



National Foundation for Educational Research

# **International Review of Curriculum and Assessment Frameworks**

## **Thematic Probe: the Teaching of Skills in Lower Secondary Education**

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# 1 Introduction

To inform the Qualifications and Curriculum Authority's (QCA's) secondary team in its examination of the teaching of skills in lower secondary level education, the National Foundation for Educational Research in England and Wales (NFER) was commissioned to undertake an international thematic probe. This probe looks specifically at the equivalent phase to key stage 3 in England (ages 11-14) in Queensland (Australia), France, Germany, Ireland, the Netherlands, New Zealand, Northern Ireland, Norway, Poland, Singapore, Slovenia and Wisconsin (USA).

Wherever possible, data is sourced from the International Review of Curriculum and Assessment Frameworks (INCA) Internet Archive ([www.inca.org.uk](http://www.inca.org.uk)), supplemented for Norway, Poland and Slovenia by information extracted from the Eurydice Network's Eurybase database.<sup>1</sup> Any additional materials are endnote referenced.

The probe seeks to answer the following questions:

- What place do skills have within the curriculum and how do policies encourage the development of these skills?
- Are skills taught separately, or embedded within subjects, or both?

The data which follows is set out in the form of individual country profiles to a common format wherever possible.

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<sup>1</sup> [http://www.eurydice.org/Eurybase/frameset\\_eurybase.html](http://www.eurydice.org/Eurybase/frameset_eurybase.html)

## **2 Australia, Queensland**

### **2.1 Contextual data**

In Queensland, the equivalent to key stage 3 phase education in England (11- to 14-year-olds) is mostly provided in primary phase education, which covers Years 1-7 (six- to 13-year-olds). The compulsory lower secondary phase in Queensland covers Years 8-10 (13+- to 16-year-olds).

The period between Years 4-9 (ages nine to 15) is often referred to as the Middle Phase of Learning<sup>i</sup>.

### **2.2 Curriculum overview**

Australia does not have a national curriculum for its schools. Each State/Territory has sole constitutional responsibility for the curriculum of its publicly funded schools. However, there is general support for national collaboration in the curriculum and for an essential curriculum framework based on national 'Statements' and 'Profiles' for eight broad 'Key Learning Areas' (the arts, English, health and physical education (HPE), languages other than English (LOTE), mathematics, science, studies of society and the environment (SOSE), and technology).

Statements and Profiles provide a common basis for curriculum development, which can be used in conjunction with school and system policies and serve as a reference point for the design of resource materials for schools, including materials for professional development.

Queensland has also recently completed the implementation of a curriculum research trial which began in January 2001. Entitled the 'New Basics', the trial involved 38 schools in piloting four new curriculum clusters - life pathways and social futures; multiliteracies and communications media; active citizenship; and environments and technologies - as 'organisers of the curriculum'<sup>ii</sup>.<sup>2</sup>

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<sup>2</sup> With the trial recently completed, 56 schools currently offer programmes based on the New Basics framework. <http://education.qld.gov.au/corporate/newbasics/>

## 2.3 The place of skills

Skills are integrated within the Queensland curriculum in all phases of education. At all levels, communication and employment skills are emphasised. During the compulsory phase (six- to 16-year-olds), there are cross-curricular priorities. In the primary phase (six- to 13-year-olds) literacy and numeracy are regarded as particular key skills, and in lower secondary education (13- to 16-year-olds) a list of six key skills are identified.

### Communication skills

Communication skills are regarded as important all levels of education:

*To participate effectively in the global village as well as in the ever-increasing number of cosmopolitan pockets in Australia requires skills of communicating across different cultural and language groups. This requires an understanding of, and basic means for, communicating with people from many communities and cultures - local and global, face-to-face, in selected languages, and with sensitivity to their needs and practices<sup>iii</sup>.*

### Employment skills

The national government also draws close links between skills and employability:

*In earlier economic times, schools provided skills and credentials that were readily translatable into options for employment or further study. Students currently confront complex risky pathways to such desired outcomes...Knowing how to find or create meaningful and gainful work and how to identify opportunities for self-development have also become important skills in new times<sup>iv</sup>.*

In 1992, a government-sponsored commission also identified the following 'key competencies', applicable to all levels of education, for effective participation in work:

- the ability to collect, analyse and organise information
- the ability to communicate ideas and information
- the ability to plan and organise own activities
- the ability to work effectively with others and in teams
- the ability to use mathematical ideas and techniques
- the ability to solve problems
- the ability to use technology.

Most recently (2005), the national government Department for Education, Science and Training launched a Directions Paper entitled *Skilling Australia: New Directions*

*for Vocational Education and Training* which introduces a National Skills Framework focusing on skills to meet current and emerging industry needs<sup>v</sup>.

### **Cross-curricular priorities (six- to 16-year-olds)**

**Literacy, numeracy, lifeskills** and a **futures perspective** are all cross-curricular priorities for Years 1-10 (six to 16-year-olds)<sup>vi</sup>.

**Literacy** is defined as the social practice of applying a system of language. The term relates to capacities with reading, writing, viewing, spelling, speaking and listening.

Literacy involves:

- understanding and using the codes and symbols that are part of language and literacy
- understanding and using the various modes for communication such as books, letters, electronic mail, complex logs and signs, traditional and modern art forms, electronic and print media, and the internet
- understanding and using the many meanings that messages may convey such as interpreting messages with several possible meanings, either overtly or covertly represented<sup>vii</sup>.

**Numeracy** is defined as the manifestation of practices and dispositions that accurately, efficiently and appropriately meet the demands of typical everyday situations involving number, space, measurement and data. In addition to basic arithmetic skills, numeracy involves:

- making sense of commonly occurring situations that involve aspects of mathematics (shopping, budgeting, drawing/modelling, visualising how things fit, estimating numbers/time/distance/mass)
- using mathematical knowledge in practical, everyday situations
- applying mathematics knowledge in a range of situations that occur in school, out of school, in leisure activities, and within all learning situations
- identifying how mathematical knowledge can be useful in daily experiences<sup>viii</sup>.

**Lifeskills** are founded on an assumption that there are at least four interrelated and interdependent life roles that are fundamental to the life situations and experiences of people. The life roles are identified as:

- growing and developing as an individual
- living with and relating to other people
- managing resources
- receiving from and contributing to local, state, national and global communities.

It is possible to identify at least four sets of lifeskills with particular knowledge, practices and dispositions associated with the four life roles identified above. These are:

- personal development skills
- social skills
- self-management skills
- citizenship skills<sup>ix</sup>.

A **futures perspective** is defined as one that involves learners developing and demonstrating knowledge, practices and dispositions that lead to the identification of possible, probable and preferred individual and shared futures. A futures perspective leads to thinking ahead about the roles of individuals and groups in envisioning and enacting preferred futures. Students develop insights and knowledge about the past and present that lead to considerations of the consequences of previous and future personal and collective actions. Futures concepts provide a basis for thinking and taking responsibility for decisions and actions. The purpose of a futures perspective in education is to gain knowledge and an understanding of alternatives. Rather than drift passively into a period of rapid change, or ‘prepare students for the future’, a futures perspective leads to considering where we might go and how this might be achieved. Knowledge of the future is interpretive rather than empirical knowledge. The central purpose of futures studies is not to predict but to understand the consequences of pursuing options. A futures perspective in the curriculum allows students to make new connections about the things they are learning<sup>x</sup>.

### **Primary phase (six- to 13-year-olds)**

Literacy and numeracy are regarded as particular key skills during the primary phase of education. The national government, which defines them as core skills that are essential pre-conditions for economic success in society, is of the opinion that there is

a causal relationship between the acquisition of these key skills and successful progress through schooling. It has consequently promised to ensure 100 per cent literacy among all eight-year-olds by the end of 2005 and, in the new National Goals for Schooling in the Twenty-First Century emphasises the skills of literacy and numeracy, alongside the ability to be enterprising, flexible and adaptable, and to acquire knowledge in the eight Key Learning Areas (the arts, English, health and physical education, languages other than English, mathematics, science, studies of society and the environment, and technology).<sup>xi</sup>

### **Lower secondary (13- to 16-year-olds)**

The six key skills specifically identified for compulsory lower secondary education (13- to 16-year-olds) are:

- language and communication
- mathematics
- scientific and technological understanding
- cultural understanding
- problem solving
- personal and interpersonal characteristics.

## **2.4 Teaching of skills**

The cross-curricular priorities of literacy, numeracy, lifeskills and a futures perspective are common features of the Key Learning Area syllabuses. Work education is also identified as a priority.

*Learning in all Key Learning Areas contributes to cross-curricular priorities, and learning in cross-curricular priorities contributes to each Key Learning Area<sup>xii</sup>.*

Skills are not viewed as components of only certain school subjects or Key Learning Areas, but as essential elements of an overall process of developing a set of strategies to use for personal life pathways. Literacy and numeracy are not stand-alone activities or skills: they are integrated with one another and with new repertoires of practice<sup>xiii</sup>.

Syllabuses and syllabus materials support the interpretation of learning outcomes in cross-curricular priorities (literacy, numeracy, lifeskills and futures perspective)<sup>xiv</sup>.

## 3 France

### 3.1 Contextual data

In France, the equivalent to key stage 3 phase education in England (11- to 14-year-olds) is provided in the compulsory lower secondary education phase in four-year *collèges*, catering for 11- to 15-year-olds (Years 6 to 9). The direct equivalent to key stage 3 is consequently provided in the first three years of this phase in year groups/classes known as the *sixième* (11- to 12-year-olds), *cinquième* (12-13) and *quatrième* (13-14) respectively. (The final year of the *collège*, catering for 14- to 15-year-olds is known as the *troisième*. Education is compulsory until the age of 16. Students therefore continue in education for at least one full year after *collège*, usually attending the *seconde* class in a *lycée* (15- to 16-year-olds).

*Collèges* are local authority public sector comprehensive schools with legal and financial autonomy. The education provided is free, co-educational and secular. They are organised and administered at local level by the *départements* (smaller administrative areas within the 22 *régions*).

### 3.2 Curriculum overview

France has central, state control of the curriculum. The statutory national curriculum applies to primary school education (six- to 11-year-olds), compulsory lower secondary education in *collèges* (11- to 15-year-olds) and the compulsory initial year of *lycée* (upper secondary) education for students aged 15 to 16 years.

In general, the compulsory national curriculum during lower secondary education comprises: French; mathematics; modern foreign languages; history/geography; civics; life and earth sciences (physics, chemistry, biology, geology, economics); technology; arts education (music and art); and sport and physical education. Religion is not taught as a specific subject in schools although it may be covered in other curriculum areas.

Not all subjects are taught in all four years of lower secondary education and time allocation/emphasis varies dependent on the specific year group or, in the final year of

lower secondary education (14- to 15-year-olds in the *troisième*), on the branch of study selected (language or technology).

New, simplified curricula for the various classes in the *collège* were introduced between 1996 and 1999/2000. Priority was given to the fundamentals of learning such as literacy and numeracy.

The curriculum in the *sixième* (11- to 12-year-olds) comprises: French; mathematics; history, geography and civics; life and earth sciences; technology; arts education (which includes music); a modern foreign language; and sport and physical education. The curriculum for the *cinquième* (12- to 13-year-olds) and for the *quatrième* (13-14) is essentially the same, with the addition of physics and chemistry. The curriculum for the *troisième* (14- to 15-year-olds) comprises: French; mathematics; first modern foreign language; history and geography; economics; civics; technology; physics and chemistry; biology or biology and geology; arts (and music) education; and sport and physical education.

### **3.3 The place of skills**

The main aim of (lower and upper) secondary education is stated as being to ensure that 80 per cent of an age group (cohort) reaches upper secondary leaving certificate (*Baccalauréat*) level (at around age 18) via general, technological or vocational studies, and that all others reach *CAP* (professional aptitude certificate) or vocational diploma level.

The purpose of compulsory education is to provide students with a general education which enables them to gain basic knowledge and skills and cultural awareness. This also entails the development of their personality and the promotion of their socialisation and understanding of the contemporary world. The aim is that all students should gain the necessary reference points to enable them to exercise citizenship and make informed choices required for their future passage into society and work.

The key aims of lower secondary education in the *collège* are stated as being to consolidate learning gained in the *école élémentaire* (primary school), to perfect the

use of the mother tongue, and to prepare students for upper secondary education. Three main objectives (key skills) permeate the curriculum during this phase. These are:

- mastery of language (mother tongue)
- the successful acquisition of working methods - that is, learning how to learn (explained within the framework of each subject, but extending from one subject to the others)
- successful civic and cultural education aimed at forming the educated person and citizen for the modern world.

Education in France is also generally expected to develop a

*taste for creating, taking part in cultural and artistic activities, participation in local life and in physical and sporting activity.*

Legislation passed in 1993 concerning work, employment, and vocational training recognises the particular responsibility of the national education system to promote integration into working life, and establishes the principle that

*every young person must be given the opportunity to take up vocational training before he or she leaves the education system, regardless of the level of education he or she has completed.*

Reforms of the lower secondary curriculum, introduced since 2001, have included the introduction of:

- multi-disciplinary studies for the two middle years of the *collège* (the *cinquième* and the *quatrième*, 12- to 14-year-olds) around the themes of nature and the human body, arts and humanities, languages and civilisations, and design and technical studies
- vocationally oriented options to complement the core curriculum for final year *collège* students (14- to 15-year-olds in the *troisième*).

### **3.4 Teaching of skills**

*Collèges* have the duty of providing students with a general education, which enables them to acquire fundamental knowledge and skills, and prepares them for the education and training opportunities available to them at the end of the *troisième* (aged around 15). *Collèges* are also expected to use varied and appropriate teaching methods to achieve these aims.

Recently announced reforms<sup>xv</sup> aim to provide ‘a common base of skills’ for all. The aim is that all children will have to master a common base of French, mathematics, computer techniques and a foreign language, and have a basic understanding of the environment and citizenship. While the skills of literacy and numeracy are taught in discrete subject areas, other skills are embedded across the curriculum.

### **Literacy and numeracy**

Extra help is provided for students having difficulties with literacy and numeracy in the first two years of *college* (11- to 13-year-olds). This extra assistance looks set to increase under current reform plans.<sup>xvi</sup>

### **Civics**

Civics and citizenship education have long been a key feature of the education system in France, teaching students about values such as equality, democracy, rights and duties. Revised guidelines and a revised syllabus for lower secondary level civic education (11- to 15-year-olds) were introduced in 1996. The main themes include: the individual contrasted with the citizen; equality, solidarity and security; freedom, rights and justice; and the citizen and the republic. Lessons include the Declaration of Human Rights, appropriate behaviour at home and school, moral and ethical issues, and acting responsibly. In addition, other subjects, such as history, are expected to contribute to the teaching of civics; and in science, for example, students are expected to learn about man's influence on the environment.

### **Information and communication technology (ICT)**

The widespread use of ICT in all schools is one of the priorities of French education policy. ICT is not intended to be taught as a separate subject in France. It is felt that ICT should permeate all subjects, rather than be taught as a subject in its own right. It is also intended to be used as a tool for the teaching of all subjects.

A new optional ICT qualification was introduced in 2000. Known as the *brevet informatique et internet* (*B2i*, the Information and Internet Certificate), this qualification validates skills such as reading and producing documents electronically, and using the Internet for research, which are acquired by students in primary and lower secondary education.

## **Language skills**

All students must study a foreign language throughout *collège* (aged 11-15) (a compulsory foreign language is introduced in the final year of primary level education (10- to 11-year-olds), and the government encourages the earlier introduction of foreign language learning wherever possible).

## **Vocational skills**

One of the priorities of the current administration is to introduce vocational education across the curriculum in *collèges*. The aim is to provide those studying in *collège* with improved information on vocational education, and to do so earlier in a student's *collège* career, most notably offering students a 'mini' trial period in a vocational *lycée* (*lycées* cater for students aged 15+ on completion of *collège*) and presenting the alternative courses.

## **Class hours**

Since September 1999, one hour of the timetable every two weeks in all *collège* year groups (*sixième*, *cinquième*, *quatrième* and *troisième*) has been devoted to a 'class' session. The aim of this hour is to discuss matters specific to school life and to allow students to express their opinion on them; to discuss other matters which might affect students and society; and to enable students to learn to respect the opinions of others. In the *troisième* (the final year of *collège* education, students aged 14-15), discussion during this hour focuses particularly on students' future (career) aspirations.

## **Specialist *collège* options**

Some *collèges* offer specialist tuition in specific skills.

*Collèges* with sports sections offer gifted students physical training required to practise their sport at a high level.

*Collèges* with bilingual sections (French/German, French/English, French/Spanish, French/Italian, French/Russian and French/Portuguese) are characterised by more intensive practice in the language (extra hours of modern language teaching in addition to the mandatory hours) and progressive teaching in the section language in

one of the following subjects: art, music, physical education and sport, and technology.

*Collèges* with international sections (French/English, French/American, French/German, French/Italian, French/Spanish, French/Portuguese, French/Swedish and French/Dutch) aim to facilitate the integration of foreign students into the French education system, and to train French students in the advanced practice of a foreign language, particularly by using the language in the teaching of some subjects.

*Collèges* with European sections aim to offer students in secondary education additional training in a European language, in order to bring them to a very high standard and to teach them about the culture of the country or countries in which the language is spoken.

## 4 Germany

### 4.1 Contextual data

In Germany, the equivalent to key stage 3 phase education in England (11- to 14-year-olds) is provided in the lower secondary education phase (*Sekundarstufe I*). This caters for 10- to 15/16-year-olds or 12- to 15/16-year-olds (in school Years 5/7 to 10) dependent on the *Land* (state).

Various types of school exist for this phase, again dependent on the *Land*. The principle underlying the different schools and their courses is to provide students with a basic general compulsory education, along with an element of individual specialism according to their performance and interests. Most students attend a *Hauptschule*, *Realschule*, *Gymnasium* or *Gesamtschule* (comprehensive school). There are *Gesamtschulen* in all states, but only a few in some.

The essential characteristics of the school types are:

- *Hauptschule* – offers basic general education and preparation for the world of work
- *Realschule* – offers more extensive general education and vocational courses.
- *Gymnasium* – offers more intensive general/academic education
- *Gesamtschule* – comprehensive school, combining the other three types<sup>xvii</sup>.

There is some scope – particularly in the initial year of lower secondary education – for students to transfer between different types of school. Indeed, in some *Länder* (federal states) Years 5 to 6 of compulsory education (10- to 12-year-olds) are specifically organised as an orientation phase (*Erprobungsstufe*), and the specific choice of secondary school is left open until the end of Year 6 (age 12). In some *Länder* this orientation phase is organised in a separate organisational unit, and lower secondary education begins in Year 7 (age 12+).

## **4.2 Curriculum overview**

In most *Länder*, the statutory curriculum includes: German; mathematics; social studies; history; geography; biology; physics; chemistry; art; music; sport; religion; and modern foreign languages.

Agreements reached between the Ministers of Education and Cultural Affairs of the 16 *Länder* require certain core subjects to be studied in lower secondary education (although individual *Länder* themselves are specifically responsible for development and implementation of individual *Land* curricula). German, mathematics, one foreign language (usually English), natural and social sciences, music, art, and sport, at the very least, are among the compulsory or elective subjects offered, but actual subjects offered and subject emphasis differs according to school type. For example, a second foreign language is mandatory in Years 7 to 10 of the *Gymnasium* (12- to 16-year-olds), whereas in the other school types a second foreign language may be offered as an option. An introduction to the professional and working world is a compulsory component of every course of lower secondary education, whether provided as a special subject (*Arbeitslehre*, pre-vocational studies) or as part of the material covered in other subjects. Religious education is a compulsory subject in almost every *Land*.

Table 1 (overleaf) summarises the subjects studied in each type of school.

## **4.3 The place of skills**

The study of German, at least one modern foreign language and mathematics is regarded as key in the compulsory full-time lower secondary phase. Students are also expected to acquire key skills for future study, training or work. Information and communications technology is also given particular emphasis.

**Table 1**

<i>Hauptschule</i>	<i>Realschule</i>	<i>Gymnasium</i>
German	German	German
One foreign language	One foreign language	Two foreign languages
Mathematics	Mathematics	Mathematics
Physics/Chemistry	Physics	Physics
	Chemistry	Chemistry
Biology	Biology	Biology
Geography	Geography	Geography
History	History	History
Pre-vocational studies ( <i>Arbeitslehre</i> )		
Social studies	Politics	Politics
Music	Music	Music
Art	Art	Art
Sport	Sport	Sport
Religious education	Religious education	Religious education
In some <i>Länder</i> : Domestic science Economics	From year 7/8 (age 12+), compulsory optional subjects, 3-6 hours per week, for example, a second foreign language	From year 9/10 (age 15+), compulsory optional subjects for 3-4 hours per week, for example, a third foreign language, further mathematics, natural sciences, artistic subjects.

#### **4.4 Teaching of skills**

Skills are taught within specific subject areas, for example, mathematics or German, as well as being embedded across the curriculum.

The main role of compulsory, full-time lower secondary education in Germany is that of preparing students for upper secondary education, as all students have to progress to, at least part-time, upper secondary schooling of some form.

Although education is, essentially, a *Land* (federal state) responsibility, common principles for lower secondary education have been laid down by the Standing Conference of the Ministers of Education and Cultural Affairs of the 16 *Länder*. These encompass provision of a general education, individual specialisation and encouraging students according to their abilities. Lower secondary schools are expected to achieve these goals by:

- furthering the overall intellectual, emotional and physical development of students, teaching them to be independent, make decisions and bear their share of personal, social and political responsibility
- providing instruction based on the latest academic knowledge that takes the individual's age-related conceptual faculties into account in its organisation and in the demands made upon him/her
- gradually increasing the degree of specialisation in line with each student's abilities and inclinations
- maintaining an open system of free interchange that affords opportunities to switch to a different course of education after an orientation stage<sup>xviii</sup>.

The results of international student assessment surveys have recently been taken into consideration in the process of revising the curricula of the various types of schools in the lower secondary phase in Germany. In most *Länder* the revision focused on the following main areas:

- definition of compulsory key areas of learning
- development of nationally binding educational standards that determine the capabilities, skills and knowledge students should be equipped with at certain points in their school career
- scope for measures to motivate students and inspire problem-solving thought processes/thinking skills
- in the *Hauptschule*: acquisition of basic competencies in German and mathematics, practical orientation and promotion of social competence<sup>xix</sup>.

Individual *Länder* are responsible for teaching in the lower secondary phase. The prescribed curricula include guidelines on the treatment of the various topics of instruction, distribution of materials and various pedagogical approaches. Of increasing importance is the interdisciplinary coordination of material taught and teaching objectives, as well as interdisciplinary activities in such areas as health education, vocational orientation, computer literacy, environmental education and the treatment of European topics<sup>xx</sup>.

## Employment skills

An introduction to the professional and working world is a compulsory component of all courses of education at lower secondary level. The instruction is given either as a separate subject *Arbeitslehre* (pre-vocational studies) or as part of the material covered in other subjects (cross-curricular). Work experience placements, especially for students in the final two years of *Hauptschule* and *Realschule* aim to provide first-hand insight into the working world and guidance in choosing an occupation. The *Länder* have continuously developed their activities in order to convey a basic knowledge of the world of business and commerce. This has also taken place outside of lessons, for example, via model businesses set up by students (*Schülerfirmen*), information about entrepreneurial independence or cooperation projects between schools and the world of business and commerce<sup>xxi</sup>.

## **5 Ireland**

### **5.1 Contextual data**

In Ireland, the equivalent to key stage 3 phase education in England (11- to 14-year-olds) is provided in second-level or post-primary education in the junior cycle (12- to 15-year-olds). The second-level sector comprises secondary schools, vocational schools, community schools and comprehensive schools.

The senior cycle of second-level education (15- to 17/18-year-olds) includes the two or three years of post-compulsory secondary education in school following the junior cycle. Students in post-compulsory senior cycle education are either following a one-year Transition Year programme or one of three types of two-year Leaving Certificate programme: the established Leaving Certificate, the Leaving Certificate Vocational Programme (LCVP), or the Leaving Certificate Applied (LCA).

### **5.2 Curriculum overview**

Students spend three years in the junior cycle of second-level schools (aged 12 to 15). They follow the Junior Certificate course, the purpose of which is to provide a well-balanced, general education. The core curriculum for the junior cycle in all second-level schools includes Irish; English; mathematics; civic, social and political education (CSPE); and social, personal and health education (SPHE). Physical education should also form part of the curriculum. Within these curriculum areas, 26 individual subjects are approved for the junior cycle curriculum, from which schools offer a selection to students.

### **5.3 The place of skills**

Skills are present in all phases of Ireland's compulsory and post-compulsory curriculum. In the junior cycle (12- to 15-year-olds), skills form part of the aims and outcomes of the curriculum. There are also plans to include recommended key skills as part of the curriculum. In the primary phase (ages four to 12), principal skills for development are identified for each subject at each class level. At the post-compulsory level, skills generally prepare students for the world of work.

## **Junior cycle (12- to 15-year-olds)**

The aims of the junior cycle reference a number of skills, including to:

- reinforce and further develop in the young person the knowledge, understanding, attitudes, skills and competencies acquired at primary level
- extend and deepen the range and quality of the young person's educational experience in terms of knowledge understanding, skills and competencies...

As do the intended outcomes:

- competence in literacy, numeracy and spoken language skills which will allow them to participate as young adults in society...
- competence and understanding in practical skills, including computer literacy and information technology<sup>xxii</sup>.

Key skills are currently under consultation and review as part of an overall review of junior cycle education. A consultative list of recommended key skills for junior cycle education has been produced under eight headings:

- communication and literacy skills
- numeracy skills
- manipulative skills
- information technology (IT) skills
- thinking and learning skills
- problem solving skills
- personal and interpersonal skills
- social skills.

## **Primary phase (ages four+ to 12)**

Within the curriculum framework, principal skills for development are identified for each subject at each class level. These skills vary between subjects and class levels.

For mathematics, for example, for all primary school children, they comprise:

- applying and problem-solving
- communicating and expressing
- integrating and connecting
- reasoning
- implementing, and
- understanding and recalling.

In science (part of social, environmental and scientific education SESE), children in Years 3 to 6 (eight- to 12-year-olds) are expected to develop the skills of:

- questioning
- observing
- predicting
- investigating and experimenting
- estimating and measuring
- analysing (includes sorting and classifying; recognising patterns; interpreting)
- recording and communicating.

### **Senior cycle (15- to 17/18-year-olds)**

Skills feature highly in the post-compulsory senior cycle Transition Year programme.

The programme has three aims, the second of which is:

*.....the promotion of general, technical and academic skills with an emphasis on interdisciplinary and self directed learning<sup>xxiii</sup>.*

Skills are also a feature of the ‘Contract of Learning’ in the senior cycle programme:

*Signing this contract is a mark of your commitment to the success of your Transition Year. From the staff’s point of view it represents our commitment to treat Transition Year students as young adults participating in a course which we have planned with the goals of developing greater maturity, relevant skills and an orientation to the working world<sup>xxiv</sup>.*

## **5.4 Teaching of skills**

Skills are taught in different ways in the different phases of education in Ireland.

### **Junior cycle (12- to 15-year-olds)**

As part of the junior cycle review, it is not proposed that key skills should be considered an addition to the curriculum, nor that they should be developed in isolation by means of special modules or courses, rather that they should be developed across the whole curriculum, in context, and to the best of each student's ability.

### **Primary phase (ages four+ to 12)**

At the primary level, the curriculum envisages a particular relationship between the acquisition of knowledge and the development of concepts, skills and attitudes. Concepts and skills are outlined at each class level and their development is approached through the exploration of the content of the curriculum. Strong emphasis is placed on the ability to question, to analyse, to investigate, to think critically, to solve problems and to interact effectively with others.

## **Transition Year (15- to 16-year-olds)**

The Transition year aims to provide an opportunity for students to experience a wide range of educational inputs, life skills and work experience at a remove from the examination focus<sup>xxv</sup>.

## 6 The Netherlands

### 6.1 Contextual data

In the Netherlands, the equivalent to key stage 3 phase education in England (11- to 14-year-olds) is provided in the last year of primary education (Year 8, 11- to 12-year-olds) and the first two years of secondary education (Years 9 and 10, 12- to 14-year-olds). Secondary education is divided into two cycles: the first or foundation cycle (lower secondary phase) is common to all school types and the second cycle (upper secondary phase) specifically prepares students for differentiated terminal examinations. The lower secondary phase covers three years (Years 9-11, 12- to 15-year-olds). It provides three years of basis secondary education (*basisvorming*) during which students study the same broad range of subjects.

### 6.2 Curriculum overview

The curriculum in compulsory lower secondary education (12- to 15-year-olds) is a three-year foundation course known as *basisvorming*, offering broad-based general teaching in which no strict distinction is made between general and technical subjects. *Basisvorming* builds on the primary school curriculum and comprises 15 compulsory subjects: Dutch; English language; second foreign language (usually French or German); mathematics; biology; physics and chemistry; IT studies; history and politics; geography; economics; technology; life skills; physical education and at least two of: visual arts, music, drama, or dance. Computer skills are included in the core objectives for nearly all subjects.

### 6.3 The place of skills

#### Primary education (four/five- to 11/12-year-olds)

The core objectives of the primary curriculum include cross-curricular objectives aimed at securing a broad development on the part of students, including their emotional and intellectual development, their creativity and the development of social, cultural and physical skills. Knowledge and skills in the field of cognitive, cultural and physical development are readily expressed in subject-specific objectives. However, there are also objectives which aim at the development or promotion of

study skills and attitudes, and at the transfer of norms and values which are generally accepted in Dutch society. Thus, cross-curricular objectives are grouped around the following themes: attitude to work; working to a plan; use of diverse learning strategies; self image; social behaviour; and new media.

In addition, schools are expected to equip students with the skills and understanding they will need in modern society, and to pay particular attention to the fact that there are many people living in the Netherlands whose roots lie in a different country and who may be used to a very different way of life. Children are therefore expected to learn to respect the origin and customs of other people.

### **Lower secondary education (12/13- to 15/16-year-olds)**

The Secondary Education Act of 1968 intends public sector secondary schools to promote the general development of students by helping them to acquire knowledge, insight and skills, and to contribute to their upbringing on the basis of values acknowledged, notably by Christianity and humanism, as part of the Dutch tradition. The aim of the *basisvorming* curriculum is to defer specialisation, to improve students' cognitive levels, to reduce drop-out rates and to enhance equality of opportunity in secondary education.

Skills are included in the core objectives for nearly all subjects in the *basisvorming*.

The aim is:

- to emphasise greater internal consistency, more explicit cohesion between clusters of related subjects, a separate set of objectives for key skills, explicit emphasis on the competence-led nature of the *basisvorming*, explicit attention to cross-curricular dimensions such as equal opportunities and environmental education, and coherence between the primary, secondary and subsequent phases of education
- to reflect social changes and the desirable characteristics of secondary education, namely to achieve the broad education and development of all students
- to foster independent and active learning
- to provide differentiated education according to student needs, and
- to maintain maximum continuity between existing and revised objectives.

## 6.4 Teaching of skills

### Primary education (four/five- to 11/12-year-olds)

In addition to subject specific skills, personal and learning skills are taught across the curriculum. They are focused on the following themes:

- **attitude to work** – children should be taught to take an interest in the world around them and be motivated to explore it. They should ask focused questions; look up relevant information and use it; enjoy learning new things; and not give up if they do not succeed immediately
- **working according to a plan** – children should be taught to draw up a plan and act according to it by: formulating a goal; orienting themselves on a subject; understanding what the causes and effects are in simple problems and drawing conclusions from this; organising and working out larger activities step-by-step; judging afterwards if their plan was good; and presenting the outcomes of their work by giving an explanation, or a talk, or by providing a piece of work, or making a display
- **using a diversity of learning strategies** – when carrying out learning activities, children should be able to use a diversity of strategies and skills, such as: asking people focused questions; distinguishing facts from opinions; looking up and processing relevant information from sources including dictionaries, atlases, and registers; working together, discussing things with each other and arriving at a common solution; and judging afterwards if their strategy was a good one
- **self-image** – children should learn to handle the possibilities and limits of their own capabilities by demonstrating self-confidence; controlling their behavioural impulses; and being able to stand up for themselves
- **social behaviour** – children should make a positive contribution to a group by: treating others respectfully; behaving according to generally accepted standards and values; respecting differences in (religious) convictions and cultures; daring to speak out in a group; respecting other people's feelings and wishes; daring to support a person with a different point of view in a group; and taking responsibility for tasks to be carried out
- **new media** – children should make responsible and purposeful use of means of communication including new media by: producing and editing text making use of word processing tools on a computer; having a general idea of the possibilities of (digital) information media; and using digital learning resources by making use of a computer.

Of course, some of the above cross-curricular objectives overlap with each other and with some of the attainment targets of the core subject areas for primary education.

## **Lower secondary education (12/13- to 15/16-year-olds)**

In addition to subject specific skills, there are six general cross-curricular objectives, which include:

- cross-disciplinary themes (providing insight into immediate personal environment and the wider social environment)
- learning to do (developing scholastic skills, making use of information and communications technology)
- learning to learn (learning strategies to improve the learning process, making use of information and communications technology)
- learning to communicate (developing social and communicative skills, on an interactive basis)
- learning to reflect on the learning process (analysing and controlling the learning process)
- learning to reflect on the future (analysing options for future interests and prospects).

## **7 New Zealand**

### **7.1 Contextual data**

In New Zealand, the equivalent to key stage 3 phase education in England (11- to 14-year-olds) is provided either in a separate intermediate/middle school for 11- to 12-year-olds and 12-to 13-year-olds (Years 7 and 8, Forms 1 and 2), or in a primary, secondary, or composite/area (all-through) school (for five- to 18-year-olds).

Where intermediate/middle schools or composite schools do not exist, primary schools provide the first level of compulsory education, usually catering either for five- to 11/12-year-olds (Years 1-7) or five- to 13/14-year-olds (Years 1-9). Secondary schools cater for 11/12- or 13/14-year-olds until they leave school, usually at around age 18 on completion of Year 13.

### **7.2 Curriculum overview**

Coverage of the seven essential learning areas and the eight groups of essential skills is compulsory during the ten years of statutory primary and lower secondary education.<sup>3</sup> This is to ensure a broad and balanced education. The essential learning areas are broad, recognisable categories of knowledge and understanding. They provide the context within which the essential skills, attitudes, and values are developed. The seven compulsory essential learning areas are: language and languages; mathematics; science; technology; social sciences (may be further broken down into subjects such as social studies, history, geography and economics); the arts (includes the individual disciplines of dance, drama, music and the visual arts); and health and physical well-being. Other important areas of study, such as the environment, and culture and heritage, are included in a number of the essential learning areas.

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<sup>3</sup> Education is compulsory between the ages of six and 16 years, although most children start school at age five, which is regarded as Year 1 for the purposes of this overview.

## **7.3 The place of skills**

### **Essential skills**

The New Zealand Curriculum currently specifies 57 essential skills, in eight groupings, to be developed by all students across the whole curriculum throughout the years of schooling<sup>xxvi</sup>. These categories encompass other important groups of skills, such as creative skills, valuing skills, and practical life skills. The eight groupings of essential skills are:

- communication skills
- numeracy skills
- information skills
- problem-solving skills
- self-management and competitive skills
- social and cooperative skills
- physical skills
- work and study skills.

All the essential skills are regarded as important for students to achieve their potential and to participate fully in society, including the world of work. The categories into which the essential skills are divided are intended simply as convenient labels for grouping them and the skills and attributes which the Ministry of Education believes students need to develop. It is understood that skills cannot be developed in isolation, but through the essential learning areas and in different contexts across the curriculum. It is intended that the curriculum should challenge all students to succeed to the best of their ability, and that consequently individual students will develop the essential skills to different degrees and at different rates.

### **2003 Curriculum stocktake**

As a result of the Curriculum Stocktake completed in 2003, five new groupings of essential skills have been proposed to replace the current eight. The new skills would be:

- creative and innovative thinking
- participation and contribution
- relating to others
- reflecting on learning and the development of self-knowledge
- making meaning.

The rationale behind the proposed change is that:

- a reduction in the number of essential skills may give a clearer sense of priorities
- the skills stated as needed for participation in a knowledge society, lifelong learning and by employers fall into the following categories: critical thinking and creative thinking skills, local and global citizenship skills, interpersonal skills and intrapersonal skills, and literacy
- a common argument in current literature is that skills should be embedded in domain specific knowledge and not taught in isolation
- literature also suggests that skills require students to use a skill, be discerning about how and when to use a skill, and willing to use the skill and apply a skill in a variety of contexts
- many of the existing essential skills could be incorporated within these groupings. While other skills can be incorporated into school curricula, these skills and attitudes could be the priorities for all New Zealand students
- there are similarities between these skills and the strands of wellbeing, belonging, contribution, communication, and exploration of the New Zealand curriculum framework
- attitudes and values have the potential to aid the effectiveness of the curriculum by strengthening social cohesion, developing a stronger sense of civics, citizenship and more enterprising attitudes, and fostering a culture of innovation, respect for others and critical thinking
- sector feedback has criticised the curriculum statements (except for health and physical education) for giving insufficient attention to values and not providing clear expectations of what schools should do to promote and support community values
- PISA (2000) data indicates that changes to the psychosocial environment of classrooms are likely to affect student achievement in New Zealand
- literature on the education of gifted and talented students highlights the importance of values and affective components in differentiated curricula for these students
- current international thinking favours an eclectic approach to values education<sup>xxvii</sup>.

## **Literacy and numeracy**

Linked to the government's objective of raising overall achievement and closing the gap between the lowest and highest achievers, particularly in mathematics and English, a literacy and numeracy strategy is also in place in New Zealand. This aims to ensure that, by providing all children with the best possible teaching in their first four years at school (aged five onwards), the government will achieve its goal that, by 2005, every child reaching the age of nine will be able to read, write and do mathematics for success. The National Administration Guidelines were modified in 1999 to reflect the recommendation that, although the requirement for schools to

provide a broad curriculum should continue, schools providing the early years of compulsory education should focus on achievement in literacy and numeracy.

## **7.4 Teaching of skills**

The curriculum framework is often described as a matrix, with the essential skills being woven through all the essential learning areas (language and languages; mathematics; science; technology; social sciences; the arts; and health and physical well-being).

Skills are assessed at classroom level through essential skills tests, which are *rich formative assessment tasks to assess knowledge, skills, strategies, and understandings, which can be applied during or at the end of particular units of work*<sup>xxviii</sup>. The eight essential skills are expressed as competencies/results statements:

### **Communication skills**

Students will:

- communicate competently and confidently by listening, speaking, reading, and writing, and by using other forms of communication where appropriate
- convey and receive information, instruction, ideas, and feelings appropriately and effectively in a range of different cultural, language, and social contexts
- develop skills of discrimination and critical analysis in relation to the media, and to aural and visual messages from other sources; or argue a case clearly, logically, and convincingly
- become competent in using new information and communication technologies, including augmented communication for people with disabilities.

### **Numeracy skills**

Students will:

- calculate accurately
- estimate proficiently and with confidence
- use calculators and a range of measuring instruments confidently and competently
- recognise, understand, analyse and respond to information which is presented in mathematical ways, for example, in graphs, tables, charts, or percentages
- organise information to support logic and reasoning
- recognise and use numerical patterns and relationships.

## **Information skills**

Students will:

- identify, locate, gather, store, retrieve and process information from a range of sources
- organise, analyse, synthesise, evaluate and use information
- present information clearly, logically, concisely, and accurately
- identify, describe and interpret different points of view and distinguish fact from opinion
- use a range of information-retrieval and information-processing technologies confidently and competently.

## **Problem-solving skills**

Students will:

- think critically, creatively, reflectively and logically
- exercise imagination, initiative and flexibility
- identify, describe and redefine a problem
- analyse problems from a variety of different perspectives
- make connections and establish relationships
- inquire and research, and explore, generate and develop ideas
- try out innovative and original ideas
- design and make
- test ideas and solutions, and make decisions on the basis of experience and supporting evidence
- evaluate processes and solutions.

## **Self-management and competitive skills**

Students will:

- set, evaluate and achieve realistic personal goals
- manage time effectively
- show initiative, commitment, perseverance, courage and enterprise
- adapt to new ideas, technologies and situations
- develop constructive approaches to challenge and change, stress and conflict, competition and success and failure
- develop the skills of self-appraisal and self-advocacy
- achieve self-discipline and take responsibility for their own actions and decisions
- develop self-esteem and personal integrity
- take increasing responsibility for their own health and safety, including the development of skills for protecting the body from harm and abuse
- develop a range of practical life skills, such as parenting, budgeting, consumer, transport and household maintenance skills.

## **Social and co-operative skills**

Students will:

- develop good relationships with others and work in co-operative ways to achieve common goals
- take responsibility as a member of a group for jointly decided actions and decisions
- participate appropriately in a range of social and cultural settings
- learn to recognise, analyse and respond appropriately to discriminatory practices and behaviours
- acknowledge individual differences and demonstrate respect for the rights of all people
- demonstrate consideration for others through qualities such as integrity, reliability, trustworthiness, caring or compassion (*aroha*), fairness, diligence, tolerance (*rangimarie*) and hospitality or generosity (*manaakitanga*)
- develop a sense of responsibility for the well-being of others and for the environment
- participate effectively as responsible citizens in a democratic society
- develop the ability to negotiate and reach consensus.

## **Physical skills**

Students will:

- develop personal fitness and health through regular exercise, good hygiene, and healthy diet
- develop locomotor, non-locomotor, and manipulative skills
- develop basic first aid skills
- develop specialised skills related to sporting, recreational and cultural activities
- learn to use tools and materials efficiently and safely
- develop relaxation skills.

## **Work and study skills**

Students will:

- work effectively, both independently and in groups
- build on their own learning experiences, cultural backgrounds and preferred learning styles
- develop sound work habits
- take increasing responsibility for their own learning and work
- develop the desire and skills to continue learning throughout life
- make career choices on the basis of realistic information and self-appraisal<sup>xxix</sup>.

## **8 Northern Ireland**

### **8.1 Contextual data**

In Northern Ireland, the equivalent to key stage 3 education in England (11- to 14-year-olds) is provided in Years 8, 9 and 10 of compulsory education and is also known as key stage 3.<sup>4</sup> The Education Reform (Northern Ireland) Order 1989 revised the definition of compulsory school age, so that each child has 12 full years of schooling, from age four to 16. This is divided into four key stages: key stage 1 (four- to eight-year-olds); key stage 2 (eight- to 11-year-olds); key stage 3 (11- to 14-year-olds) and key stage 4 (14- to 16-year-olds).

Most children transfer from primary to secondary (usually known as ‘post-primary’) school at age 11. Post-primary education in Northern Ireland is currently selective and children take what is known as a ‘transfer test’ if they wish to be considered for a place at a selective ‘grammar school’. Following a period of extensive consultation on the current system of academic selection for post-primary education in Northern Ireland, there is widespread agreement for change. As a result, the transfer tests taken by those children wishing to attend a post-primary grammar school will be held for the last time in autumn 2008. New transfer arrangements will be based on parental choice and all post-primary schools will be expected to offer a minimum number and range of courses including a choice of vocational courses.

### **8.2 Curriculum overview**

After long consultation, the statutory curriculum in Northern Ireland is to undergo change. This process will begin in September 2005 and continue for a number of years. In the interim the old curriculum is still in force. This comprises six compulsory areas of study (English, mathematics, science and technology, the environment and society, creative and expressive studies, and languages), within which there are a number of contributory subjects (English, mathematics, science, technology and design, history, geography, physical education, art and design, music, and a modern language). In addition, study of the core syllabus for religious education

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<sup>4</sup> In England and Wales, although key stage 3 covers the same age range, it comprises Years 7, 8 and 9 of compulsory education.

is a statutory requirement. Within the compulsory curriculum, the cross-curricular themes taught are:

- education for mutual understanding (EMU)
- cultural heritage
- health education
- economic awareness (post-primary schools only)
- careers education (post-primary schools only)
- information technology.

These are not separate subjects in their own right, but are woven through the main subjects of the curriculum.

The new proposals for a radical restructuring of the curriculum have been subject to review over a number of years. There were three detailed consultation periods. From April to June 2000, the Northern Ireland Council for the Curriculum, Examinations and Assessment (CCEA) asked about and received support for:

- the curriculum framework (aims, objectives, skills and values)
- the structure of the primary curriculum
- proposed new aspects of the post-primary curriculum such as personal development, citizenship and employability.

From April to October 2002 CCEA consulted on:

- the details of the primary curriculum
- proposals for key stages 3 and 4.

From September to November 2003 CCEA focused entirely on changes to key stage

3. Main areas covered included:

- increasing flexibility through the concept of a minimum statutory curriculum
- replacing the current system of testing
- the introduction of a new curriculum area known as learning for life and work, to include: education for employability, local and global citizenship, and personal development<sup>xxx</sup>.

After the consultation the new statutory curriculum was set out as curriculum areas rather than individual subjects, with an increased emphasis on skills, particularly transferable skills. Under the revised arrangements, the curriculum areas are divided into 'Learning for Life and Work' and 'General Learning Areas':

Learning for Life and Work comprises:

- education for employability
- local and global citizenship
- personal, social and health education (PSHE)
- home economics.

General Learning Areas include:

- the arts, including art and design, drama, music
- English/Irish in Irish medium schools, including media education
- environment and society, including geography and history
- modern languages, currently French, Spanish, German, Italian or Irish
- mathematics, including financial capability
- science and technology, including science, technology and design
- physical education
- religious education.

The aim is to develop skills and competences in:

- personal and interpersonal skills
- critical and creative thinking skills
- communication
- using mathematics
- information and communication technology (ICT)<sup>xxx1</sup>.

### **8.3 The place of skills**

The basic principle underlying compulsory education is that it should provide a balanced and broadly based curriculum which is suitable to the child's age, ability, aptitude and to any special educational needs (SEN) the child might have. The Education Reform (Northern Ireland) Order 1989, like the 1996 Education Act for England and Wales, defines the curriculum as one which:

- promotes the spiritual, moral, cultural, mental and physical development of children at the school and of society
- prepares such children for the opportunities, responsibilities and experiences of adult life.

It is intended that the new curriculum will provide a more joined-up and holistic curriculum, with greater emphasis on real world skills and the specific element of learning for life and work<sup>xxxii</sup>.

The proposals for changes to the curriculum framework discussed during the consultation process define a framework of skills in addition to the new curriculum areas. These include the basic skills of oracy, literacy and numeracy, as well as six key skills (communication, application of number, information technology, problem solving, working with others, and improving own learning and performance). Beyond these the curriculum defines a framework of generic skills in six overlapping and interdependent categories. These are:

- personal skills
- interpersonal skills
- thinking skills
- learning skills
- ICT skills, and
- physical skills.

The contributory skills in each category are described as follows:

**Personal skills** (those which are necessary for effective operation as an individual) include:

- self management: the ability to recognise and deal with personal characteristics, strengths and limitations, emotions, behaviour and experiences in a range of situation and contexts
- self-reliance: the ability to be self directed, to work independently and to undertake and complete tasks on an individual basis
- assertiveness: the ability to express a personal view in a positive and non-threatening manner
- language and literacy: the ability to engage with the spoken and written word in various forms
- application of number: the ability to select and apply a range of numerical skills to real situations and contexts in order to meet a desired outcome
- creativity: the ability to be imaginative and inventive in creating outcomes and products.

**Interpersonal skills** (those which are necessary to effective interaction with others) include:

- communication: the ability to select and apply a range of appropriate communication skills in order to express oneself effectively within a range of situations and contexts
- working with others: the ability to collaborate with others in working towards a common goal
- empathy: the ability to engage with the feelings and contexts experienced by others

- leadership: the ability to assume responsibility and to motivate others towards the achievement of a particular goal.

**Thinking skills** (those intellectual skills which are necessary for the realisation of human potential) include:

- critical thinking: the ability to use a range of analytical, evaluative and decision-making processes in order to achieve a reasoned outcome
- creative thinking: the ability to generate new ideas, visualise processes and imagine outcomes
- caring thinking: the ability to be sensitive to the contexts, experiences and needs of others
- problem solving: the ability to select and apply a range of appropriate skills to meet an identified need or produce a desired outcome.

**Learning skills** (those which enable the individual to engage with uncertainty and address the process of change) include:

- self-assessment: the ability to reflect on personal strengths and weakness as a basis for identifying learning needs and evaluating new learning
- learning styles: the ability to identify, expand and monitor preferred ways of learning
- goal-setting: the ability to set short and longer-term targets for learning and to identify strategies by which they can be met
- information handling: the ability to access knowledge and to devise strategies for assimilation and recall
- improving own learning and performance: the ability to select and apply a range of appropriate skills to promote self improvement.

**ICT skills** (the means by which individuals can engage effectively with a fast-changing, technological world of information and communication) include:

- communication: the ability to use ICT as a tool for accessing and communicating ideas using a range of media, including print, sound, moving image and graphics
- information handling: the ability to access, store, manipulate and present information
- modelling: the ability to use ICT to create and use models and simulations
- measurement and control: the ability to use ICT to measure the physical environment and control events.

**Physical skills** (those which are necessary for efficient body movement and effective manipulation of physical objects in a range of contexts) include:

- gross motor movement: the ability to control the limbs and perform large bodily movements
- fine motor movement: the ability to manipulate small objects with precision and coordinate hand and eye

- observation: the ability to focus visual attention
- audition: the ability to focus listening attention.

Some of the key skills are incorporated into this description of generic skills.<sup>xxxiii</sup>

## **8.4 Teaching of skills**

Curriculum areas and the skills described above are not intended to prescribe a specific approach to teaching and learning. Schools in Northern Ireland remain free to use a variety of approaches. They can, for example:

- develop appropriate links between individual subjects
- use programmes developed from the statutory areas
- base programmes on subject groups different from statutory issues
- develop an integrated approach focusing on a range of themes and issues.

The evidence suggests that the teaching of skills will pervade all curriculum areas<sup>xxxiv</sup>.

## 9 Norway

### 9.1 Contextual data

In Norway compulsory education (*Grunnskole*) is organised in three stages, primary, intermediate and lower secondary. The equivalent to key stage 3 phase education in England (11- to 14-year-olds) is provided in the intermediate stage (*Mellomtrinnet*) for Years 5-7 (10- to 13-year-olds) and the lower secondary stage (*Ungdomstrinnet*) Years 8-10 (13- to 16-year-olds). Primary schools cater for children in Years 1-7; lower secondary schools for students in Years 8-10.

There is a long tradition of combining primary and lower secondary education in a comprehensive and compulsory school system with a common legislative framework and a national curriculum. Some schools cover all compulsory education, while others are either primary schools or lower secondary schools. A new national curriculum, *L97*, was introduced in 1997. A complete *Saami* curriculum (for the indigenous people of the northernmost part of Norway, formerly known as *Lapps*), *L97S*, was also introduced in that year.

As a result of Norway's scattered population, 40 per cent of primary and lower secondary schools are so small that children of different ages are taught in the same classroom. As mentioned above, primary and lower secondary levels are also often combined in the same school<sup>xxxv</sup>.

There are two official written languages, *bokmål* and *nynorsk*. In principle, children and their parents have the right to choose which of the official Norwegian languages they wish to be taught in. In reality, however, it is the individual municipality that decides which official language is used in schools. All children do learn both languages as part of the subject Norwegian. The *Saami* people have their own language and are entitled to compulsory and upper secondary phase education in their own language.

## 9.2 Curriculum overview

As mentioned above, the current statutory national school curriculum was adopted in 1997. It places emphasis on common/core subject matter, whilst also allowing room for local and individual adjustments. The *Saami* curriculum is co-ordinated with the national curriculum and the two curricula are equal in status. The *Saami* curriculum has special relevance to the administrative areas of the country where *Saami* language and culture are dominant. These areas are characterised by their multicultural and multilingual situation, and the *Saami* curriculum aims at creating understanding among groups of people in these areas. *Saami* culture and social life are part of the common heritage for all students in the Norwegian compulsory school. Consequently, *Saami* culture, language, history, and social life comprise part of the common content of the different subjects in the 1997 national curriculum.

Compulsory curriculum subjects in the intermediate and lower secondary stages of education in Norway are:

- knowledge of Christianity, religions and ethics
- Norwegian
- mathematics
- social studies
- art and crafts
- science and the environment
- English
- music
- home economics
- physical education.

In the lower secondary stage there is an additional compulsory subject, chosen from one of three alternatives:

- a second foreign language: students may choose to learn another foreign language in addition to English. This is usually German or French, or possibly another language for local or regional reasons
- supplementary language study (that is, English, Norwegian, *Saami* or sign language)
- practical project work: students can choose a practical activity. It is a compulsory requirement of this activity that students should take part in planning the project.

### **9.3 The place of skills**

According to the 1998 Education Act, the purpose of primary and lower secondary education is:

*.....in agreement and co-operation with the home, to help to give pupils a Christian and moral upbringing, to develop their mental and physical abilities, and to give them good general knowledge so that they may become useful and independent human beings at home and in society.*

The main aims stated in the core curriculum are:

- something to work towards
- something to measure progress by

and, more specifically:

- the aim of education is to expand the individual's capacity to perceive and to participate, to experience, to emphasise and to excel
- education is based on fundamental Christian and humanistic values; it should uphold and renew cultural heritage and provide perspective and guidance for the future
- education should be structured in such a way that learners themselves can take part in the further development of inherited practices and in the acquisition of new knowledge
- education should provide learners with an awareness of the variety and scope of the world of work and provide them with the knowledge and skills necessary for active participation in the world of work
- education should combine know-how with human insight, to develop a work force that is highly qualified and versatile, and should combine an international outlook with an awareness of national distinctions.

New objectives for education were presented in a White Paper in 2004. These included:

- more emphasis on basic skills and knowledge
- greater diversity of working methods
- education better adapted to the individual.

### **9.4 Teaching of skills**

Although, in the intermediate and lower secondary stages of education in Norway, the teaching of different subjects becomes more distinct and the practical and theoretical elements of subjects are more clearly distinguished, subjects are interconnected into themes and project work.

### **The lower secondary stage (13 to 16 years old)**

During this phase, education is based on, and further develops, that which students have already learned. The lower secondary phase of education is also intended to ensure a smooth transition to upper secondary education.

In lower secondary education, learning becomes more detailed and there is greater coherence of subject matter which, together with practical work, aims to give students practice in analytical and critical methods. Education emphasises working across subjects and provides students with experience in project work.

In addition to subject specific skills, personal and learning skills are taught across the curriculum. Subject syllabuses stress that students should be active, enterprising and independent; that they should learn by doing, exploring and experimenting, and in so doing should acquire new knowledge and understanding; and that the working methods chosen should contribute to the process of assisting students in developing new perspectives and encountering new stimuli. Recommendations also stipulate that working methods should present students with challenges which, together with their active participation and individual effort, will build up their competence and self-respect, and that suitably adapted education presupposes a variety of methods to allow for the different abilities and aptitudes of different students.

Student participation is a basic principle of the curriculum. It is expected that students will gradually be given more responsibility for planning their own learning and, at the lower secondary stage, will begin to take individual responsibility for planning and evaluating the tasks they carry out, or to share this with others.

Thematic structuring of content is another important principle. A theme can be based on one subject, to which the contents of other subjects can be linked. Themes should be adapted to the unique features of each stage of education and to student abilities at different stages. Themes can also provide a basis for project work. Project work is a form of work in which students, in order to tackle a problem or set of problems, or a specific assignment, define and carry out a purposeful piece of work from the original idea to the finished product, result or solution. The teacher plays an important role as

a guide and mentor. In the final year of lower secondary school, students must carry out a project assignment which receives a written assessment.

It is also recommended that education should emphasise creative modes of expression, experience and reflection, which should be linked to work on subjects, themes and projects.

In the classroom, both in individual subject work and in interdisciplinary, theme or project work, students should be confronted with concrete practical tasks, which trigger questions that call for reasoned answers. This is a way of showing students the connections between practice and theory and between action and knowledge. Students must plan, organise and carry out practical tasks. There must be scope in the learning programme for independent work and in-depth study in subjects and subject areas and in theme and project work.

In addition, education for democracy is a major responsibility of the compulsory phase school in Norway. Acquaintance with democratic working methods and decision-making procedures is complemented by practical activities which aim to give students experience in, a contribution towards, and shared responsibility for, shaping the environments in which they grow up and learn.

Learning materials comprise texts, sound and images, IT-related aids, and textbooks produced with specific learning objectives in view. There are no prescribed textbooks. Items originally produced for other purposes, such as newspaper articles, feature films or literary works, can be used as learning material. It is intended that such learning materials will motivate students and help them to develop good working habits, encouraging both independent work and collaboration between students. In their education, students are expected to acquire knowledge about, insight into and positive attitudes towards the information society and information technology.

## 10 Poland

### 10.1 Contextual data

In Poland, the equivalent to key stage 3 phase education in England is provided in the last two years of Stage 2 in primary school (Years 5-6, 10- to 13-year-olds) and the first year of Stage 3 (Year 7, 13- to 14-year-olds) in the three-year *gimnazjum* (lower secondary school).

The structure is shown in the following table:

<i>Szkola podstawowa</i> – reformed six-year primary school for seven- to 13-year-olds	Stage 1 – integrated teaching, Years 1, 2 and 3, seven- to 10-year-olds  Stage 2 – block teaching, Years 4, 5 and 6, 10- to 13-year-olds
<i>Gimnazjum</i> – three-year lower secondary school for 13- to 16-year-olds	Stage 3 – subject teaching

#### Primary education (seven- to 13-year-olds)

Primary education is comprehensive and compulsory for all pupils. Children who are seven years old, or who will be seven in the given school year, start their education in primary school. Primary education lasts for six years in a single structure primary school.

#### Lower secondary education (13- to 16-year-olds)

The *gimnazjum* (lower secondary school) is a new institution, introduced in 1999/2000. It offers three years of full-time general lower secondary education for pupils who have completed the reformed six-year primary school and is compulsory for all pupils.

## **10.2 Curriculum overview**

### **Primary stage 2 (11- to 13-year-olds)**

Stage 2 of the reformed six-year primary school covers Years 4, 5 and 6 (10- to 13-year-olds). The following subjects are taught: Polish language, history and civics, a modern foreign language, mathematics, natural science, music, art, technology, computer sciences, physical education, and religion or ethics.

In addition to these individual subjects, the following ‘educational paths’ are introduced at this stage:

- health education
- ecological education
- reading and media education
- education for society
- education for family life
- cultural heritage of the region
- patriotic and civic education.

### **Lower secondary education (13- to 16-year-olds)**

The *gimnazjum* is a compulsory, general education school. It offers a wide variety of subjects, but at the basic level. One of the key aims of this phase of education in Poland is to identify the abilities and interests of pupils, and help them make rational choices for their further education.

Core curricula for the *gimnazjum* were included in the 2002 national regulation on *Core Curricula for Pre-school and General Education*. Such core curricula are compulsory for all schools – although teachers are free to select one core curriculum to follow from a set of those approved for use in schools by the Minister of Education, or to prepare their own, providing this follows the guidelines for core curricula determined in the national regulation. (Textbooks are selected from a list approved by the Minister.)

Compulsory curriculum subjects at this stage are: Polish language; history; civic education; a modern foreign language; mathematics; physics and astronomy; chemistry; biology; geography; fine art/music (which can be taught as one arts

subject); technology; computer studies; and physical education. The subjects are taught by specialist teachers.

In addition to these individual subjects, the following educational paths are introduced at this stage:

- philosophical education
- reading and media education
- health education
- ecological education
- regional education - cultural heritage of the region
- civil defence
- European education
- Polish culture in the context of Mediterranean civilisation.

There are also some non-compulsory subjects during this phase. These include religious or ethics education and an additional six hours of curriculum time which is left to the discretion of the headteacher. This time is usually devoted either to the compulsory subjects, to the educational paths, or to support classes for certain groups of pupils.

### ***10.3 The place of skills***

#### **Primary education (seven- to 13-year-olds)**

There are three main dimensions in the general objectives of the primary school: knowledge, skills and moral education, the integration of which is strongly emphasised.

The general objectives of the primary school are to develop:

- the ability of self-expression and reading and writing
- the ability to solve arithmetic problems
- the ability to use simple tools
- skills for life in society/the community
- the cognitive abilities to enable a mature understanding of the world
- the conscious cognitive motivation to undertake tasks which require systematic intellectual and physical effort
- aesthetic and moral sensitivity in children
- children's creative abilities
- children's self-confidence and their ability to achieve valuable, though difficult, goals

- the ability to distinguish the real world from an imaginary one, historical persons from invented characters
- the desire and ability to look after one's body, health and dexterity
- an awareness of dangers to physical, mental and moral health
- an awareness of one's self, and of the family, social, cultural, technical and natural environment
- a sense of cultural, historical, ethnic and national identity
- the conditions to support the development of the imagination; verbal, artistic, musical and motor expression; assured physical and psychological development; and pro-health behaviour
- a friendly, safe and healthy environment for children which emphasises ties with the family
- an environment which takes account of individual need and ensures equal opportunities
- the conditions to support the development of self-reliance, a sense of duty, and responsibility for one's self and one's surroundings
- the conditions to support individual and group actions, and actions undertaken on behalf of others.

### **Lower secondary education (13- to 16-year-olds)**

The main objectives of lower secondary education are:

- to introduce students to the world of science by teaching the language, concepts, theories and methodologies characteristic of the discipline to a level enabling further education
- to stimulate and develop individual interests
- to introduce students to the world of culture and arts
- to develop social skills and abilities by creating opportunities for cooperative experiences in peer groups.

### **Pre-school education (three- to seven-year-olds)**

The core curriculum for pre-school education is based on a framework of four education areas defined as:

- acquisition of knowledge and understanding of oneself and the world
- acquisition of skills through activities
- finding one's place in one's peer group and community
- construction of a system of values.

There are no individual subjects as such in the pre-school curriculum framework. Education in this phase is considered globally – as a holistic whole, and is based on one main activity, that of play. However, one of the important tasks of nursery schools which is emphasised particularly in the year immediately prior to entry to primary education (six-year-olds) is that of teaching children basic reading and writing skills.

These skills too are aimed at through play. Children participate in games and exercises aimed at the improvement of their speech and their visual and aural skills. It is recommended that activities aiming at the development of basic reading and writing skills should elicit children's interest in texts and motivate them towards acquiring these skills.

#### **10.4 Teaching of skills**

In addition to subject specific skills, personal and learning skills are embedded and taught across the curriculum and assessed at the end of each phase.

##### **Primary education (seven- to 13-year-olds)**

The reform of the school system has introduced an external standardised test on completion of primary school (13-year-olds). This test, coordinated by the Regional Examinations Commissions, was held for the first time in 2002 and is statutory for all children (except those with moderate or severe special educational needs). Successful completion of the test is one of the conditions for graduation from primary school.

The test assesses skills defined in the national standards and divided into five areas: reading, writing, reasoning, use of information, and practical application of knowledge. All pupils pass the test as the results are used for information purposes only. Results are not used for the basis of selection or ranking of pupils, and all pupils who complete primary education and take the test are admitted to their local lower secondary school (*gimnazjum*).

##### **Lower secondary education (13- to 16-year-olds)**

At the end of the third year of the *gimnazjum*, an external standardised examination is organised. This, too, took place for the first time in 2002; it aims specifically to evaluate students' abilities, skills and knowledge in the fields of the humanities and science. The examination is compulsory for all pupils and results are indicated on the lower secondary leaving certificate. They are comparable on a national scale.

# 11 Singapore

## 11.1 Contextual Data

In Singapore, the equivalent to key stage 3 phase education in England is provided in the Secondary 1 and 2 stage of secondary education; Secondary 1 and 2 caters for 12/13- to 14/15-year-olds, whilst the secondary phase itself lasts for four years (12/13- to 16/17-year-olds). Although secondary education is not compulsory, attendance is generally universal.

Six years of primary education (6/7- to 12/13-year-olds) became compulsory in 2003. Prior to this, primary education, although not compulsory, was universal, with almost 100 per cent school enrolment of all eligible children.

## 11.2. Curriculum Overview

### Secondary education (12- to 16-year-olds)

Although there are three specific secondary level courses: 'special', 'express' and 'normal', the curriculum subjects for all secondary school students are essentially the same:

- In Secondary 1 and 2 (12- to 14-year-olds) the subjects studied are: English, mother tongue (Chinese/Malay/Tamil), mathematics, science, literature, history, geography, art and crafts, design and technology and home economics (all of these are examination subjects), civics and moral education, physical education, and music (non-examination subjects).
- At Secondary 3 and 4 (14- to 16-year-olds) the subjects studied are: English, Chinese/Malay/Tamil, computer applications (technical courses only), mathematics (these are compulsory/core examination subjects), civics and moral education, physical education, music (compulsory non-examination subjects). In addition, there are usually three to nine lessons (of 35-40 minutes each) every week of optional/elective subjects.

### Primary education (six- to 12-year-olds)

#### Primary orientation stage (10- to 12-year-olds)

In Primary 5 and Primary 6 (what is known as the 'orientation stage' for 10- to 12-year-olds), the subjects studied are: English, mother tongue (Chinese, Malay or

Tamil), mathematics, science, social studies, art and crafts, music, physical education (PE), and civics and moral education (CME).

### **Primary foundation stage (six- to 10-year-olds)**

The foundation stage (Primary 1 to Primary 4, six- to 10-year-olds) focuses on a core curriculum which includes English, the mother tongue ([Mandarin] Chinese, Malay, or Tamil) and mathematics. Science is introduced in Primary 3 (eight- to nine-year-olds). The learning of English also includes general topics including health education and information literacy.

## **11.3 Place of skills**

Core skills and values are emphasised throughout the curriculum, although not explicitly linked across subject areas. Thinking skills are of particular importance through all phases of education and the Ministry has recently outlined a new approach to skills in the curriculum.

### **Core skills and values**

There are eight core skills and values which are emphasised in the curriculum. These are:

- literacy and numeracy
- information skills
- thinking skills and creativity
- communication skills
- social and cooperative skills
- knowledge application skills
- self-management skills
- character development.

The Ministry states that these core skills and values are important *for young to achieve their full potential and participate purposefully in society*<sup>xxxvi</sup>. They are delivered as an integral part of the teaching and learning of the various curriculum subjects, and are also a part of the framework for the revision of the various syllabuses which is ongoing.

In addition, the continued study of English and the mother tongue reflects and emphasises the importance of being bilingual in a multiracial society, and also aims to guarantee that children are equipped with the basic skills of literacy and numeracy to function in a modern industrialised economy.

## Thinking skills

Ministry of Education curriculum officers have recently begun to identify core thinking skills and recommend that these skills are taught explicitly, as well as implicitly through subjects. A thinking skills programme, which applies to primary, secondary and post-secondary pre-university education, has been designed to develop thinking skills and creativity in students. The rationale behind this is that:

*Just as teachers are empowered through relevant training, pupils are empowered as they learn how the mind processes information. The ability to think effectively helps strengthen pupils' conceptual understanding, thus providing a foundation for improved school performance. By explicitly teaching thinking skills, we aim to develop the 'complex thinker': someone who demonstrates a variety of thinking processes, integrates new information with existing knowledge and experience, and applies thinking skills appropriately. The ability to think as defined is a life skill which is essential in today's complex society where the mere mastery of knowledge is not sufficient<sup>xxxvii</sup>.*

15 separate thinking skills are identified:

- associating
- categorising
- points of view
- identifying patterns and relationships
- identifying attributes and components
- identifying main ideas
- identifying errors
- abstracting
- comparing
- classifying
- induction
- deduction
- experimental inquiry
- creative problem solving
- decision making<sup>xxxviii</sup>.

The Ministry of Education's *Thinking Skills* website offers examples, graphic organisers and sample lesson plans for integrating these skills into the curriculum – <http://www.moe.gov.sg/edumall/tl/ts/>

## **Flexibility and diversity**

A recent (2004) Ministry information booklet entitled '*Nurturing Every Child: Flexibility and Diversity in Singapore Schools*<sup>xxxix</sup>' outlined a new approach to skills in the Singapore curriculum. It stated:

*We will encourage our students to learn more actively and independently. We want to nurture a curiosity that goes beyond the formal curriculum, and a passion for learning that carries through life. Syllabuses will be trimmed while retaining the overall rigour of our curriculum, to free up time and space to focus on core knowledge and skills.*

To achieve this, schools at all levels will be expected to provide more opportunities for students to develop skills in innovation, and for character development, and teaching will be expected to focus on developing understanding, questioning and critical thinking. Examinations and assessment methods will be reviewed, to reduce reliance on rote learning and encourage independent learning and experimentation.

In addition, at the upper secondary level (16/17- to 18/19-year-olds), a broader and more flexible GCE 'A' Level curriculum will be introduced from 2006. This aims to foster new approaches to learning and develop in students a wider range of skills. Students will be challenged to think critically and creatively.

At this upper secondary, pre-university level key changes have also been made, introducing 'knowledge skills' as a new area of learning. Compulsory for all students, knowledge skills focuses explicitly on developing higher order skills (conceptual thinking, other knowledge process skills and communication skills). Knowledge skills are taught specifically via Project Work (PW) and Knowledge and Inquiry (KI).

### **Project Work (PW)**

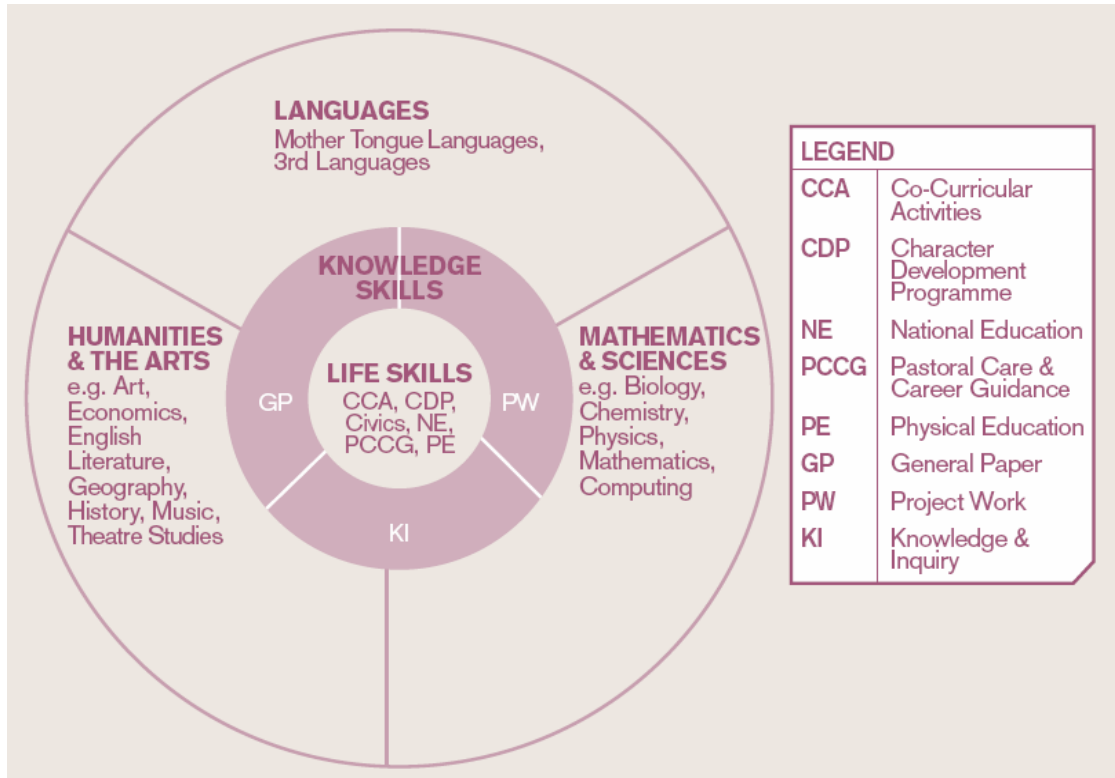
- students synthesise knowledge from various areas of learning and apply it to real-life situations
- encourages collaboration, independent learning and communication skills.

### **Knowledge and Inquiry (KI)**

- students interpret and synthesise knowledge gathered from different fields

- encourages investigation and evaluation work in the construction of knowledge in areas like the sciences, the humanities, mathematics, and aesthetics
- develops critical reasoning skills.

### Framework for the New 2006 ‘A’ Level Curriculum



**The Inner Circle** centering on life skills, ensures that students acquire sound values and skills to take them through life. It comprises the non-academic curriculum.

**The Middle Circle** on knowledge skills seeks to develop students’ thinking, process and communication skills. It comprises skills-based subjects.

**The Outermost Circle** covers the content-based subject disciplines e.g. humanities and the arts. It ensures that students acquire a multidisciplinary grounding.

### 11.4 Teaching of skills

Core skills are not explicitly linked across subject areas.

The National Institute of Education set up the Singapore Centre for Teaching Thinking (SCITT) (<http://eduweb.nie.edu.sg/scitt/about.html>) to provide resources and to undertake research to assist schools in the implementation of the critical and creative thinking initiative. SCITT trains teachers in the teaching of thinking skills. These trained teachers are expected to pass their new knowledge on to teaching colleagues.

The Ministry also provides resources and advice for teaching thinking skills as well as recommending the following websites:

**Ways of Teaching Thinking** - <http://learnweb.harvard.edu/alps/thinking/ways.cfm>

This website highlights the four thinking-centred approaches which classroom teachers can use to infuse thinking into the curriculum.

**Critical Thinking Consortium** - <http://www.criticalthinking.org>

This website provides access to a range of resources relating to the teaching of critical thinking, including critical thinking strategies and lesson plans.

## 12 Slovenia

### 12.1 Contextual data

In Slovenia, the equivalent to key stage 3 phase education in England (11- to 14-year-olds) is provided in the third cycle of basic education for 12- to 15-year-olds.

Basic education is provided in elementary schools – a single structure of primary and lower secondary education for six- to 15-year-olds and divided into three cycles:

- first cycle: six- to nine-year-olds
- second cycle: nine- to 12-year-olds
- third cycle: 12- to 15-year-olds.

Successful completion of all of basic education enables pupils to proceed to education in their choice of secondary school. Pupils who successfully complete at least six classes in the eight-year elementary school or at least seven classes in the nine-year elementary school can continue their education in a short-term vocational education programme. Success at that level opens doors to other more demanding secondary school programmes<sup>x1</sup>.

### 12.2 Curriculum overview

The current curriculum for basic education in Slovenia is based on the curriculum document *The Programme of Work and Life of the Elementary School* (1984) (with additions from 1984 to 1997). This consists of:

- guidelines for the organisation of the curriculum in elementary schools
- annual and weekly schedules of compulsory subjects (the mother tongue, a foreign language, social and natural sciences, geography, history, biology, chemistry, physics, mathematics, drawing, music, physical education, technology, home economics, first aid, community work, cultural activities/days, science days and sport days)
- optional compulsory activities and
- syllabuses for individual subjects with instruction for their provision.

Optional compulsory activities are intended to help students to develop their interests and abilities and to spend their free time in a well organised manner. Schools must offer them and pupils are free to make their own choice of activity, although they are

expected to participate in at least one activity; pupils often choose from among the elective subjects on offer.

The Council of Experts develops syllabuses for compulsory subjects and for optional or elective subjects (which are not defined by the annual and weekly schedule). Schools must offer optional subjects, but pupils are free to choose their own options. Foreign languages, including Latin, and computer literacy courses are offered in most cases. Pupil achievement in elective subjects is assessed, but marks do not influence a pupils' grade point average<sup>xli</sup>.

### **12.3 The place of skills**

Although skills appear to be taught in Slovenian education, they are embedded within the curriculum and therefore difficult to specifically identify. However, according to the head of the Slovenian Eurydice Unit, *'all those skills taught in England [literacy, numeracy, inquiry, creative thinking, information processing, reasoning, evaluation, communication, diligence, reliability and capacity to improve, working with others, moral and ethical awareness] are taught in Slovenia as well'*<sup>xlii</sup>.

Recent changes to the curriculum have included a shift from memorisation of facts to learning skills and problem solving. The new curricula pay less attention to content and place greater emphasis on the process of learning and knowledge acquisition<sup>xliii</sup>.

### **12.4 Teaching of skills**

In Slovenia skills are embedded throughout the curriculum. The syllabuses for each subject comprise specific goals, including skills which are to be taught. For example goals in the English language syllabus include:

- developing higher cognitive skills such as analysis, synthesis, judgment and evaluation, to enable the effective use of information in new circumstances
- developing the skills of qualitative interpersonal communication and mastering disagreements and clashes of opinions
- developing team working skills, interpersonal cooperation and support<sup>xliv</sup>.

## **13 USA, Wisconsin**

### **13.1 Contextual data**

In Wisconsin, the equivalent to key stage 3 phase education in England is provided in elementary education for six- to 13-year-olds.

Generally, when the term 'elementary' is used in the United States, it refers to education from Kindergarten Grade (children usually aged five to six years) to Grade 8 (aged around 13). However, an elementary school is any school which is classified as such by state and local practice and composed of any span of Grades not above Grade 8.

### **13.2 Curriculum overview**

Under the Wisconsin educational standards, the state requires all schools to provide regular instruction in reading, language arts, social studies, mathematics, science, health, physical education, art, music and, in certain Grades/year groups, career exploration, vocational education and foreign language education. Additionally, since August 1998, when schools were expected to adopt the Wisconsin Model Academic Standards, it has been recommended that the school curriculum should be designed to meet or exceed these Standards.

The statewide Kindergarten to Grade 12 core curriculum (five- to 18-year-olds) generally comprises:

- mathematics (number operations and relationships, geometry, measurement, statistics and probability and algebraic relationships)
- science (nature of science, science inquiry/problem solving, science connections, physical science, life and environmental science, science communication, science applications and personal and social perspectives)
- English language arts (language, literature, reading, writing, listening, speaking, media and technology and research)
- social studies (history, political science, civic ideals and practices, geography, economics, global connections, anthropology/culture, sociology, psychology and science, technology and society).

Academic standards specify what students should know and be able to do, what they might be asked to do to give evidence of standards, and how well they must perform. They include content, performance, and proficiency standards<sup>xlv</sup>. The four core standards are:

- English language arts
- mathematics
- science
- social studies.

In addition, Model Academic Standards are provided for:

- agricultural education
- art and design education
- business
- dance
- environmental education
- family and consumer education
- foreign languages
- health education
- information and technology literacy
- marketing education
- music education
- physical education
- technology education
- theatre education<sup>xlvi</sup>.

### **13.3 *The place of skills***

In Wisconsin, skills are part of the curriculum's academic standards. Work based skills are also taught through a range of careers and technical education courses.

#### **Academic standards**

The Department of Public Instruction of the state of Wisconsin has developed five 'areas of applied knowledge'. These areas connect with what community members and employers consider that citizens and employees should know and be able to do and go beyond the mastery of individual subject areas. Teachers in every class are expected to encourage the development of these shared applications, both to promote the learning of the subject content and to extend learning across the curriculum. These applications of academic standards fall into five general categories:

- application of the basics, such as mathematics; science; social studies; language arts; and technology
- ability to think, includes problem solving; informed decision making; critical, creative and analytical thinking; imagining places, times and situations different from one's own; developing and testing a hypothesis; transferring learning to new situations
- skill in communication, such as constructing and defending an argument; working effectively in groups; communicating plans and processes for reaching goals; receiving and acting on instructions, plans and models; communicating with a variety of tools and skills
- production of quality work, which includes acquiring and using information; creating quality products and performances; revising products and performances; developing and pursuing positive goals
- connections with community, such as recognising and acting on responsibilities as a citizen; preparing for work and lifelong learning; contributing to the aesthetic and cultural life of the community; seeing oneself and one's community within the nation and the world; and contributing and adapting to scientific and technological change.

## Careers and technical education

As part of the Careers and Technical Education Program, open to all 'juniors' (12- to 15-year-olds) and 'seniors' (15- to 18-year-olds), four Skills Certificate Programs are offered. Developed in a collaborative partnership of representatives of business and industry and educators, the certificates comprise:<sup>xlvii</sup>:

- the Cooperative Education Skill Standards Certificate Program – an integration of school-based and work-based learning and appropriate career development experiences<sup>xlviii</sup>
- the Employability Skills Standards Certificate Program – a certificate to recognise a student's mastery of employability skills valued by employers, to help students explore a career interest, and to provide a state credential of student mastery of employability skills<sup>xlix</sup>
- the ACCT Certificate Program – a 40-hour course for Assistant Child Care Teachers (ACCT)<sup>l</sup>
- the Youth Leadership Skill Standards Certificate Program – a certificate organised into six categories of leadership skills: self management; communication and critical-creative thinking; media and technology; interpersonal, conflict management, democratic organisation and small group skills; ethical standards and behaviours; democratic discussion, problem solving and reasoned action skills<sup>li</sup>.

## **13.4 Teaching of skills**

### **Academic standards**

The five areas of applied knowledge (application of the basics; ability to think; skills in communication; production of quality work; and connections with the community) connect or go beyond the mastery of individual subject areas. As students apply their knowledge both within and across the various curricular areas, it is intended that they should develop the concepts and complex thinking of educated persons. Teachers in every class are intended to expect and encourage the development of these shared applications, both to promote the learning of subject content and to extend learning across the curriculum<sup>lii</sup>.

### **Careers and technical education**

The Skills Certificate Programs teach a range of career specific and generic skills and are assessed at the end of the course. The certificates are assessed via a portfolio; students must successfully complete 90 percent of the competencies:

- basic SCANS Skills (reading, writing, mathematics, listening, speaking, and career development)
- personal/interpersonal skills (responsibility, self-esteem, sociability, self-management, integrity, and honesty)
- thinking/information processing skills (learning, reasoning, acquiring and using information to aid thinking)
- systems/technology skills (complex interrelationships of systems and work with technologies)<sup>liii</sup>.

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