



St Thomas More High School

Continuing Process Improvement Goal

Science Department

2014-15 School Year

In accordance with the RCCSS mission statement – Developing Academic and Personal Excellence in the Catholic tradition -- excellence entails reviewing students' academic achievement results and observing the school culture to set school academic, personal, and spiritual goals for improvement. The St. Thomas More High School faculty set goals for the academic year. SAT10, DSTEP-Science, PSAT, AP, and ACT results were analyzed in the areas of reading, mathematics, science, and social studies to guide instructional methods, staff professional development, and assessment practices in line with the RCCSS Strategic Design Plan 2014.

Science Department Goal 1: For class of 2018, raise SAT10 Science (Physical Science Cluster) to zero below average and the DSTEP-Science Physical Science (Structure, changes in, and properties of matter) to >70% correct

Strategies/Instructional Activities:

- Chemistry and AP Chemistry
 - Use of scientific language within each science emphasizing
 - Intensive properties (inherent to the matter)
 - Extensive properties (depends upon the amount of matter)
 - For labs, there will be a question regarding the change in matter (as related to the lab) such as discussion of physical or chemical change for each reaction
 - For specific “matter” unit, there will be new formal lab, as well as an informal lab, specifically demonstrating the changes in matter (3rd Quarter)
- Forensics, crime scene analysis
 - Emphasize changes in matter in during material decomposition lab (1st Quarter)
 - Matching soil types to compare matter within various types of soil (2nd Quarter)
 - Toxicity Lab and the possible chemical reactions within the body during chemical poisoning (4th Quarter)
 - Demonstration of changes in matter during burning lab (3rd Quarter)
- AP Environmental Science: soil, plants, water, etc. (integrated throughout the year) use of scientific language within each science emphasizing
 - Intensive properties (inherent to the matter)
 - Extensive properties (depends upon the amount of matter)

- Anatomy
 - Review of types of matter – 1st two weeks
 - Digestion: emphasis upon the changes in matter during the digestion of food
 - Muscle structure – end of 2nd Qtr
- Physical science
 - Use of scientific language within each science emphasizing the changes in state
 - Kinetic theory of matter and Brownian movement: smoke lab (3rd Quarter)
 - Behavior of gases: balloon lab measuring changes in volume, add taking the mass of the balloon (3rd Quarter)
 - Pencil density lab – in g/cm³ (1st Quarter)

Assessments:

- Warm-up Questions (Bell Ringers)
- Daily review essays (Anatomy, Forensics, AP Environmental Science)
- Formal and informal labs
- Written essays on quizzes and tests

Timeline: Because of the nature of the physical science goal, it will be integrated across subject areas from August with the introduction of technical science terms and the integration. Lab timeframes are as indicated above.

Tie in to Strategic Design:

- Learner Results within the Learning Sphere of Living: Student will be a self-directed, lifelong learner who
 - Possesses foundational knowledge on which to build future learning
 - Acquires, analyzes, organizes, and evaluates as an active problem solver

Science Department Goal 2: For class of 2018, improve DSTEP-Science Life Science (classification of living things) score to 67% (currently at 61.8%).

Strategies/Instructional Activities for Biology:

- Introduction of the Classification of Living Things (Taxonomy) during first month
- Use of the detailed taxonomy language during all units: Kingdom, Phylum, Class, Order, Family, Genus, and Species

Assessments

- Informal and informal Labs
- Activities during which students must classify new species
- Essay questions on quizzes and tests

Timeline: Because of the nature of the living science goal, it will be integrated across the Biology curriculum from August with the introduction of technical science terms and the integration.

Tie in to Strategic Design:

- Learner Results within the Learning Sphere of Living: Student will be a self-directed, lifelong learner who
 - Possesses foundational knowledge on which to build future learning
 - Acquires, analyzes, organizes, and evaluates as an active problem solver

STM HS Science Spiritual Goals: Honesty, Approachability

Strategies:

- All teachers:
 - Honesty and Approachability Quiz at beginning of year, end of first semester, and end of second semester.
 - Teachers will encourage and model honesty and approachability to students
- Mr. Merkwant:
 - Classroom Rules set by students and posted at the front of the room
 - Class input into daily activities and instruction
 - Honesty and respect will model approachability by teachers
- Mr. Murano
 - Emphasis on intimacy and interpersonal closeness w/in relationships
 - Feelings-word vocabulary (w/emphasis on honesty and approachability) on first day w/follow-up
 - Circle group discussion on first day with follow-up
 - Quotes out of *Magnetic Christianity* (and other resources – A Season of Life)
 - Devotional Readings
 - Selected Bible Verses
- Miss Tweed
 - Daily Bible quotes or quotes out of Magnetic Christianity related to honesty (or approachability) will be written on board and read each class (Tweed)
 - Discussion of honesty within the academic environment at the beginning of the year

Assessment: Paragraph on semester final that addresses what they learned about the department's spiritual goal. (Also addresses the school-level composing goal.)

Tie in to Strategic Design:

- Learner Results within the Personal Sphere of Living: student will be a balanced, Christ-centered individual who
 - Embodies Catholic values and beliefs that drive his/her decisions (honesty)
 - Demonstrates healthy social skills (approachability)