



**SUBJECT: Science**

**GRADE LEVEL: 4**

**SCHOOL YEAR: 2024-25**

**TEACHER: Arden 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- Use evidence to construct an explanation relating the speed of an object to the energy of that object.

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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.

### **PRIMARY TEXTBOOK & OTHER RESOURCES:**

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

❖ 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](http://www.thinkcentral.com)

## ASSESSMENT:

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

- 1) **Journals, 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) **Department/D'Torch** (10% of quarterly grade)

## PLAGIARISM

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

## **SUBJECT: Gr. \_\_\_\_\_** **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                                                                                       |
| <b>Week 1</b><br><b>Aug 12<sup>th</sup> to 16<sup>th</sup></b><br><b>4 Days of Class</b><br>12~ First Day / Orientation Day<br>15~ Opening Mass & Assumption<br>of Our Lady 8:00<br>15~ Induction of Class, Student<br>Council Officers and DYM | <b>Orientation and getting-to-know-each-other activities.</b>                                                        |
| <b>Week 2</b><br><b>Aug 19<sup>th</sup> to 23<sup>rd</sup></b>                                                                                                                                                                                  | <b>Unit 1 Engineering and Technology</b><br>Lesson 1 Engineering Design                                              |
| <b>Week 3</b><br><b>Aug 26<sup>st</sup> to 30<sup>th</sup></b><br>26~Fire drill?<br>26~Middle and High School<br>Catholic Bridge Program (after<br>assembly)<br>28~St. Dominic de Guzman Feast<br>Day Celebration                               | <b>Unit 1 Engineering and Technology</b><br>Lesson 1 Engineering Design                                              |
| <b>Week 4</b><br><b>Sep 2<sup>nd</sup> to 6<sup>th</sup></b><br>2~House Ceremony                                                                                                                                                                | Unit 1 Review<br><b>Unit 2 Plant and Animal Structure and Function</b><br>Lesson 1 Plant Parts and How They Function |
| <b>Week 5</b><br><b>Sep 9<sup>th</sup> to 13<sup>th</sup></b><br>9~ Mass & Birthday Mother<br>Mary& VIP Induction                                                                                                                               | <b>Unit 2 Plant and Animal Structure and Function</b><br>Lesson 1 Plant Parts and How They Function                  |
| <b>Week 6</b>                                                                                                                                                                                                                                   | <b>Unit 2 Plant and Animal Structure and Function</b><br>Lesson 1 Plant Parts and How They Function                  |

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| <b>Sep 16<sup>th</sup> to 20<sup>th</sup></b><br><b>1 Day of Class</b><br>17~Moon Festival<br>18-20~ Teacher's Conference                                                                           | <b>Unit 2 Plant and Animal Structure and Function</b><br>Lesson 2 Animal Parts and How They Function                                  |
| <b>Week 7</b><br><b>Sep 23<sup>rd</sup> to 27<sup>th</sup></b><br>24-26~Pre-Exam Days                                                                                                               | <b>Unit 2 Plant and Animal Structure and Function</b><br>Lesson 2 Animal Parts and How They Function                                  |
| <b>Week 8</b><br><b>Sep 30<sup>th</sup> to Oct 4<sup>th</sup></b>                                                                                                                                   | <b>Unit 2 Plant and Animal Structure and Function</b><br>Lesson 2 Animal Parts and How They Function<br>Quarter review and reflection |
| <b>Week 9</b><br><b>Oct 7<sup>th</sup> to 11<sup>th</sup></b><br><b>1 Day of Class</b><br>7~Launching - Rosary Month and Bullying Prevention Day<br>8-9 ~Q1 Exams<br>10~Double Ten<br>11~Record Day | Unit 1 and 2 Review<br>Quarter 1 Exams                                                                                                |

## 2<sup>nd</sup> QUARTER – TENTATIVE COURSE CONTENT

| <i>(NB: Depending on time and interest, the teacher may delete and/or add other selections.)</i>                          |                                                                                                    |
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| Week / Date                                                                                                               | Topic / Projects / Assessments                                                                     |
| <b>Week 1 (10)</b><br><b>Oct 14<sup>th</sup> to 18<sup>th</sup></b><br>14~ Second Quarter Begins                          | <b>Unit 2 Plant and Animal Structure and Function</b><br>Lesson 3 How Senses Work                  |
| <b>Week 2 (11)</b><br><b>Oct 21<sup>st</sup> to 25<sup>th</sup></b><br>25 – Book Fair<br>25- Masquerade Night             | <b>Unit 2 Plant and Animal Structure and Function</b><br>Lesson 3 How Senses Work                  |
| <b>Week 3 (12)</b><br><b>Oct 28<sup>th</sup> to Nov 1<sup>st</sup></b><br>1-All Saint's Day Mass                          | <b>Unit 2 Plant and Animal Structure and Function</b><br>Lesson 3 How Senses Work<br>Unit 2 Review |
| <b>Week 4 (13)</b><br><b>Nov 4<sup>th</sup> to Nov 8<sup>th</sup></b>                                                     | <b>Unit 3 Energy and Communication</b><br>Lesson 1 Energy Transfer and Transformation              |
| <b>Week 5 (14)</b><br><b>Nov 11<sup>th</sup> to 15<sup>th</sup></b>                                                       | <b>Unit 3 Energy and Communication</b><br>Lesson 1 Energy Transfer and Transformation              |
| <b>Week 6 (15)</b><br><b>Nov 18<sup>th</sup> to 22<sup>nd</sup></b><br>22-Gr.12 Q2 Exam<br>22 - YSC Contest               | <b>Unit 3 Energy and Communication</b><br>Lesson 2 Collisions                                      |
| <b>Week 7 (16)</b><br><b>Nov 25<sup>th</sup> to 29<sup>th</sup></b><br>25-Gr.12 Q2 Exam<br>26-28~Pre-Exam Day             | <b>Unit 3 Energy and Communication</b><br>Lesson 2 Collisions                                      |
| <b>Week 8 (17)</b><br><b>Dec 2<sup>nd</sup> to Dec 6<sup>th</sup></b><br><b>6~Half Day</b><br>Foundation Day Celebrations | <b>Unit 3 Energy and Communication</b><br>Lesson 3 Collisions                                      |
| <b>Week 9 (18)</b><br><b>Dec 9<sup>th</sup> to 13<sup>th</sup></b><br><b>3 Days of Class</b><br>12-13 ~Q2 Exams           | Quarter Review and Reflection<br><b>Quarter 2 Exams</b>                                            |

Dec 16<sup>th</sup> to Jan 3<sup>rd</sup>**Christmas Break****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                                 |
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| <b>Week 1 (19)</b><br><b>Jan 6<sup>th</sup> to 10<sup>th</sup></b><br><b>4 Days of Class</b><br>6~Record Day<br>7~Third Quarter Begins<br>10 ~ New Year Mass                                     | <b>Unit 3 Energy and Communication</b><br>Collisions           |
| <b>Week 2 (20)</b><br><b>Jan 13<sup>th</sup> to 17<sup>th</sup></b>                                                                                                                              | <b>Unit 3 Energy and Communication</b><br>Collisions and Waves |
| <b>Week 3 (21)</b><br><b>Jan 20<sup>th</sup> to 24<sup>th</sup></b>                                                                                                                              | <b>Unit 3 Energy and Communication</b><br>Waves                |
| <b>Jan 27<sup>th</sup> to Jan 31<sup>st</sup></b>                                                                                                                                                |                                                                |
| <b>Chinese New Year</b>                                                                                                                                                                          |                                                                |
| <b>Week 4 (22)</b><br><b>Feb 3<sup>rd</sup> to 7<sup>th</sup></b>                                                                                                                                | <b>Unit 3 Energy and Communication</b><br>Waves                |
| <b>Week 5 (23)</b><br><b>Feb 10<sup>th</sup> to 14<sup>th</sup></b><br>1-14~Catholic Week                                                                                                        | <b>Unit 3 Energy and Communication</b><br>Waves                |
| <b>Week 6 (24)</b><br><b>Feb 17<sup>th</sup> to 21<sup>st</sup></b>                                                                                                                              | <b>Unit 3 Energy and Communication</b><br>Information Transfer |
| <b>Week 7 (25)</b><br><b>Feb 24<sup>th</sup> to 28<sup>th</sup></b><br><b>4 Days of Class</b><br>24~Lenten Mass?<br>25-27 ~ Pre-Exam Days<br>24-27~IOWA Assessments<br>28 ~ Memorial Day Holiday | <b>Unit 3 Energy and Communication</b><br>Information Transfer |
| <b>Week 8 (26)</b><br><b>March 3<sup>rd</sup> to 7<sup>th</sup></b><br>5~ Ash Wednesday                                                                                                          | <b>Unit 3 Energy and Communication</b><br>Information Transfer |
| <b>Week 9 (27)</b><br><b>March 10<sup>th</sup> to 14<sup>th</sup></b><br><b>4 Days of Class</b><br>14 – Q3 Exams                                                                                 | Quarter Review and Reflection<br><b>Quarter 3 Exams</b>        |

**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                                                  |
|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>Week 1 (28)</b><br><b>March 17<sup>th</sup> 21<sup>st</sup></b><br><b>4 Days of Class</b><br>17 – Q3 Exams | <b>Unit 4 Shaping Landscapes</b><br>Lesson 1 Factors That Shape Earth's Surface |

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| 18~ Fourth Quarter Begins<br>18~ Fire Drill?<br>19~ Feast of St. Joseph                                                                                                                                                                                      |                                                                                              |
| <b>Week 2 (29)</b><br><b>March 24<sup>th</sup> to 28<sup>th</sup></b>                                                                                                                                                                                        | <b>Unit 4 Shaping Landscapes</b><br>Lesson 1 Factors That Shape Earth's Surface              |
| <b>Week 3 (30)</b><br><b>March 31<sup>st</sup> to April 4<sup>th</sup></b><br><b>4 Days of Class</b><br>4~Tomb Sweeping                                                                                                                                      | <b>Unit 4 Shaping Landscapes</b><br>Lesson 1 Factors That Shape Earth's Surface              |
| <b>Week 4 (31)</b><br><b>Apr 7<sup>th</sup> to 11<sup>th</sup></b>                                                                                                                                                                                           | <b>Unit 4 Shaping Landscapes</b><br>Lesson 2 Fast and Slow Changes                           |
| <b>April 14<sup>th</sup> to April 18<sup>th</sup></b>                                                                                                                                                                                                        | <b>Easter Break</b>                                                                          |
| <b>Week 5 (32)</b><br><b>Apr 21<sup>st</sup> to 25<sup>th</sup></b><br>23~Easter Mass<br>21-25 ~ AP Mock Exams<br>26~Spring Fair                                                                                                                             | <b>Unit 4 Shaping Landscapes</b><br>Lesson 2 Fast and Slow Changes                           |
| <b>Week 6 (33)</b><br><b>Apr 28<sup>th</sup> to May 2<sup>nd</sup></b><br>4/29-5/1~ Pre-Exam Days<br>1-2~ Final Exams (K, 5, 8, 12 only)                                                                                                                     | <b>Unit 4 Shaping Landscapes</b><br>Lesson 2 Fast and Slow Changes                           |
| <b>Week 7 (34)</b><br><b>May 5<sup>th</sup> to 9<sup>th</sup></b><br>5-9~ Final Exams (K, 5, 8, 12 only)<br>5-9 ~ AP Exams                                                                                                                                   | <b>Unit 4 Shaping Landscapes</b><br>Lesson 3 Rock Layers Record Landform Changes             |
| <b>Week 8 (35)</b><br><b>May 12<sup>th</sup> to 16<sup>th</sup></b><br><b>4 Days of Class</b><br>14-15~ Q4 Exam<br>16~ Record Day<br>12-16 ~ AP Exams                                                                                                        | <b>Unit 4 Shaping Landscapes</b><br>Lesson 3 Rock Layers Record Landform Changes<br>Q4 Exams |
| <b>Week 9 (36)</b><br><b>May 19<sup>th</sup> to 23<sup>rd</sup></b><br>19-23 ~ Student Clearance<br>19~ Baccalaureate Mass<br>23~Gr. 6 – 7 Recognition and Gr. 8 Graduation                                                                                  | Activities and Review                                                                        |
| <b>Week 10 (37)</b><br><b>May 26<sup>th</sup> to 30<sup>th</sup></b><br><b>4 Days of Class</b><br>26~House Culminating Activity<br>27~Gr. 9-11 Recognition and Gr. 12 Graduation<br>28! Class Party<br>29~ ~ Students Last Day<br>30~ Teachers/Staff Meeting | Activities and Review                                                                        |