Science
COURSE SYLLABUS

GRADE LEVEL: **4** **SCHOOL YEAR**: 2023-2024

TEACHER: **Mr. Ruttan**

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COURSE DESCRIPTION:

The Science course for Fourth Grade has been developed to reflect real world situations through the use of hands-on opportunities for learning. Learning science at this stage is not necessarily about "right answers" but rather the process of asking questions, solving problems, making models and making decisions based on the information gathered. The aim of the course is to lay a helpful foundation for the correct interpretation of results based upon scientific observations. Students gain a deeper understanding of scientific concepts as they engage in student-directed and multimodal learning. Lessons immerse students in the wonders of their world, encouraging them to think like scientists and helping them build STEM skills. Hands-on activities and experiments motivate students, giving them a deeper understanding of scientific concepts. Encourage student-directed learning through an integrated blend of print and multimedia components, including simulations and videos, to enhance understanding of critical scientific concepts.

COURSE OBJECTIVES:

Students will learn how to use an engineering design process to help them find a good solution to problems. Students will learn how to learn more about problems by asking questions and doing research. Students will learn how to self-assess the efficacy of their models and redo or adjust them as necessary based on new information acquired.
Additionally, the students will be able to meet the following standards:

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

4-LS1-1. Construct an argument that plants and animals have that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.

4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object.

4-PS3-2: Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.

4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide.

4-PS3-4: Energy Conversion Device · Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.

4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.

4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.

4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.

4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

4-ESS3-2: Generate and compare multiple solutions to reduce the impacts of natural earth processes on humans.

4-PS3-4: Energy Conversion Device · Apply scientific ideas to design, test, and refine a device that converts energy from one form to another

3-5-ETS1-2: Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem.

ASSESSMENT:

The quarterly grade will be awarded for all student work based on the following criteria:

1) **Class participation, Homework, Quizzes and Tests** (30% of quarterly grade)
2) **Major Projects and Assignments** (30% of quarterly grade)
3) **Quarterly Exams** (30% of quarterly grade)

4) **Deportment/D'Torch** (10% of quarterly grade)

PRIMARY TEXTBOOK & OTHER RESOURCES

- **TEXTBOOK**: DiSpezio, M., Frank, M., et, al. (2021) *Into Science Grade 4.* Houghton Mifflin Harcourt Publishing Company. Florida, USA.

ADDITIONAL INFORMATION

- LINKS:

1. Our school website: http://www.dishs.tp.edu.tw/
2. Publishers website: https://www.hmhco.com/programs/hmh-into-science
3. Merriam-Webster Online Dictionary & Thesaurus: https://www.merriam-webster.com/

www.thinkcentral.com

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

1st 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 **Aug 10th to 11th** **Only 2 School Days** *10 ~ First Day / Orientation Day*	**Orientation and getting-to-know-each-other activities.**
Week 2 **Aug 14th to 18th** *15 ~ Opening Mass*	**Unit 1 Engineering and Technology** Lesson 1 Engineering Design
Week 3 **Aug 21st to 25th**	**Unit 1 Engineering and Technology** Lesson 1 Engineering Design
Week 4 **Aug 28th to Sep 1st**	Unit 1 Review **Unit 2 Plant and Animal Structure and Function** Lesson 1 Plant Parts and How They Function
Week 5 **Sep 4th to 8th** *8 ~ Holy Mass & VIP Induction*	**Unit 2 Plant and Animal Structure and Function** Lesson 1 Plant Parts and How They Function
Week 6 **Sep 11th to 15th**	**Unit 2 Plant and Animal Structure and Function** Lesson 1 Plant Parts and How They Function

12-14 ~ Pre-Exam Days	**Unit 2 Plant and Animal Structure and Function** Lesson 2 Animal Parts and How They Function
Week 7 **Sep 18th to 22nd**	**Unit 2 Plant and Animal Structure and Function** Lesson 2 Animal Parts and How They Function
Week 8 **Sep 25th to 29th** **No Classes** *25-28 ~Teacher's Conference* *29 – Moon Festival Holiday*	**Unit 2 Plant and Animal Structure and Function** Lesson 2 Animal Parts and How They Function Quarter review and reflection
Week 9 **Oct 2nd to 6th** **3 Days of Class** *5-6 ~Q1 Exams*	Unit 1 and 2 Review Quarter 1 Exams

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 9th to 13th** **3 Days of Class** *9-10 – Double 10 Holiday*	**Unit 2 Plant and Animal Structure and Function** Lesson 3 How Senses Work
Week 2 (11) **Oct 16th to 20th**	**Unit 2 Plant and Animal Structure and Function** Lesson 3 How Senses Work
Week 3 (12) **Oct 23rd to 27th**	**Unit 2 Plant and Animal Structure and Function** Lesson 3 How Senses Work Unit 2 Review
Week 4 (13) **Oct 30th to Nov 3rd** *1 - All Saint's Day Mass*	**Unit 3 Energy and Communication** Lesson 1 Energy Transfer and Transformation
Week 5 (14) **Nov 6th to 10th**	**Unit 3 Energy and Communication** Lesson 1 Energy Transfer and Transformation
Week 6 (15) **Nov 13th to 17th**	**Unit 3 Energy and Communication** Lesson 2 Collisions
Week 7 (16) **Nov 20th to 24th**	**Unit 3 Energy and Communication** Lesson 2 Collisions
Week 8 (17) **Nov 27th to Dec 1st**	**Unit 3 Energy and Communication** Lesson 3 Collisions
Week 9 (18) **Dec 4th to 8th** 8 - Foundation Day Celebrations	Quarter Review and Reflection
Week 10 (19) **Dec 11th to 15th** **3 Days of Class** *14-15 ~ Q2 Exams*	**Quarter 2 Exams**
Dec 18th to Jan 1st	**Christmas Holiday**

3rd 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 (20) **Jan 3rd to 5th** **3 Days of Class** *4 ~ New Year Mass*	**Unit 3 Energy and Communication** Collisions
Week 2 (21) **Jan 8th to 12th**	**Unit 3 Energy and Communication** Collisions and Waves
Week 3 (22) **Jan 15th to 19th**	**Unit 3 Energy and Communication** Waves
Week 4 (23) **Jan 22nd to 26th**	**Unit 3 Energy and Communication** Waves
Week 5 (24) **Jan 29th to Feb 2nd**	**Unit 3 Energy and Communication** Waves
Week 6 (25) **Feb 5th to 9th** **3 Days of Class** *8-9 ~ CNY*	**Unit 3 Energy and Communication** Information Transfer
Feb 8th to 16th	**CNY Holiday**
Week 7 (26) **Feb 19th to 23rd** *19 ~ Lenten Mass* *21-23 ~ Pre-Exam Days*	**Unit 3 Energy and Communication** Information Transfer
Week 8 (27) **Feb 26th to March 1st** **4 Days of Class** 28 ~ 228 Memorial Day Holiday	**Unit 3 Energy and Communication** Information Transfer
Week 9 (28) **March 4th to 8th** **4 Days of Class** *8 ~ Q3 Exams*	Quarter Review and Reflection **Quarter 3 Exams**

4th 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 (29) **March 11th to 15th** **4 Days of Class** *11 ~ Q3 Exams* *12 ~ Q4 Begins*	**Unit 4 Shaping Landscapes** Lesson 1 Factors That Shape Earth's Surface
Week 2 (30) **March 18th to 22nd** *18-21 ~ Fire Drill*	**Unit 4 Shaping Landscapes** Lesson 1 Factors That Shape Earth's Surface
March 25th to Apr 5th	**Easter Holiday**
Week 3 (31) **Apr 8th to 12th** *10 ~ Easter Mass*	**Unit 4 Shaping Landscapes** Lesson 1 Factors That Shape Earth's Surface
Week 4 (33) **Apr 15th to 19th**	**Unit 4 Shaping Landscapes** Lesson 2 Fast and Slow Changes
Week 5 (34) **Apr 22th to 26th** 22-26 ~ AP Mock Exams	**Unit 4 Shaping Landscapes** Lesson 2 Fast and Slow Changes
Week 6 (35) **Apr 29th to May 3rd** *1-2 ~ Pre-Exam* *1-10~ Final Exams (K, 5, 8, 12 only)* *4/29 – 5/10 ~ AP Exams*	**Unit 4 Shaping Landscapes** Lesson 2 Fast and Slow Changes
Week 7 (36) **May 6th to 10th** *1-10~ Final Exams (K, 5, 8, 12 only)* *4/29 – 5/10 ~ AP Exams*	**Unit 4 Shaping Landscapes** Lesson 3 Rock Layers Record Landform Changes
Week 8 (37) **May 13th to 17th** **2 Days of Class** *15-16 ~ Q4 Exams* *17 ~ Record Day*	**Unit 4 Shaping Landscapes** Lesson 3 Rock Layers Record Landform Changes
Week 9 (38) **May 20th to 24th** **ACTIVITIES: *Double check the school calendar and emails from the administration.***	**Unit 4 Shaping Landscapes** Lesson 3 Rock Layers Record Landform Changes
Week 10 (39) **May 27th to 31st** **ACTIVITIES: *Double check the school calendar and emails from the administration.***	Review **Final Exams** --- *27 ~ House Culminating Activity* *28 ~ Gr. 9-11 Recognition and Gr. 12 Graduation* *29 ~ Class Party* *30 ~ Last Day of School & Report Card Distribution (half day)* *31 ~ Teachers/Staff Meeting*