

BAHRAIN

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Introduction

Overview of Education System

Education and cultural services in the Kingdom of Bahrain are fundamental rights for all citizens, as legislated in Article 7 of the Bahrain constitution.¹ The main objective of educational policy in Bahrain is “to offer to all citizens, without any type of discrimination, equal opportunities to receive education.” Article 6 of *Bahrain Education Law No. 27* stipulates that “education is free of charge in basic and secondary government public schools.”²

The Bahrain Ministry of Education is the official body responsible for implementing educational policy in the public school sector, determining general objectives for basic and secondary education, and allocating instructional time for all subjects.³ Private schools in Bahrain operate under the supervision of the Ministry of Education and are obligated to use the curriculum and textbooks approved by the Ministry covering the Arabic language for Arab students, Islamic studies for Muslim students, and the history and geography of Bahrain for all students. In all schools in Bahrain in 2006, the Ministry implemented a citizenship curriculum that was compulsory only for Bahraini and Arab students. In 2015, the citizenship curriculum was implemented for all students in all schools.

In Bahrain, there are three types of private schools:⁴ national, foreign, and foreign community. Each school has its own curriculum, teaching plans, and textbooks, which must be approved by the Ministry of Education.

Education in Bahrain is divided into two main stages:⁵

- Basic education (Grades 1 to 9)—This stage is divided into primary and intermediate stages. The primary stage comprises Cycle 1 (Grades 1 to 3) and Cycle 2 (Grades 4 to 6), and the intermediate stage comprises Cycle 3 (Grades 7 to 9). Together, these three cycles of basic education constitute compulsory education, in which all students are taught in regular classes in all subjects.
- Secondary education (Grades 10 to 12)—In the first year, while certain basic subjects are common for all students, there are different general study streams and vocational streams to choose from.

Exhibit 1 presents the distribution of schools and students by type of school in Bahrain, as of January 2016.

Exhibit 1: Distribution of Schools and Students in Bahrain (January 2016)

Type of School	Number of Schools	Number of Students
Primary (Ages 6–12)		
Boys	58	30,929
Girls	55	32,466
Total	113	63,395
Intermediate (Ages 12–14)		
Boys	30	21,755
Girls	28	20,294
Total	58	42,049
Secondary (Ages 14–16)		
Boys	12	10,038
Girls	19	16,348
Total	31	26,386
Private Schools (Ages 6–18)		
Boys and Girls	75	66,725

In Bahrain, preschool and kindergarten (ages 3 to 5) are neither compulsory nor free. However, every child has the right to attend a kindergarten belonging to a private school or any one of the 137 private kindergartens operating under the supervision of the Ministry of Education.

In 2014, the Ministry conducted an assessment of learning materials in private kindergartens against standardized textbooks for the final kindergarten year (age 5). Exhibit 2 shows the distribution of kindergartens and students by sector in Bahrain, as of January 2016.

Exhibit 2: Distribution of Kindergartens and Students Ages 3–5 in Bahrain

Type of Kindergarten	Number of Kindergartens	Number of Students
Directorate Kindergartens	137	18,678
Private School Kindergartens	64	17,062

Languages of Instruction

Arabic is the official language of Bahrain. The language of instruction in all public schools is classical Arabic, which differs from the Arabic dialects spoken in Bahrain. Mathematics and science, along with all other subjects, are taught in classical Arabic. English is a compulsory subject from the first year of basic education. Recently, French has been implemented in 18 schools as a compulsory subject in Grade 7.⁶ Languages of instruction in private schools include English and either French or Arabic, depending on the system each school is following.

The Mathematics Curriculum in Primary and Lower Secondary Grades

Mathematics is a compulsory subject throughout basic education in Bahrain. The mathematics

curriculum for each cycle of basic education is built upon two types of general competency: content and skill. Cycle 1 (Grades 1 to 3) contains 13 general mathematics competencies covering five content areas: Numbers and Operations, Algebra, Geometry, Measurement, and Data and Probability Analysis. Cycle 1 also contains the following skill competencies: Problem Solving, Reasoning and Proving, Communication, and Linking and Representing Knowledge.

In the progression of learning, Cycle 2 (Grades 4 to 6) and Cycle 3 (Grades 7 to 9) cover the same five content areas as Cycle 1. Cycles 2 and 3 also share the same number of general and skill competencies. Content areas are taught to increasing depth and cover increasingly difficult topics as students progress through the grades and cycles. Specific competencies, comprising mathematical knowledge and understanding, are clearly defined within each content area and correlate with topics. Students are expected to develop and utilize their mathematical skills and to apply their knowledge and understanding in solving real life problems. Exhibits 3 and 4 present mathematics content areas and competencies⁷ for Grade 4 in Cycle 2 and Grade 8 in Cycle 3.

Exhibit 3: Mathematics Content Areas and Competencies for Grade 4 in Bahrain

Content Area	Competencies
Numbers and Operations (Whole numbers up to 7 digits)	Read, write, and express numbers up to 100,000; understand place value, ways of representing numbers and the relationship between numbers; explore the concept of 1 million; read, write, order, and compare numbers in millions
Fractions and Decimals	Recognize fractions as parts of a whole unit or parts of a collection; read, write, identify, and determine equivalent fractions; compare and represent fractions on the number line; understand decimal place value; define decimals using words and numbers, and represent decimals on the number line; compare, read, and write decimals; determine, read, write, and order decimal numbers greater than 1
Arithmetic Operations	Understand the four basic arithmetic operations (addition, subtraction, multiplication, and division) and how they relate to one another, and compare them in terms of properties used in calculations and their meaning; use numbers and arithmetic operations to compare and order whole numbers, simple fractions, and decimals, and to solve problems including those set in a real life context; compute with numbers; estimate numbers and estimate using the four arithmetic operations
Algebra	Identify number patterns and the relationship between patterns (numbers or terms); extend and generate patterns; write simple algebraic expressions to solve for one unknown and represent real life situations using models, symbols, pictures, and words
Geometry	Identify and draw points, lines, rays, line segments, angles, triangles, and quadrilaterals; distinguish between parallel, perpendicular, and intersecting lines; explore the properties of two- and three-dimensional geometric shapes and determine the line of symmetry in two-dimensional shapes; recognize congruence with and distinguish between geometric transformations (i.e., translation, reflection, and rotation)
Data Analysis and Probability	Collect, organize, represent, and display data in graphs, charts, and tables, reading and interpreting the data; calculate mode and mean from a set of data; explore and differentiate among certain, possible, and impossible events; conduct probability experiments, observe, and record experiment results

Exhibit 4: Mathematics Content Areas and Competencies for Grade 8 in Bahrain

Content Area	Competencies
Numbers and Operations (Integers, rational numbers, and real numbers)	<ul style="list-style-type: none"> Develop understanding of integers, recognize rational numbers, distinguish between fractions and decimals, and represent these on the number line; understand ratio, proportion, and percent, and carry out operations with these when solving problems; classify, compare, and order rational numbers; use factors and multiples in solving problems; identify irrational numbers and recognize the real number system; develop understanding of integers, rational numbers, and real numbers and compare, order, compute, represent, and understand operations on them Calculate powers of numbers and square roots; compute and estimate using equivalent fractions and percentages and use these computations and estimations in solving problems; calculate length, including side lengths of similar triangles and in solving real life problems
Algebra	<ul style="list-style-type: none"> Extend and generalize numeric, algebraic, and geometric patterns or sequences, including finding the missing terms; use relations and functions; simplify and evaluate algebraic expressions Explore properties of linear functions in tables, words, equations, inequalities, and graphs Understand linear relationships and the concept of variables in solving linear equations and finding the range of functions Model real life situations using multiple representations
Geometry	<ul style="list-style-type: none"> Recognize the geometric properties of angles and geometric shapes (e.g., triangles, quadrilaterals, and other common polygons) Differentiate between two- and three-dimensional shapes and use their properties in solving problems Use geometric transformations to explore the properties of symmetry, similarity, and congruence in solving problems Use geometric models to represent numerical and algebraic relationships
Measurement	<ul style="list-style-type: none"> Recognize metric and customary units and demonstrate understanding of relationships among units Identify appropriate units for measuring angles and lines, and area, circumference, and volume Compute and estimate area, circumference, and volume
Data Analysis and Probability	<ul style="list-style-type: none"> Read and represent data displayed in different forms (e.g., line plots, tables, and bar graphs) Describe and compare different representations of the same data Calculate the mode, median, and range from a set of data Determine and estimate the probability of an outcome and use the probability of a particular outcome to solve problems

The Science Curriculum in Primary and Lower Secondary Grades

Similar to mathematics, science is a compulsory subject throughout basic education in Bahrain. The science curriculum for each cycle of basic education is built upon two types of general competency: central and subsidiary.⁸

The curriculum for Grade 4 in Cycle 2 contains 13 central science competencies covering four content areas: Nature of Science, Physical Science, Earth and Space Science, and Life and

Environmental Science. The curriculum also contains 13 subsidiary competencies, which detail the topics within the general competencies in terms of knowledge, application, and reasoning.

In the progression of learning, the curriculum for Grade 8 in Cycle 3 contains nine central competencies covering the following content areas: Nature of Science; Science, Technology, and Society; and Physical Science. (Earth Science is taught again in Grade 9.) In addition to the nine central competencies, there are nine subsidiary competencies. Together, the central and subsidiary competencies clearly define the content areas in terms of scientific knowledge and understanding. Students are expected to develop and utilize their scientific skills, apply their knowledge and understanding, and extend their thinking to accommodate new findings. The translated version of the McGraw-Hill series in science provides the national science curriculum in Bahrain. Exhibits 5 and 6 present science content areas and competencies for Grade 4 in Cycle 2 and Grade 8 in Cycle 3.

Exhibit 5: Science Content Areas and Competencies for Grade 4 in Bahrain

Content Area	Competencies
Nature of Science	<ul style="list-style-type: none"> Understand the nature of science and use scientific processes and procedures to explore and explain events and phenomena
Physical Science (Physics and Chemistry)	<ul style="list-style-type: none"> Identify concepts related to motion and its relationship to force and work Demonstrate understanding of the concept of energy, forms and sources of energy, and energy transfer Understand that light is a form of energy and that it can be broken into different colors Describe a variety of mixtures, and explain how they can be prepared physically Define the states and characteristics of matter, and explore changes that might occur in matter (e.g., through heating and cooling)
Earth and Space Science	<ul style="list-style-type: none"> Develop basic knowledge of space, galaxies, stars, and the solar system, and demonstrate understanding of the relationship among the Earth, Sun, and Moon Describe the solar system and understand the relationship among the solar system, stars, and galaxies
Life and Environmental Science	<ul style="list-style-type: none"> Describe differences between living and nonliving things; identify the structures and functions of living things, including common characteristics such as reproduction, heredity, growth, and the need of water and air Recognize the physical and behavioral characteristics of major groups of living things Understand diversity and adaptation of living organisms, and classify them into major groups (e.g., mammals, insects, birds, and plants) Develop basic knowledge of human life and the surrounding environment, and identify the effects of the environment on physical features of animals and plants

Exhibit 6: Science Content Areas and Competencies for Grade 8 in Bahrain

Content Area	Competencies
Nature of Science	<ul style="list-style-type: none"> Understand the nature of science, and use scientific processes and procedures to explore and explain events and phenomena
Science, Technology, and Society	<ul style="list-style-type: none"> Understand the interaction among science, technology, and society

**Physical Science
(Physics and Chemistry)**

- Identify concepts related to motion and its relationship to force
- Define speed as change in position (distance) over time and acceleration as change in speed over time, and define the relationship between speed and direction
- Recognize the effect of different forces (e.g., pressure, floating, and sinking)
- Identify Newton’s first and second laws of motion and how friction affects motion
- Explain Newton’s third law of motion, describing the phenomenon of weightlessness
- Demonstrate understanding of forms of energy and conservation of energy, heat transfer and thermal conductivity, and properties of light and sound
- Describe processes involved in changes in states of matter, and relate states of matter to distance and movement among particles
- Describe a variety of mixtures, and explain how they can be prepared physically

Teachers, Teacher Education, and Professional Development

Teacher Education Specific to Mathematics and Science

In the first cycle of basic education (Grades 1 to 3), there is a single classroom teacher for most subjects. These teachers are required to hold a bachelor’s degree in education. In the second and third cycles (Grades 4 to 9), mathematics and science are taught by subject specialists required to hold a bachelor’s degree in their respective subject, along with a postgraduate diploma in education.

Requirements for Ongoing Professional Development

In 2013, a new approach to professional development was introduced for mathematics and science teachers. Specialists from the training and development directorate and the curricula and advisory directorate collaborated to design workshops that would meet specific needs identified in their reports. Approximately 50 workshops in teaching mathematics and science were conducted in the last two years. In addition, to help implement the numeracy strategy developed in 2011, 30 qualified teachers were trained over two years to become numeracy strategy coaches in schools, and teachers were provided with lesson plans. Currently, mathematics specialists from the curricula directorate are preparing the required units to implement the numeracy strategy in Cycle 3, involving the newly trained coaches, and will ensure full training.

Instruction for Mathematics and Science in Primary and Lower Secondary Grades

Grade at Which Specialist Teachers for Mathematics and Science are Introduced

Throughout Cycle 1 (Grades 1 to 3) of basic education, one teacher typically teaches all subjects. During Cycle 2 (Grades 4 to 6) and Cycle 3 (Grades 7 to 9), specialist teachers teach individual subjects.

Instructional Materials, Equipment, and Laboratories

The reformed curriculum in Bahrain is presented in mathematics and science textbooks, which are published in two parts, one for each semester. The Ministry provides all public school students with textbooks and all schools with accompanying teacher guides and student exercise books.

Textbooks predominantly are produced locally and compiled and printed by the Ministry of Education, with the exception of translated mathematics and science textbooks, which are printed in Saudi Arabia and paid for by the Ministry of Education. In 2016, Bahrain will take full charge of printing textbooks and teacher's guides. In addition, following the approval of a new numeracy strategy in 2011, new numeracy units were introduced in all primary schools in 2013, for Cycles 1 and 2 of basic education.

Public schools in Bahrain are equipped with all the facilities required for teaching and learning, including equipped laboratories and learning resource centers.

Use of Technology

All schools in Bahrain are equipped with electronic classrooms, which utilize multipurpose electronic learning systems and connect all schools electronically. Recently, learning resource centers in all schools in Bahrain were equipped with multimedia devices for enhancing presentation. In addition, all teachers in Bahrain have received training in the use of computers and are qualified with an International Computer Driving License. In 2014, His Majesty King Hamad issued directives for the implementation of the Digital Empowerment in Education⁹ scheme to help achieve the objectives of the King Hamad Schools of the Future Project.¹⁰ The order was implemented gradually in 2015, beginning with Grade 8 in five chosen schools, and was carried out in partnership with national and international private companies such as Apple.

Accommodation Policies for Instruction and Testing

In Bahrain, a program for integrating students with special needs in public schools was initiated to equip these students with educational competencies and life skills through engaging them in educational activities together with regular students. The program also aims to prepare them to join the job market through vocational education that matches their needs and abilities. Students with special needs are accommodated in regular classes and served by a remedial program in Arabic language and mathematics delivered in three lessons per school day, a schedule that allows every student with special needs to attend at least one lesson daily. The program is designed to ensure that students with special needs may attain prescribed competencies. Schools organize their own committees to monitor, support, and evaluate students with special needs.

Students with special needs are assessed like other students, as described in the Monitoring Student Progress section below. During these assessments, they may be provided with a suitable place, assistance with reading questions, extra time, and other accommodations according to their needs. When scoring papers, examiners measure and compare their results against historical evidence of their development, evaluating their understanding, behavior, and ability to study based on their progress over time.

Monitoring Student Progress in Mathematics and Science

As mandated in Article 4 of the Royal Decree, the Quality Assurance Authority for Education and Training monitors the quality of education in Bahrain.¹¹ Students in basic education take national examinations administered by the Quality Assurance Authority in four subjects: mathematics,

science, Arabic, and English. The examinations are designed to evaluate student learning progress and collect information on students, schools, and school performance. Until recently, the national examinations were administered on a yearly basis. Recently, the Quality Assurance Authority decided to administer the examinations in a three year cycle such that examinations last year were administered to students at the end of Cycle 1 (Grade 3) only; this year they will be administered to students at the end of Cycle 2 (Grade 6) only, and next year they will be administered to students at the end of Cycle 3 (Grade 9) only.

In order to monitor student progress, the Ministry of Education's school evaluation system, which is applied in all schools in Bahrain,¹² assesses student performance based on the following components in all subjects:

- Daily classwork, homework, and classroom quizzes; teacher observations of student behavior and attitude toward classmates; project work, which varies across subjects; and subject knowledge (30 percent)
- Midterm examination (20 percent)
- End-of-term examination (50 percent)

In 2013, a ministerial order was issued to allocate 10 percent of total assessment to an oral mathematics examination (i.e., 20 percent of the end-of-term examination) for Cycle 2 students in order to evaluate the new numeracy strategy.

Special Initiatives in Mathematics and Science Education

In 2011, the Ministry introduced the Bahrain Numeracy Strategy.¹³ The objectives of this strategy are to raise the performance of all students in mathematics by improving the quality of teaching and learning, to help students develop self-confidence in dealing with numbers and measurements, to help students understand numeric systems and methods of collecting and displaying data, and to help students solve daily life problems. The primary aim of the Bahrain Numeracy Strategy is to achieve excellence in teaching and learning by developing educational resources in the following areas: advice and guidance, planning guides and units, curriculum, leadership advice and support, professional development and training, and classroom support and coaching. The new numeracy strategy was introduced in primary schools in 2013, and was introduced in Grade 7 in eight schools in 2015. The numeracy strategy was implemented along with the national curriculum, which is a translated version of the McGraw-Hill series in mathematics.

In 2012, the Ministry implemented the Improving Daily School Timing Initiative,¹⁴ which increased the time allocated for lessons in mathematics and science from 45 minutes to 1 hour. In 2015, the Digital Empowerment in Education scheme was implemented, as mentioned in the Use of Technology section. The Ministry also initiated and prepared an item bank in both mathematics and science in order to improve student achievement in national and international studies and competitions.

Use and Impact of TIMSS

The Kingdom of Bahrain's TIMSS 2011 National Report identified significant indicators of weakness in teaching and learning mathematics and science.¹⁵ Bahrain's results in mathematics and science did not meet international standards. In fact, 2011 results in both mathematics and science were very close to the TIMSS 2007 results. All schools that participated in TIMSS 2011 received a copy of the TIMSS 2011 National Report to allow them to compare their scores with the scores of other schools. Because the report provides feedback on student achievement, the study has the potential to impact teaching and learning. The report was shared with policymakers in education to help facilitate the development of new policies, to address the shortfalls identified in student performance and mathematics and science instruction.

One major indicator taken into consideration in Bahrain was the difference in achievement between girls and boys. This achievement gap led the Ministry to conduct several workshops for senior male teachers and to begin monitoring their performance in class rigorously. The Ministry also has invited several teachers from every school to join the TIMSS National Center to further enhance their teaching skills and to share their experiences with fellow teachers.

Bahrain's participation in TIMSS, TIMSS Numeracy, and PIRLS will continue, and participation in PISA has been recommended highly.

Suggested Readings

The Ministry of Education. (n.d.). Retrieved from <http://www.moe.gov.bh>

Quality Assurance Authority for Education and Training. (n.d.). Retrieved from <http://www.qaa.bh>

References

- ¹ Constitution of Kingdom of Bahrain (2002).
- ² Education Law No. 27 of the Kingdom of Bahrain (2005).
- ³ Ministry of Education. (2007). *Development of education in Bahrain*. Manama: Author.
- ⁴ Ministry of Education, Private Education Directorate. (2014). *Education in Bahrain*. Isa Town: Author.
- ⁵ Ministry of Education, General and Technical Education Directorates. (2014). *Education in Bahrain*. Isa Town: Author.
- ⁶ Ministry of Education, Intermediate Education Directorate. (2014). *Education in Bahrain*. Isa Town: Author.
- ⁷ Ministry of Education, Directorate of Curricula. (2011). *Mathematics curriculum*. Isa Town: Author.
- ⁸ Ministry of Education, Directorate of Curricula. (2011). *Science curriculum*. Isa Town: Author.
- ⁹ Ministry of Education, Asst. Undersecretary for Planning and Information. (2015).
- ¹⁰ Al-Awadhi, H. (2012). Bahrain. In I.V.S Mullis, M.O. Martin, C.A. Minnich, G.M. Stanco, A. Arora, V.A.S. Centurino, & C.E. Castle (Eds.), *TIMSS 2011 Encyclopedia, 1*, 151–162. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
- ¹¹ Decree No. 32 of the Kingdom of Bahrain (2008).

¹² Al-Mahmood, R. (2009). *Evaluation system for schools*. Isa Town: Ministry of Education.

¹³ Bahrain Economic Development Board. (2010). *Education project 2010*. Retrieved from <http://www.bahrainedb.com>

¹⁴ Ministry of Education. (n.d.). Retrieved from www.moe.gov.bh

¹⁵ Al-Awadhi, H. (2013). *TIMSS 2011 national report*. Isa Town: Ministry of Education.