

Science 7



Dominican International School

Course Syllabus

School Year 2026–27



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Science and Health Teacher

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COURSE DESCRIPTION:

The focus of the Grade 7 Science is an integrated science course that explores the scientific method through the study and experimentation of topics in Physical Science, Life Science and Earth & Space Science. Students will investigate and draw conclusions from learning activities that are designed to foster critical thinking and inquiry.

The teaching session consists of 5 periods (45 minutes) per week, running from August till May. The nature of the subject relates to explanation, comprehension, comparison, analysis and application of the learned knowledge.

Science projects will be carried out for the science fair, where pupils create their own experiments/investigations, and present their science inquiry via both poster and oral presentation. Scientific thinking and step-wise guidance will be introduced to help pupils understand the nature of science.

COURSE OBJECTIVES:

By the end of the school year, students will be able to:

The Science curriculum adapts the US Next Generation Science Standards (NGSS). In Grade 7 students continue working towards the achievement of the Middle School NGSS Standards. The standards for each sub- topic are described in narrative form below:

Middle School Physical Sciences

Students in middle school continue to develop understanding of four core ideas in physical science. The middle school performance expectations in the Physical Sciences build on the K-5 ideas and capabilities to allow learners to explain phenomena central to the physical sciences but also to the life sciences and earth and space science. The performance expectations in physical science blend the core ideas with scientific and engineering practices and crosscutting concepts to support students in developing usable knowledge to explain real-world phenomena in the physical, biological, and earth and space sciences. In the physical sciences, performance expectations at the middle school level focus on students developing understanding of several scientific practices. These include developing and using models, planning and conducting investigations, analyzing and interpreting data, using mathematical and computational thinking, and constructing explanations; and using these practices to demonstrate understanding of the core ideas. Students are also expected to demonstrate understanding of several engineering practices including design and evaluation.

Middle School Life Sciences

Students in middle school develop understanding of key concepts to help them make sense of life science. These ideas build upon students' science understanding from earlier grades and from the disciplinary core ideas, science and engineering practices, and crosscutting concepts of other experiences with physical and earth sciences. There are five life science topics in middle school: 1) Structure, Function, and Information Processing, 2) Growth, Development, and Reproduction of Organisms, 3) Matter and Energy in Organisms and Ecosystems, 4) Interdependent Relationships in Ecosystems, and 5) Natural Selection and Adaptations. The performance expectations in middle school blend core ideas with scientific and engineering practices and crosscutting concepts to support students in developing usable knowledge across the science disciplines. While the performance expectations in middle school life science couple particular practices with specific disciplinary core ideas, instructional decisions should include use of many science and engineering practices integrated in the performance expectations. The concepts and practices in the performance expectations are based on the grade-band endpoints described in A Framework for K-12 Science Education (NRC, 2012).

Middle School Earth and Space Sciences (ESS)

Students in middle school develop an understanding of a wide range of topics in Earth and space science that build upon science concepts from elementary school through more advanced content, practice, and crosscutting themes. There are six ESS standard topics in middle school: Space Systems, History of Earth, Earth's Interior Systems, Earth's Surface Systems, Weather and Climate, and Human Impacts. The content of the performance expectations is based on current community-based geoscience literacy efforts, such as the Earth Science Literacy Principles (Wyssession et al., 2012), and is presented with a greater emphasis on an Earth Systems Science approach. The performance expectations strongly reflect the many societally relevant aspects of ESS (resources, hazards, environmental impacts) as well as related connections to engineering and technology.

ASSESSMENT:

Assessment is an essential component of the learning process. It is also the key to unlocking what students have actually learned. Classroom formative assessment will be given to students throughout the year to collect feedback on how well they are learning. Students will also be assigned online classroom homework. Section or chapter tests will be given to students to evaluate their knowledge and ability to apply science concepts, and to cultivate critical thinking. Summative exams conducted quarterly aim to assess students' learning and to structure their academic efforts.

Assessment strategies include participation (10%), homework and classwork (30%), chapter tests (30%), and quarter exams (30%). All formative and summative assessments, including reports, essays, presentations, or projects, would be accompanied by written or oral feedback. Multiple assessments address different learning styles, with the results aligned to NGSS to evaluate pupils' progress, wherever applicable. All the students' grades are carefully recorded, and data is promptly entered in the school gradebook system for tracking and evaluation.

PRIMARY TEXTBOOK & OTHER RESOURCES

McGraw Hill Education (2020), *Inspire Science Grade 7 Integrated*. Columbus, OH. ISBN: 978-0-07- 687477-4

Google Classroom is a web-based platform for effective instructional communications and formative feedback. It is accessible not only for pupils, but also for parents and the school. Video clips, interactive learning programs, and web-based learning tools, such as eScience and PHET are also used to facilitate and stimulate learning.

References:

Michelle Anderson, Julie Berwals, et al. *Integrated iScience Course 2*. Columbus, Ohio. Glencoe/McGraw Hill, Copyright 2017.

McGraw Hill Education (2017), *Integrated iScience2, Teacher Ed. Vol. 1*, Columbus, OH. ISBN: 978-0-07- 677351-0

National Research Council. (2012) *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*. Committee on a Conceptual Framework for New K-12 Science Education Standards. Board on Science Education, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

Wyssession, M. E. et al. (2012) Developing and applying a set of earth science literacy principles. *J. Geosci. Educ.*, 60(2), pp. 95–99.

Copying (plagiarism) is a serious offense and a form of theft. In certain cases, it is also a criminal offense. It is defined as taking words, phrasing, sentence structure, or any other element of the expression of another person's ideas, and using them as if they were your own. Plagiarism is a violation of another person's rights, whether the material stolen is great or small – it is not a matter of degree or intent. Plagiarism has serious consequences.

Any act of plagiarism will result in an automatic zero on the entire assignment

Academic Dishonesty means employing a method or technique or engaging in conduct in an academic endeavor that contravenes the standards of ethical integrity expected at DIS. Academic dishonesty includes but is not limited to, the following:

1. Purposely incorporating the ideas, words of sentences, paragraphs, or parts thereof without appropriate acknowledgment and representing the product as one's own work; and
1. Representing another's intellectual work such as photographs, paintings, drawings, sculpture, or research or the like as one's own, including failure to attribute content to an AI.
2. Employing a tutor, making use of Artificial Intelligence without acknowledgement, getting a parent to write a paper or do an assignment, paying for an essay to be written by someone else and presented as the student's own work.
3. Committing any act that a reasonable person would conclude, when informed of the evidence, to be a dishonest means of obtaining or attempting to obtain credit for academic work.

Any act of academic dishonesty will result in an automatic zero on the entire assignment

WEEKLY SCHEDULE

First Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 Aug 10 - 14	Monday Class Preparation ~ Student Holiday Tuesday Morning Assembly Friday Opening Mass & Assumption of Our Lady 8:00 Course introduction, Scientific Explanations Orientation, Expectations; Class and Lab Requirements (Lab Safety Guidelines, LAB Safety Quiz and Agreement) Introduction to Unit 1 - Understanding Matter
Week 2 Aug 17 - 21	<u>UNDERSTANDING MATTER</u> <u>MODULE: Classification and States of Matter</u> Lesson 1 Energy and States of Matter
Week 3 Aug 24 - 28	<u>MODULE: Classification and States of Matter</u> Lesson 1 Energy and States of Matter
Week 4 Aug 31 - Sep 4	<u>MODULE: Classification and States of Matter</u> Lesson 2 Changes in Temperature
Week 5 Sep 7 - 11	<u>MODULE: Classification and States of Matter</u> Lesson 3 Changes in Pressure
Week 6 Sep 14 - 18	<u>MODULE: Classification and States of Matter</u> Lesson 4 Molecular Structure
Week 7 Sep 21 - 25	T-W-Th Pre-Exam Days Friday Moon Festival ~ Public Holiday <u>MODULE: Classification and States of Matter</u> Lesson 4 Molecular Structure
Week 8 Sep 28 - Oct 2	Monday Confucius' Birthday ~ Public Holiday Thursday Major Exams Day 1 Friday Major Exams Day 2
Week 9 Oct 5 - 9	Monday Record Day ~ Student Holiday T-W-Th Teachers Conference ~ Student Holiday Friday Double 10 Day ~ Public Holiday

Second Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (10) Oct 12 - 16	Review Quarter Exam <u>MODULE: MATTER: Properties and Changes</u> Lesson 1 Properties of Matter
Week 2 (11) Oct 19 - 23	<u>MODULE: MATTER: Properties and Changes</u> Lesson 2 Property Changes in Chemical Reactions
Week 3 (12) Oct 26 - 30	Monday Retrocession Day ~ Public Holiday <u>MODULE: MATTER: Properties and Changes</u> Lesson 3 Energy Changes in Chemical Reactions
Week 4 (13) Nov 2 - 6	<u>THE CHANGING EARTH</u> <u>MODULE: Dynamic Earth</u> Lesson 1 Moving Continents
Week 5 (14) Nov 9 - 13	<u>MODULE: Dynamic Earth</u> Lesson 2 Development of a Theory
Week 6 (15) Nov 16 - 20	<u>MODULE: Dynamic Earth</u> Lesson 3 Shaping Earth's Surface
Week 7 (16) Nov 23 - 27	T-W-Th Pre-Exam Days Friday Grade 12 Exams <u>MODULE: Dynamic Earth</u> Lesson 3 Shaping Earth's Surface
Week 8 (17) Nov 30 - Dec 4	Monday Grade 12 Exams <u>MODULE: Dynamic Earth</u> Lesson 4 The Cycling of Earth's Materials
Week 9 (18) Dec 7 - Dec 11	Monday TBD Tuesday Foundation Day Mass 9:00, Cutting of the Cake Ceremony, Christmas Fair, (Whole day) Wednesday TBD Thursday Major Final Exams half day Friday Major Final Exams half day
<i>Dec 14 to Jan 1 Christmas Break</i>	

Third Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
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Week 1 (19) Jan 4 - Jan 8	Monday Record Day ~ Student Holiday Friday New Year Mass at 8:00 Review Quarter Exam <u>MODULE: Dynamic Earth</u> Lesson 4 The Cycling of Earth's Materials
Week 2 (20) Jan 11 - Jan 15	<u>MODULE: Natural Hazards</u> Lesson 1 Earthquakes
Week 3 (21) Jan 18 - Jan 22	<u>MODULE: Natural Hazards</u> Lesson 2 Volcanoes Introduction of Quarter 3 Project-Based Assessment
Week 4 (22) Jan 25 - Jan 29	<u>MODULE: Natural Hazards</u> Lesson 3 Severe Weather
Week 5 (23) Feb 1 - Feb 5	Thursday Little New Year's Eve ~ Public Holiday Friday Lunar New Year ~ Public Holiday <u>EARTH's RESOURCES</u> <u>MODULE: Distribution of Earth's Resources</u> Lesson 1 Natural Resources
<i>February 8 to 12 Chinese New Year Holiday</i>	
Week 6 (24) Feb 15 - Feb 19	<u>MODULE: Distribution of Earth's Resources</u> Lesson 1 Natural Resources
Week 7 (25) Feb 22 - Feb 26	22-26 IOWA Assessments <u>MODULE: Distribution of Earth's Resources</u> Lesson 2 Distribution of Resources
Week 8 (26) Mar 1 - Mar 5	Monday Memorial Day ~ Public Holiday T-W-Th Pre-Exam Days <u>MODULE: Distribution of Earth's Resources</u> Lesson 2 Distribution of Resources
Week 9 (27) Mar 8 - Mar 12	<u>MODULE: Distribution of Earth's Resources</u> Lesson 3 Depletion of Resources
Week 10 (28) Mar 15 - Mar 19	Quarter Review/ Project Based Assessment Presentation

Week 11 (29) Mar 22- Mar 26	Tuesday Major Final Exams half day Wednesday Major Final Exams half day Thurs - Fri Easter Break (Spring Break) ~ Public Holiday
<i>March 25 to April 2 Easter & Spring Break</i>	

Fourth Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (30) Apr 5 - Apr 9	Monday Tomb Sweeping Day ~ Public Holiday Tuesday Children's Day ~ Public Holiday <u>MODULE: Distribution of Earth's Resources</u> Lesson 1 Synthetic Materials
Week 2 (31) Apr 12 - Apr 16	<u>MODULE: Distribution of Earth's Resources</u> Lesson 2 Impacts of Synthetic Materials
Week 3 (32) Apr 19 - Apr 23	19 - 23 AP Mock Exams <u>INTERACTIONS WITHIN ECOSYSTEMS</u> <u>MODULE: Matter and Energy in Ecosystems</u> Lesson 1 Photosynthesis and Cellular Respiration
Week 4 (33) Apr 26 - Apr 30	T-W-Th Pre-Exam Days Friday Labor Day ~ Public Holiday <u>MODULE: Matter and Energy in Ecosystems</u> Lesson 2 Flow of Energy
Week 5 (34) May 3 - May 7	3 - 7 Final Exams (K, Gr. 5, 8, & 12 Only) 3 - 14 AP Exams Quarter Exam Review; Completion of Requirements and/ or Project Based Assessment Presentation
Week 6 (35) May 10 - May 14	3 - 14 AP Exams Wednesday Major Final Exams Undergraduates half day Thursday Major Final Exams Undergraduates half day Friday Record Day ~ Student Holiday <u>MODULE: Biodiversity in Ecosystems</u> Lesson 2 Maintaining Biodiversity
Week 7 (36) May 17 - May 21	Monday Gr. 12 Recollection (Morning) Monday Baccalaureate Mass (Afternoon, Schoolwide)

	Wednesday House Sports Day Thursday High School Field Trip Friday House Culminating Activity All Week Student Clearance Days & Special Events
Week 8 (37) May 24 - May 28	Monday Middle & High School Sports Day Monday LS Field Trip Tuesday Kindergarten Graduation/Gr. 5 Promotion Wednesday Gr. 8 Graduation and Gr. 12 Graduation Thursday Pre-Kindergarten & Gr. 1 - 4, 6 & 7, 9-11 Recognition Friday Last Day of School for Students