Exciting New 9th/10th Grade Integrated Inquiry Science Core Program for Mount Si High School to Begin 2011-2012 Academic Year and Beyond!

The purpose of this newsletter is let you know about some of the exciting changes occurring in the 9th/10th grade science core program and to let you know about some of the stellar elective course offerings at Mount Si High School. Below are some of the frequently asked questions about the nature of the new core program.

What was the Process that was used to select science core program?
An extensive review and analysis of science instructional materials (AIMs) was conducted over the 2010/2011 academic year by the Science Department at Mount Si High School in conjunction with the Center for Inquiry Science. This collaborative process led to the recent selection of a 9th/10th grade integrated science program that will be implemented this next year at Mount Si High School.
If you want to learn more about the AIMs process used to select this program click on this hyperlink to see the presentation that was given by the science department to the District Curriculum Review Committee.

What is the 9th/10th grade science core program?
The curriculum- BSCS Science: An Inquiry Approach, is a two-year program that will introduce our students to the core concepts in inquiry, the physical sciences, the life sciences, and the earth-space sciences. In addition, this curriculum will help engage our students across the disciplines in relevant contexts that explore the standards related to science in a personal and social perspective and science and technology. The central goal of this program is to increase students' understanding of fundamental concepts in the sciences. Our goals for students also focus on presenting science in contexts that are relevant to students, enhancing students' critical-thinking and problem-solving skills, and increasing students' interest and achievement in science. This program is expected to provide a rigorous, coherent alternative to the traditional sequence of biology, chemistry, and physics for our students. After successfully taking this program, students will be prepared to take the eclectic science elective course offerings at Mount Si High School (listed at the end of this newsletter).

Attributes of this Integrated Inquiry Science program include:
- Rigorous, standards based content
- Inquiry as overarching theme
- Multidisciplinary science content
- Content background for teachers who teach out of field
- Student-centered activities
- Opportunities for structured and open inquiry in relevant contexts
- Opportunities for students to design and conduct their own investigations
- Opportunities for students to consider recent research
- A constructivist, student centered approach
- The use of sense-making and literacy strategies to help students monitor their own learning
- The integration of mathematics
- The use of chapter organizers, science notebooks
- The BSCS 5E Instructional Model
- A collaborative learning environment
- A comprehensive, multifaceted approach to assess student learning
In terms of course content, the 9th grade Integrated Inquiry Science I course will focus on the following "big ideas" as its conceptual framework for this course:

- Questions and concepts that guide scientific investigations
- Structure and properties of matter
- Structure of atoms
- Cell structure and function/energy transfer (photosynthesis and cellular respiration)
- Behavior of organisms
- Origin and evolution of the universe
- Origin and evolution of the Earth system
- Personal and community health
- Natural and human induced hazards
- Abilities of technological design

Specific skills developed in Integrated Inquiry Science I course: science inquiry skills emphasizing questions and concepts that drive scientific investigations. Students also develop inquiry skills that develop descriptions, explanations, predictions and models based upon evidence. Reading, writing, organization, laboratory, and computer skills further developed in this course.

In terms of course content, the 10th grade Biology course will focus on the following "big ideas" as its conceptual framework for this course:

- Questions and concepts that guide scientific investigations
- Cell structure and function/energy transfer (photosynthesis and cellular respiration) (This section will be added next year only from the Integrated I curriculum to best prepare students for the Biology EOC exam)
- Chemical reactions
- Biological evolution
- Molecular basis of heredity/genetics
- Biogeochemical cycles
- Population growth
- Natural resources, environmental quality and environmental sustainability

Specific skills developed in the 10th grade Biology course: science inquiry skills emphasizing the design of scientific investigations and communicating scientific results. Students also develop inquiry skills that develop descriptions, explanations, predictions and models based upon evidence. Reading, writing, organization, laboratory, and computer skills further developed in this course.
What is the plan for next year in order to make a smooth transition over to the Integrated Inquiry I and II program?

1. All freshmen will be enrolled in the Integrated Inquiry Science I course (a.k.a.: IIS1).
2. All sophomores will be enrolled in a modified Integrated Inquiry Science course that will incorporate the missing life science elements of the Integrated Inquiry Science I course. Some of the earth and physical science components in the program will be omitted to prevent repetition in Earth science content. This will insure that all sophomores are well prepared for the State's End of Course (EOC) Exam for Biology.
3. Honors designation will not occur next year as its feasibility and structure as a differentiated offering within an integrated science program is assessed by the Science Department.
4. For college admissions purposes students taking the two year Integrated Inquiry Science sequence should receive recognition for a year of a lab-based (and algebra-based) science course. For naming purposes and modifications for next year only, the sophomore Integrated Inquiry Science II course will be named "Biology" to make sure that a lab-science designation is given on the college application transcript for the two year science sequence.

What is the status of the End of the High School Proficiency Exam (HSPE)?
House Bill 1410 proposed by Randy Dorn the Superintendent of Public Instruction, was just signed into law on June 7th by Governor Gregoire and whereas students in the classes of 2013 and 2014 are no longer required to pass a state science exam to be eligible to graduate. The requirement to pass science will begin with next year’s 9th graders. This was signed into law to allow for a smoother transition to an end-of-course biology exam from the single, comprehensive science High School Proficiency Exam. This is similar to the transition students saw this year to end-of-course exams in math. For the released memo click on this link.

What about academic advancement and elective science course offerings at MSHS?
Mount Si High School provides an eclectic offering of science elective courses. The course descriptions are posted in the MSHS Course Description Book. Click on this link to access this resource. Please see prerequisites for these course offerings. Some such as Chemistry require combined semester average of C- or better in Biology and 1 Algebra credit and concurrently taking or having taken another higher math class.

*Elective science course offerings at MSHS include the following:
  - AP Biology
  - AP Chemistry
  - AP Environmental Science
  - UW Astronomy
  - Astronomy
  - Chemistry
  - Meteorology
  - Oceanography
  - Physics
New edition to science elective offerings: Oceanography!

Course Overview
This course will be an introduction into two major aspects of the scientific study of the World’s oceans. It will cover physical oceanography and marine biology as well as providing an overview into the role of the World’s oceans in human activities, how human activities impact the World’s oceans and marine resources. Some emphasis will be on examining local interactions between the Puget Sound and the greater Pacific Ocean with some field opportunities planned throughout the course. The course will also explore career opportunities in the field of Marine Science.

*A note on elective science course offerings: these courses are driven by student interest. If we are to keep these courses running we need to have enough students enrolled in them!! Parents - please encourage your student to consider these great course offerings.

Spring Science Showcase for Student Directed Investigation
One of the best ways to have our students learn about science as a process is to have them do science while conducting their own scientific investigation. Students will begin this process by generating questions that interests them in a particular physical, life or earth science discipline and/or apply the knowledge and skills that they have learned over the quarter about experimental design, researching a topic using library databases (such as ProQuest and Jstor). They will formulate hypotheses, coming up with a controlled experiment to test their hypothesis, and actually running their own experiment (and documenting this process-i.e. video or photos). They will be collecting, graphing and analyzing their data, drawing conclusions based on evidence collected and developing a well thought out discussion about their investigation. The final format for documenting their journey throughout this investigative process will be a lab report and poster board or digital presentation to showcase at the high school in the spring. The scale and scope of this event is being planned at this time. Further details about this event including parent and community involvement in the process will be published in a future newsletter. Stay tuned!

If you have any questions, please contact our Science Department Chair- Kevin Knowles

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