



COURSE SYLLABUS

Middle School Science 3

GRADE LEVEL: 8
TEACHER: Ms Janice Doyle

SCHOOL YEAR: 2024-2025
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COURSE DESCRIPTION

The focus of the Grade 8 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 2019 till May 2020. 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 will be introduced and step-wise guidance will offer to help pupils understand the nature of science.

COURSE OBJECTIVES

The science curriculum adapts the Next Generation Science Standards (NGSS). In Grade 8 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 the 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 useable 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 to use these practices to demonstrate understanding of the core ideas. Students are also expected to demonstrate understanding of several of 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 the 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 useable 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 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 (Wysession 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 unlock 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 also will be assigned 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.

Homework and classwork are graded based on the level of completion and submission dates. Students are responsible for checking an assignment's due date, which will be posted on Google Classroom. Students are expected to submit work by the due date, during class time, even if the teacher has not given a verbal reminder. Any late work suffers a **10%** deduction after 1 day, and a maximum score of **60%** thereafter. Students also have to go to Project I to complete the assignment. Students who are absent are responsible for keeping up with the class by doing the work assigned, and submitting homework due on their return to school.

Tests and Quarterly Exams are announced in advance. Pop Quizzes are unannounced and can be given at any time during the class, so students must come to class prepared. Students who miss a scheduled Test or Quarterly Exam must make up the test/exam ASAP on their return to school. The student must bring a

medical certificate or proof of an emergency on the day he/she returns to school. FAILURE TO DO SO WILL RESULT IN A **ZERO** BEING GIVEN FOR THE TEST/EXAM. If the student does not make up the test/exam at the earliest, a maximum score of **60%** will be given. If a student is absent for more than one test/exam, additional penalties will be given.

Grades will be computed following the school wide policy of **30%** Classwork, Homework and Projects, **30%** Tests, **30%** Quarter Exam and **10%** Department. **All** work done by the students will be graded and used for formative or summative assessment. A variety of assessment tools will be used to evaluate performance.

PRIMARY TEXTBOOK & OTHER RESOURCES

- Inspire Science. *Biggs, A. L. et. al. 2020 STEM Learning Solutions* McGraw Hill Education, Copyright 2020. ISBN 978-0-07-687530-6
- Google Classroom offers the 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 iScience, are also used to facilitate and stimulate learning.
- Notepaper, writing utensils (including different coloured pens & colour pencils) and a **binder** with plastic sleeves for storing **ALL** notes, assignments, etc.

ADDITIONAL INFORMATION

Please see Google Classroom for more information.

Class codes:

Saint Catherine of Siena – **6zdlv5z**

Saint Agnes of Montepulciano - **opagvyh**

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

References

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

Gr. 8 - Science 3 2024-2025
1st QUARTER – TENTATIVE COURSE CONTENT

<i>(NB: Depending on time and interest, the teacher may delete and/or add other selections.)</i>	
Week / Date	Topic / Projects / Assessments
<p style="text-align: center;">Week 1 Aug 12th to 16th <u>4 Days of Class</u> 12 ~ First Day/Orientation Day 15 ~ Opening Mass & Assumption of Our Lady 8:00 15 ~ Induction of Officers</p>	<p>Unit 1 – Change Over Time Module 1: Geologic Time Lesson 1: Analysing the Rock and Fossil Records</p>
<p style="text-align: center;">Week 2 Aug 19th to 23rd</p>	<p>Lesson 1: Analyzing the Rock and Fossil Records Lesson 2: Building a Time Line</p>
<p style="text-align: center;">Week 3 Aug 26th to 30th 26 ~ Fire drill? 26 ~ MS & HS Catholic Bridge Program (after assembly) 28 ~ St. Dominic Feast Day</p>	<p>STEM Module Project Module 2: Natural Selection and Adaptations Lesson 1: How Traits Change Lesson 2: The Theory of Evolution by Natural Selection</p>
<p style="text-align: center;">Week 4 Sept 2nd to 6th 2 ~ House Ceremony</p>	<p>Lesson 2: The Theory of Evolution by Natural Selection Lesson 3: Artificial Selection</p>
<p style="text-align: center;">Week 5 Sept 9th to 13th 9 ~ Mass & Mother Mary Birthday & VIP Induction</p>	<p>Lesson 3: Artificial Selection STEM Module Project Module 3: Evidence of Evolution Lesson 1: Fossil Evidence of Evolution</p>
<p style="text-align: center;">Week 6 Sept 16th to 20th <u>1 Day of Class</u> 17 ~ Moon Festival 18-20 ~ Teachers' Conference</p>	<p>Lesson 1: Fossil Evidence of Evolution</p>
<p style="text-align: center;">Week 7 Sept 23rd to 27th 24-26 ~ Pre-Exam Days</p>	<p>Lesson 1: Fossil Evidence of Evolution Lesson 2: Biological Evidence of Evolution</p>
<p style="text-align: center;">Week 8 Sep 30th to Oct 4th</p>	<p>Lesson 2: Biological Evidence of Evolution STEM Module Project Exam Review</p>
<p style="text-align: center;">Week 9 Oct 7th to 11th <u>1 Day of Class</u> 7 ~ Launch of Rosary Month & Bullying Prevention Day 8-9 ~ Q1 Exams 10 ~ Double Ten Day 11 ~ Record Day</p>	<p>Exam Review - Quarter 1 Exam</p>

2nd QUARTER – TENTATIVE COURSE CONTENT

(NB: Depending on time and interest, the teacher may delete and/or add other selections.)

Week / Date	Topic / Projects / Assessments
Week 1 (10) Oct 14th to 18th <i>14 ~ Second Quarter Begins</i>	Unit 2 – Energy and Motion Module 1: Forces and Motion Lesson 1: Position and Motion
Week 2 (11) Oct 21st to 25th <i>25 ~ Book Fair</i> <i>25 ~ Masquerade Night</i>	Lesson 1: Position and Motion Lesson 2: Force and Acceleration
Week 3 (12) Oct 28th to Nov 1st <i>1 ~ All Saint's Day Mass</i>	Lesson 3: Force Pairs Lesson 4: Gravitational Force
Week 4 (13) Nov 4th to Nov 8th	Module 2: Mechanical Energy Lesson 1: Kinetic Energy Lesson 2: Potential Energy
Week 5 (14) Nov 11th to 15th	Lesson 2: Potential Energy Lesson 3: Conservation of Energy
Week 6 (15) Nov 18th to 22nd <i>22 ~ Gr.12 Q2 Exam</i> <i>22 ~ YSC Contest</i>	Lesson 3: Conservation of Energy STEM Module Project Module 3: Electromagnetic Forces Lesson 1: Magnetic Forces
Week 7 (16) Nov 25th to 29th <i>25 ~ Gr.12 Q2 Exam</i> <i>26-28 ~ Pre-Exam Days</i>	Lesson 2: Electric Forces Lesson 3: Simple Circuits
Week 8 (17) Dec 2nd to Dec 6th <i>6 ~ Foundation Day Celebration</i> <i>(Half Day)</i>	Lesson 3: Simple Circuits Lesson 4: Electromagnetism Exam Review
Week 9 (18) Dec 9th to 13th <i>3 Days of Class</i> <i>12-13 ~ Q2 Exams</i>	Exam Review
Dec 16th to Jan 3rd	Christmas Break