**Eighth grade Science 2017-8**

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**Goals**

The eighth grade science course seeks to

* foster the expectation that science is involved in every aspect of life and help students recognize and explain in scientific terms the connections between familiar situations and what is taught in the classroom
* encourage students to question what they observe in the light of what they know
* develop students' ability to effectively communicate scientific ideas verbally, graphically, and in writing
* teach students basic facts and principles in selected physical science topics
* demonstrate that science is something you do and something that changes, not a static body of knowledge
* provide each student with enough challenges and enough successes to facilitate steady development

**Content**

In eighth grade the material is more often abstract compared to that covered in previous years, and, in addition, there is an expectation that students will begin to recognize and develop more connections between ideas. Class discussion often involves interpreting everyday experiences in terms of scientific knowledge. Simple cause and effect relationships begin to be replaced by multi step, reasoned explanations, a process which is modeled throughout the course. Students are encouraged to anticipate the possibility of multiple responses to a problem and to ask questions themselves. The need to choose words carefully, in order to best express one's ideas and to foster clearer understanding, is stressed throughout. Where it is included, mathematical treatment of ideas follows qualitative and experiential treatment and is limited to the level of the Math Eight course.

Students in eighth grade vary enormously in their readiness to grasp and apply more abstract concepts, and performance is this area will correspondingly range from the level of recognition to the development of detailed, fully reasoned explanations and the synthesis of new questions from personal observation.

Rather than learning a little information about a lot of topics, we study a few major topics in some detail, taking time to do investigations and apply ideas, as well as to learn key facts. Our principle areas of study are energy, forces and motion, light and sound, and chemistry.

Extra help is available most days at 11:06 am and after school on Tuesdays. I am usually at school by 7:30 am and can often stay late, but students should talk to me before trying to meet with me at these times.

**Methods**

Concepts and information are largely introduced and developed through demonstrations and laboratory activities and subsequent discussion. Some are true experiments in the sense that the outcome is really unknown, others ask students to investigate for themselves areas which are well documented in textbooks. Still others involve the use of simulations, models and demonstrations.

The eighth grade curriculum builds on the skills developed in sixth and seventh grade and it is expected that students are now more able to organize their notes and review work. Students are expected to review and learn factual information as it is introduced in order to ensure that they get as much as possible out of subsequent lessons, where a firm grasp of the facts is needed to recognize and use ideas in new contexts. Factual recall is monitored through graded checks. Homework assignments vary; there will be problems and writing based on class work, reading with note-taking and comprehension-type questions, a little research, some experiments and longer term projects, as well as on-going review. Students should get into the habit of using class notes and the textbook as resources to support the completion of assignments.

Supportive parental involvement is encouraged. I stress that active study is more effective than 'looking over the notes', and suggest that students ask a parent to quiz them on the factual material after they have spent time reviewing. Many eighth graders still benefit from assistance in planning longer term projects. Now and then, your help may be needed to assist with simple experiments or activities. If your child has difficulty with an assignment, remind them to go back to the notes, and ask questions to guide his/her thinking, rather than simply supplying answers. If necessary, encourage him/her to seek extra help. In keeping with the academic honesty policy, the work that the student brings to class should be his or her own, irrespective of whether it is being collected or graded.

Larger assessments put a greater emphasis on the application of knowledge and the patterns and connections within the material than on simple recall. They are, however, relatively few in number. Thorough completion of homework and the understanding demonstrated through assignments, lab work, and class involvement also constitute important components of the overall grade in this class,

There is a final examination at the end of May

**Texts**

Sound and Light *Science Explorer*

Forces motion and Energy *Science Explorer*

Science World magazine (on line)

Although the curriculum is supported by these texts, I find that for many topics, the textbook approach is rather superficial and focuses more on facts than on application. I provide regular handouts which specifically build on the examples and discussion from our classwork. These materials are posted on the portal and remain in the appropriate folder all year, so that students can always access the information. I also make use of a variety of reading materials and websites.