

2021-22 8th Grade Science Syllabus

Class: 8th Grade Science

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Introduction: Welcome to 8th grade science class! We anticipate this year will be interesting, exciting, and have a lot of opportunities for learning and growing both as students and as people. The two main fields of science that will be covered this year are physics and chemistry, with other concepts and ideas thrown in when applicable. This year you will learn how rockets take off, why you need to wear a seatbelt, and what makes up the universe!

Materials Needed: Three spiral bound notebooks (one for each trimester), pencils or pens, a great attitude, and a curious mind.

Grade Scale Breakdown:

90-100 %=A 80-89%=B 70-79%=C 60-69%=D 59% and below=F

Late Work Policy: Late work will be accepted until the end of the trimester, but work turned in past the due date will be graded at the teacher's convenience. Students should do their best to turn assignments in on time.

Extra Credit: No extra credit will be assigned, but there will be plenty of opportunities to improve your grade throughout the trimester.

Class Activities: In this class, we will be conducting experiments, creating projects to illustrate concepts, investigating phenomena, and engaging in other explorations of science. Students will also be assessed through quizzes, tests, and through evaluating their Interactive Notebooks (INB's). Students will be responsible for keeping their INB's in good shape and up to date. Students may retake quizzes and tests.

NGSS Standards:

MS-PS1-1: The student is expected to develop models to describe the atomic composition of simple molecules and extended structures.

MS-PS1-2: Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

MS-PS1-3: Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.
MS-PS1-5: Develop and use a model to describe how the total number of atoms does not change in a chemical reaction, and thus mass is conserved.
MS-PS1-4: Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.
MS-PS1-6: Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.
MS-ETS1-3: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
MS-ETS1-4: Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.
MS-PS2-1: Apply Newton's third law to design a solution to a problem involving the motion of two colliding objects.
MS-ETS1-1: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
MS-ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
MS-PS2-2: Plan an investigation to provide evidence that a change in an object's motion depends on the sum of the forces on the object and the mass of the object.
MS-PS2-3: Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.
MS-PS2-5: Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.
MS-PS2-4: Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.
MS-PS3-1: Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.
MS-PS3-5: Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.
MS-PS3-2: Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.
MS-PS3-3: Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.
MS-PS3-4: Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.
MS-PS4-1: Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.
MS-PS4-2: Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.
MS-PS4-3: Integrate qualitative scientific and technical information to support the claim that digitized signals are a more

reliable way to encode and transmit information than analog signals.

Notification of the Right to Object to the Use of Materials

Any resident of the district may raise objection to instructional materials used in the district's educational program despite the fact that the individuals selecting such materials were duly qualified to make the selection and followed the proper procedure and observed the criteria for selecting such material.

The first step in expressing objection is consultation with the classroom teacher or library staff and providing a brief written complaint. The staff member receiving a complaint regarding instructional materials shall try to resolve the issue informally through the discussion of the original assignment or the opportunity for an alternative assignment.

If not satisfied with the initial explanation or an alternative assignment, the person raising the questions will meet with a building administrator who, if unable to resolve the complaint, will provide a Request for Reconsideration form which will be given to the superintendent for action.