

2017 / 2018
Academic year

Name of School:	School Code:
-----------------	--------------

Subject : Natural Science							
The Requirements of Basic Academic Attainments at Senior Education ⁽¹⁾		Teaching Content to be covered through the following teaching activities (State the name and content of the relevant modules / school-based curriculum / other learning activities)			If not covered, please state the reason(s) and provide possible solution(s)	Textbook	Remark(s):
Learning Domain	Concrete Content	F4	F5	F6			
A. Scientific inquiry	A-1 Comprehend that inquiry is one of the essential properties of natural science, it is also a way of survival and life attitude.						
	A-2 Understand the importance of critical thinking in processing evidence, including the significant role of evidence in supporting, amending or refuting the proposed scientific theory.						
	A-3 Preliminarily learn to raise appropriate scientific problems and social science issues and identify the crux of the problem.						
	A-4 Preliminarily know how to use facts, experience or scientific theories to carry out logical reasoning and propose hypotheses.						
	A-5 Try to use critical thinking to present creative ideas and practical solutions to problems.						
	A-6 Search the scientific information needed through different means including library, the Internet, and multimedia resource database etc., and preliminarily learn to classify and summarise the information.						
	A-7 Try to assess the quality of the obtained information and observe the results, and discern the factors influencing the quality and reliability.						
	A-8 Preliminarily know how to deduce correct conclusions with direct evidence and circumstantial evidence.						
	A-9 Preliminarily know how to display research results with charts and write						

2017 / 2018

Academic year

Name of School:	School Code:
-----------------	--------------

Subject : Natural Science							
The Requirements of Basic Academic Attainments at Senior Education ⁽¹⁾		Teaching Content to be covered through the following teaching activities (State the name and content of the relevant modules / school-based curriculum / other learning activities)			If not covered, please state the reason(s) and provide possible solution(s)	Textbook	Remark(s):
Learning Domain	Concrete Content	F4	F5	F6			
	research reports with scientific terminology.						
	A-10 Be able to learn to complete a certain scientific inquiry research through group work, and know the importance of division of labour and cooperation in research.						
B. History of science and the nature of science	B-1 Preliminarily understand the difference and connection between science and technology.						
	B-2 Preliminarily know that science is a part of social and cultural tradition and scientific concepts are affected by the social and historical background.						
	B-3 By knowing the history of scientific development, understand the evolution and revolution of science.						
	B-4 From the history of the discovery of the periodic table of the elements, preliminarily understand the conviction of scientists that the world is knowable and the impact of their conviction on scientific research.						
	B-5 From the history of the discovery of the benzene ring structure, understand the important role of creativity and imagination in scientific development.						
	B-6 From the history of the discovery of the atomic structure models, know the values and limitations of model construction in scientific inquiry.						
	B-7 Understand Galileo and Newton's contributions to science and the importance of their experimental methods in scientific development.						

2017 / 2018
Academic year

Name of School:	School Code:
-----------------	--------------

Subject : Natural Science							
The Requirements of Basic Academic Attainments at Senior Education ⁽¹⁾		Teaching Content to be covered through the following teaching activities (State the name and content of the relevant modules / school-based curriculum / other learning activities)			If not covered, please state the reason(s) and provide possible solution(s)	Textbook	Remark(s):
Learning Domain	Concrete Content	F4	F5	F6			
	B-8 Realise that theory or law has different roles in science by understanding the history of western science about knowing the nature of light.						
	B-9 Preliminarily understand the process of human cognition of electromagnetic interaction and its impact on human society..						
	B-10 Be able to analyse and explain the establishment process of cell theory, and understand the main features of scientific discovery.						
	B-11 Be able to analyse and explain the human exploration process of genetic material, and understand the important role of experimental techniques in scientific research.						
	B-12 Be able to briefly describe the formation and development of biological evolutionary thought, and realise the relationship between scientific development and society, culture, religion and the like.						
	B-13 Know about the development of modern astronomy and earth sciences, and explain its significance to the progress of human civilisation.						
C. Environment and resources	C-1 Understand common non-metallic compounds including chlorine, nitrogen, sulfur, silicon, etc., as well as the impact of recycling of common metals on the ecological environment.						
	C-2 Understand the main components of home decorating materials and their effects on human health.						

2017 / 2018

Academic year

Name of School:	School Code:
-----------------	--------------

Subject : Natural Science							
The Requirements of Basic Academic Attainments at Senior Education ⁽¹⁾		Teaching Content to be covered through the following teaching activities (State the name and content of the relevant modules / school-based curriculum / other learning activities)			If not covered, please state the reason(s) and provide possible solution(s)	Textbook	Remark(s):
Learning Domain	Concrete Content	F4	F5	F6			
	C-3 Know the situation of light pollution, white pollution, electromagnetic pollution and other environmental pollution in Macau as well as the hazards caused by them.						
	C-4 Understand the application of nuclear energy and the essentiality and methods of properly handling the radioactive waste from nuclear power plant.						
	C-5 Understand the impact of land reclamation on the ecological environment.						
	C-6 Be able to discuss the balanced relationship between urbanisation, industrialisation and environmental preservation.						
	C-7 Be able to discuss the formation and significance of biodiversity.						
	C-8 Be able to analyse and illustrate the energy flow and material cycle of ecosystems, and explore the practical application of these laws.						
	C-9 Be able to explore the global environmental problems and the protection measures, and pay attention to the current situation of the ecological environment in Macao.						
D. Modern technology	D-1 Know the important role of the derivatives of ethylene, vinyl chloride, and benzene etc. in chemical production, be able to illustrate with examples the application of macromolecular materials in life and other areas.						
	D-2 Preliminarily understand the detection methods for the composition and structure of common substances, know the						

2017 / 2018

Academic year

Name of School:	School Code:
-----------------	--------------

Subject : Natural Science							
The Requirements of Basic Academic Attainments at Senior Education ⁽¹⁾		Teaching Content to be covered through the following teaching activities (State the name and content of the relevant modules / school-based curriculum / other learning activities)			If not covered, please state the reason(s) and provide possible solution(s)	Textbook	Remark(s):
Learning Domain	Concrete Content	F4	F5	F6			
	roles of mass spectrometer, nuclear magnetic resonance instrument (NMR instrument), infrared spectrometer and other modern instruments in detecting the structure of substances.						
	D-3 Preliminarily understand the principle of operations of laser and the optical fiber and their applications in production and life.						
	D-4 Understand the role of science and technology in promoting human society through the knowledge of microscopes, telescopes and X- ray diffraction, etc.						
	D-5 Be able to illustrate the application of satellite technology in life.						
	D-6 Understand the microstructure of liquid-crystal, and know the main differences between high definition television (HDTV) and cathode ray tube television (CRT television).						
	D-7 Understand the impact of telecommunication equipment and network technology on human economic and social development.						
	D-8 Be able to pay attention to the genome-related information and genetic diagnosis and treatment, understand the meaning of the human genome project, and exemplify the impact of genetic engineering on production and life.						
	D-9 Collect the information about the development progress of stem cell research and the application of stem cells, and understand the significance of stem cell research for human beings.						

2017 / 2018

Academic year

Name of School:	School Code:
-----------------	--------------

Subject : Natural Science							
The Requirements of Basic Academic Attainments at Senior Education ⁽¹⁾		Teaching Content to be covered through the following teaching activities (State the name and content of the relevant modules / school-based curriculum / other learning activities)			If not covered, please state the reason(s) and provide possible solution(s)	Textbook	Remark(s):
Learning Domain	Concrete Content	F4	F5	F6			
	D-10 Pay attention to the development of cloning and organ transplant technology as well as the possible social and ethical issues.						

Note: (1) Dispatch of Secretary of Social and Cultural Affairs No. 55/2017 (Annex 10)	Data : (D) / (M) / (Y)
---	------------------------