

**General Course Information**

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| **Course Title** | **MS Science** |
| **Description** | **Middle School – Earth Systems**We begin Earth Systems Science with an in-depth study of the scientific process and science inquiry. We look at the dynamic Earth and reading maps. In the second semester, we study the systems and the geological effects. Finally, we examine climates, weather and our place in the universe.  |
| **Room Number** | **140** |
| **Faculty Name** | **Patrick Ritt** |
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| **Course website** | ritt.kwoods.org |

**Introduction**

What is Science? Science is a way of making sense of the natural world. Scientists seek to describe its complexity, to explain its systems and events, and to find the patterns that allow for predictions. Science is the basis for the design of technologies that solve real-world problems.

**Course Expectations**

This course will follow the framework of Michigan Common Core State Standards as well as the Next Generation Science Standards. We will use class discussions, student research and projects, labs and project based learning.

Scientifically proficient students will

* Make sense of problems and persevere in solving them
* Be able to think scientifically and use scientific knowledge to make decisions about real-world problems
* Be able to construct new knowledge for themselves through research, reading and discussion
* Be familiar with the natural world, and respectful of its unity, diversity, and fragility
* Be able to make informed judgements on statements and debates claiming to have a scientific basis
* Be able to reflect in an informed way on the role of science in human affairs
* Students should review notes regularly rather than ‘cram’ for an assessment
* Students should also keep up with homework and assignments, but if there is a problem please let me know right away. I do not want students to experience anxiety and stress. The goal is that students master the content.
* Most students will probably need 20-30 minutes of work time 2 to 3 times a week to keep on track. Some projects may require more time
* I would love to provide a hands-on learning environment for the class. This requires a large amount of materials. I will update my website with needed items. There will also be field trips and other ways to help.
* Please let me know about any issues! I want science to be an exciting experience for our students. I will most likely set aside Wednesdays as the day I stay late.

**Essential Standards of Learning**

**This is a sample of the Objectives**

1. **Ask Questions and Define Problems**
2. **Develop and Use Models**
3. **Plan and Carry Out Investigations**
4. **Analyze and Interpret Data**
5. **Use Mathematics and Computational Thinking**
6. **Construct Explanations and Design Solutions**
7. **Engage in Argument from Evidence**
8. **Obtain, Evaluate, and Communicate Information**

**Prerequisite knowledge/skills for success in this course**

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| Mastery Level |  Work habits: Students will be able to work effectively independently and in groups.Academic integrity: Students will act honestly and ethically in their work.Study skills: Students will adhere to assignment deadlines. |
| Familiarity Level | Intellectual openness, Analysis, and Interpretation (definitions in next section)Reading and Comprehension:Research: Students have had some experience… |

**Course Materials**

I ask that students have 1 notebook for a Science Reference Book. This will contain notes and vocabulary. Work and homework should be completed out of another notebook or on loose leaf paper. Students should also come prepared with writing utensils. For in-class projects I will have markers, glue, etc. in the classroom.

We will be using a variety of sources for this course so that I can target grade-level appropriate materials.

**Grading**

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| Your ***semester*** grade will be determined as follows:  ***Summative Assessment.....90% Semester Exam....10%******Formative Assessments- Practice******Daily assignments & activities******Summative Assessments-*** ***Chapter reviews, quizzes, tests & projects*** | ***KWS follows the following grading scale:***A = 95-100 (4.0) C+ = 77-79 (2.3)A- = 90-94 (3.7) C = 73-76 (2.0) B+ = 87-89 (3.3) C- = 70-72 (1.6) B = 83-36 (3.0) F = below 70 (0.0) B- = 80-82 (2.7) |

**Mastery Learning Program** – The Mastery Learning Program is a program that allows every student the opportunity to succeed and, therefore, increases student achievement. In the program, every Kensington Woods student is expected to complete every assignment given by their teachers, providing them with the most opportunities for success.

**Daily Assignment Policy**

1. Assignments that are not completed during class time are expected to be finished as homework before the date it will be collected, usually Thursday of each week. On the due date, students must turn in an assignment that shows their best effort. If students feel that they need additional time to master the material, they must make arrangements with Mr. Ritt to get help outside of class time. If students do not turn in an assignment the day that it is collected, it will be put on the Mastery List that evening and will be taken off the list after students have had an opportunity to demonstrate mastery of the concepts in the assignment.

2. It is the students' responsibility to make sure that they find out what they missed during their absence. Students should check the class assignment list for a listing of the topic and assignment and make sure that they pick up any handouts that they may have missed.

3. Assignments should be done neatly. The process of solving a Science problem is just as important as the final answer. Therefore, you must show your work!

Retakes

* ***Retakes*~** **KWS- Request to Revise or Retest** Generally, students are not allowed to retake a chapter quiz or test during class time. However, students may fill out a ‘Request to Retest’ form and make arrangements outside of class time to master the material and then, retest. The retest should be completed within 2 weeks of when the assessment is returned.

**Classroom Expectations**

* ***Classroom Expectations****-*  Students should come to class ready to learn. Students should respect the learning environment, including the people and property around them.
* ***Cell Phones-*** Students should not have cell phones out during class instruction or class activities without permission. If students are using their phone to distract the learning environment (ie showing a video to friends) it will be taken from the student without warning.
* ***Beginning of Class-*** Be on time and in your seat with all required materials. ***\*\*\*Book, , Folder, Assignments, Pencil, Paper\*\*\****

* ***Class Assignments & Activities***~ Students will be expected to participate in classroom activities and to complete classroom assignments. Class assignments will usually be graded on effort and completeness. Assignments will generally be collected on a weekly basis. Students will sometimes be given the responsibility to check their own assignments in class. If a student is absent, they are responsible for getting the notes from the appropriate binder and copying them into their reference book.
* ***Handing in Work-*** Typically, students will hold on to their class assignments which will be collected once a week by the teacher . If directed to hand in work, students will use the silver tray at the front of the room with their block time labeled on it.
* ***End of Class-*** Students are expected to return all materials to their designated places and then return to their seats. Students will be dismissed by the **teacher. All students must be seated before class will be dismissed!**
* ***Finding out Course Grade-***  Students are encouraged to check MI-STAR in order to track their grades. Students may also make arrangements to see me outside of class to find out grade information. Time will not be taken out of class on a daily basis to discuss individual student grades.

**Schedule**

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| Time Frame | Topic | Assessment |
| September / October | **Scientific Inquiry** | Scientific Inquiry Quiz |
| November / December | **Dynamic Earth** | Unit Test |
| January/ February | **Earth Systems** | Unit Test |
| March/ April / May | **Earth in Space** | Unit Test |

Schedule is subject to change, and additional assessments.

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| **Unit Overview** | **Essential Questions** | **Tasks/Activities** | **Assessment Task(s)** | **Instructional Resources and/or Vocabulary** |
| **Inquiry** involves generating questions, conducting investigations and developing solutions to problems through reasoning and observation. We will analyze findings, which will lead to future questions, research and investigation. | 1. How are science and common sense related? How does opinion affect inquiry?2. How is scientific knowledge generated and validated?3. How are scientific questions answered, and then validated?4. How do measurement and science relate and how does that relate to the real world? | We will be observing, then creating experiments. There will be class discussions, projects, and research.  | 1. Scientific Method Create and Conduct an experiment.
2. Homework
3. Quizzes
4. Test
 | Teacher led NotesPrimary SourcesVocabulary: Scientific method, observation, measurement, hypothesis,experimentation, variable, independent variable, dependent variable, control |
| **Energy in Earth’s Systems**We examine the Earth through different maps. We develop and use models to understand the cycling of materials, plate tectonics, and how heating and rotation affect weather and climate. | 1. How can the features of the Earth’s surface affect culture and development of civilization?2. How are our observations linked into the science process?3. In what ways does human organization of Earth maps influence our day to day lives?4. What is the reasoning behind this mapping (Latitude and Longitude)?How does the movement of tectonic plates impact the surface of earth?How do changes in the Earth’s surface affect us? | 1. Homework on topographic maps. latitude, longitude, time zones and geosphere, plate tectonics.Weather projectcreate a weather log in class and a weather station used by the school. | HomeworkQuizzesTest | Teacher led NotesPrimary SourcesVocabulary:latitude, longitude, meridians, lithosphere, convection, revolution, rotation, standard time zone, topographic map, axis, seismic waves, mantle, bathymetric map, molecule, kinetic energy, heat, temperature, conduction, radiation, mass, weight, Newtons, density, fluid, bouyant force, surface ocean currents, deep ocean currents, evaporation, seismologist, disturbance, meteorologist, climate, water vapor, thermal, wind, weather, core, lithosphere, crust, s-wave, p-wave |
| **Earth Structure**We examine how geoscience processes have changed the surface of the Earth and how we use information to measure geological time. | 1. How do the different Earth systems affect the world (individually, culturally, and economically)?2. How do Natural Disasters affect culture?3. How do the materials in and on the Earth’s crust change over time?4. How does the earth’s composition affect its populations?5. How do people determine that the Earth and life on Earth have changed over time? | 1. Create a Volcano that will erupt and label the parts of it correctly. 2. Volcano Research Project research an active volcano and present your findings to the class. 3. National Park Project. Students will choose a geoprocess and research a National Park where that occurs.  | homeworkQuizzes Tests | Teacher led NotesPrimary SourcesVocabulary:Active volcano, dormant volcano, extinct volcano, ring of fire, magma, magma chamber, lava, volcano, caldera, basalt, silica, hot spot, Richter scale, seismograph, surface waves, body waves, epicenter, fault, focus, earthquake, metamorphic, trench, rift valley, transform fault boundary, convergent boundary, divergent boundary, water cycle, geologic cycle, igneous rock, continental drift, Pangea, plate tectonics, fossils, sea-floor spreading, lithospheric plates, oceanic plate, continental plate, convection cell, subduction |
| **Earth in Space**Develop models for the cycling of water on Earth, Climate, the Earth-Moon system, the Solar System  | 1. factors interact and influence weather and climate?2. What relationships if any, exist among earth systems? weather and climate?3. How does water influence weather, circulate in the oceans, and shape the Earth’s surface?4. In what ways does the first views of the earth in space shape the views of earth in space today?5. What benefits do we gain from studying space?6. How do the discoveries in space affect life on earth and vice versa?7. What is Earth's place in the Universe?How do varied cultures view the earth? the universe?Why does the Earth sustain life? Do other planets? | 1. Ocean or Atmosphere Model project.2. Map climates of the world project:each student gets a climate to research and map.3. create a world climate map based on students’ findings. 4. Earth sun moon motion lab use a student- made model to demonstrate eclipses  and seasons on earth.  5. . Moon Phases LabUse oreos to represent the moon phases | HomeworkQuizzesTests | Teacher led NotesPrimary SourcesVocabulary: Weathering, glacier, sediment, river, stream, channel, graded bedding, sedimentary, hurricane, flooding, floodplain, wildfire, liquefaction, tsunami, landslide, biomes, community, adaptation, ecosystem, desert, grassland, savanna, temperate deciduous forest, tropical rainforest, taiga, tundra, perihelion, aphelion, summer solstice, winter solstice, autumnal equinox, vernal equinox, precession, satellite, circumpolar, lightyear, constellations, galaxies, meteor, , sunspot, auroras,, ellipse, focus, astronomical unit, orbit period, asteroid belt, comets, Oort cloud, meteoroids, craters, waxing, waning, full moon, new moon, |

Schedule is subject to change. Projects and assessments are subject to change.