

Globisens Facts Matrix

Research Indicates	Labdisc Benefits
HANDHELD AND PROBEWARE	
<p>Many schools have invested in probeware but few use the new technology because of a lack of teacher training opportunities <i>Probeware training for science teachers, University of Hawaii, 2010</i></p>	<p>Not only does the Labdisc have a remarkably fast learning curve, but also Globisens provides comprehensive inquiry-based teacher training.</p>
<p>Digital technologies can be used to support the development and implementation of high quality technology-enhanced (probeware) science lessons. <i>Technology and Reform-Based Science Education, Theory into Practice 2008</i></p>	<p>The Labdisc is the only portable computer-based laboratory that has up to 15 built-in and accessible science probes</p>
<p>The study indicates that those students who used computers and probeware to investigate real-world phenomena showed significant learning gains. <i>TEEMSS, National science Foundation, 2007</i></p>	<p>A 128k sample memory 24k/sec sampling rate, 12-bit resolution, 150 hour charge-life and large graphical LCD allow students to parallel real scientific processes and connect core concepts with the real world</p>
<p>Handheld computer technologies and probeware have the potential to support inquiry-based science projects in K-12 education. Using Handheld Computers and Probeware in Inquiry-Based Science Education, Journal of the Research Center for Educational Technology, Vol 1, No 2 (2005)</p>	<p>The Labdisc provides a complete laboratory in a single small disc with up to 15 built-in sensors for inquiry-based learning in K-12 biology, chemistry, environmental science and physics</p>
<p>Results indicate that data loggers excited pupils and saved them time recording temperature readings. That time could be used to produce and interpret graphs <i>Introducing Data Logging Equipment into Programs of Study in Field Studies Centre: An Evaluation Horizons, n15 p12-16 Aut 2001</i></p>	<p>The Labdisc learning environment engages and motivates students with automated data collection, fast and easy experimentation and a focus on analyzing data results in vivid easy-to-read graphs, meters and tables.</p>
<p>Simple quick experiments using data loggers lead to the refinement of the experiments, increased confidence in the measurements and improved understanding of the physics involved. <i>How Science Works" and Data Logging, 2010</i></p>	<p>The Labdisc records accurate data in real-time to provide an immediacy in learning, critical to understanding complex and abstract scientific concepts like velocity or sound.</p>



<p>Students who had already been exposed to hands-on science in pre-school performed higher than the national average. <i>Plank (2000, USA)</i></p>	<p>The LabdiscPRIMO model and GlobiWorld software were uniquely designed for pre-school and elementary school science. Wireless, built-in pre-automated and calibrated sensors, compact, easy-to-use, intuitive buttons and LCD display make science experiments possible young age.</p>
<p>Integrating mobile devices into the learning process improves math and science scores. <i>Verizon Foundation Survey on Middle School Students Use of Mobile Technology”, 2013</i></p>	<p>The Labdisc integrates with the latest technology platforms including Android and iOS.</p>
<p>IMPORTANCE OF SCIENCE IN FUTURE CAREERS</p>	
<p>The average STEM job available to workers without a bachelor's degree paid \$53,000, 10% higher than other jobs requiring similar educational attainment. <i>Bureau of Labor Statistics (BLS)</i></p>	<p>The Labdisc is the ideal tool for instilling STEM skills in students via experiential learning</p>
<p>Plumbers, pipefitters and steamfitters complete a 4-year apprenticeship program, which includes math, physics and chemistry <i>Bureau of Labor Statistics (BLS)</i></p>	<p>Using the Labdisc in subjects like math, physics and chemistry from as early as elementary school provides a strong grounding in these subjects which will carry students into STEM-oriented careers at every level.</p>
<p>Registered nurses, by far the fastest growing STEM job that does not require a bachelor's degree, need to take courses in anatomy, chemistry and microbiology.</p>	
<p>From 2010 to 2020, the numbers of registered nurses and computer systems analysts will rise 26% and 22% <i>BLS's Occupational Outlook Handbook</i></p>	
<p>Electricians must have at least one year of high school algebra, followed by further math and physics training in a 4-year apprenticeship. Between 2010 and 2020, the number of electrician jobs is expected to increase by 23%, higher than the 14% job growth for all professions. <i>The Hidden STEM Economy, 24/7 Wall St.</i></p>	
<p>Of the fastest 20 employment projections for 2014, 15 of them require significant mathematical and scientific preparation to successfully compete for a job. <i>US Bureau of Labor and Statistics</i></p>	<p>The Labdisc allows students to function as real scientists and parallels real scientific practices, activating the process of hypothesis, data measurement and collection, followed by data analysis and reporting.</p>

IMPORTANCE OF SCIENCE IN OVERALL ACADEMIC ATTAINMENT

<p>Countries like Japan and Korea (with early science learning) scored highly in science and math as compared with other 1st world countries <i>PISA results of student science and math scores, 2007</i></p>	<p>The Labdisc makes elementary science easy and engaging with large intuitive buttons and LCD screen and fun activity park science laboratory software</p>
<p>Successful science curricula ensure that students identify and use scientific methods. <i>Research Points: Science Education that Makes Sense (2007)</i></p>	<p>The Labdisc portable science laboratory supports science at every grade level, with model configurations, data analysis software and experiment workbooks for every science subject and stage of learning.</p>
<p>Graduates who completed an Advanced Placement (AP) or International Baccalaureate (IB) mathematics or science course, a higher level mathematics or science course in ninth grade, or a rigorous curriculum had average NAEP scores at the Proficient level in both mathematics and science. <i>NCES Nations Report Card 2009</i></p>	<p>The Labdisc fosters confidence in scientific and learning, naturally leading students to be more motivated and successful in science throughout their lives. The earlier students are exposed to hands-on science the better they will perform in science and math later.</p>
<p>Twelfth-graders who reported taking biology, chemistry, and physics scored higher than students taking less advanced science coursework. <i>Nations Report Card Science 2009</i></p>	<p>The Labdisc enables the math and science learning process where knowledge is built on a series of foundations. By creating a platform of one skill in order to move on to the next level of learning students will perform more effectively in science throughout their learning careers.</p>

ICT IN INQUIRY-BASED LEARNING

<p>Experienced (biology) teachers incorporate ICT, however limited, in order to improve the quality of student learning. <i>Research in Science & Technological Education Volume 30, Issue 1, 2012</i></p>	<p>BioChem 128k-sample memory and 12-bit resolution enable students to explore fast or long acting chemical, biochemical and biological phenomena in a clean and hazardous free science lab environment</p>
<p>The use of ICT results in more on-task behavior, greater persistence and deeper understanding. In science, ICT allows pupils to grasp more abstract or complex concepts. <i>The impact of ICT in schools – a landscape review, Quality in Education Centre, University of Strathclyde, 2007</i></p>	<p>The Labdisc computer-based science learning environment enables inquiry-based hands-on experimentation - making complex science concepts easy to understand</p>



<p>Teachers are exploring the use of technologies to encourage students to engage in "What If" explorations <i>Pedagogical Approaches for Technology-Integrated Science Teaching - Computers and Education, v48 n1 p137-152 Jan 2007</i></p>	<p>The Labdisc data analysis system allows students to perform experiments so quickly and easily they can analyze data to predict experiment outcomes or next data results</p>
<p>Teachers are integrating technology carefully with other practical activities to support stepwise knowledge building, consolidation and application. <i>Pedagogical Approaches for Technology-Integrated Science Teaching - Computers and Education, v48 n1 p137-152 Jan 2007</i></p>	<p>The Labdisc is an inter-disciplinary learning tool that allows students to build on mental structures and create new scientific and mathematical concepts based on what they have already learnt.</p>
<p>In 2003, 77% of K–12 students lived in a household with a computer and 67% had Internet access at home. <i>NSF Government Statistics</i></p>	<p>The Labdisc accommodates today’s generation of students digital expectations and familiar tools/resources to enhance core science subject learning</p>
<p>Science learning experiences with real or simulated investigation substantially improve understanding of complex ideas and lead to long-term understanding. <i>Research Points: Science Education that Makes Sense (2007)</i></p>	<p>Students who perform hands-on science with the Labdisc can receive a coherent understanding of scientific concepts and can develop scientific enquiry methods and higher order thinking skills.</p>
<p>Inquiry-based learning is seen as one way of enabling learners to think critically and participate in evidence-based debates <i>NESTA - Decoding Learning: The Proof, Promise and Potential of digital education, 2012</i></p>	<p>The Labdisc is a functional learning system that can help teachers instantly incorporate inquiry-based learning into the classroom, without the burden of additional equipment deployment, testing and calibration.</p>