hawker De Havilland Ltd
- Joint Council of NSW Professional Teachers' Associations
- Kyogle High School
- Mathematical Association of New South Wales
- Menai High School, Illawong
- Mount Druitt High School
- New England Mathematical Association
- NSW Board of Studies
- NSW Chamber of Manufactures
- NSW Independent Teachers' Association
- NSW Industry Training Council Ltd
- NSW Secondary Principals' Council
- Private Hospitals Association of New South Wales
- Our Lady of Rosary College, Tamworth
- Santa Sabina College, Strathfield
- School of Education, Macquarie University
- St Catherine's School, Waverley
- St Joseph's Vocational College, Port Macquarie
- University of New England - Northern Rivers
- University of Sydney
- University of Western Sydney - Nepean
- Upper North Coast Subregion of P&C's Woy Woy High School

### Victoria

- Association of Independent Schools of Victoria Inc.
- Australian Association for Religious Education (Victorian Secretariat)
- Council of Adult Education
- Deakin University
- Department of School Education
- Hawthorn Institute of Education - Affiliated with the University of Melbourne
- Humanities and Creative Arts, School of Early Childhood and Primary Education, Faculty of Education, Monash University
- Inner Northern Group Training Ltd
- La Trobe University
- Mathematical Association of Victoria
- Network of Women in Further Education
- Royal Melbourne Institute of Technology
- School of Primary Teacher Education, Deakin University
- St Paul's Anglican Grammar School, Warragul
- State Training Board
- Swinburne College of TAFE
- TAFE Teachers in Further Education Common Interest Group
- Tertiary Arts Group
- The Graduate School of Management - University of Melbourne
- Victorian University of Technology
- Victorian Adult Basic Education Council
- Victorian Association for Drama in Education Inc.
- Victorian Association of TAFE College Librarians
- Victorian Council of School Organisations Inc.
- Victorian Employers Chamber of Commerce and Industry
- Victorian Federation of State School Parents Clubs Inc.
- Western Region ALBE Workers Association
- Yallourn College of TAFE
Queensland

Association of Independent Schools of Queensland Inc.
Australian Society for Music Education - Queensland Chapter
Commerce Teachers' Association of Queensland (Inc.)
Construction Industry Training Council (Queensland) Inc.
Department of Civil Engineering,
University of Queensland
Department of Education
Department of Employment, Vocational Education, Training and Industrial Relations
English Teachers Association of Queensland Inc.
Isolated Children's Parents Association
Printing Industry Training Council (Queensland) Inc.
Queensland Affiliation of Arts Educators
Queensland Catholic Education Commission
Queensland Council for Adult Literacy
Queensland Guidance and Counselling Association
Queensland Secondary Principals' Association
Queensland Small Business Corporation
Queensland Trades and Labor Council
Road Transport Training Council (Queensland) Inc.
School Library Association of Queensland Inc.
TAFE-TEQ Library Network Branch
The Stubbies Clothing Company Pty. Ltd
Visual and Performing Arts Unit,
Department of Education

South Australia

Aboriginal Education, Education Department
Arts Training Australia SA
Chamber of Commerce and Industry
Department of Employment and Technical and Further Education
Education Department of SA
Flinders University
Hamilton Senior Campus, Mitchell Park
Junior Secondary Review, Education Department
Senior Secondary Assessment Board of South Australia
South Australian Association of School Parents Clubs Inc.
South Australian Commission for Catholic Schools Inc.
South Australian Independent Schools Board Inc.
South Australian Youth Training Centre
United Trades and Labor Council of South Australia
University of Adelaide
University of South Australia

Western Australia

Association of Independent Schools of Western Australia Inc.
Catholic Education Office of Western Australia
Catholic Secondary Deputy Principals' Association
Catholic Secondary Principals' Association
Curtin University of Technology
Parents and Friends' Federation of Western Australia
University of Western Australia
Youth Affairs Council of WA

Tasmania

Arts Faculty, University of Tasmania at Launceston
Association of Independent Schools of Tasmania
Department of Education and the Arts
Department of Employment, Industrial Relations and Training
Secondary Colleges' Staff Association
Schools Board of Tasmania
Scotch Oakburn College, Launceston
Tasmanian Catholic Education Commission
Tasmanian Education Council
Northern Territory
Council of Government Schools Organisations in the Northern Territory
Home Economics Association of the Northern Territory Inc.
Northern Territory Board of Studies
Northern Territory Employment and Training Authority
Northern Territory University
Northern Territory University Institute of TAFE

Australian Capital Territory
ACT Board of Senior Secondary Studies
ACT Council of Parents and Citizens Associations Inc.
ACT Institute of Technical and Further Education
Belconnen High School, Hawker
Catholic Education Office, Archdiocese of Canberra and Goulburn
Phillip College

Commonwealth
Australian Defence Force Academy
Department of Employment, Education and Training
Department of Industrial Relations
Economic and Policy Analysis Division, Department of Employment, Education and Training
Joint Australian Public Service Training Council
Public Service Commission

Individual
C Ballenden, Victoria
R J Halsey,
Senior Secondary Assessment Board of South Australia
I Lowe and C Lovitt,
Chance and Data Project, Curriculum Corporation
M B McCarthy, Springfield SA
G Secomb, Windsor SA
B Walters, Waverley NSW
M White; Faculty of Education, Curtin University of Technology
NOTES ON THE PROPOSED KEY COMPETENCY STRUCTURE

The first discussion paper proposed the development of a key competency structure for each area of competence.

The building blocks of the proposed key competency structures were to be applications of knowledge and skills in work contexts. Within each area of competence, examples of the ways in which the knowledge and skills of the area are applied in work contexts would be examined to identify applications generic to a wide range of industries.

It was proposed that:

- descriptions of these generic applications would be known as competencies;
- each competency would be accompanied by a statement of criteria for judging achievement of the competency;
- the competencies would be sorted into strands, with each strand being as far as possible a unified and conceptually discrete group of competencies;
- the competencies within each strand would be arranged in order of difficulty, enabling the identification of a range of performance standards each consisting of a group of competencies of similar order of difficulty. The number of performance standards to be identified was not specified. This was to be resolved through further development.

Defining the strands

Initial work in the areas of Language and Communication and Using Mathematics

The discussion paper reported on work in progress in the identification of competencies in the areas of Language and Communication and Mathematics. It noted that this work was based on the identification of typical workplace applications of knowledge and skills in the respective areas, that in each case it had proven difficult to use the sub-headings (or strands) proposed in the Finn Report to describe competence in these areas and that a different proposal was emerging. In the case of Language and Communication, for example, it was argued that the Finn strands identify skills and knowledge in the modes of language use in ways that are appropriate for describing English in the school curriculum because discrete skills and knowledge can be identified within such strands as a focus for teaching, assessment, and reporting. Competence in using such skills and knowledge, however, is evident not so much in the demonstration of discrete skills and knowledge but in the performance of more integrated activities and functions. It was also argued that the Finn strands did not encompass the whole of language and communication competence, in particular the capacity to work effectively with others.

The proposed strands in the area of Language and Communication were:

- Collecting, analysing and organising ideas and information
- Expressing information and ideas to others
- Interacting with others one to one
- Working in a team

Initial work on the identification of competencies in Mathematics took a similar direction. In this case, the Committee also took the view that, while the subject called Mathematics is an important anchor point for describing the area of competence, it is not synonymous with it. Competence in using mathematics is required, and may be developed and demonstrated, across a range of curriculum areas. Accordingly, it was proposed that this area be re-named 'Using Mathematics'.
The proposed strands of Using Mathematics were:

- Evaluating (by assigning costs and benefits; e.g. money, time or materials)
- Handling information (needed to undertake a task, making appropriate use of mathematical concepts, expressions, representations and technology)
- Planning (in order to ensure that tasks are undertaken and successfully completed within identified constraints)
- Designing (by conceiving of a means of achieving a particular purpose).

It was emphasised that the identification of strands based on the application of skills and knowledge in an integrated way in work situations did not represent an abandonment of the underlying knowledge and skills of the respective areas. Rather, it was an attempt to represent the knowledge and skills in ways which better reflect their use in practice. For example, all communication rests on knowledge of the way in which language works and its social role, and on skills in reading, writing, speaking, listening and accessing and using information. Similarly, using mathematics for whatever purpose involves computation, measurement and understanding mathematical symbols.

**Outcomes of further development**

Many responses to the discussion paper suggested that the sample competencies identified within the strands proposed for Language and Communication and Using Mathematics were too specific for the purpose of identifying generic competencies. Closer inspection of the sample competencies supported that view. In many cases the competencies would more appropriately be regarded as examples of various ways in which a more general competency might be developed and demonstrated. For example, two of the sample competencies identified at lower orders of difficulty within the proposed strand called Expressing ideas and information to others were ‘choosing the appropriate information to complete a form (e.g. a job application) and completing the form accurately and clearly’ and ‘presenting a series of points in logical order on a familiar topic (e.g. explaining how to perform a task to a co-worker)’. While both might be regarded as reflecting lower orders of competence in Expressing ideas and information to others, the distinction between them depends largely on the examples rather than a fundamental difference in the nature of the competence required.

Work on developing more general descriptions of the competencies within each of the proposed strands for Language and Communication soon led to the conclusion that the level of generality at which the proposed strands had been expressed was also likely to be the most appropriate level of generality for describing the competencies; e.g. Expressing ideas and information to others.

This finding was supported by work on the arrangement of the competencies within each of the proposed strands in order of difficulty to enable the identification of performance levels. The initial proposal assumed that each performance level would contain a discrete set of competencies (e.g. ‘recording information’ might appear at a lower performance level while ‘report writing’ might appear at a higher performance level). This assumption did not hold up when an attempt was made to assign the sample competencies identified for the proposed strands in the Language and Communication area into nominal performance levels. It became apparent that it was not so much the competency itself which determined its order of difficulty but the circumstances in which the competency was to be performed. For example, ‘recording information’ may be a relatively simple or an extremely challenging activity depending on the nature of the information and the purposes for which it is to be recorded.

The conclusion drawn from this was that the same competency would be identified across the range of levels of performance, with variations in the circumstances within which the competency was to be performed providing the basis for distinguishing the performance levels.

**Key Areas of Competence as a foundation for identifying the strands**

The Committee started from the premise that it would identify a set of Key Areas of Competence, each divided into a number of strands.

The Finn Report used the term Key ‘Area’ of Competence to reflect the breadth and complexity of the competencies under consideration and to underscore the intention that the meaning of competence should be defined broadly. The Report recommended a list of six areas and expanded on these by means of a series of subheadings. (See page 9).
The discussion paper indicated that this list would provide the starting point for identifying the Key Competencies but that no firm position had yet been reached on what should constitute the set of employment-related Key Competencies.

The discussion paper also noted that the Committee had been asked asked to consider a number of areas in addition to those listed in the Finn Report. These were:
- Creativity (including the Arts)
- Family and household management
- Information technology

The discussion paper proposed the following defining characteristics of a Key Area of Competence.

A Key Area of Competence:
- is essential to preparation for employment
- equips individuals to participate effectively in a wide range of social settings, including workplaces
- is generic to the kinds of work and work organisation involved in the range of occupations at entry levels within industry rather than occupation- or industry-specific
- is able to be taught
- is conceptually coherent, embodying a range of knowledge, understanding and skills and a range of complexity
- involves the application of knowledge and skills
- is amenable to credible assessment.

These defining characteristics were generally endorsed in consultation.

Consultation also revealed a wide range of views as to what should constitute the set of key areas. Most strongly expressed was the view that the six areas identified in the Finn Report should constitute the set. Some argued that the Problem Solving and Personal and Interpersonal areas were not Key Areas in their own right but underpinned the others. Some argued for the inclusion of other areas, namely Languages other than English, aesthetic understanding and moral and ethical reasoning.

### Deciding on the set of Key Areas

Analysis of the three additional areas proposed for consideration in relation to the characteristics for defining a Key Area of Competence and to the six areas proposed the Finn Report led to the following conclusions.

**Creativity (including the Arts)**

This claims made for the inclusion of the Arts as a Key Area of Competence were based on two positions. The first was an assumption that the Key Areas proposed by Finn were essentially discipline based and would effectively constitute a new 'core' curriculum at the postcompulsory level. Exclusion of the Arts from this list, it was argued, would risk this area of the curriculum being relegated to the outer rim of what is considered to be important in education. The second focused on the importance of the Arts as an industry and the need to ensure this was reflected in the definition of the employment-related Key Competencies.

It was resolved that the Arts does not satisfy the criteria set out in the defining characteristics of a Key Area of Competence, but that the descriptions of the Key Competency Strands should include examples to demonstrate the ways in which the Key Competencies are applied in occupations within the Arts industry and examples of the ways in which the Key Competencies can be developed within subjects in the Arts area of the curriculum to underline the intention that the Key Competencies should be regarded as underpinning the curriculum as a whole rather than belonging to particular subject areas.

The claims made for the inclusion of Creativity as a Key Area related to the significance of creative thinking and innovativeness to the future of Australian industry and the need to give greater emphasis to the development of these capacities in young people. After a number of attempts, including attempts to define an area around notions of design and aesthetics, it was resolved that Creativity does not satisfy the criteria set out in the defining characteristics of a Key Area of Competence. It was, however, resolved that each of the Key Competency Strands should include the concept of creativity in ways appropriate to the particular strand and that it was expected that this should be evident in the higher performance levels identified within each strand.
Family and household management

The motivation for the inclusion of family and household management as a Key Area revolved around a number of related arguments. The first was the importance of recognising the role of unpaid work in supporting the paid work structures of the nation. The second was the argument that if the Key Competencies were to acknowledge and include the needs and experiences of young women as well as young men, then there was a need for them to embrace competencies related to family and household management. It was argued that, in order for young women to take up their right to and responsibility for employment then young men must also obtain the knowledge and skills relating to family and household management which are currently perceived to be the domain of women. The third was a concern to draw to the Committee’s attention the need to consider gender inclusivity in relation to all of the Key Competencies.

After considering a number of possible ways of identifying strands based on family and household management, the Committee resolved that family and household management does not meet the criteria set out in the defining characteristics of a Key Area of Competence, but that family and household management constitutes a work situation and should be regarded as a context for which the Key Competencies are both relevant and applicable.

It was also resolved that all of the Key Competency Strands should be checked carefully in relation to their gender inclusivity. (See Access and equity audit, page 45).

Information Technology

The claims made for inclusion of information technology as a Key Area of Competence were based on the pervasive nature of the use of information technologies in modern society and the need to recognise the need for all young people to develop competence in the use of these technologies.

It was resolved that this area had already been taken into account by the Scientific and ‘Technological’ Understanding area identified by Finn and that there was no need to establish it as a separate area in its own right.

Issues in relation to the role of the set of Key Areas of Competence

Distinguishing between the Key Areas of Competence and ‘subjects’

A recurring theme in discussion of the Key Areas of Competence, both around the Committee table and during consultation, has been arguments about whether some of the Key Areas should be regarded as areas in their own right and some should be subsumed within others. This discussion has focused on the areas of Problem Solving and Personal and Interpersonal.

To some extent these arguments arose from attempts to keep the overall number of Key Areas of Competence to a minimum in the interests of simplicity.

The more fundamental basis for these arguments, however, has been differences in interpretation of the concept of a Key Area of Competence and the implications of identifying a set of knowledge and skills as a Key Area of Competence. As has already been noted the Finn Report used the term Key Area of Competence to reflect the breadth and complexity of the competencies under consideration and to emphasise the intention that the notion of competence should be defined broadly. Areas such as Language and Communication or Scientific and Technological Understanding cannot be reduced meaningfully to discrete statements of skills.

In the discussion paper, the Committee took this notion further by proposing that the Key Areas of Competence should be regarded as underpinning the whole curriculum rather than belonging only to particular subject areas. For example, it was argued that while the subject of mathematics provides an important anchor point for the development of competence in Using Mathematics, competence in Using Mathematics is required, and may be developed and demonstrated, across a wide range of subject areas as wide ranging as science, art, social studies and languages.
Nevertheless, there has been a tendency to equate the Key Areas of Competence with subjects or groups of subjects. This is understandable, especially given that four of the areas proposed by Finn (Language and Communication, Mathematics, Scientific and Technological Understanding and Cultural Understanding) can be so readily linked to particular subjects or subject groupings. And it has focused particular attention on Problem Solving and Personal and Interpersonal Skills, which do not sit comfortably with a categorisation around areas of learning. The argument arising from this interpretation was that Problem Solving and Personal and Interpersonal Skills should be subsumed within the other areas because it would be inappropriate for these areas to be treated as distinct areas of learning.

The problem of overlap

The problem of overlap was flagged in the first discussion paper. The initial proposal for the identification of strands in the area of Language and Communication included ‘Working with others one to one’ and ‘Working in a team’. It was argued that interpersonal skills form an essential part of communication and that these strands should therefore be identified within the Language and Communication area. Questions then emerged about whether the Personal and Interpersonal area as whole should be integrated with Language and Communication or whether the Personal and Interpersonal area should be divided, with the ‘Interpersonal’ aspects being integrated with Language and Communication and the ‘Personal’ aspects being identified as a Key Area of Competence in their own right, or whether competencies relating to interpersonal skills should be identified within both the Personal and Interpersonal area and the Language and Communication area.

The discussion paper also indicated the possibility of the issue of overlap emerging in relation to the area of Problem Solving. As work on the identification of strands in each of the Key Areas of Competence proceeded; this problem became more evident. It became apparent that a strand related to problem solving was likely to emerge in each of the Key Areas. It was argued that a comprehensive set of strands for any given area of competence must necessarily include a strand related to problem solving, since this represents one of the most fundamental ways of applying knowledge and skills of an area in an integrated way in work situations. This raised the question of whether the area of Problem Solving would most appropriately be represented as a strand in each of the other areas or whether the problem-solving strands identified in the other areas should be grouped together under the area of Problem Solving.
The role of the Key Areas

It is notable that at no stage in the deliberations over what should constitute the set of Key Areas of Competence has there been any question about the importance of the six areas identified in the Finn Report. There is strong agreement that each is a key area of knowledge and skills underpinning competencies which are essential to effective participation in work situations.

What has been at issue is the capacity of these areas to provide a means of grouping and classifying the Key Competency Strands.

The conclusion reached by the Committee is that the Key Areas do not provide a means of classifying the Key Competency Strands. The integrated and applied nature of the strands means that there is not a simple one-to-one relationship between the strands and the areas. To persist with attempting to use the Key Areas as an overarching classification of the Key Competency Strands was likely to lead to a proliferation of the number of strands in order to represent comprehensively the range of strands associated with each area and to require reaching an uneasy compromise in the allocation of some strands to particular areas in order to overcome what were effectively demarcation disputes.

The direction adopted by the Committee has been to use the Key Areas as the basis for identifying the Key Competency Strands but to then focus on achieving coherence and comprehensiveness across the set of strands rather than to be overly concerned with the ways in which the strands might be classified by reference to the Key Areas from which they were drawn.

Cultural Understanding

The Finn Report suggested the following components of Cultural Understanding as forming essential aspects of employment-related competence.

- Understanding and knowledge of Australia’s historical, geographical and political context
- Understanding of major global issues; e.g. competing environmental, technological and social priorities
- Understanding of the world of work, its importance and requirements

As is evident from this list, each of these expresses a body of knowledge. The Committee has been unanimous in its view that these areas of knowledge form an essential part of employment-related competence. The issue has been to establish an appropriate means of defining competence in this area.

Attempts to identify strands arising specifically from this area have produced three kinds of result:

- the strands were descriptions of a body of knowledge and therefore not consistent with the definition of competence;
- or, in an attempt to express the knowledge in terms of ‘using’ Cultural Understanding:
  - the strands described using cultural understanding at a level of sophistication far exceeding what could be regarded as expectations of young people in the immediate postcompulsory years;
  - the strands described using cultural understanding in ways which were appropriate to specific occupations and industries but lacked generic application.

A second approach which informed attempts to define competence in this area was to identify competencies which are drawn from or shared with other Key Areas of Competence but which also require Cultural Understanding. These included:

- identifying and describing conflicting views and values;
- bringing cultural understanding to bear in analysing problems and proposing solutions;
- communicating information in the area of cultural understanding.
It was noted that each of these is closely related to at least one of the Key Competency Strands already identified from the other areas of competence. The first refers to foundational skills and knowledge underlying competence in Working with others and in teams and Planning and organising activities. The second is an aspect of Solving problems. The third forms a part of Expressing ideas and information. This suggested that Cultural Understanding might more appropriately be defined by the ways in which it underpins all of the Key Competencies rather than as a strand or group of strands in its own right.

The requirement within Expressing ideas and information and Collecting, analysing and organising ideas and information that the needs of the audience be identified implies cultural understanding. Using technology involves substantial cultural understanding in making decisions which are socially responsible and which anticipate secondary effects and in considering safety and environmental implications of the use of technology. Both Working with others and in teams and Planning and organising activities involve extensive knowledge drawn from the area of Cultural Understanding. They clearly require knowledge of the world of work. In addition, they demand a broader understanding of cultures and cultural differences and of forms of human interaction.

It has been concluded that making this underpinning knowledge explicit provides a way of both enriching the Key Competency Strands and demonstrating the significance of Cultural Understanding as a body of knowledge which underpins all aspects of employment-related competence.

Using Mathematics

The identification of strands from the area of Using Mathematics has been refined as a consequence of feedback from consultation and as a result of continuing development.

The four strands proposed initially - 'Evaluating', 'Handling information', 'Planning' and 'Designing' - have been reshaped into one strand - Using mathematical ideas and techniques. While the applied and integrated focus for identification of the strands was supported, the actual strands initially identified drew criticism on the grounds that they varied in scale and because they lent towards representing competence in 'Using' Mathematics to the extent that they lacked sufficient emphasis on the competence itself.

After further analysis, the four strands were reduced to two. 'Evaluating', 'Planning' and 'Designing' were amalgamated into a strand entitled 'Using mathematics to make judgments'. and 'Handling information' evolved into 'Representing and interpreting mathematical ideas'. This development had the effect of compressing the scale of the original strands but did not deal adequately with the issue of whether the the strands struck an appropriate balance between mathematics and its use.

Drawing from research on the application of mathematical knowledge and skills in work situations, a description of the process was constructed upon which to base description of the competency. The process illustrates that in 'real life' situations (such as work tasks and activities), people typically isolate or identify the mathematics required, apply appropriate techniques and ideas and communicate the result(s). That is, the competency is based on being able to 'read' tasks or problems for their mathematical dimensions and to draw upon and apply mathematical techniques. As a result of these deliberations, it was considered that the core of the competency was contained appropriately in a single strand - Using mathematical ideas and techniques, and that the aspects of Using Mathematics involving representing mathematics information should be incorporated where appropriate across other strands in the set of Key Competencies.
Performance Levels

The term 'Performance Level' has replaced the initially proposed 'Performance Standard'.

Number of levels
Factors influencing the Committee's decision to propose three levels of performance included:

- the need for the number of levels to be appropriate to allow for the range of competency requirements identified by industry;
- the need to identify a sufficient number of levels to allow developing competence to be recognised and to provide a stimulus for improvement;
- the need to ensure that the number of levels would be sufficiently few to allow for meaningful distinctions to be made between the descriptions of each of the levels;
- feedback from consultation which indicated support for three levels as providing an appropriate balance between the points made above and being feasible from the point of view of implementation across a very wide range of school and training settings.

Range of levels
The Committee has resolved that the range of levels is to be determined in relation to industry requirements, rather than in terms of the full range of performance that might be demonstrated by young people in the immediate postcompulsory years.

It is expected that the range of levels will mean that, by the end of Year 12 or its equivalent, a significant proportion of young people are likely to achieve Performance Level 3 in some, if not all, of the Key Competency Strands. In other words the highest level will be achievable by most young people.

It is also recognised that some young people undertaking school or training programs during the immediate postcompulsory years may exit from those programs having not yet achieved Performance Level 1 in one or more of the Key Competency Strands. The Committee intends to make recommendations about the structures that will be required to ensure that such young people continue to receive systematic assistance and support to develop the Key Competencies.

Monitoring and review
The Committee's proposals in relation to the number and range of performance levels are based on the understanding the both of these matters will need to be kept under review both during further development and throughout implementation, with the provision for adjustments to be made if appropriate.
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