



SCIENCE

pottssciencepot@weebly.com

SYLLABUS

POTTS

pottsj@rcschools.net

NEW TENNESSEE SCIENCE STANDARDS, GRADE 8

Motion and Stability: Forces and Interactions

1) Design and conduct investigations depicting the relationship between magnetism and electricity in electromagnets, generators, and electrical motors, emphasizing the factors that increase or diminish the electric current and the magnetic field strength. 2) Conduct an investigation to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact. 3) Create a demonstration of an object in motion and describe the position, force, and direction of the object. 4) Plan and conduct an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. 5) Evaluate and interpret that for every force exerted on an object there is an equal force exerted in the opposite direction.

Waves and Their Applications in Technologies for Information Transfer

1) Develop and use models to represent the basic properties of waves including frequency, amplitude, wavelength, and speed. 2) Compare and contrast mechanical waves and electromagnetic waves based on refraction, reflection, transmission, absorption, and their behavior through a vacuum and/or various media. 3) Evaluate the role that waves play in different communication systems.

Biological Change: Unity and Diversity

1) Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change in life forms throughout Earth's history. 2) Construct an explanation addressing similarities and differences of the anatomical structures and genetic information between extinct and extant organisms using evidence of common ancestry and patterns between taxa. 3) Analyze evidence from geology, paleontology, and comparative anatomy to support that specific phenotypes within a population can increase the probability of survival of that species and lead to adaptation. 4) Develop a scientific explanation of how natural selection plays a role in determining the survival of a species in a changing environment. 5) Obtain, evaluate, and communicate information about the technologies that have changed the way humans use artificial selection to influence the inheritance of desired traits in other organisms.

Earth's Place in the Universe

1) Research, analyze, and communicate that the universe began with a period of rapid expansion using evidence from the motion of galaxies and composition of stars. 2) Explain the role of gravity in the formation of our sun and planets. Extend this explanation to address gravity's effect on the motion of celestial objects in our solar system and Earth's ocean tides.

Earth's Systems

1) Analyze and interpret data to support the assertion that rapid or gradual geographic changes lead to drastic population changes and extinction events. 2) Evaluate data collected from seismographs to create a model of Earth's structure. 3) Describe the relationship between the processes and forces that create igneous, sedimentary, and metamorphic rocks. 4) Gather and evaluate evidence that energy from the earth's interior drives convection cycles within the asthenosphere which creates changes within the lithosphere including plate movements, plate boundaries, and sea-floor spreading. 5) Construct a scientific explanation using data that explains the gradual process of plate tectonics accounting for A) the distribution of fossils on different continents, B) the occurrence of earthquakes, and C) continental and ocean floor features (including mountains, volcanoes, faults, and trenches).

Earth and Human Activity

1) Interpret data to explain that earth's mineral, fossil fuel, and groundwater resources are unevenly distributed as a result of geologic processes. 2) Collect data, map, and describe patterns in the locations of volcanoes and earthquakes related to tectonic plate boundaries, interactions, and hotspots.

Engineering Design

1) Develop a model to generate data for ongoing testing and modification of an electromagnet, a generator, and a motor such that an optimal design can be achieved. 2) Research and communicate information to describe how data from technologies (telescopes, spectroscopes, satellites, and space probes) provide information about objects in the solar system and universe.



MATERIALS

Composition Notebook
Pencils

SCHOOL RULES

1. Respect others, all adults and school property
2. Display positive and appropriate citizenship and character
3. Be prepared for school and class

CLASSROOM PROCEDURES

- You will bring your composition notebook and pencil to class **EVERY DAY**.
- You will pick up papers from the materials station when you enter class.
- You will raise your hand if you want to get out of your seat for **ANY** reason. Use hand signals for the following:
Sharpen pencil Throw away trash Get a tissue
- You will raise your hand if you wish to answer or ask a question
- You must **STAND** to speak in class
- You may not go to the bathroom during class unless you have a doctor's note. If you think you may have an emergency, speak to me privately. I will not discuss these matters in front of other students.
- You will push in your chair when you leave.
- You will hang up your backpack on your chair.
- You will clean up your workstation and leave it free of trash.

CLASSROOM REINFORCERS

- I will give out tickets when students are on task, give good answers to questions, or show good citizenship and character. I will do weekly drawings for candy or other rewards.
- If a student is having trouble with his or her behavior, I will offer incentive punch-cards to help them work toward improvement.

CLASSROOM DISCIPLINE

- I have a plan for various "classroom steps" that we will use before entering behavior referrals (steps), in Jupiter.
- Each school rule has a different behavior plan, and depending on severity, I will skip steps if needed.
- I use a "3-strike" system for the most common minor offenses.
 - If I tell you "That's 1" or hold up a finger, that is a warning.
 - If I tell you "That's 2" or hold up two fingers, you must quietly walk around the back of the class and write your name on the white board on the door (this is temporary and warning number 2).
 - If I tell you "That's 3" or hold up 3 fingers, consequences begin, which may include lunch detention, calling your parent, or even a disciplinary referral (step) in Jupiter.
- In many cases, the first lunch detention does not require me to call home. I want you to have an opportunity to correct your behavior, first. If you are assigned lunch detention with me, you must come during your **NEXT** lunch period. For afternoon classes, this will be the next day. It is **YOUR** responsibility to remember.
- If you fail to report to lunch detention the first time, I will call home, so they can help remind you.
- If you fail to report to lunch detention two consecutive days, you will be given a disciplinary referral (step) in Jupiter.
- I will have a system for weekly and quarterly repeat offenses that I will review in the first week.