

# **MStM Science Curriculum Lesson Plan Template**

**Grade Level:** 6<sup>th</sup> grade science

**Teacher:** Spanhut

**Science Standard/Benchmark:** Standard 1: Students can understand and apply skills used in scientific inquiry.

A. Students can understand and apply the processes and skills of scientific inquiry

**Grade Level Objective:** A.2. Design and conduct different kinds of scientific investigations.

## **Instructional Strategies:**

Bouncy ball lab: the students will be given a meter stick and 2 bouncy balls. The balls will be of 2 different sizes. The student's task will be to make each ball bounce the same height. The balls are not to be thrown they are to be dropped.

## **Assessment:**

Formative- journal, observation sheet

## **Instructional Timeline:**

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A. Students can understand and apply the processes and skills of scientific inquiry

**Grade Level Objective:** A.1. Identify and generate questions that can be answered through scientific investigations

## ***Instructional Strategies:***

The students will be given seeds, a cup, potting soil and water. The students must ask questions about what will make their seed germinate faster, and then answer those questions by doing a lab to answer the questions, more water, less water, more dirt, etc.

## ***Assessment:***

Formative assessment-teacher making sure what they are testing is what they asked.

Journal

## ***Instructional Timeline:***

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A. Students can understand and apply the processes and skills of scientific inquiry

**Grade Level Objective:** A.3. Understand that different kinds of questions suggest different kinds of scientific investigations

### ***Instructional Strategies:***

Students will be put into groups and given a series of paragraphs to read. each group has the same set of paragraphs, but their goal after the paragraphs will be different. So the students will need to ask different questions and plan different experiments based on their task.

### ***Assessment:***

Formative- journaling- walk around the room observing the students and their questions

### ***Instructional Timeline:***

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**Science Standard/Benchmark:** Standard 1: Students can understand and apply skills used in scientific inquiry.

B. Students can analyze and interpret scientific information

**Grade Level Objective:** B. 1. Select and use appropriate tools and techniques to gather, analyze and interpret data

### ***Instructional Strategies:***

Students are going to measure the room with only their arms hands or feet. We will come together as a class and discuss the students' findings. We will discuss how the room didn't change sizes even though all the measurements were different. Then I will distribute rulers and then have the kids measure the room again. We will then come together as a class again and discuss the importance of accurate measurements.

### ***Assessment:***

Formative Assessment

Journal

### ***Instructional Timeline:***

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**Science Standard/Benchmark:** Standard 1: Students can understand and apply skills used in scientific inquiry.

B. Students can analyze and interpret scientific information

**Grade Level Objective:** B. 2. Incorporate mathematics in scientific inquiry

## **Instructional Strategies:**

Students will calculate their power using the formula  $\text{power} = \text{work} / \text{time}$ , work equals force \* distance. The force is the student's mass, the force it takes to move it. The distance is 40 meters. The students will also calculate the performance of a nfl linebacker from the combine.

## **Assessment:**

Data sheet

## **Instructional Timeline:**

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B. Students can analyze and interpret scientific information

**Grade Level Objective:**

B. 3. Use evidence to develop descriptions, explanations, predictions, and models

**Instructional Strategies:**

Bacteria lesson, students will be given a petri dish and are instructed to find the most bacteria filled place in the school. They will hypothesize where it will be and communicate these ideas in their journal. After completing the task, the dishes will incubate and we will determine which places were in fact the dirtiest.

**Assessment:**

Journaling

Lab report

**Instructional Timeline:**

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**Science Standard/Benchmark:** Standard 1: Students can understand and apply skills used in scientific inquiry.

B. Students can analyze and interpret scientific information

**Grade Level Objective:**

B. 4. Think critically and logically to make the relationships between evidence and explanations.

**Instructional Strategies:**

Boat building lab, the students will be tasked to build a boat out of only materials that have been provided to them and a Styrofoam cup. The boat is to improve upon the cups ability to hold washers. The students must design and test boat to find out what does and does not work, they also must keep the boat under budget.

**Assessment:**

Lab reports

**Instructional Timeline:**

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**Science Standard/Benchmark:** Standard 1: Students can understand and apply skills used in scientific inquiry.

B. Students can analyze and interpret scientific information

**Grade Level Objective:** B. 5. Recognize and analyze alternative explanations and predictions.

## ***Instructional Strategies:***

In the outdoor lab, the students must research the types of grasses that are currently their and then present to the class a new blend of grasses that would support certain wildlife and could grow based on the typical weather patterns in our area.

## ***Assessment:***

Journaling

Field data

## ***Instructional Timeline:***

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**Science Standard/Benchmark:** Students can understand and apply skills used in scientific inquiry.

B. Students can analyze and interpret scientific information

**Grade Level Objective:** B. 6. Communicate and defend procedures and explanations

**Instructional Strategies:** Students will write a letter to a conservation organization detailing the steps taken by the class in an effort to conserve native grasses and build wildlife numbers. These letters will be sent in an effort to also receive advice from these organizations.

**Assessment:**

Rubric Journaling

**Instructional Timeline:**

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**Science Standard/Benchmark:** Students can understand concepts and relationships in life science.

A. Students can understand structures of living things

**Grade Level Objective:** A.1. Understand and apply knowledge of the basic components and functions of cells, tissues, organs, and organ systems

## ***Instructional Strategies:***

Students must get into groups and label models of plant and animal cells. Then students will make a Venn diagram using parts of both plants and animal cells.

**Assessment:**

**Instructional Timeline:**

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**Grade Level:** 6<sup>th</sup> grade science

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**Science Standard/Benchmark:** Standard 2: Students can understand concepts and relationships in life science

A. Students can understand structures of living things

**Grade Level Objective:** A.2. Understand and apply knowledge of how different organisms pass on traits (heredity)

## ***Instructional Strategies:***

Students will discuss the difference between sexual and asexual reproduction. We will also discuss how the offspring that comes from sexual reproduction has traits from both parents and the offspring from asexual reproduction is genetically the same as the parent.

## ***Assessment:***

Classroom vocab  
Science Journal

## ***Instructional Timeline:***

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**Science Standard/Benchmark:** Standard 2: Students can understand concepts and relationships in life science  
B. Students can describe and understand life cycles

**Grade Level Objective:** B.1. Understand and apply knowledge of the functions and interconnections of the major human body systems including the breakdown in structure or function that disease causes

## ***Instructional Strategies:***

Students will discuss the cell cycle and show how rapidly cells can grow. This will lead into a discussion of a mutation of cells known as cancer and how rapidly it can grow.

## ***Assessment:***

Journaling  
Vocab

## ***Instructional Timeline:***

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**Grade Level:** 6<sup>th</sup> grade science

**Teacher:** Spanhut

**Science Standard/Benchmark:** Standard 2: Students can understand concepts and relationships in life science.

C. Students can understand environmental interaction and adaptation

**Grade Level Objective:** C.1. Understand and apply knowledge of the complementary nature of structure and function and the commonalities among organisms

## **Instructional Strategies:**

In the outdoor lab, students will determine similarities and differences between 2 different types of plants and bugs. The similarities and differences need to be in structure, color, etc.

## **Assessment:**

Journal

Formative Assessment

## **Instructional Timeline:**

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**Science Standard/Benchmark:** Students can understand concepts and relationships in life science.

C. Students can understand environmental interaction and adaptation

**Grade Level Objective:** C.2. Understand and apply knowledge of:

- interdependency of organisms, changes in environmental conditions, and survival of individuals and species.
- the cycling of matter and energy in ecosystems.

## ***Instructional Strategies:***

Students will get into groups and will draw and complete a cycle of matter carbon, water, nitrogen or oxygen, then the class will get back together and will meet in groups and rotate, comparing where the cycles meet up.

## ***Assessment:***

Formative assessment

## ***Instructional Timeline:***

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**Science Standard/Benchmark:** Standard 2: Students can understand concepts and relationships in life science  
C. Students can understand environmental interaction and adaptation

**Grade Level Objective:** C.3. Understand and demonstrate knowledge of the social and personal implications of environmental issues

### ***Instructional Strategies:***

Students will use

<http://www.bp.com/iframe.do?categoryId=9027929&contentId=7050956>

And energy calculator to examine their “carbon footprint”. We will then as a class use our own research and what we know about the carbon cycle to reduce that number. Driving less, more plants, etc.

### ***Assessment:***

***Journal, formative assessment***

### ***Instructional Timeline:***

# **MStM Science Curriculum Lesson Plan Template**

**Grade Level:** 6<sup>th</sup> grade science

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**Science Standard/Benchmark:** Standard 3: Students can understand concepts and relationships in Earth/Space sciences

A. Students can understand ideas about Earth's composition and structure

**Grade Level Objective:** A.1. Understand and apply knowledge of the water cycle, including consideration of events that impact groundwater quality

## ***Instructional Strategies:***

Students will examine the properties of water, such as evaporation, condensation and precipitation. We will study the patterns of weather and look where there are patterns of massive storms and use the water cycle to understand why.

## ***Assessment:***

Weather patterns journal

## ***Instructional Timeline:***

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**Science Standard/Benchmark:** Standard 3: Students can understand concepts and relationships in Earth/Space sciences

A. Students can understand ideas about Earth's composition and structure

**Grade Level Objective:** A.2. Understand and apply knowledge of earth history based on physical evidence

## ***Instructional Strategies:***

Plate tectonics- we will examine plate tectonics and will determine the forces that cause earthquakes and mountains. The forces we will study are tension, compression and shear. We will look at the types of geography and determine the type of force acting on it.

## ***Assessment:***

Formative assessment

Cooperative learning

## ***Instructional Timeline:***

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**Science Standard/Benchmark:** Standard 3: Students can understand concepts and relationships in Earth/Space sciences  
B. Students can understand changes in and around Earth

**Grade Level Objective:** B.1. Understand and apply knowledge of the structure and processes of the earth system and the processes that change the earth and its surface

## ***Instructional Strategies:***

Erosion control, we will look at the affects of erosion during floods and regular smaller volumes of running water. In this lab we set containers up at an angle and dump water through a controlled flow cup and measure the deposition of sediment, then repeat the process using flood type waters.

## ***Assessment:***

Journal

## ***Instructional Timeline:***

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**Science Standard/Benchmark:** Standard 3: Students can understand concepts and relationships in Earth/Space sciences  
B. Students can understand changes in and around Earth

**Grade Level Objective:** B.2. Understand and apply knowledge of the earth's atmospheric properties and how they influence weather and climate

**Instructional Strategies:**

Students will use plastics to set up a “greenhouse” to study the temperature differences in the atmosphere and in the greenhouse. We will also look to see if the color and thickness of plastics have anything to do with temperature difference.

**Assessment:**

Lab reports  
Journals

**Instructional Timeline:**

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**Science Standard/Benchmark:** Standard 3: Students can understand concepts and relationships in Earth/Space sciences

C. Students can understand concepts relating to the universe

**Grade Level Objective:** C.1. Understand and apply knowledge of the components of our solar system

## ***Instructional Strategies:***

Make a model of the solar system outside, scale the distances down. Have a group of 2 or three students do a short report on each planet. We have the younger grades come out and take a “tour” of the solar system.

## ***Assessment:***

Journal

Rubric

## ***Instructional Timeline:***

# **MStM Science Curriculum Lesson Plan Template**

**Grade Level:** 6<sup>th</sup> grade science

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**Science Standard/Benchmark:** Standard 4: Students can understand concepts and relationships in physical science

A. Students can understand and apply concepts related to mechanics forces and motion

**Grade Level Objective:** A.1. Understand and apply knowledge of motions and forces

## ***Instructional Strategies:***

Pendulum lab: The students are paired up and are going to investigate how what changes the length of a pendulums period. The students have a data sheet that they will fill out to determine the changes.

**Assessment:**

**Instructional Timeline:**

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**Science Standard/Benchmark:** Standard 4: Students can understand concepts and relationships in physical science

B. Students can understand and apply the concept of energy

**Grade Level Objective:** B.1. Understand and apply knowledge of forms of energy and energy transfer

## ***Instructional Strategies:***

Kinex Lab: In this lab the students must convert wind energy from a fan into mechanical energy. The students have one class period to construct a car and sail, then the next class period we test the sail cars.

## ***Assessment:***

Formative- questioning

Journal

## ***Instructional Timeline:***

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**Science Standard/Benchmark:** Standard 4: Students can understand concepts and relationships in physical science

C. Students can understand and identify properties and changes of matter

**Grade Level Objective:** C.1. Understand and apply knowledge of:

- elements, compounds, mixtures, and solutions based on the nature of their physical and chemical properties.
- physical and chemical changes and their relationship to the conservation of matter and energy.

## ***Instructional Strategies:***

Ice cream maker: Students will learn about the transfer for heat from a warmer substance to a cooler one. The students will mix the cream, milk and sugar together in a small Ziploc baggy. Then in a larger Ziploc bag place ice and rock salt. The students are to shake the baggies till all the heat has flowed out of the cream.

## ***Assessment:***

Journal

Formative assessment

## ***Instructional Timeline:***