**Reviewers’ Names:Tayron Glover and Lourdes Tubil Grade:Fourth\_ Lesson/Unit Title:\_Apple and Ocean /ONLY ONE OCEAN**

**I. Alignment to the NGSS**

The lesson or unit aligns with the conceptual shifts of the NGSS:

|  |  |  |
| --- | --- | --- |
| Criteria | Specific evidence from materials and reviewers’ reasoning | Suggestions for improvement |
| A. Grade‐appropriate elements of the science and engineering practice(s),  disciplinary core idea(s), and crosscutting concept(s), work together to  support students in three‐dimensional learning to make sense of  phenomena and/or to design solutions to problems.  i. Provides opportunities to develop and use specific elements of the  practice(s) to make sense of phenomena and/or to design solutions to  problems.  ii. Provides opportunities to develop and use specific elements of the  disciplinary core idea(s) to make sense of phenomena and/or to design  solutions to problems.  iii.Provides opportunities to develop and use specific elements of the  crosscutting concept(s) to make sense of phenomena and/or to design  solutions to problems.  iv.The three dimensions work together to support students to make sense  of phenomena and/or to design solutions to problems. | The unit on ONE OCEAN is three-dimensional: the elements of science and engineering practices, disciplinary core idea(s), and crosscutting concept(s), work together to  Support the students in three‐dimensional learning to make sense of phenomena and/or to design solutions to problems.   * Evidence of science and engineering practice is evident when the students are given the opportunities to develop models and use models; use mathematics and computational thinking, e.g. fractions when cutting the apples to represent the land and ocean parts of the earth; constructing explanations and designing solutions, i.e. to create model of nets/ boats and other fishing practices that can solve the problems of overfishing, bycatch or habitat loss. * Evidence of opportunities to develop and use the specific element of the disciplinary core idea of the earth’s systems is evident when the students come to the understanding of the farmable land area, productive coastline and the amount of drinkable water available to humans through the activities provided in the unit. * Evidence of opportunities to develop and use specific elements of the cross-cutting concepts (scale, proportion and quantity and ocean systems and system models) is seen throughout the unit when the students are able to internalize that the proportion of the amount of drinkable water available to us is just a “ drop in the bucket” ( i.e. 3/10,000 % ) although ¾ or 71% of the earth is water or to think that of the 29% land, only 1/32 is farmable.   Additionally, the students are challenged to become responsible citizens since the Earth’s resources- fresh water, air soil, trees, fish are now depleting by wasteful usage or by deliberate or inadvertent destruction. | Extended lessons can be done to make the students be aware of cleaning up and recycling and other means to help in the conservation of water, land and ocean resources |

A unit or longer lesson will also:

|  |  |  |
| --- | --- | --- |
| Criteria | Specific evidence from materials and reviewers’ reasoning | Suggestions for improvement |
| B. Lessons fit together coherently targeting a set of performance expectations.  i. Each lesson links to previous lessons and provides a need to engage in  the current lesson.  ii. The lessons help students develop proficiency on a targeted set of  performance expectations.  C. Where appropriate, disciplinary core ideas from different disciplines are  used together to explain phenomena.  D.Where appropriate, crosscutting concepts are used in the explanation of  phenomena from a variety of disciplines.  E. Provides grade‐appropriate connection(s) **to** the Common Core State  Standards in Mathematics and/or English Language Arts & Literacy in  History/Social Studies, Science and Technical Subjects. | CCSS:  LA : W. 5.8  Creative writing on “Planet Ocean”  Posters, Journal Writing, Comic Books and Travel Brochures  CCSS:  MP 4 Model with Mathematics; use of fractions |  |

**Reviewer Name\_\_Glover and Tubil\_\_\_\_\_\_ Grade:\_\_\_4\_\_\_\_ Lesson 1-/Unit : Apple and Ocean /ONLY ONE OCEAN\_\_\_\_**

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| **Disciplinary Core Ideas (DCIs)** | **Element** | **Evidence** |
| **4-ESS2 ESS2.B:** | * **Maps can help locate the different land and water features areas of Earth. (4-ESS2** | * **The Ball Toss \*** * **The students were shown the ocean maps to understand the abstract of land and water through the cutting of the apple into parts to show the relationship of the amount of land to that of the water.** |

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

**Reviewers’ Names\_\_\_\_\_Glover and Tubil\_\_\_ Grade: \_\_4\_\_\_\_\_\_\_\_ Lesson 1 /Unit Title: Apple and Ocean /ONLY ONE OCEAN \_\_\_**

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| **Science and Engineering Practice (SEP)** | **Element** | **Evidence** |
| **Analyzing and Interpreting Data**  **Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.** | **\*Analyze and interpret data to make sense of phenomena using logical reasoning. (4-ESS2-2)** | **The students cut the apple into assigned parts and visibly had seen the proportion of land as compared to water. Then they graphed the concepts in a paper plate and interpreted the data they collected.**  **\* Ball Toss-represented the land and water** |

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

**Reviewers’ Names\_\_\_\_Glover and Tubil\_\_ Grade:\_\_4\_\_Lesson 1/Unit Title:\_\_\_\_ : Apple and Ocean /ONLY ONE OCEAN \_\_\_\_\_\_**

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

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| **Crosscutting Concepts (CCCs)** | **Element** | **Evidence** |
| **Patterns**  **2-ESS2-2),(2-ESS2-3**  **Scale, Proportion, and Quantity** | * [Patterns in the natural world can be observed.](http://www.nap.edu/openbook.php?record_id=13165&page=85) | **The students are able to see how much (quantity) of the Earth is water and how much is land; they scaled the pie graph in proportion to the Earth…** |

**Reviewers’ Names:Tayron Glover and Lourdes Tubil\_ Grade:\_\_Fourth\_ Lesson 2 A Drop in the Bucket /Unit :ONLY One Ocean\_\_**

**I. Alignment to the NGSS**

The lesson or unit aligns with the conceptual shifts of the NGSS:

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| --- | --- | --- |
| Criteria | Specific evidence from materials and reviewers’ reasoning | Suggestions for improvement |
| A. Grade‐appropriate elements of the science and engineering practice(s),  disciplinary core idea(s), and crosscutting concept(s), work together to  support students in three‐dimensional learning to make sense of  phenomena and/or to design solutions to problems.  i. Provides opportunities to develop and use specific elements of the  practice(s) to make sense of phenomena and/or to design solutions to  problems.  ii. Provides opportunities to develop and use specific elements of the  disciplinary core idea(s) to make sense of phenomena and/or to design  solutions to problems.  iii.Provides opportunities to develop and use specific elements of the  crosscutting concept(s) to make sense of phenomena and/or to design  solutions to problems.  iv.The three dimensions work together to support students to make sense  of phenomena and/or to design solutions to problems. | The unit on ONE OCEAN is three-dimensional: the elements of science and engineering practices, disciplinary core idea(s), and crosscutting concept(s), work together to  Support the students in three‐dimensional learning to make sense of phenomena and/or to design solutions to problems.   * Evidence of science and engineering practice is evident when the students are given the opportunities to develop models and use models; use mathematics and computational thinking, e.g. fractions when cutting the apples to represent the land and ocean parts of the earth; constructing explanations and designing solutions, i.e. to create model of nets/ boats and other fishing practices that can solve the problems of overfishing, bycatch or habitat loss. * Evidence of opportunities to develop and use the specific element of the disciplinary core idea of the earth’s systems is evident when the students come to the understanding of the farmable land area, productive coastline and the amount of drinkable water available to humans through the activities provided in the unit. * Evidence of opportunities to develop and use specific elements of the cross-cutting concepts (scale, proportion and quantity and ocean systems and system models) is seen throughout the unit when the students are able to internalize that the proportion of the amount of drinkable water available to us is just a “ drop in the bucket” ( i.e. 3/10,000 % ) although ¾ or 71% of the earth is water or to think that of the 29% land, only 1/32 is farmable.   Additionally, the students are challenged to become responsible citizens since the Earth’s resources- fresh water, air soil, trees, fish are now depleting by wasteful usage or by deliberate or inadvertent destruction. | Extended lessons can be done to make the students be aware of cleaning up and recycling and other means to help in the conservation of water, land and ocean resources |

A unit or longer lesson will also:

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| --- | --- | --- |
| Criteria | Specific evidence from materials and reviewers’ reasoning | Suggestions for improvement |
| B. Lessons fit together coherently targeting a set of performance expectations.  i. Each lesson links to previous lessons and provides a need to engage in  the current lesson.  ii. The lessons help students develop proficiency on a targeted set of  performance expectations.  C. Where appropriate, disciplinary core ideas from different disciplines are  used together to explain phenomena.  D.Where appropriate, crosscutting concepts are used in the explanation of  phenomena from a variety of disciplines.  E. Provides grade‐appropriate connection(s) **to** the Common Core State  Standards in Mathematics and/or English Language Arts & Literacy in  History/Social Studies, Science and Technical Subjects. | CCSS:  LA : W. 5.8  Creative writing on “Planet Ocean”  Posters, Journal Writing, Comic Books and Travel Brochures  CCSS:  MP 4 Model with Mathematics; use of fractions |  |

**Reviewer Name\_\_Glover and Tubil\_\_\_\_\_\_ Grade:\_\_\_4\_\_\_\_ Lesson 2-/Unit : Drop in the Bucket /ONLY ONE OCEAN\_\_\_\_**

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| **Disciplinary Core Ideas (DCIs)** | **Element** | **Evidence** |
| **4 ESS 3.A Natural Resources** | * **Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not.** | **Through discovery the students will realize that water is a limited resource and there is a need for water conservation.** |

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

**Reviewer Name\_\_\_\_\_Glover and Tubil\_\_\_ Grade: \_\_4\_\_\_\_\_\_\_\_ Lesson 2 /Unit Title:\_Drop in the Bucket\_ : /ONLY ONE OCEAN \_\_**

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| **Science and Engineering Practice (SEP)** | **Element** | **Evidence** |
| **No SEP** |  |  |

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

**Reviewer Name\_\_\_Glover and Tubil\_\_ Grade 4\_\_\_\_\_ Lesson 2 /Unit Title: Drop in the Bucket /ONLY ONE OCEAN \_\_\_\_**

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

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| **Crosscutting Concepts (CCCs)** | **Element** | **Evidence** |
| **Cause and Effect**  **Patterns** | **Cause and effect relationships are routinely identified and used to explain change (E ESS3-1)**  **\* Needs environmental change for change to happen** | **The students draw conclusions through their life experiences that if we continue to waste water, then we are depleting this limited resource: e.g. watering the lawn or washing the car when there is drought or dearth/scarcity of water supply.** |

**Reviewers’ Names:Tayron Glover and Lourdes Tubil\_ Grade:\_\_Fourth\_ Lesson 3/Unit Title:\_ Upwelling/ONLY One Ocean\_\_\_**

**I. Alignment to the NGSS**

The lesson or unit aligns with the conceptual shifts of the NGSS:

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| --- | --- | --- |
| Criteria | Specific evidence from materials and reviewers’ reasoning | Suggestions for improvement |
| A. Grade‐appropriate elements of the science and engineering practice(s),  disciplinary core idea(s), and crosscutting concept(s), work together to  support students in three‐dimensional learning to make sense of  phenomena and/or to design solutions to problems.  i. Provides opportunities to develop and use specific elements of the  practice(s) to make sense of phenomena and/or to design solutions to  problems.  ii. Provides opportunities to develop and use specific elements of the  disciplinary core idea(s) to make sense of phenomena and/or to design  solutions to problems.  iii.Provides opportunities to develop and use specific elements of the  crosscutting concept(s) to make sense of phenomena and/or to design  solutions to problems.  iv.The three dimensions work together to support students to make sense  of phenomena and/or to design solutions to problems. | The unit on ONE OCEAN is three-dimensional: the elements of science and engineering practices, disciplinary core idea(s), and crosscutting concept(s), work together to  Support the students in three‐dimensional learning to make sense of phenomena and/or to design solutions to problems.   * Evidence of science and engineering practice is evident when the students are given the opportunities to develop models and use models; use mathematics and computational thinking, e.g. fractions when cutting the apples to represent the land and ocean parts of the earth; constructing explanations and designing solutions, i.e. to create model of nets/ boats and other fishing practices that can solve the problems of overfishing, bycatch or habitat loss. * Evidence of opportunities to develop and use the specific element of the disciplinary core idea of the earth’s systems is evident when the students come to the understanding of the farmable land area, productive coastline and the amount of drinkable water available to humans through the activities provided in the unit. * Evidence of opportunities to develop and use specific elements of the cross-cutting concepts (scale, proportion and quantity and ocean systems and system models) is seen throughout the unit when the students are able to internalize that the proportion of the amount of drinkable water available to us is just a “ drop in the bucket” ( i.e. 3/10,000 % ) although ¾ or 71% of the earth is water or to think that of the 29% land, only 1/32 is farmable.   Additionally, the students are challenged to become responsible citizens since the Earth’s resources- fresh water, air soil, trees, fish are now depleting by wasteful usage or by deliberate or inadvertent destruction. | Extended lessons can be done to challenge the students to become aware of cleaning up and recycling to help in the conservation of water, land and ocean resources. |

A unit or longer lesson will also:

|  |  |  |
| --- | --- | --- |
| Criteria | Specific evidence from materials and reviewers’ reasoning | Suggestions for improvement |
| B. Lessons fit together coherently targeting a set of performance expectations.  i. Each lesson links to previous lessons and provides a need to engage in  the current lesson.  ii. The lessons help students develop proficiency on a targeted set of  performance expectations.  C. Where appropriate, disciplinary core ideas from different disciplines are  used together to explain phenomena.  D.Where appropriate, crosscutting concepts are used in the explanation of  phenomena from a variety of disciplines.  E. Provides grade‐appropriate connection(s) **to** the Common Core State  Standards in Mathematics and/or English Language Arts & Literacy in  History/Social Studies, Science and Technical Subjects. | CCSS:  LA : W. 5.8  Creative writing on “Planet Ocean”  Posters, Journal Writing, Comic Books and Travel Brochures  CCSS:  MP 4 Model with Mathematics; use of fractions |  |

**Reviewer Name\_\_Glover and Tubil\_\_\_\_\_\_ Grade:\_\_\_4\_\_\_\_ Lesson 3-/Unit : Upwelling /ONLY ONE OCEAN\_\_\_\_**

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| **Disciplinary Core Ideas (DCIs)** | **Element** | **Evidence** |
| **4 PS4 A Wave Properties** | * Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; there is no net motion in the direction of the wave except when the water meets a beach. | **Based on the short video on upwelling, the students analyze and explain what upwelling is.** |

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

**Reviewer Name\_\_\_\_Glover and Tubil\_\_\_ Grade: \_\_4\_\_\_ Lesson 3 /Unit Title:\_Upwelling: /ONLY**

**ONE OCEAN \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| **Science and Engineering Practice (SEP)** | **Element** | **Evidence** |
| **Developing and using Models** | * Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. * ♣ Develop a model using an analogy, example, or abstract representation to describe a scientific principle. (4-PS4- 1) * ♣ Develop a model to describe phenomena. (4-PS4-2) | **Students are challenged to describe or design a model to explain/illustrate how upwelling happens:**   * **e.g. drawing an illustration of a surfer coming in and out of big waves;** * **describe/illustrate what happens to the water in the water tank when we flush the toilet** |

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

**Reviewers’ Names: Glover and Tubil\_\_\_\_\_ Grade:\_\_\_\_\_4\_\_\_\_ Lesson 3 /Unit Title: Upwelling/ONLY ONE OCEAN \_\_\_\_\_\_\_\_**

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

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| **Crosscutting Concepts (CCCs)** | **Element** | **Evidence** |
| **Patterns**  **Systems and System Models**  **Cause and Effect** | * Similarities and differences in patterns can be used to sort and classify natural phenomena. (4-PS4-1) * ♣ Similarities and differences in patterns can be used to sort and classify designed products. (4- PS4-3) * Cause and effect relationships are routinely identified. (4-PS4-2) | * **After showing the video on upwelling, students will explain the patterns on how upwelling replenish the ocean with the necessary nutrients so that living things that live in the ocean can survive;** * **They should be able to integrate and identify the cause and effect relationship of upwelling and down welling and its impact on other sea animals in the food chain and also on humans.** |

**Reviewers’ Names:Tayron Glover and Lourdes Tubil\_ Grade:\_\_Fourth\_ Lesson 4 Fishery/Unit : ONLY One Ocean\_\_**

**I. Alignment to the NGSS**

The lesson or unit aligns with the conceptual shifts of the NGSS:

|  |  |  |
| --- | --- | --- |
| Criteria | Specific evidence from materials and reviewers’ reasoning | Suggestions for improvement |
| A. Grade‐appropriate elements of the science and engineering practice(s),  disciplinary core idea(s), and crosscutting concept(s), work together to  support students in three‐dimensional learning to make sense of  phenomena and/or to design solutions to problems.  i. Provides opportunities to develop and use specific elements of the  practice(s) to make sense of phenomena and/or to design solutions to  problems.  ii. Provides opportunities to develop and use specific elements of the  disciplinary core idea(s) to make sense of phenomena and/or to design  solutions to problems.  iii.Provides opportunities to develop and use specific elements of the  crosscutting concept(s) to make sense of phenomena and/or to design  solutions to problems.  iv.The three dimensions work together to support students to make sense  of phenomena and/or to design solutions to problems. | The unit on ONE OCEAN is three-dimensional: the elements of science and engineering practices, disciplinary core idea(s), and crosscutting concept(s), work together to  Support the students in three‐dimensional learning to make sense of phenomena and/or to design solutions to problems.   * Evidence of science and engineering practice is evident when the students are given the opportunities to develop models and use models; use mathematics and computational thinking, e.g. fractions when cutting the apples to represent the land and ocean parts of the earth; constructing explanations and designing solutions, i.e. to create model of nets/ boats and other fishing practices that can solve the problems of overfishing, bycatch or habitat loss. * Evidence of opportunities to develop and use the specific element of the disciplinary core idea of the earth’s systems is evident when the students come to the understanding of the farmable land area, productive coastline and the amount of drinkable water available to humans through the activities provided in the unit. * Evidence of opportunities to develop and use specific elements of the cross-cutting concepts (scale, proportion and quantity and ocean systems and system models) is seen throughout the unit when the students are able to internalize that the proportion of the amount of drinkable water available to us is just a “ drop in the bucket” ( i.e. 3/10,000 % ) although ¾ or 71% of the earth is water or to think that of the 29% land, only 1/32 is farmable.   Additionally, the students are challenged to become responsible citizens since the Earth’s resources- fresh water, air soil, trees, fish are now depleting by wasteful usage or by deliberate or inadvertent destruction. | Extended lessons can be done to make the students be aware of cleaning up and recycling and other means to help in the conservation of water, land and ocean resources |

A unit or longer lesson will also:

|  |  |  |
| --- | --- | --- |
| Criteria | Specific evidence from materials and reviewers’ reasoning | Suggestions for improvement |
| B. Lessons fit together coherently targeting a set of performance expectations.  i. Each lesson links to previous lessons and provides a need to engage in  the current lesson.  ii. The lessons help students develop proficiency on a targeted set of  performance expectations.  C. Where appropriate, disciplinary core ideas from different disciplines are  used together to explain phenomena.  D.Where appropriate, crosscutting concepts are used in the explanation of  phenomena from a variety of disciplines.  E. Provides grade‐appropriate connection(s) **to** the Common Core State  Standards in Mathematics and/or English Language Arts & Literacy in  History/Social Studies, Science and Technical Subjects. | CCSS:  LA : W. 5.8  Creative writing on “Planet Ocean”  Posters, Journal Writing, Comic Books and Travel Brochures  CCSS:  MP 4 Model with Mathematics; use of fractions |  |

**Reviewer Name\_\_Glover and Tubil\_\_\_\_\_\_ Grade:\_\_\_4\_\_\_\_ Lesson 4 Fishery-/Unit :ONLY ONE OCEAN\_\_\_\_**

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

|  |  |  |
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| **Disciplinary Core Ideas (DCIs)** | **Element** | **Evidence** |
| **ETS 1.A Defining and Delimiting Engineering Problems**  **ETS 1. B Developing Possible Solutions**  **ETS 1.C Optimizing the Design Solution** | * ETS1.A: Defining and Delimiting Engineering Problems ♣ Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3-5-ETS1-1) * ETS1.B: Developing Possible Solutions ♣ Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2) ♣ At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2) ♣ Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3) * ETS1.C: Optimizing the Design Solution ♣ Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3) | **As an introduction or spring board, the students are shown slides/images of sea animals trapped/hurt/or killed by overfishing, water pollution and other human activities.**   * **Students pair and discuss/ share the effects of these human activities on ocean life** * **They are then brainstormed on the ways people can fish without harming or killing indiscriminately fishes in the ocean** * **With whatever available materials to them (e.g. orange nets, bait and rod, etc.), the students are challenged to design a net that fishermen can use to solve the problems of overfishing and bycatch.** |

**Reviewer Name\_\_\_\_\_Glover and Tubil\_\_\_ Grade: \_\_4\_\_\_\_\_\_\_\_ Lesson 4 Fishery/Unit Title: /ONLY ONE OCEAN \_\_**

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

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| --- | --- | --- |
| **Science and Engineering Practice (SEP)** | **Element** | **Evidence** |
| **Asking and Defining Problems**  **Planning and Carrying out Explanations**  **Constructing Explanations and Designing Solutions** | * Asking questions and defining problems in 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships. * ♣ Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1) * Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. * Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (3-5-ETS1-3) * Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. * ♣ Generate and compare multiple solutions to a problem based on how well they meet the criteria and constrains of the design problem | **The students will discuss: ask and define problems that the images presented to them and think of the many, varied and unusual designs of possible nets that can be a solution to these problems.**   * **In their assigned group or pair, students will plan and carry out solutions to the said problems of overfishing, pollution and bycatch.** * **Students design and create a net** |

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

**Reviewer Name\_\_\_Glover and Tubil\_\_ Grade:\_\_\_4\_\_\_\_\_\_ Lesson 4 Fishery /Unit Title: ONE OCEAN \_\_\_\_**

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

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| --- | --- | --- |
| **Crosscutting Concepts (CCCs)** | **Element** | **Evidence** |
| Influence of Engineering, Technology, and Science on Society and the Natural World | ♣ People’s needs and wants change over time, as do their demands for new and improved technologies. (3- 5-ETS1-1)  ♣ Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3-5-ETS1-2) | **The students are challenged to look for and identify contaminants that can harm ocean life.** |