Milltown Integration Plan

Please use this template to plan strategies for fostering an interdisciplinary approach by integrating STEAM concepts into your grade.

Teacher(s): McCaffery/DiMaggio

Grade(s): First

Subject Area(s): Science

Common Practices Plan:

When do you anticipate implementing key common practices with your students? Please list a unit / topic, as well as an approximate time of year by month or marking period using the table below.

Common Practice to implement:	Unit / Topic that will be used for Implementation:	Approximate time of implementation:
Teaching with Stations Challenging students to work through different labs, activities, or experiments in stations is a great way to promote creative thinking and problem-solving, as well as foster collaboration among students.	Math and Reading Stations occur daily. Science experiments are conducted in stations with the co-teaching model as well as rotating through different science stations whether it be reading science topic books, conducting the initial experiment with support, creating sketches or post-experiment reflections.	September-June
Project-Based Learning Project-Based Learning describes activities that allow for students to demonstrate their knowledge through the creation of a project as an assessment.	Light, Sound and Communication Unit: students work in pairs to build a device that solves the problem of communicating over a distance. This is similar to how fireflies send messages to one another. They communicate via the flashes of light that they emit from their bodies.	October-December
Problem-Based Learning Problem-based learning describes instruction based around the utilization of a	Light, Sound and Communication Unit: Lesson 6- Students participate	October-December

design process, sometimes called an engineering design process, or design loop.	in short exercises where students get moving by pretending to be boats navigating through the fog. . Students navigate by sights and sounds, where students play games to practice listening for sound cues. Unit 3- Sun, Moon and Stars (Day Patterns Unit) - students develop a model of the sun's daily path across the sky, then use this model to help someone who's lost. Students create a mobile paper model of the sun and earth to illustrate the position of the sun throughout the day.	December-February
Visual Brainstorming Utilizing sketches, diagrams, or flow charts to allow for students to brainstorm different ideas, and choose optimal and appropriate ideas based on project details.	Frequent- Brainstorming and sketching occurs for each science unit.	September-June
Experimentation Through this, students should be supported in testing different ideas safely as they work to find the best approach, or a possible answer to a problem.	Plant Traits and Survival Unit- Lesson 2- students examine structures like roots, branches, and leaves that keep trees from blowing down. They use their observations to create their own tree-inspired umbrellas that stay up in the wind. After conducting the wind-test and seeing which ones survived, students will adjust or recreate their umbrellas to withstand stronger winds and make adjustments.	March-May
Reflection / Redesign Regardless of how big a project is, students should always have the opportunity to consider how they would improve or make changes based on what they have learned.	Plant Traits and Survival: Unit 4- Traits of plants and animals. Students recreate their plant model to better survive weather conditions.	March-May
Creating Real-world Connections With this, we want to provide students with a possible reason as to why they need to know this, or who out in the world uses this knowledge everyday.	Light, Sound and Communication Unit :Lesson 1- Students are investigating vibrations as a source of sound effects for movies. As a class, we will be creating the sounds of a rainstorm and a bouncing ball as a Sound Effect Artist for movies.	October-December

	Light, Sound and Communication Unit: Lesson 6- Students participate in short exercises where students get moving by pretending to be boats navigating through the fog. . Students navigate by sights and sounds, where students play games to practice listening for sound cues.	
Foster Design Thinking Inquiry based learning through the implementation of a problem solving process in order to develop a model or solution to a proposed problem.	See-Think-Wonder Charts for each science unit are revisited each science lesson.	September-June
Promoting Empathy As you choose real-world connections, relatable experiences, and constraints for your projects, challenge students to design solutions to help others.	Unit 1- Sun, Moon and Stars- students develop a model of the sun's daily path across the sky, then use this model to help someone who's lost.	December-February
Support EDI Equality, Diversity and Inclusion is an important aspect to ensure fair treatment and opportunity for all. It aims to eradicate prejudice and discrimination on the basis of an individual or group of individual's protected characteristics.	Unit 1- Sun, Moon and Stars- students discuss how the moon is in the same phase no matter where you are in the world. Students also discuss how the sun always rises and sets in the same direction every day all over the world. Mystery science discusses	December- February

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Interdisciplinary Project Plan - MP1 / MP2

Using the table below, plan and describe an opportunity for a larger-scale interdisciplinary project to take place in your classes.

Subject / Grade:	First- Science
When will this project take place?	December-February Unit 1- Sun, Moon and Stars

Describe the project, what is the main idea?	In this unit, students make observations of the Sun and shadows throughout the day and across the seasons. They use their observations to understand patterns that occur throughout the day. Students will also explore the Moon and stars. They observe and record the appearance of the Moon to determine its cyclical pattern. They also determine why stars are only visible at night. Students will apply what they learned over the course of this unit to predict when the Sun, Moon, and stars will be visible in the sky.
What will students be challenged to produce?	Students will be able to move the source of light to create different shadows given to them. They will then determine where the sun needs to be in the sky to create certain types of shadows ie: longer, shorter, left, right, etc. Students relate these observations to shadows changing throughout the day and the Sun's position moving across the sky. Students will trace their shadows in the morning and watch how they change throughout the day. Students will gather observations of the Sun from that single location. They will see that the Sun follows a repeating pattern in its apparent motion, and then use that pattern to predict the location of the Sun at various times of day in the future. Afterwards, they will use what they learned about the sun's movement during different times of the day to develop a model of the sun's daily path across the sky, then use this model to help someone who's lost. Students create a mobile paper model of the sun and earth to illustrate the position of the sun throughout the day. They will determine where the sun is at certain times of the day in order to have them follow the sun to get to their destination. students explore all of the different shapes of the Moon that can appear on different nights.Students will keep track of the moon each night for an entire month. They will document what it looks like on day 3, 7, 11, 14, 17, 21, etc. They use these observations to discover patterns in how the Moon's shape changes and predict when the next full moon will appear. Students will also investigate why the stars are visible at night but disappear when the Sun comes out during the day by creating a Star Projector. Students will use paper cups to project stars onto a sky picture, and observe what happens to these stars when a flashlight acts as a model of the Sun.
List common practices that will be	● Analyzing and Interpreting Data ● Planning and Carrying Out Investigations

incorporated:	Developing and Using Models ● Constructing Explanations and Designing Solutions Obtaining, Evaluating, and Communicating Information ● Engaging in Argument from Evidence ● Real World Connections ● Station Teaching ● Project Based learning ● Foster Design Thinking ● Promoting Empathy ● Support EDI
List areas where EDI (Equality, Diversity and Inclusion) took place throughout this activity.	Students discuss how the moon is in the same phase no matter where you are in the world. Mystery science discusses how one person might be in New Jersey, but their friends in Australia and California are also looking at the same phase of the moon. Students also discuss how the sun always rises and sets in the same direction every day all over the world. Mystery science discusses how you can follow the sun if you are ever lost and uses different cities around the world to explore shadows of each city's tourist attraction.