

Maywood Middle School
• Earth and Space Sciences Syllabus•
2019-2020

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Course Description

Earth and Space Sciences has three major units (see below course content) that correlate with the Washington State Science Standards. This curriculum is laboratory-based science, with additional focus placed on laboratory safety, scientific process, critical thinking, and written communication of investigative findings. Technology use is an integral component of the curriculum.

Overall Course Objectives

1. Students will understand and use scientific concepts and principles.
2. Students will conduct scientific investigations to expand understanding of the natural world.
3. Students will apply science knowledge and skills to solve problems and meet challenges.
4. Students will use effective communication skills and tools to build and demonstrate their understanding of science.
5. Students will understand how science knowledge and skills connect to other subject areas and real-life situations.
6. Students will apply science knowledge to new and challenging scenarios.

Course Content

Earth's Dynamic Systems

- Convection Currents
- Earthquakes
- Energy Transfer
- Energy Cycling
- Evidence of Dynamic Earth
- Fossils and Geological Processes
- Plate tectonics
- Resource Distribution
- Volcanoes
- Viscosity
- Land formations
- Rock cycle

Weather and Climate Systems

- Air Masses & Pressure
- Climate
- Cloud Formation
- Convection Currents
- Energy Transfer
- Heating of Earth's Surface
- Ocean Currents
- Storms
- Weather
- Wind

Space Explorations

- Eclipse (Lunar and Solar)
- Electromagnetic Spectrum
- Gravity
- Lunar Phases
- Reasons for Seasons
- Rotation vs. Revolution
- Solar System
- Stars
- Sun-Earth-Moon System
- Study of the Universe
- Tides

Year-Round Content:

- Critical thinking and Reasoning
- Effective Communication skills (focus on writing)
- Systems & Interactions
- Inquiry (experimental design)
- Application (use of knowledge)
- Lab Skills and Safety
- Scientific Method

Major Learning Activities and Assessment Tools

Varieties of assessments are used to determine student ability to apply and understand the concepts and principles presented throughout this course. Below are examples of the type of assessments that may be used:

Assessment Tools

- Lesson exercises, in-class activities/discussions, and homework.
- On-line assignments accessible through *Student Access* and other web based applications
- Computer use and application
- Research
- Unit projects

Assessment Tools

- Creating, maintaining, and updating personal Science journal using OneNote® (daily activity)
- Writing and conducting laboratory investigations including outcome analysis
- Tests and quizzes
- Oral presentations
- Construction of physical models

Textbook and Materials

All students have lockers – for student safety only pencil pouches are permitted in the science laboratory (classroom).

Student Behavior Expectations

1. Come in quietly.
2. Pick up and log onto assigned computer upon entering the classroom, unless otherwise instructed.
3. Be in your assigned seat with OneNote® open and needed materials out **before the bell rings**.
4. Talking should stop *immediately* with opening bell & when the teacher signals for attention.
5. When the teacher is talking to the class, it is expected that:
 - Students are listening with no talking or whispering.
 - Students will raise their hand when they have comments or questions, and wait to be acknowledged, before speaking.
6. During work time students should stay in their seats - do not wander around the room.
7. The teacher dismisses the class, not the bell.
8. Students are expected to be in their seats and working until dismissed by the teacher.
9. Take care of your restroom needs before class, as students are unable to leave the classroom during the 1st & last 10 min. of class.
10. Do not handle displays, equipment, or materials unless you have prior permission.
11. No food, beverages, or gum in classroom.
12. Clothing must meet Maywood's Code of Conduct standards **and** be appropriate for laboratory activities.

Student Attendance Expectations

Students are responsible for completing all missed assignments during their personal or school related absence(s).

- Assignments due on the day of a school related absence must be turned in before attending the event.
- Students need to check their OneNote® and the class web site for assignments and due dates during their absence. If there is a question about an assignment, please email or call my voice mail (see first page).
- Long term assignments (seven (7) days or longer) that were due during an absence must be turned in on the first day back at school.

Substitutes

Occasionally I may be absent due to conferences, district meetings, or illness. Students are expected to treat substitutes with extreme respect and courtesy.

Assignments

All assignments are to be completed on time as announced or posted and turned in at the beginning of class on the due date. Work turned in after class has begun is deemed late. *Reflection* assignments are not accepted late, as we discuss the prompts on the due date. No late work will be accepted after the unit test. Due to time and material constraints, late work poses a significant problem, in science class. We recognize that situations arise that can affect students study time, however, if such situation should arise please notify the teacher via note or email so that special arrangements can be made. No late work is accepted after a Unit test. During each trimester students, have extra credit opportunities, to improve their score on assessments, by completing corrections. No other form of extra credit is offered.

Grades and Grade Reports

Academic Letter Grade

Summative Assessments (tests, projects, and assignments) 90%

Non-Academic Performance:

Formative assessments (exit slips, warm up, group discussions, and handouts) 10%

All below are evaluated on a 1-3 scale

Work Ethic	0%
Collaboration	0%
Citizenship	0%
Initiative	0%

* Cheating/plagiarism on any assignment (including HW) will result in zero credit & and your actions will be document for all students involved.

Students and parents need regular communication to help ensure academic success. Skyward Family Access® is an Internet accessible program that allows students and parents to monitor academic progress. When reviewing student grades please note due dates and any comments posted. The program updates immediately, which means that assignments are posted prior to the completion of grading. In addition to Family Access, students will receive a mid-term report card.

The Maywood (Science) Way

All school rules apply. (Please see student handbook for rules.)

Be Safe	Be Kind	Be Respectful	Be Your Best
Use equipment appropriately	Be inclusive	Listen to others when they are speaking	Challenge yourself
Stay at your lab stations	Encourage others	Clean up after yourself	Ask for and accept help when needed
Listen for directions before starting	Keep comments positive and constructive	Reduce, reuse and recycle	Use class time wisely
Four on the floor	Be accepting of others' perspectives	Keep personal space	Practice positive risk taking
Use online resources properly			Always do your own work

Consequences

- 1st offense – Warning: Speak to student
- 2nd offense – ODR submitted and Parent contacted
- 3rd offense – ODR submitted, parent contacted, admin referral, & privileges revoked

*Any severe or repeated offenses will lead to an immediate referral to Administration

Safety in the Science Classroom and Laboratory - ISD

Safety in the science classroom and laboratory is the **FIRST PRIORITY** for students, instructors, and parents. To ensure safer classroom/laboratory/field experiences, the following **Science Safety Rules** have been developed for the protection and safety of all. Your teacher will provide additional rules for specific situations or settings. The Rules must be followed at **all** times. After you have reviewed them with your instructor, read and review the Rules with your parent/guardian. Your signature indicates that you have read these Rules, understand them, and agree to follow them at all times while working in the classroom/laboratory.

Safety Standards of Student Conduct in the Classroom, Laboratory, and in the Field

1. Conduct yourself in a responsible manner at all times. Frivolous activities, mischievous behavior, throwing items, and conducting pranks are prohibited.
2. Lab and safety information and procedures must be read **ahead** of time. All verbal and written instructions shall be followed in carrying out the activity or investigation.
3. Eating, drinking, gum chewing, applying cosmetics, manipulating contact lenses, and other unsafe activities are not permitted in the laboratory.
4. Working in the laboratory without the instructor present is prohibited.
5. Unauthorized activities or investigations are prohibited. Unsupervised work is not permitted.
6. Entering preparation or chemical storage areas without instructor permission is prohibited at all times.
7. Removing chemicals or equipment from the classroom or laboratory without instructor permission is prohibited.
8. If you do not understand how or why to do a task, ask your instructor for help. If there is any doubt in your mind, ask your instructor.

Personal Safety

1. Sanitized indirectly vented chemical splash goggles or safety glasses as appropriate (meeting the ANSI Z87.1 standard) shall be worn during activities or demonstrations in the classroom or laboratory, including pre-laboratory work and clean-up, unless the instructor specifically states that the activity or demonstration does not require the use of eye protection.
2. When an activity requires the use of laboratory aprons, the apron shall be appropriate to the size of the student and the hazard associated with the activity or investigation. The apron shall remain tied throughout the activity or investigation.
3. All accidents, chemical spills, and injuries must be reported immediately to the instructor, no matter how trivial they may seem at the time. Follow your instructor's directions for immediate treatment.
4. Dress appropriately for laboratory work by protecting your body with clothing and shoes. This means that you should use hair ties to tie back long hair and tuck into the collar. Do not wear loose or baggy clothing or dangling jewelry on laboratory days. Acrylic nails are also a safety hazard near heat sources and should not be used. Sandals or open-toed shoes are not to be worn during any lab activities. Refer to pre-lab instructions. If in doubt, **ask!**
5. Know the location of all safety equipment in the room. This includes eye wash stations, the deluge/safety shower, fire extinguishers, the fume hood, and the safety blanket. Know the location of emergency master electric and gas shut offs and exits. Know how to **USE** all safety equipment in the room.
6. Know the location of the Emergency Evacuation Route map and how to read the map.
7. Wash your hands with soap and water after handling any chemicals, glassware or touching any surface in the lab area before leaving the lab area.
8. When an activity or investigation requires the use of laboratory gloves for hand protection, the gloves shall be appropriate for the hazard and worn throughout the activity.
9. If you have a medical condition (e.g., allergies, pregnancy, etc.), check with your physician before working in lab.

Specific Safety Precautions Involving Chemicals and Lab Equipment

1. Avoid inhaling in fumes that may be generated during an activity or investigation.
2. Never fill pipettes by mouth suction. Always use the suction bulbs or pumps.
3. Do not force glass tubing into rubber stoppers. Use glycerin as a lubricant and hold the tubing with a towel as you ease the glass into the stopper.
4. Proper procedures provided by the instructor shall be followed when using any heating or flame producing device especially gas burners. Never leave a flame unattended.
5. Remember that hot glass looks the same as cold glass. After heating, glass remains hot for a very long time. Determine if an object is hot by placing your hand **close** to the object but do **not** touch it.
6. Should a fire drill, lockdown, or other emergency occur during an investigation or activity, make sure you turn off all gas burners and electrical equipment. During an evacuation emergency, exit the room as directed. During a lockdown, move out of the line of sight from doors and windows if possible or as directed.
7. Always read bottle labels twice before you use the chemical. Be certain the chemical you use is the correct one.
8. **Replace the top** on any chemical bottle as soon as you have finished using it and return the bottle to the designated location (even if there are others behind you).
9. Do not return unused chemicals to the original container. Follow the instructor's directions for the storage or disposal of these materials.
10. All chemicals should be regarded as hazardous unless your instructor informs you otherwise.
11. Never mix or heat chemicals unless you are directed to do so.
12. When mixing concentrated acids and water, always pour acids into water slowly and stir constantly.
13. When observing the odor of any liquid, do not smell it directly. Use your hand to fan the odor towards you.
14. Never taste a chemical or a solution or touch chemicals with your hands unless directed to do so by your instructor.
15. When heating a test tube, do not heat just one spot on the test tube. Never have the open end of the test tube pointed at anyone. Never look directly down into a test tube.
16. Always allow ample time for cooling after materials have been heated. **DO NOT DISCARD or STORE HOT/HEATED OBJECTS**

Standards for Maintaining a Safer Laboratory Environment

1. Backpacks and books are to remain in an area designated by the instructor and shall not be brought into the laboratory area.
2. Never sit on laboratory tables.
3. Work areas should be kept clean and neat at all times. Work surfaces are to be cleaned at the end of each laboratory or activity.
4. Work deliberately and with definite purpose, but do not hurry.
5. Know what you are doing. Be wary of what neighboring students are doing.
6. Solid chemicals, metals, matches, filter papers, broken glass, and other materials designated by the instructor are to be deposited in the proper waste containers, not in the sink. Follow your instructor's directions for disposal of waste. If you are unsure, ask the INSTRUCTOR.
7. Do not overfill waste containers. If new waste container is needed, tell/ask the instructor.
8. Sinks are to be used for the disposal of water and those solutions designated by the instructor. Other solutions must be placed in the designated waste disposal containers. **NEVER JUST POUR SOLUTIONS DOWN THE DRAIN. Ask if you are unsure!!**
9. Glassware is to be washed with hot, soapy water and scrubbed with the appropriate type and sized brush, rinsed, dried, and returned to its original location.
10. Goggles are to be worn during the activity or investigation, clean up, and through hand washing.
11. Safety Data Sheets (SDSs) contain critical information about hazardous chemicals of which students need to be aware. Your instructor will review the salient points on the SDSs for the hazardous chemicals students will be

working with and also post the SDSs in the lab for future reference. SDSs can be found online (search SDS and chemical name. E.g. SDS Sodium Hydroxide)

OOPS!

NOTIFY YOUR INSTRUCTOR OF ANY ACCIDENT OR POTENTIALLY HAZARDOUS SITUATION IMMEDIATELY.

IF ANY CHEMICAL IS SPLASHED ON YOU SKIN OR IN YOUR EYES NOTIFY YOUR INSTRUCTOR as you FLOOD the area with LARGE amounts water IMMEDIATELY. Your instructor will tell you when to stop washing.

Any person not complying with these Rules is subject to removal from the science laboratory and/or disciplinary action.

Parents, Guardians, a few reminders about laboratory safety...

We in the Issaquah School District take laboratory safety very seriously. This document is based off the National Science Teachers Association (NSTA) Science Safety Rules.

Safety in the laboratory can be addressed from three points of view: student preparation before the lab, student execution during the lab, and teacher monitoring during the lab. Students will be observed during the lab, but the preparation that the student does before the lab is even more important.

Appropriate clothing is required on lab days. Students will be **required** to wear long pants, closed-toe shoes, and a shirt fully covering their shoulders and torso. The idea is to limit skin exposure to direct chemical spills or splashes. Long hair must be tied back and dangling jewelry or scarves should not be worn.

Please let your instructor know if there are any questions or concerns.

After you turn in the signed acknowledgement, keep the rest of this document (pg. 1-2) in your Binder for reference.

Thank you.

Maywood Science Department

Safety Acknowledgment Form: Science Safety Rules

Class Period: _____

I have read the above Science Safety Rules, and I agree to follow them during any science course, investigation, or activity. By signing this form, I acknowledge that the science classroom, laboratory, or field sites can be an unsafe place to work and learn. The safety rules and regulations are developed to help prevent accidents and to ensure my own safety and the safety of my fellow students. I will follow any additional instructions given by my instructor. I understand that I may ask my instructor at any time about the rules and regulations if they are not clear to me. My failure to follow these science laboratory rules and regulations may result in disciplinary action.

I acknowledge that the below checked items have been discussed in class. I will keep the copy of the Science Safety Rules and in my chemistry folder and/or notebook.

I am familiar with the following:

- The safety rules outlined in this document
- Location and use of the fire extinguisher.
- Location and use of eye wash and safety shower devices.
- Emergency evacuation procedures.

Student Name (print)

Student Signature

Date

- I have read and understand that my student is to abide by the Science Safety Rules.
- Noncompliance will result in removal from the science laboratory and/or disciplinary action.

Parent/Guardian Name (print)

Parent/Guardian Signature

Date

- I have been informed that my student's noncompliance with any of the Safety Rules may result in disciplinary action that may include suspension or expulsion from school.

Student Signature

Date

Parent/Guardian Signature

Date