



Integrated STEM Curriculum

"When we try to pick out anything by itself, we find it hitched to everything else in the universe." ~ John Muir
The natural environment does not present itself as a series of distinct subject areas. Why should school be any different?
At GEMS Academy students have a unique opportunity to explore their world in authentic and realistic ways.

Measurement

Whether planning a garden or constructing a hydroponic system, accurate demand accurate measurement skills. Project-based learning gives students an authentic reason to use and interpret measurements. Scientific investigations provide rich opportunities for students to collect real-world data such as temperature, capacity, volume, weight, and length. Using a tape measure for an actual building project creates an understanding of the importance of fractions far deeper than doing imaginary pizza problems from a textbook. Students learn to use the same processes as professionals in STEM careers.

Insight

Microscopes, infrared thermometers, volt meters, and power drills? Elementary students *love* using the tools of the trade—items they normally wouldn't be exposed to until middle school or beyond. Their natural curiosity is nurtured as they are free to wonder, research, and investigate. What is your passion? What do you want to know more about? What topics do you wish to explore? Those questions are both liberating and empowering. GEMS Academy provides a hands-on, minds-on learning environment that places great value on students' individual interests.

Technology

Technology can be a toy or a tool, but in an educational setting rigor is a must. GEMS Academy students use technology on a daily basis to gather information, communicate, evaluate research and solve problems. Using Web 2.0 tools, students can access information, interact with teachers and peers, and create polished presentations to demonstrate their mastery of both content and process standards. Mastery of technology as a professional skill is a realistic expectation of today's students as they continue on their educational paths, and pursue careers.

Calculation

Scientists and mathematicians don't just memorize formulas, they *use* formulas. Working with a goal in mind—say, building a properly functioning poda-powered generator—students can determine what formulas they need to know and the calculations they'll need to perform. Why is a correct answer important? Why is an incorrect answer sometimes equally as important? Understanding how to interpret, manipulate, and communicate data is a critical part of the analysis process that follows any scientific investigation.

Design

Innovators create. Rather than following a prescribed plan, scientists and mathematicians often blaze their own trail. Geometry and trigonometry suddenly have real purpose as students explore architectural features, compare the structural properties of triangles and squares, and imagine a sustainable dwelling for the future. Students naturally bend and blend disciplines such as art, science and math as they create and innovate in a nurturing environment.

