







Course Syllabus Investigations in Science 6



Loiderman Middle School

Welcome to Investigations in Science for 6th Graders. This curriculum is a unique problem/project based curriculum. The learning is student-centered with the teacher acting as a facilitator. Instruction is woven around one main problem within each unit of study, and students will be presented a request for proposals (RFP) at the start of each unit. Minds-on inquiry and hands on explorations, productive discourse, purposeful reading and meaningful writing will guide the students through this exciting Science course! Students engage in science, technology, engineering and mathematics (STEM) in order to propose solutions to real world problems. They will then use a design-folio throughout the quarter to research, develop, design and evaluate their proposal.

Unit	Title	Content Focus
1	Matter and Its Interactions 	Students will discover that matter is composed of atoms and molecules that are attracted to each other and in constant motion. Students will apply the concepts of molecular motion to investigations that explore the heating and cooling of solids, liquids, and gases. Students will develop an understanding of density through investigations that test the variables of mass and volume of objects. Students will discover that the relationship between temperature and thermal energy depends on the types, states, and amounts of matter and will use this evidence to develop and understanding of heat. Students will explore simple chemical reactions that release and absorb energy and will discover that the breaking of certain bonds between atoms in the reactants create new products that conserve mass. Students will apply their understanding of chemistry to a real-life situation and design a solution.
2	Ecosystems Interactions, Energy, and Dynamics 	Students will explore the biodiversity and essential factors of different ecosystems and learn that a population consists of all species that occur together at a given place and time. Students will investigate populations within food webs and categorize those populations as producers, consumers, and decomposers. Students will learn that organisms compete for limited resources and that the number of organisms an ecosystem can support depends on the resources available. Students will explore how competition may limit or generate the growth of populations in specific niches in the ecosystems. They will use models to demonstrate the flow of matter and energy in an ecosystem. Students will use this information to create and maintain a habitat for a local species.
3	Human Impacts on the Environment 	Students will discover that natural resources are used by living things in a variety of ways but how much and in what ways we use those resources affects the footprint of our planet. Students will learn that our use of fossil fuels has consequences on the environment. Students will investigate how human activity and use of resources impacts the geosphere, hydrosphere, atmosphere, and biosphere and consider alternative solutions for the products we make and the resources we use. They will model a solution to a variety of environmental problems created from natural resource use.
4	Energy and Waves 	Students will discover how alternative energy sources can be used to solve real world problems and design a solution. They must consider the ideas of electricity, magnetism, electrical energy production, and conversions of different types of energy, in order to debate and choose the best source of alternative energy. Students will explore the concepts of electricity and magnetism and the relationship between them. They will also investigate electrical energy and conclude it can be generated from a variety of sources and transferred into almost any form of energy. Students will discover that energy travels in waves and explore how light and sound behave. Students will use their design-folio to design a solution.

GRADING & Reporting

Students' academic grades are based on individual academic achievement. Quarterly grades will be assessed in three categories (Summative, Formative, and Learning Skills/Practice). Both individual assignments and final grades will be determined using a scale

of: A: 90% - 100%, B: 80% - 89%, C: 70% - 79%, D: 60% - 69%, E: 59% - 50%. We will use a variety of assessment types to assess student learning.

Category	Weight	Examples
Summative Assessments	10%	End of unit tests, culminating projects, and culminating labs
Formative Assessments	80%	labs, quizzes, reading and writing assignments, journal entries, warm-ups, exit cards, quizzes, class work, homework evaluated for learning
Practice/ Prep Homework	10%	Any assignment (textbook assignments and/or worksheets) assigned for practice or preparation for instruction.

Reassessment of Formative Work

- Assessed tasks such as quizzes, non-unit tests, etc... may be retaken by students to receive a higher grade. Reassessments will be determined based on teacher discretion. When a teacher offers a reassessment, all students may be reassessed, regardless of grade on the original task/assessment, if they meet the following requirements: complete the original task or assessment, complete required assignments, and complete re-teaching/relearning activities, as determined by the teacher.
- Reteaching and reassessment opportunities are available during lunch and may be available during lunch by prior arrangement with your teacher. Students need to remember to ask for a lunch pass.
- The reassessment grade replaces the original grade even if the reassessed grade is lower.
- Assessments may be reassessed partially, entirely, or in a different format.
- Summative and/or End of Unit Assessments may not be re-taken.

Late Assignments and/or Missing Work

- A **due date** is the date students are expected to submit an assignment. Any achievement assignment turned in after the due date will be penalized one letter grade or 10%.
- A **deadline** is the last date the teacher will accept an assignment (or the date the teacher returns graded assignments). Achievement assignments turned in after the deadline date will not earn credit (0%).
- Any homework/classwork assignment that is provided for practice or preparation must be completed on time for full credit. Any late or incomplete homework assignments will not receive a grade higher than 50%.
- By the end of the unit, students cannot complete and submit late homework assignments once the summative assessment has been administered.
- All due dates and deadline dates will be announced and will most often be the same date.
- Students who have excused absences have a responsibility to make up missed assignments. Teachers will assist students in making up their assignments and set appropriate deadlines.
- There is no extra credit.

Learning Skills Grades:

In addition to the academic grade, students will receive *Learning Skills Grades* each quarter as well. Learning skills grades will assess students' Participation and Assignment Completion throughout the course. Students may earn the following grades for each of the aforementioned categories:

C: Consistently **O:** Often **S:** Sometimes **R:** Rarely **NI:** Not Enough Information

Communication and MyMCPS

- One of the most useful ways we have to communicate is your child's Agenda Book. Students will be required to keep track of assignments (due dates and deadlines) in their Agenda Book.
- Additionally, students and parents should visit MyMCPS daily for posted assignments, grade updates, and progress reports. (Students are expected to know their grades, and what, if any, work is missing at all times. Other forms of communication include interims, report cards, and scheduled conferences. There should be no surprises about grades to students or parents.

Suggested Student Organizational Tools and Supplies (recommended supply list)

There will be no fees for this course.

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| - 3-ringed binder (Section for Science) | - Notebook paper | - Pens (black or blue) |
| - Calculator (inexpensive one to be kept in binder) | - Colored pencils | - Highlighter |
| - Pencils and Erasers | | |



Safety in Science Class

- All science students will be required to follow safety procedures as designated by the MCPS safety contract. Failure to follow the safety guidelines may result in dismissal from the science laboratory for the remainder of that class period.