

MStM Science Curriculum Lesson Plan Template

Grade Level: 2nd Grade

Teacher: Mrs. Franey and Mrs. Scrivner

Science Standard/Benchmark:

Standard 1: Students can understand and apply skills used in scientific inquiry.

Benchmark A: The student will understand and apply the processes and skills of scientific inquiry.

Grade Level Objective:

1.A.2.1: Ask questions about objects, organisms, or events in the environment.

Instructional Strategies:

The class will go on a nature walk outside. The teacher will model generating questions that make him or her curious about what he or she sees in nature. For example: "I notice that there are more flowers in non-grassy areas. What makes flowers grow better in empty soil than in grassy areas? Why do people choose empty soil for planting?" Students will then come up with their own questions about the objects and organisms they see and record them on a piece of paper.

Assessment:

Teacher observation of written student questions.

Instructional Timeline:

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Grade Level Objective:

1.A.2.2: Plan and conduct simple investigations.

Instructional Strategies:

(taken from Uncovering Student Ideas in Science: NSTA Press 2007)

The teacher will learn what students already know and want to know with a KWL chart, regarding temperature of objects. The teacher will first model choosing 2 objects in the classroom, each made of a different substance (wood, metal, fabric, or glass) and place a thermometer to each. The next day, the teacher will record the temperature of the materials for students to view. Students will then choose 2 objects of their own to record the temperature of, and the objects must be made of different materials. They will then investigate their predictions about temperature by checking the thermometers the following day. Everybody will complete the original KWL chart together.

Assessment:

Teacher will observe data collection.

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Grade Level Objective:

1.A.2.3: Use tools to gather data and extend the senses.

Instructional Strategies:

Teacher will model how to measure temperature of a cloth. Then students will each wrap a thermometer in a white cloth and another in a black cloth. Students will place both cloths in the sunshine. After some time to absorb the sun, students will read the thermometers to find out which color absorbed more heat, hence leading to a discussion about what color of clothes to wear on what type of day.

Assessment:

Teacher observation of data collection.

Instructional Timeline:

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Grade Level Objective:

1.A.2.4: Use mathematics in scientific inquiry.

Instructional Strategies:

We will walk outside the school for students to observe plants in nature around them. Then, students will choose one seed to grow in soil in a cup in the classroom and plant it. Students will measure and record growth of the seed with a ruler each day on a simple chart.

Assessment:

Teacher observation of data collection and discussion of a growth pattern.

Instructional Timeline:

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Grade Level Objective:

1.A.2.5: Communicate investigations and explanations orally, in writing or through drawings.

Instructional Strategies: (taken from <http://youth.net/cec/cecsci/cecsci.185.txt>)

The teacher will model how to write a description of a rock, modeling how to measure for information as well. The teacher will then divide the class into small groups, providing each student with rulers, string, balances, paper, pencil, and a small bowl of rocks. Students will choose one rock and record as many facts about it as possible, including color, shape, size, and a drawing. All students return their rock to the bowl and mix the rocks. They should then lay the rocks out on the table and try to locate their original rock.

Assessment:

Teacher observation of information collected.

Instructional Timeline:

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Science Standard/Benchmark:

Standard 1: Students can understand and apply skills used in scientific inquiry.

Benchmark A: The student will understand and apply the processes and skills of scientific inquiry.

Grade Level Objective:

1.A.2.6: Follow appropriate safety procedures when conducting investigations.

Instructional Strategies:

(taken from www.usoc.k12.ut.us/curr/science/sciber00/safety/Rules.htm)

Teacher will model correct and incorrect use of safety glasses. Teacher will model wearing safety glasses while measuring a certain amount of water. Students will practice wearing the safety glasses while measuring amounts of water. The group will discuss reasons why safety glasses are important.

Assessment:

Students will create a small poster, illustrating positive features of safety glasses.

Instructional Timeline:

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Grade Level: 2nd Grade

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Science Standard/Benchmark:

Standard 1: Students can understand and apply skills used in scientific inquiry.

Benchmark B: The student will analyze and interpret scientific information.

Grade Level Objective:

1.B.2.1: Use data to construct reasonable explanations.

Instructional Strategies: (taken from www.k12.hi.us/~smatsumu/index.htm.)

Students will plant beans in groups of 2 using two seeds to plant separately in soil and sand. Students will be given a pre-measured amount of water to use daily in each plant. Students will record growth rates of the bean seed in soil versus the bean seed in sand. Students will create a spreadsheet with paper to record this information and come up with and write reasonable explanations as to why a particular seed grew taller than another seed in a different growth substance.

Assessment:

Teacher observation of student discussions and written explanations.

Instructional Timeline:

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Grade Level: 2nd Grade

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Science Standard/Benchmark:

Standard 2: students can understand concepts and relationships in life science.

Benchmark A: The student will understand structures of living things.

Grade Level Objective:

2.A.2.1: Apply and understand the characteristics of living things and how living things are both similar to and different from each other and from non-living things.

Instructional Strategies:

(taken from Uncovering Student Ideas in Science: NSTA Press 2007©)

Teacher guides students to fill out the worksheet “Is It Living?” On this worksheet, students must state the reason they decided that made something living based on what they think they already know. Students will be put in groups of 2-3 students and make a T-chart of living/nonliving things and state their reasoning. On another day, the teacher will anonymously share those results whole-group, promoting discussion among students to persuade others to change their own reasons for classifying something living or not. The teacher will encourage thoughtful, ongoing, changing discussion, asking guided questions to lead students to understanding what makes something living or not. This inquiry thinking is student-centered.

Assessment:

Teacher observation of student T-charts and class discussions.

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Science Standard/Benchmark:

Standard 2: students can understand concepts and relationships in life science.

Benchmark A: The student will understand structures of living things.

Grade Level Objective:

2.A.2.2: Apply and understand fundamental human body parts and their functions.

Instructional Strategies: (taken from www.discovereducation.com)

Teacher will split the class into groups of 5, having 4 of each 5 students stand in a large circle around the 5th student. The child in the middle is instructed to close his/her eyes and cover 1 ear. One student in the circle should snap his/her fingers or clap hands several times. See if the student in the center can determine who snapped by locating where the sound came from. Then let the student try again, this time using both ears. After students have all taken turns in the middle, encourage students to discuss why 2 ears allow us to determine sound direction better than 1 ear.

Assessment:

Teacher observes and judges on a 3-point rubric:

3 points: students worked cooperatively within group and participated actively in group discussion

2 points: students worked somewhat cooperatively within their group; participated in class discussion

1 point: students did not work well within their group; did no participate in class discussion

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Standard 2: students can understand concepts and relationships in life science.

Benchmark A: The student will understand structures of living things.

Grade Level Objective:

2.A.2.3: Apply and understand good health habits.

Instructional Strategies: (taken from www.labelsforeducation.com/lessonplans)

Teacher makes a t-chart Yes/No and asks each child if they ate breakfast this morning. Kids tally mark under the corresponding column. Kids under Yes tell what they ate. Teacher makes a large chart with columns labeled grains, vegetables, fruit, milk, meats & beans, and other foods and fills in the foods that kids ate for breakfast. Kids assess the food chart to see which foods were more common for breakfast. Teacher leads discussion on benefits of eating breakfast: helps brain grow and think, helps body grow, makes bones strong, helps legs run and jump, makes stomach feel full until lunch or snack time, and provides vitamins and minerals.

Assessment:

Teacher observation of discussion and student completion of personal “My Breakfast Habits” chart.

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Science Standard/Benchmark:

Standard 2: Students can understand concepts and relationships in life science.

Benchmark B: The student will understand life cycles.

Grade Level Objective:

2.B.2.1: Apply and understand life cycles of plants and animals.

Instructional Strategies:

(taken from Uncovering Student Ideas in Science: NSTA Press 2007©)

Teacher will have students complete a prior knowledge page “Does It Have a Life Cycle?” Students will write the reason the things they chose do or don’t have life cycles. Then students will share their ideas and discuss with multiple students, then the whole group. The teacher will show pictures of the stages of life cycles of some of the animals, explaining that visually the life cycles differ, although continuity of life is the main reason for the life cycle.

Assessment:

Teacher observation of discussion.

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Science Standard/Benchmark:

Standard 2: Students can understand concepts and relationships in life science.

Benchmark C: The student will understand environmental interaction and adaptation.

Grade Level Objective:

2.C.2.1: Apply and understand the basic needs of plants and animals and how they interact with each other and their physical environment.

Instructional Strategies:

(taken from Uncovering Student Ideas in Science: NSTA Press 2007©)

Students complete a prior knowledge page of “Needs of Seeds.” Then students will plant seeds with pre-selected criteria. (only water, soil, air, sunlight, only water, soil, air, darkness, only water, soil, only water, air, only soil, air) After allowing seeds time to grow, students will see which seeds grew or did not grow and compare results with one another. Students will determine what seeds need and do not need to grow.

Assessment:

Teacher observation of discussion.

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Standard 2: Students can understand concepts and relationships in life science.

Benchmark C: The student will understand environmental interaction and adaptation.

Grade Level Objective:

2.C.2.2: Apply and understand ways to help take care of the environment.

Instructional Strategies:

Teacher will model turning trash into treasure by using an object meant to go to the garbage. Teacher will provide similar items of clean trash for students to reuse instead of throw away. The whole group will discuss what will happen to the Earth if people do not reuse things and everything gets thrown away.

Assessment:

Teacher observation of student discussion.

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Science Standard/Benchmark:

Standard 3: Students can understand concepts and relationships in Earth/Space sciences.

Benchmark A: The student will understand ideas about Earth's composition and structure.

Grade Level Objective:

3.A.2.1: Apply and understand properties of Earth materials.

Instructional Strategies:

Students will observe rocks in their environment of various shapes and sizes. Students will record their observations on an outdoor walk and share them in partner and whole-group discussion after the walk.

Teacher makes sure students realize rocks can be all sizes, including bits of sand.

Assessment:

Teacher observation of discussion.

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Science Standard/Benchmark:

Standard 3: Students can understand concepts and relationships in Earth/Space sciences.

Benchmark B: The student will understand changes in and around Earth.

Grade Level Objective:

3.B.2.1: Apply and understand observable information about daily and seasonal weather conditions.

Instructional Strategies:

Teacher will place a jar 1/3 full of water, sealed with plastic wrap, in a sunny window. Students will observe that droplets of water form inside the top plastic wrap and run down sides of the jar. This may take 1-3 days, depending on sunlight. Teacher will ask students how the water moved without moving the jar. Students will discuss their ideas. Then the teacher will present “evaporation, condensation, precipitation powered by light” as the water cycle. The teacher can sing these 3 words and have the kids repeat by singing for practice.

Assessment:

Teacher observation of discussion.

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Science Standard/Benchmark:

Standard 3: Students can understand concepts and relationships in Earth/Space sciences.

Benchmark C: The student will understand concepts relating to the universe.

Grade Level Objective:

3.C.2.1: Apply and understand events around us that have repeating patterns including the seasons of the year, day, and night.

Instructional Strategies:

Teacher will read a book about an apple tree changing throughout the seasons. Students will describe what the tree looks like in each season. Then students will draw the tree in each season, labeling items specific to each picture.

Assessment:

Observation of student pictures.

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Science Standard/Benchmark:

Standard 4: Students can understand concepts and relationships in physical science.

Benchmark A: The student will understand and apply the concept of energy.

Grade Level Objective:

4.A.2.1: Understand and apply the positions and motions of objects.

Instructional Strategies: (taken from www.daneprairie.com)

Teacher makes VENN diagram on the whiteboard with the 3 sections labeled: Push, Both, Pull. Students get 3 colors of post-it notes: one color means push, another other color means pull, and the last color is for both. Students go through the classroom and identify things that can be pushed, pulled, or both, and record them on corresponding sticky notes. Students place their sticky notes on the VENN diagram to discuss with classmates after 10 minutes of searching.

Assessment:

Teacher observation of VENN diagram and discussion.

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Science Standard/Benchmark:

Standard 4: Students can understand concepts and relationships in physical science.

Benchmark B: The student will understand and identify properties and changes of matter.

Grade Level Objective:

4.B.2.1: Understand and apply observable and measurable properties of objects.

Instructional Strategies:

(taken from Uncovering Student Ideas in Science: NSTA Press 2007©)

Students fill out the “Cookie Crumbles” worksheet prior to the actual activity. Then, the teacher breaks a cookie into tiny pieces and crumbs, weighing it before and after the shape-change. Students observe what happens and discuss their thoughts with each other and the teacher and explain if their original thought changed.

Assessment:

Teacher observation of discussion.

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Science Standard/Benchmark:

Standard 4: Students can understand concepts and relationships in physical science.

Benchmark B: The student will understand and identify properties and changes of matter.

Grade Level Objective:

4.B.2.2: Understand and apply characteristics of liquids and solids.

Instructional Strategies:

The teacher will discuss the properties of objects (texture, smell, color, etc...) Students will choose random objects and write riddles that describe that object's properties. Students will read their riddles and ask other students to guess their object.

Assessment:

Observation of student riddles.

Instructional Timeline: