



# World Data on Education Données mondiales de l'éducation Datos Mundiales de Educación

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# Singapore

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## Principles and general objectives of education

The mission of the Education Service is to mould the future of the nation, by moulding the people who will determine the future of the nation. The Service will provide children with a balanced and well-rounded education, develop them to their full potential, and nurture them into good citizens, conscious of their responsibilities to family, society and country. The education system aims to nurture every child and help all students discover their talents, realize their full potential, and develop a passion for lifelong learning. National authorities want to nurture in young people the willingness to think in new ways, solve problems and create new opportunities for the future. Equally important, youth should be helped in acquiring sound values and develop the strength of character to deal with future challenges. National education aims to foster strong bonds among students and develop in them a deep sense of belonging and commitment to family, community and country.

Education should equip students with the skills and knowledge, as well as the right values and attitudes to assure the livelihood of the individual and the country's survival and success. Children must learn to be self-reliant, yet able to work closely with others; individually competitive, yet with a strong social conscience. They must be flexible in mind and outlook to adapt constantly to a rapidly changing world. Children must develop a sense of shared identity and destiny, the instinct to defend Singapore's national interests, and the resolve and confidence to stand together as one people, to overcome threats and challenges. Children ought to know their own cultural heritages and mother tongues. At the same time, they must learn to understand and respect the different racial, religious, cultural, and language backgrounds of their fellow citizens.

The Desired Outcomes of Education (DOE, version of 2009) are attributes that educators aspire for every Singaporean to have by the completion of his/her formal education. These outcomes establish a common purpose for educators, drive policies and programmes, and allow determining how well the education system is doing. The person who is schooled in the Singapore education system embodies the DOE. He/she has a good sense of self-awareness, a sound moral compass, and the necessary skills and knowledge to take on challenges of the future. He/she is responsible to his/her family, community and nation. He/she appreciates the beauty of the world around him/her, possesses a healthy mind and body, and has a zest for life. In sum, he/she is:

- a confident person who has a strong sense of right and wrong, is adaptable and resilient, knows himself, is discerning in judgment, thinks independently and critically, and communicates effectively;
- a self-directed learner who takes responsibility for his own learning, who questions, reflects and perseveres in the pursuit of learning;
- an active contributor who is able to work effectively in teams, exercises initiative, takes calculated risks, is innovative and strives for excellence; and



- a concerned citizen who is rooted to Singapore, has a strong civic consciousness, is informed, and takes an active role in bettering the lives of others around him/her. (Ministry of Education, March 2010).

## Laws and other basic regulations concerning education

The legal framework for education in Singapore is defined in the **Education Act** (1985 Ed) and the **School Regulations** (1990 Ed).

The **Childcare Centres Act** of 1988, amended in 2001, stipulates that no person shall operate or take part in the management of a childcare centre except under the authority of and in accordance with the terms and conditions of a licence.

The **Private Education Act No. 21** was passed by Parliament on 14 September 2009. The Act provides for the establishment of the Council for Private Education as well as for the regulation and accreditation of private education institutions so as to ensure the provision of quality education. Subject to the provisions of the Act, no person in Singapore may: (a) offer to provide or provide private education, whether in Singapore or elsewhere; or (b) award any degree, diploma or certificate (including any honorary degree or other distinctions) in respect of private education, whether offered or provided in Singapore or elsewhere, unless the person is a registered private education institution.

The **Compulsory Education Act** (Cap 51) was passed by Parliament in October 2000 and compulsory education has been implemented from January 2003. According to the Act, a child of compulsory school age is one who is above the age of 6 and who has not yet attained the age of 15. If a child fails to attend as a pupil at a national primary school or a designated school/home-schooled (where exemption is granted), a parent/guardian of the child may be guilty of an offence.

The Compulsory Education Act 2000 also provides for the establishment of a body known as the Compulsory Education Board. The duties of the Board include investigations whether the provisions of the Act or any regulations have been contravened and to make recommendations on their enforcement.

## Administration and management of the education system

The **Ministry of Education** directs the formulation and implementation of education policies. It has control of the development and administration of the government and government-aided primary schools, secondary schools and junior colleges. It also supervises private schools.

The Ministry is organized into three wings: professional, policy and services. The Professional Wing includes the following divisions: Curriculum Planning and Development; Education Programmes; Education Technology; Schools; and the Academy of Singapore Teachers. Under the Policy Wing are the divisions of: Corporate Communications; Higher Education; Organization Development; Planning; and Private Education. The Divisions under the Services Wing are: Finance and Development; Legal Services; Personnel; and School Planning and Placement.



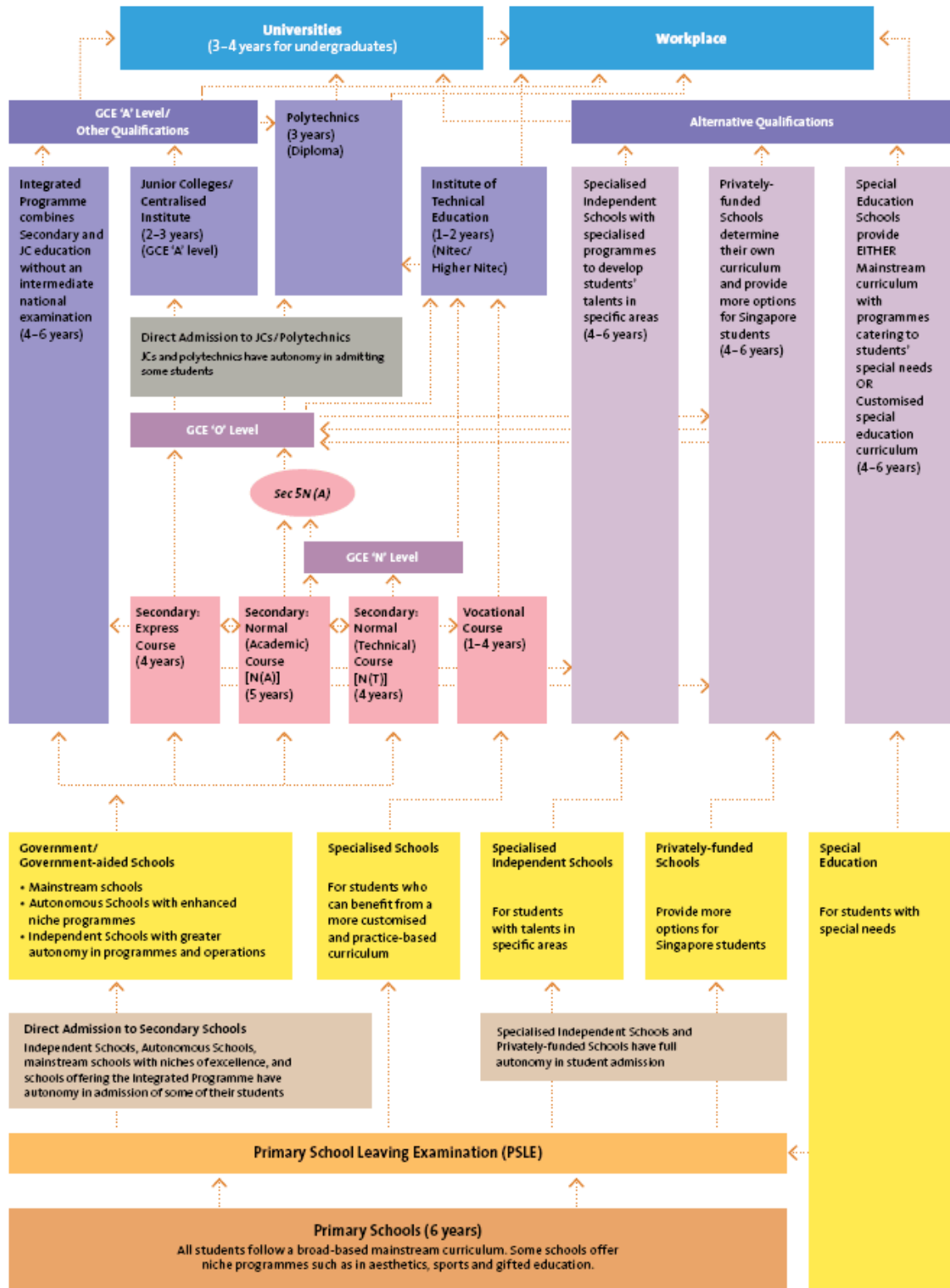
The main functions of the **Curriculum Planning and Development Division** are: design and review syllabuses and monitor their implementation; promote teaching and learning approaches that are in line with curriculum intent; design assessment modes that support the desired learning outcomes; design and take charge of special curriculum programmes like the humanities programme, language elective programmes and the art/music elective programmes; provide support through training of school personnel for syllabus implementation; produce and approve instructional materials; provide specialist advice to other Divisions, Ministries and private publishers on matters related to the curriculum; and supervise the Ministry of Education Language Centre and Umar Pulavar Tamil Language Centre.

There are ten statutory boards under the Ministry of Education, namely: the Council for Private Education, the Institute of Southeast Asian Studies, the Institute of Technical Education, the Science Centre Singapore, five Polytechnics, and the **Singapore Examinations and Assessment Board**. While they are responsible to their own governing boards, these bodies follow the overall policy direction of the Ministry.

The **Council for Private Education**, established by the 2009 Private Education Act, has the following functions and duties: (a) to register and regulate private education institutions and persons who offer or provide any service relating, whether directly or indirectly, to private education; (b) to encourage, promote and facilitate the development of the private education sector in Singapore; (c) to establish, implement or support quality accreditation or certification schemes and other measures to enhance the standards of the private education sector, or the education sector generally, in Singapore as the Council deems appropriate; and (d) to advise the Government or other public authority on national needs and policies in respect of private education matters generally, and to implement national policies relating to private education.

# Structure and organization of the education system

## Singapore: structure of the education system



Source: Ministry of Education, 2010.



## Pre-school education

Kindergartens provide a structured three-year preschool education programme for children aged 4-6 (e.g. the year the child turns 4 years old to the year the child turns 6 years old except those born on 1 January). The three-year programme consists of nursery, kindergarten 1 and kindergarten 2. Childcare centres also offer kindergarten programmes to children aged 4-6. Kindergartens are registered with the Ministry of Education while childcare centres are licensed by the Ministry of Community Development, Youth and Sports.

## Primary education

Primary education caters to children starting at age 6 and lasts six years. It consists of a four-year foundation stage (grades 1-4) and a two-year orientation stage (grades 5 and 6). According to the Compulsory Education Act 2000, primary education is compulsory and is being implemented since January 2003. At the end of grade 6, pupils sit the Primary School-leaving Examination (PSLE).

## Secondary education

Pupils are placed in secondary school courses based on their PSLE performance. Pupils who are within the top 10% in the PSLE can choose to go to the Special course. Other pupils are placed in either the Express course or the Normal course. The Special and the Express courses are four-year programmes (grades 7-10) leading to the Singapore-Cambridge General Certificate of Education Ordinary level (GCE O-level) examination. The Normal course offers a four-year programme leading to the GCE N-level examination. Starting from 2008, the Special and Express Courses have been merged into the 'Express Course'.

## Post-secondary and higher education

Students who have completed secondary education (Secondary 4 or Secondary 5) and have the necessary GCE O-level qualifications may apply for pre-university education at the junior colleges (two-year programmes) and centralized institutes (three-year programmes); this course of studies leads to the GCE A-level examination. Students who prefer a more practice-oriented tertiary education and have the necessary GCE O-level grades can opt for three-year diploma programmes in the polytechnics, which offer a wide range of courses in fields such as engineering, business studies, accountancy, maritime studies, mass communications, and nursing. Students with GCE O- or N-level certificates can also opt for full-time courses offered by the Institute of Technical Education (ITE), leading to the Master National ITE Certificate (Master Nitec, one-year programme) and the Higher National ITE Certificate (Higher Nitec, two-year programme). Those who do well in these courses can proceed to the polytechnics for diploma programmes.

Admission to the universities depends on the academic performance at the Singapore-Cambridge GCE A-level public examination. Universities offer degree and postgraduate studies in a wide range of disciplines. The award of a bachelor's degree normally requires three to four years of study (five years in the case of medicine). Programmes leading to a master's degree take one to three years to complete. A

doctoral degree requires a minimum of two years of study following the master's degree.

The school year is divided into two semesters, each one including two terms. It consists of 40 weeks (36 weeks of effective instruction). The academic year is also divided into two semesters. At the National University of Singapore the academic calendar 2010/11 consists of two semesters (August-December and January-May) and a special term. Each semester normally includes 13 weeks of instruction and two weeks of examinations. The special term takes place during the second semester vacation period (covering 12 weeks). It comprises of two parts, each of which lasts six weeks and is inclusive of an examination period.

## The educational process

The Desired Outcomes of Education (DOE, version of 2009) are translated into a set of developmental outcomes for each key stage of the education system. The Key Stage Outcomes spell out what the education service aspires to develop in students through primary, secondary, and post-secondary education. Each educational level builds upon the previous stages and lays the foundation for subsequent ones. For example, primary school students start by learning to know and love Singapore. In doing so, their belief in Singapore will be strengthened and they will understand what matters to Singapore by secondary school. They will grow to be proud of Singapore and understand our country within the global context at the post-secondary level. There are eight outcomes at each key stage. Taken together, the Key Stage Outcomes make explicit what the national authorities and society aspire to develop in young people so as to lay the strong foundations for them to thrive and achieve success in life as contributing members of society.

The Ministry of Education (MOE) has announced that it will implement a new framework to enhance the development of 21st century competencies in students (MOE, March 2010). This will underpin the holistic education that Singapore schools provide to better prepare students to thrive in a fast-changing and highly-connected world. To better position students to take advantage of opportunities in a globalised world, they need to possess life-ready competencies like creativity, innovation, cross-cultural understanding and resilience. Knowledge and skills must be underpinned by values. Values define a person's character. They shape the beliefs, attitudes and actions of a person, and therefore form the core of the framework of 21st century competencies. The values are: respect, responsibility, integrity, care, resilience, and harmony.

Social and emotional competencies are skills necessary for children to recognize and manage their emotions, develop care and concern for others, make responsible decisions, establish positive relationships, as well as to handle challenging situations effectively. Therefore, they include: self-awareness, self-management, social awareness, relationship management, and responsible decision making. Finally, the 21st century skills necessary for the globalised world we live in are: civic literacy, global awareness and cross-cultural skills; critical and inventive thinking; and information and communication skills.





Together, all these competencies will enable young people to tap into the rich opportunities in the new digital age, while keeping a strong Singapore heartbeat. Expectations and learning outcomes based on these competencies will be articulated across the entire curriculum in the next curriculum review cycle in 2012-2014. At the same time, MOE will build teacher capacity to deliver these 21st century competencies through the provision of pedagogical exemplars, training and professional sharing.

To incorporate 21st century competencies in the academic curriculum, schools will refine their teaching approaches and assessment methods. To enable students to keep track of their own progress, MOE will support schools by developing tools for holistic feedback and assessment. MOE will strengthen the quality of physical education, and art and music education. These subjects are integral to a holistic education experience for students. They enable students to develop physical robustness, enhance their creative and expressive capacities, and shape their personal, cultural and social identity. Values and competencies will be explicitly taught during character and citizenship education lessons. Schools will also develop 21st century competencies in students through a vast range of co-curricular activities.

Within schools, opportunities will be offered for teachers to share and discuss their students' development profile and needs with them. Parents play a critical role as partners in the mission to prepare young people for the future. From 2012, all students will be provided with a Holistic Development Profile which will keep parents updated on their children's progress in their journey to develop these values and competencies. (MOE, March 2010).

### **Pre-primary education**

As mentioned, kindergartens provide a structured three-year pre-school education programme for children aged 4-6 (e.g. the year the child turns 4 years old to the year the child turns 6 years old except those born on 1 January). The three-year programme consists of nursery, kindergarten 1 and kindergarten 2. Kindergartens function daily, five days a week, with schooling hours ranging from 3 to 4 hours each day. Most kindergartens function at least two sessions a day.

Childcare centres also offer kindergarten programmes. Kindergartens are registered with the Ministry of Education (MOE) while childcare centres are licensed by the Ministry of Community Development, Youth and Sports (MCYS). Childcare centres provide full-day and half-day care programmes to children below the age of 7. In addition to providing working parents with reliable care services, childcare centres have programmes aimed at educating and developing preschool children through effective early childhood education programmes in a safe and conducive environment. According to MCYS, at the end of December 2009 there were 785 childcare centres with a total enrolment of 58,870 children, of whom 55,698 children in the regular programme (full- and half-day programmes) and 2,172 in the flexi-care programme.

Kindergartens are run by the private sector, including community foundations, religious bodies, social and business organizations. There are also foreign system kindergartens that offer preschool programmes for children of expatriate parents. Except for foreign system kindergartens, MOE-registered kindergartens carry out





their programmes in English and a second language. A kindergarten can be considered for registration by the MOE if it fulfils the following requirements: (i) a programme that is assessed to be appropriate by the MOE; (ii) teachers possessing the minimum acceptable academic and preschool teaching professional qualifications; (iii) suitable premises approved for use as kindergartens and meeting all safety requirements stipulated by the relevant authorities on buildings; and (iv) a properly constituted committee of management to administer and manage the kindergarten efficiently.

The daily programme of each level includes activities that develop language and literacy skills, basic number and simple science concepts, social skills, creative and problem-solving skills, appreciation of music and movement and outdoor play. Children learn in two languages, English as the first language and Chinese, Malay or Tamil as a second language. In terms of the Desired Outcomes of Education, at the end of preschool education, children should: know what is right and what is wrong; be willing to share and take turns with others; be able to relate to others; be curious and be able to explore; be able to listen and speak with understanding; be comfortable and happy with themselves; have developed physical co-ordination and healthy habits; love their family, friends, teachers and kindergarten.

The new preschool curriculum framework was launched on 20 January 2003. It was designed in close collaboration with lecturers from the National Institute of Education, and field tested at preschool centres during the period January 2001 to November 2002. The Framework for a Kindergarten Curriculum highlights what is considered to be key principles of a quality preschool education in Singapore. It is integral to the country's broader efforts in education, to nurture a future community of Singaporeans who lead fulfilling lives. While the framework is not meant to be prescriptive, it nevertheless points the way regarding the type of learning appropriate to children in the kindergarten years, and equally important, how teaching ought to be carried out in the early years of a child's life. The role of kindergarten education is to prepare children for the journey of life-long learning. For such a sure start to be realized, a major aim of kindergarten education is to support and foster the holistic development of the child. This involves the nurturing and acceptance of young children's spontaneous, natural and varied responses to the wealth and richness of experiences and opportunities the child is likely to encounter on the learning journey. Early years' education has been perceived by some as a preparation for primary school. However, it is not just a preparation for the next stage. It is vitally important in itself. It should not be confused with trying to accelerate learning in the kindergarten years by providing children with a simplified primary school curriculum.

The framework aims to guide parents and teachers to design a curriculum which will foster in children the following dispositions and skills: sound moral and social values; good habits of working and playing with others; positive self-concept and confidence; a strong sense of curiosity about things and objects around them; an ability to communicate effectively in English and a mother tongue language; physical control and manipulative skills; positive attitudes towards a healthy lifestyle; and positive family values and strong community ties. The critical features of a quality kindergarten curriculum are: a holistic approach to development and learning; integrated learning; children as active learners; adults as interested supporters in learning; interactive learning; and play as a medium for learning.



As regards the holistic approach to development and learning, six critical areas of learning experience have been identified for this purpose: aesthetics and creative expression; environmental awareness; language and literacy; motor skills development; numeracy; self and social awareness. Children should be given the opportunity to express themselves freely, as they invent, play, explore and refine ideas and feelings through a variety of media such as dance, music and art. The focus of activities related to environmental awareness should be on children's emerging knowledge and understanding of their environment, including both the natural and manmade world. These should provide the early foundations for historical, geographical and scientific learning. It is also essential that children are exposed to meaningful language arts activities such as role playing, singing, rhyming and reading. These activities will promote children's interactive skills in speaking, listening, reading and writing.

Learning experiences should therefore be integrated as a whole. These interdisciplinary activities help children to understand how knowledge and skills are really linked together rather than segregated in the teaching and learning process. Learning is most effective when children are actively involved and engaged in carrying out tasks that are meaningful to them. These activities should be based on children's curiosity, needs and interests. Ample opportunities should be provided for children to learn from observations, enquiry, exploration and first-hand experiences. Expectations and demands on children should be realistic, based on their levels of development across all areas. The aims are to encourage a positive disposition to learning and risk-taking without fear of failing. While it is important to encourage spontaneous and imaginative play in children, opportunities for structured play involving a rich use of language should be provided. This will serve to develop and extend: creativity; oral and aural skills; language associated with numeracy and early environmental awareness; personal and social skills. Adults should therefore value play as children's work, and guide and facilitate play as a part of the learning process. Meaningful learning will only result when children are encouraged to seek their own answers to questions in an environment that invites experimentation and exploration.

Observing and recording children's progress is vital for programme planning and evaluation. If adults are to meet the developmental needs of children, they will need to refer to these records and observations on a regular basis. Observations of children's progress and development can be kept in a portfolio containing, for example, their drawings, paintings, sketches, writings, or mark making and printouts of computer-generated projects. Profiling and record keeping in this manner also provide evidence to inform parents of their children's progress. Strong partnerships between teachers and parents can yield valuable insights into each child's development. Teachers can then use observations – both from home and what is done in the kindergarten – to identify learning priorities and plan relevant learning experiences for each child. Parents and teachers can also match their observations to their expectations. (MOE, 2008).

In January 2001, the Preschool Qualification Accreditation Committee was set up to oversee the standards and quality of preschool teacher training for both the kindergarten and child-care sectors. This is jointly steered by the MOE and the MCYS, which introduced an integrated preschool education framework for teacher



training and accreditation. The training route for preschool teachers is effective from January 2001.

Academic entry points are specified for the certificate- and diploma-level courses. The Specialist Diploma in Preschool Education is available for polytechnic/degree holders from other disciplines. This programme incorporates both the teaching and the leadership components of both the Diploma in Preschool Education–Teaching and the Diploma in Preschool Education–Leadership. The target set is for all principals of kindergartens to be trained at diploma in leadership level.

The Singapore Preschool Accreditation Framework (SPARK) was launched in November 2010 to encourage preschool providers to strive for greater excellence in the holistic development of children. Five core values underpin SPARK, e.g. child our focus, leadership with vision, professionalism with impact, partnership for growth, and innovation with purpose. Accreditation is carried out using the assessment tool called Quality Rating Scale (QRS). It is a structured approach for preschools to examine their structures, processes and outcomes, address the gaps and work towards improving the quality of their education programmes and overall administration of the preschools.

According to MOE statistics, in 2009 there were 493 private kindergartens (registered with MOE) with 75,438 children enrolled, of whom 37,045 were girls. (MOE, August 2010).

## Primary education

Primary education is compulsory and consists of a four-year foundation stage (grades 1-4) and a two-year orientation stage (grades 5 and 6). The overall aim of primary education is to give children a good grasp of English, the mother tongue and mathematics.

In terms of the revised version of the Desired Outcomes of Education (2009), at the end of primary school, pupils should: be able to distinguish right from wrong; know their strengths and areas of growth; be able to cooperate, share and care for others; have a lively curiosity about things; be able to think for and express themselves confidently; take pride in their work; have healthy habits and an awareness of the arts; and know and love Singapore.

The primary school curriculum is designed for a well-rounded learning experience and focuses on three main aspects of education: (i) a range of subjects comprising languages, mathematics, science, social studies, art & crafts, and music to develop a good grounding in subjects across different areas of study; (ii) knowledge skills which focus on developing your child's thinking, process and communication skills; knowledge skills are taught through a variety of subjects; and (iii) character development which focuses on instilling sound values in the children, to take them through life as a responsible adult. Children have many opportunities to develop life skills through co-curricular activities (CCAs), civics and moral education, social emotional learning, national education and physical education. (MOE, March 2010).

CCAs are an integral part of a well-rounded education and play an important part in building character. They help nurture in pupils qualities such as resilience, tenacity, confidence and perseverance, which prepare them to adapt and thrive in a rapidly changing world. There is a whole range of CCAs for children to choose from, including sports, the arts, uniformed groups such as Brownies and Scouts, clubs and societies. Some schools offer new activities such as golf, ice-skating, roller-blading and bowling.

The foundation stage is the first stage of formal schooling. The first four years concentrate on English, the mother tongue (Chinese, Malay or Tamil) and mathematics. Other subjects include: civics and moral education, science, social studies, art and crafts, music, health education and physical education. At the two-year orientation stage, there were three main language streams available—the EM1, EM2 and EM3 streams. An ME3 stream was also available if there was demand for it. From 2004, the distinction between the EM1 and EM2 streams was removed, and schools were given the autonomy to band their pupils by ability, in ways that add the most educational value.

In the first four years, pupils focus their attention on the two languages and mathematics. The learning of English in the early years includes the study of general topics such as health education and social studies. The study of the mother tongue includes civics and moral education. Science is taught from grade 3 onwards and social studies from grade 4 onwards.

In the year 2000 the weekly lesson timetable for the first four years of primary education was as follows:

**Singapore. Primary education (foundation stage, grades 1-4): weekly lesson timetable (2000)**

Subject	Number of weekly periods in each grade			
	1	2	3	4
English language (including health education)	17	17	15	13
Chinese/Malay/Tamil language (including civics and moral education)	15	13	12	11
Mathematics	7	9	11	11
Science	–	–	3	4
Social studies (*)	1	–	–	2
Arts and crafts	2	2	2	2
Music	2	2	2	2
Physical education	3	3	3	3
Assembly	1	1	1	1
<b>Total weekly periods</b>	<b>48</b>	<b>47</b>	<b>49</b>	<b>49</b>

*Source:* Committee on Compulsory Education, 2000. Each teaching period lasts 30 minutes. (\*) Pupils in grade 1 started studying social studies from January 2000. Pupils in grades 2 and 3 will study social studies in 2001 and 2002, respectively.

Up to 2004, pupils doing very well in English, the mother tongue and mathematics were recommended for the EM1 stream offering English and the mother

tongue as first languages at a higher level (i.e. Higher Chinese, Higher Malay or Higher Tamil, formerly known as CL1, ML1 and TL1). The majority of pupils were recommended for the EM2 stream which English as first language and mother tongue as second language (Chinese, Malay or Tamil, formerly known as CL2, ML2 and TL2). As mentioned, in 2004 the distinction between the EM1 and EM2 streams was removed.

In the year 2000 the weekly lesson timetable for the orientation stage was as follows:

**Singapore. Primary education (orientation stage, grades 5 and 6): weekly lesson timetable by stream (2000)**

Subject	Number of weekly periods in each grade		
	EM1 stream	EM2 stream	EM3 stream
English language	12	13	16
Chinese/Malay/Tamil language	10	8	4
Mathematics	9	10	13
Science	5	5	3
Civics and moral education	3	3	3
Social studies	3	3	3
Arts and crafts	2	2	2
Music	1	1	1
Physical education	2	2	2
Health education	1	1	1
Assembly	1	1	1
<b>Total weekly periods in each grade</b>	<b>49</b>	<b>49</b>	<b>49</b>

*Source:* Committee on Compulsory Education, 2000. Each teaching period lasts 30 minutes. EM1 offers English and the mother tongue as first languages at a higher level; EM2 offers English as first language and mother tongue as second language; EM3 offers English as first language and the mother tongue at basic oral proficiency level.

Retention is not generally practiced in grades 1-4; but, in exceptional cases, such as those which lead a pupil to miss school for a good part of the year, he/she may be retained in a particular class. A pupil in grade 5 may be allowed to repeat in the following year if the principal thinks that he/she will benefit from this retention. Starting from 2008 Primary 5 cohort, primary schools have introduced subject-based banding to replace the EM3 stream. With subject-based banding, pupils can offer a mix of standard or foundation subjects depending on their aptitude in each subject: for instance, if a student is weak in English and mathematics, he/she can choose to take English and mathematics at the foundation level while taking mother tongue language and science at the standard level. Previously, at Primary 5 and Primary 6 (grades 5 and 6), pupils in the EM3 stream offer all academic subjects at the foundation level, while students in the merged stream (EM1 and EM2) offer all academic subjects at the standard level.

The Primary School-leaving Examination (PSLE) is a national examination which pupils sit at the end of grade 6, no matter which stream they are in. Its purpose is to assess pupils' suitability for secondary education and place them in the right secondary school course, one that matches their learning pace, ability and inclinations.



If a pupil is in the EM1 or EM2 stream (now the merged stream), he/she will sit for four subjects at PSLE, namely English, the mother tongue (Chinese, Malay or Tamil), mathematics and science. If he/she is in the EM1 stream, he/she may also sit for an additional paper, the mother tongue (at Higher Chinese, Higher Malay or Higher Tamil level). If a pupil is in the EM3 stream, he/she will sit for three subjects at PSLE, namely English, the mother tongue at basic proficiency level and mathematics. Pupils in the ME3 stream will also sit for three subjects at PSLE, namely the mother tongue (at Higher Chinese, Higher Malay or Higher Tamil level), basic English and mathematics—which will be examined in the mother tongue.

All pupils who sit the PSLE and successfully complete primary education go on to secondary school. Depending on their PSLE results, they will go to the Special course, Express course or Normal course at the secondary level.

The education of children with disabilities of school-going age is provided in special education (SPED) schools. As at January 2010, there were 20 SPED schools run by Voluntary Welfare Organizations (VWOs) receiving funding from the MOE and the National Council of Social Service (NCSS). The SPED schools run different programmes catering to distinct disability groups of children who are unable to benefit from mainstream schooling.

Singapore has achieved almost universal education at the primary and the secondary levels. In 2001, the net enrolment rate at the primary level was 94%, and at the secondary level it was 93%. Thus, children who are not enrolled in national schools form only a small percentage of the cohort.

According to MOE statistics, in 2009 there were 172 primary schools (of which 131 government and 41 government-aided). The total enrolment was 265,104 pupils, of whom 127,518 were girls. The number of teachers was 13,493, of whom 11,078 were women. Furthermore, there were 172 principals, 199 vice-principals, and 2,422 executive and administrative staff. In the same year, 98.1% of the P1 cohort sat for the PSLE and passed. (MOE, August 2010).

The 2009 Primary 6 cohort was the first batch of pupils who sat the PSLE under subject-based banding policy. Foundation subjects in English language, mathematics and the mother tongue languages were offered. Arising from this policy, about 4.2% of the P6 cohort had the opportunity to offer subject combinations that were not available in the previous years. (SAEB, 2010).

## Secondary and post-secondary education

Students are placed in secondary school courses according their performance at the PSLE. Students who are within the top 10% in the PSLE can choose to go to the Special course; other students are placed in either the Express course or the Normal course. The Special and Express courses lead to the GCE O-level examination in four years, whereas the Normal course leads to the GCE N-level examination in four years, with a fifth year leading to the GCE O-level examination. There are two course options within the Normal course, the Normal (Technical) and the Normal (Academic) course. The Normal (Technical) course gears students towards technical-vocational education and training in technical or commercial institutes. Generally,



each school offers two courses, Special and Express, or Express and Normal. The latter includes both the Normal (Academic) N(A), and the Normal (Technical) N(T) course.

In terms of the revised version of the Desired Outcomes of Education (2009), at the end of secondary school, students should: have moral integrity; believe in their abilities and be able to adapt to change; be able to work in teams and show empathy for others; be creative and have an inquiring mind; be able to appreciate diverse views and communicate effectively; take responsibility for their own learning; enjoy physical activities and appreciate the arts; believe in Singapore and understand what matters to Singapore.

The weekly lesson timetables for lower and upper secondary education in the year 2000 were as follows:

**Singapore. Lower secondary education (Forms 1 and 2): weekly lesson timetable by course (2000)**

Subject	Number of weekly periods in each form		
	Special/Express	N(A)	N(T)
English language	6	6	8
Chinese/Malay/Tamil language or Basic Chinese/Malay/Tamil	6	6	3
Mathematics	5	6	8
Science	6	5	4
Literature	2	2	–
History	2	2	–
Geography	2	2	–
Arts and crafts	2	2	2
Design & technology and home economics	3	3	–
Computer applications	–	–	4
Technical studies and home economics	–	–	4
Social studies	–	–	2
Civics and moral education	2	2	2
Physical education	2	2	2
Music	1	1	–
Assembly	1	1	1
<b>Total weekly periods in each form</b>	<b>40</b>	<b>40</b>	<b>40</b>

Source: Committee on Compulsory Education, 2000. Each teaching period lasts 40 minutes. N(A) = Normal (Academic) course; N(T) = Normal (Technical) course.

### Singapore. Upper secondary education (Forms 3 and 4): weekly lesson timetable by course (2000)

Subject	Number of weekly periods in each form		
	Special/Express	N(A)	N(T)
<i>Core examination subjects:</i>			
English language		8	9
Chinese/Malay/Tamil language or Basic		6	3
Chinese/Malay/Tamil	24–26		
Mathematics		6	9
A science subject		–	–
A humanities subject			
Computer applications	–	–	4
<i>Elective subjects</i>	2–4 subjects 8–10 periods	2–4 subjects 3–8 periods	1–3 subjects 3–9 periods
<i>Compulsory non-examination subjects:</i>			
Civics and moral education	2	2	2
Physical education	2	2	2
Music	1	1	1
Assembly	1	1	1
<b>Total weekly periods (max.) in each form</b>	<b>40</b>	<b>40</b>	<b>40</b>

*Source:* Committee on Compulsory Education, 2000. Each teaching period lasts 40 minutes. N(A) = Normal (Academic) course; N(T) = Normal (Technical) course.

The Special course is a four-year course leading to the Singapore-Cambridge GCE O-level examination. In this course, students study English and Higher Chinese, Higher Malay or Higher Tamil, in addition to the usual humanities, mathematics and science subjects. In Form 1 (grade 7) and Form 2 (grade 8) students are taught a common curriculum. In Form 3 (grade 9) and Form 4 (grade 10), students are offered a core curriculum which includes the two languages and a choice of elective subjects. This course is suitable only for students who are strong in both English and the mother tongue and have a good score in their PSLE (within the top 10%).

The Express course is also a four-year course leading to the GCE O-level examination. In this course, students are taught English and Chinese, Malay or Tamil and follow a curriculum similar to that in the Special course. The Normal course offers a four-year programme leading to the GCE N-level examination. A fifth year is available to students who do well in this examination, in order to prepare them for the GCE O-level examination. Students in this course follow either the N(A) or N(T) curriculum. The N(A) curriculum includes English, the mother tongue, mathematics and a range of subjects similar to those in the Special and Express course. The N(T) course includes English, the mother tongue at the basic level (which emphasizes oral competence and reading comprehension), mathematics, computer applications and subjects with a technical and practical bias, such as technical studies.

Students can move from one course to another at the lower secondary levels. Schools keep records of students' performance and progress to assure fair and accurate decisions are made regarding the movement of students across courses and



levels. Transfer from a less demanding to a more demanding course and vice versa may take place at the end of Form 1 and Form 2, based on the performance of students and the professional assessment of the principal and teachers. Transfer from the N(A) to the N(T) course and vice versa may, however, take place at the end of Form 1, based on the performance of students and the professional assessment of the principal and teachers. To enhance experiential and practice-oriented learning, a revised Normal (Technical) curriculum will be implemented in all schools from 2007.

In the Special and Express course (Forms 1 and 2) the common curriculum includes: English, the appropriate mother tongue, mathematics, general science, literature, history, geography, art and crafts, design and technology or home economics—which are examination subjects. In addition, the curriculum includes civics and moral education, music and physical education—as non-examination subjects. Students in the top 10 % of the PSLE cohort who are good in languages and are also very good in their other subjects, may be offered a third language (German, French, Japanese or Malay Elective), subject to the availability of places. In Forms 3 and 4, core subjects are: English, the appropriate mother tongue, mathematics, a science subject, a humanities subject, and up to four elective subjects that best match students' abilities and interests. Those who are talented in art and music may choose these subjects under the art and music elective programmes, if they meet the selection requirements. Civics and moral education, music and physical education continue to be taught as non-examination subjects.

In general, students take seven or eight subjects at the GCE O-level examination. Those of exceptional academic ability may take a ninth subject.

Starting from the Secondary 1 students in 2008, the Special and Express Courses have been merged into the 'Express Course'.

Students in Forms 1 and 2 in the N(A) course follow common curriculum including: English, the mother tongue, mathematics, general science, literature, history, geography, art and crafts, design and technology or home economics as examination subjects. In addition, they are taught civics and moral education, music and physical education, as non-examination subjects. In Forms 3-5, the curriculum includes English, the mother tongue and mathematics as core subjects and two to four electives. These electives could be chosen from a range of subjects in the humanities and sciences, and other practical subjects such as food and nutrition, fashion and fabrics, design and technology, principles of accounts and commerce. Civics and moral education, music and physical education continue to be taught as non-examination subjects.

Students in Forms 1 and 2 in the N(T) course follow a common curriculum including: English, the mother tongue at the basic level, mathematics, computer applications, science, technical studies and home economics. Social studies, art and crafts, civics and moral education and physical education are non-examination subjects. In Forms 3-5, the curriculum includes: English, the mother tongue at the basic level, mathematics and computer applications as core subjects, and up to three electives. These electives are: technical studies (or design and technology), science, food and nutrition, fashion and fabrics, art and crafts and elements of office administration. Civics and moral education, music and physical education continue to



be taught as non-examination subjects. In order to enhance practice-oriented learning, a revised N(T) curriculum has been implemented in all schools from 2007.

In general, students in both the N(A) and N(T) course take five to seven subjects in the GCE N-level examination. As already mentioned, students who do well in the GCE N-level examination will have the option of doing a fifth year in school and be prepared for the GCE O-level examination. Students who can do well in a less structured environment also have the choice of the Integrated Programme (IP), which covers secondary and junior college education without intermediate national examinations at the end of secondary school. Time previously used to prepare students for the GCE O-level examination is being used to engage them in broader learning experiences.

For a balanced education, students are required to participate in extra-curricular activities. In general, students participate in one sports and games activity and another activity chosen from the list of uniformed organizations, or cultural activities such as music, dance, art and crafts and drama. Under-achievers can be retained or laterally transferred to a less demanding course. When deciding on student movements, school principals and teachers exercise their professional judgment in the best interests of their students.

In October 2002, the Government has accepted the recommendations proposed by the Committee on the Review of Junior College (JC) and Upper Secondary Education. The Committee has recommended a broader and more flexible JC curriculum and a more diverse JC/Upper Secondary landscape to better prepare students for the varied challenges of tomorrow. The Committee was set up in April 2002 to develop a revised JC curriculum framework and articulate a vision for JC/Upper Secondary education, including the appropriate structures, types of programmes to be offered, and the mix of schools to deliver these programmes. The Committee comprised political leaders, educators and representatives from the private and public sectors. In drawing up its recommendations, the Committee examined past trends and future educational needs of Singapore. It took into consideration the feedback and views from various stakeholders through public consultations and dialogue sessions with professionals, employers, academics, parents, teachers and undergraduates, JC and secondary school students. The Committee also drew insights from visits and study of school systems in several other countries. Key recommendations included: (i) a broader and more flexible curriculum (flexibility for students to study subjects at two levels, Higher 1 and Higher 2, so that students can decide on the scope of content of a subject they wish to take); (ii) a more diverse landscape; the Committee recommended the introduction of a variety of programmes and routes, including: the introduction of integrated programmes providing a seamless upper secondary and JC education; specialized schools to cater to exceptional talents in the arts, mathematics and science; allowing some schools to adopt alternative curricula and qualifications that are internationally recognized; and allowing a few privately-run and privately-funded schools to be set up.

To achieve the objectives of arts education, the arts syllabi have been reviewed in alignment with the changing needs. Music in the secondary schools is being extended to the Lower Secondary Normal (Technical) curriculum from 2002. Schools also have greater flexibility in the implementation of the revised Upper Secondary



General Music Syllabus from 2003. Schools have the autonomy to work out an effective arts programme customized to the needs and interests of their students. Such a programme could comprise a combination of formal lessons, and enrichment courses and activities.

From 2006, the MOE is taking greater responsibility for developing examination syllabi and formats, setting standards, and awarding grades. The MOE and the Singapore Examinations and Assessment Board (SEAB) continue to work with the University of Cambridge Local Examinations Syndicate (UCLES) in designing syllabi and outsource to UCLES the setting of question papers and marking of examination scripts. Some secondary schools are allowed to offer new GCE O-level subjects in addition to or in place of an elective subject. They may choose from the range of subjects offered by the Cambridge International Examinations group of O-level syllabuses. Some possible subjects include economics, computer studies and drama.

According to MOE statistics, in 2009 there were 154 secondary schools, of which 120 government, 28 government-aided, three independent, one specialized independent, and two specialized schools. The total enrolment was 199,409 students (of whom 97,582 girls); there were 12,066 teachers (of whom 7,999 women) and 154 principals, 215 vice-principals, and 3,050 executive and administrative staff. In addition, there were 15 mixed-level schools, e.g. primary and secondary schools (P1-S4/5), secondary and junior college schools (S1-JC2), and upper secondary and junior college (S3-JC2). The total enrolment in mixed-level schools was 36,469 students (of whom 16,984 girls) and the number of teachers was 2,494 (of whom 1,614 women). (MOE, August 2010).

Students who are academically inclined and have the necessary GCE O-level qualifications may apply for pre-university (post-secondary) education at the junior colleges, centralized institutes and pre-university centres. This course of studies leads to the GCE A-level examination. Admission to the universities depends on performance at this examination. Students with technical and commercial inclinations and the necessary GCE O-level grades can apply to the polytechnics. Polytechnic graduates with good grades in their studies will have the opportunity to pursue tertiary education at the universities. Students with GCE O- or N-level certificates can opt for technical-vocational courses offered by the Institute of Technical Education. Those who do well in these courses will be able to proceed to the polytechnics for diploma programmes.

In terms of the revised version of the Desired Outcomes of Education (2009), at the end of post-secondary education, students should: have moral courage to stand up for what is right; be resilient in the face of adversity; be able to collaborate across cultures and be socially responsible; be innovative and enterprising; be able to think critically and communicate persuasively; be purposeful in pursuit of excellence; pursue a healthy lifestyle and have an appreciation for aesthetics; be proud to be Singaporeans and understand Singapore in relation to the world. From 2008, all students who complete their education at the secondary and pre-university levels will receive a comprehensive school testimonial called the School Graduation Certificate from MOE. It includes a description of each student's academic and non-academic achievements and personal qualities.



The junior college offers an advanced curriculum that stresses academic and mental discipline and so prepares a student for university entry. The Singapore-Cambridge GCE A-level examination, for which all junior college students sit at the end of two years of study, acts as a university entrance examination. This is an examination recognized both by local universities and universities abroad. With a good A-level certificate, the student enters the university immediately, or after National Service in the case of young men. Work experience is not required.

The lecture-tutorial system that characterizes the organization of the junior college allows students to interact across groups, while offering them a variety of venues for lectures, tutorials and laboratory sessions.

In addition to the basic examination papers (General Paper) set for each A-level subject, an optional Special Paper is offered for selected subjects. This Special Paper requires the study of questions that are normally within the syllabus for the basic A-level, but the study approach is more analytical in nature than is usually required for these papers. It tests a student's intellectual grasp of a subject and his/her capacity to think about a subject. Students who show a particular aptitude for a subject, and whose overall academic work is of a sufficiently good quality, are encouraged to take on the challenge of an "S" Paper in one or two subjects. They are given extra tutorial assistance and guidance to help them respond to the demanding nature of this paper. Universities and scholarship bodies attach importance to "S" Papers.

The Institute of Technical Education (ITE) provides full-time and part-time technical education and training for secondary school-leavers. School-leavers with GCE O- or N-level qualifications can take up full-time training at eleven ITE technical institutes, selecting from a wide range of courses in electrical, electronics, mechanical, precision engineering, business studies and drafting. Full-time engineering courses lead to the award of nationally-recognized certificates at the levels of Industrial Technician Certificate (ITC) and National Technical Certificate. Courses leading to the award of the Certificate in Business Studies (CBS) and Certificate in Office Skills (COS) are offered for business studies courses.

Most apprenticeship programmes under the New Apprenticeship System (NAS), which cater to the needs of the manufacturing, commerce and technical support industry, lead to certification at the NTC-2 level. Apprenticeship programmes are also available for the service, commerce and health care sectors. Secondary school leavers have a range of more than seventy programmes to choose from.

The first junior college was established in 1969. According to MOE statistics, in 2009 there were 13 junior colleges/centralized institute. The total enrolment was 20,612 students (of whom 11,437 girls) and the number of teachers was 1,822 (of whom 1,082 women). Furthermore, there were 13 principals, 17 vice-principals and 293 executive and administrative staff. (MOE, August 2010).

### **Assessing learning achievement nationwide**

Singapore has performed well in the 2007 Trends in International Mathematics and Science Study (TIMSS), ranking first in science at both primary 4 and secondary 2,





second in mathematics at primary 4 and third in mathematics at secondary 2. Since 1995, Singapore has ranked within the top three positions with the exception of primary 4 science (ranked seventh) in 1995. According to the Ministry of Education the TIMSS 2007 results, released by the International Association for the Evaluation of Educational Achievement (IEA), reaffirm the high quality of mathematics and science education in Singapore and the conducive school environment available for students and teachers. A total of 59 different education systems participated in TIMSS 2007. A representative sample of students (about 6,500 primary 4 pupils and 6,000 secondary 2 students from all primary and secondary schools in Singapore) participated in the TIMSS 2007 assessment from October to November 2006.

The TIMSS 2007 survey of students, teachers and principals also affirms that Singapore schools are well-equipped with science laboratories and resources are readily available for mathematics and science instruction. In addition, schools provide students with a safe and conducive environment for learning. Percentage scores for these indexes are the highest or second highest internationally.

Singapore students have fared very well in the international study conducted under the auspices of the Organisation for Economic Cooperation and Development (OECD). Out of 65 countries and economies that took part in the 2009 Programme for International Student Assessment (PISA), Singapore students ranked fifth in reading, second in mathematics and fourth in science. Singapore also had the second highest proportion (12.3%) of students who are top performers in all three domains.

PISA assesses the extent to which 15-year-old students near the end of secondary education are able to analyze, reason and apply their knowledge and skills in unfamiliar settings so as to meet real-life challenges. Singapore's good performance at PISA 2009 shows that beyond a strong grasp of knowledge, students have the ability to think critically and solve real-life problems – skills that are valued in the society and at the workplace. In reading, Singapore students performed better than those from native English-speaking countries like Australia, the United States and the United Kingdom. In addition, Singapore had the third highest proportion (15.7%) of top performers in reading, after Shanghai and New Zealand. This proportion is twice that of the OECD average (7.6%). The mean score of Singapore students in mathematics was significantly higher than most other participants. Singapore also had the second highest proportion (35.6%) of top performers in mathematics, after Shanghai, and the second highest proportion (19.9%) of top performers in science, after Shanghai.

According to the Ministry of Education the findings affirm that changes in teaching and learning approaches in Singapore schools are in the right direction, and schools are preparing students well for their future work and life. Noting the results of the study, the OECD highlighted Singapore as a high performing education system with features that other systems could learn from. These include high-quality principals and teachers, as well as strong leaders with bold long-term visions. OECD also noted that there is a strong link between education and economic development, as well as between policy and implementation in Singapore. The curriculum is well-developed with rigorous standards aligned to instruction and assessment. OECD also recognized the importance of accountability and meritocratic values that underpin Singapore's strongly global-oriented and future-oriented education system. This was



the first time that Singapore had participated in the study. A total of 5,152 randomly-sampled 15-year-old students (mainly secondary 3 and 4 students) from 167 secondary schools and 131 students from 4 private schools participated in PISA 2009 in Singapore.

As regards the GCE O-level examinations, a total of 78 subjects and 208 examination papers were offered in the 2009 session. The 2009 GCE O-Level results were released in January 2010. A total of 37,424 school candidates sat the examination. Since 2006, students from Secondary 4 Normal (Academic) course can offer up to two GCE O-Level subjects. In 2009, a total of 4,757 students from the Secondary 4 Normal (Academic) course sat for one or more O-Level subjects. The percentage of students who obtained at least five O-Level passes and three O-Level passes were 81.1% and 94.9% respectively as compared with 80.8% and 94.6% for the 2008 examination.

Concerning the GCE A-level examinations, a total of 91 subjects and 199 examination papers were offered in the 2009 session. The GCE A-Level results were released in March 2010. A total of 14,212 school candidates sat the A-Level examination in 2009. Among them, 87.9% obtained at least 3 H2 passes with a pass in General Paper or Knowledge and Inquiry, which is comparable with the 2008 examination result of 87.7%. (SAEB, 2010).

## Teaching staff

The Education Service is committed to building up teachers as a quality professional force, exemplary in conduct and commitment, up-to-date in skills and knowledge. Good leadership and sound people-oriented management will help to develop a cohesive, committed and competent teaching service. Teachers must keep up with professional developments in their fields, and judiciously apply new educational theories and practices to the classroom. They need drive and conviction to translate education policies into practical and effective programmes to meet the learning needs of their pupils. Teachers are mentors and role models to their pupils. They influence young minds and inculcate sound social and moral values through word and deed, within and outside the classroom. They must impart to pupils learning skills, thinking skills and life skills to cope with the future; an attitude of continuous learning and improvement; and a sense of commitment and belonging to Singapore.

The National Institute of Education (NIE) is the sole teacher training institute in Singapore and a part of the Nanyang Technological University. The mission of the NIE is to be a world-class university institute renowned for its excellence in teacher education and educational research. The NIE is organized on the basis of a programme-driven matrix system with twelve academic groups, three IT clusters and selected research centres. The NIE offers the following programmes:

- The BA/BSc (Education) degree is a four-year (primary school emphasis) programme requiring A-level entry.
- The Diploma in Education is a two-year programme covering two academic subjects and pedagogy. Students can enter either the primary or



the secondary programmes. Students can enter this programme with A-levels or Polytechnic Diplomas.

- The Diploma in Physical Education (PE) is also a two-year programme. Students study PE plus one academic subject and can teach in either the primary or secondary school on graduation.
- The Diploma in Home Economics is a two-year programme. Students study home economics and pedagogy subjects. Entry requirements include a Polytechnic Diploma. Students teach in the secondary schools on graduation.
- The Diploma in Art and Music requires students to cover subjects in Art/Music and pedagogy. It is a two-year programme and accepts students from LaSalle School for the Arts and the Nanyang Academy of Fine Arts. Students teach in the secondary schools on graduation.
- The BA (Education) in Malay language and Malay literature with pedagogy is a four-year programme. It qualifies students to teach in the secondary school. A-levels and Polytechnic holders are eligible for entry.

The NIE also offers the MA, MA (PE), MSc, MSc (PE) as well as the PhD degree by research. Similarly, the NIE offers course work and dissertation master's degrees on a part-time basis.

A wide range of in-service courses are offered. Teachers can attend these courses to broaden their knowledge base and learn/share ways of making teaching and learning more effective. There are also milestone courses to equip officers for leadership roles. Officers earmarked to be Heads of Department enrol for the Diploma in Departmental Management (DDM) programme at NIE to prepare them for their managerial roles. Officers who have the potential to be school leaders attend the Leaders in Education programme at NIE.

Non-graduate teachers who wish to pursue a degree programme can apply for no-pay study leave to pursue full-time degree programme. In addition, candidates can apply for interest-free study loans and MOE course sponsorships. Postgraduate studies, relevant to the Education Service, are available to officers with a first degree, once they have gained some teaching experience and have consistent good performance. These studies are pursued by coursework or research at the master's degree level. These may be undertaken on a full-time or part-time basis, either on scholarship or study-leave. The aim is to provide good teachers with post-graduate training in specialized areas relevant to the Service.

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## Web resources

Ministry of Education: <http://www.moe.gov.sg/> [In English. Last checked: May 2011.]

Ministry of Education Language Centre: <http://www.moelc.moe.edu.sg/> [In English. Last checked: May 2011.]

Council for Private Education: <http://www.cpe.gov.sg/> [In English. Last checked: May 2011.]

Ministry of Community Development, Youth and Sports: <http://www.mcys.gov.sg/> [In English. Last checked: May 2011.]

National Institute of Education: <http://www.nie.edu.sg/> [In English. Last checked: May 2011.]

Singapore Examinations and Assessment Board: <http://www.seab.gov.sg/> [In English. Last checked: May 2011.]

*For updated links, consult the Web page of the International Bureau of Education of UNESCO: <http://www.ibe.unesco.org/links.htm>*