Hands-On Learning and Best Practices in Marine/Maritime Education

What is Hands-On Learning?

Hands-on learning happens when instructors engage with students in direct experience and focused reflection to enhance students' knowledge, skillset and values. Hands-on learning allows students to learn through experiencing something and gives them an opportunity to immerse themselves in a learning environment, while putting their acquired skills to use and building new skills.

Hands-on-learning means learning by doing. This type of learning is best suited for kinesthetic learners, who learn from examples. Hands-on learning is another term for experiential learning, where individuals immerse themselves in a subject to learn. Students learn from partaking in activities rather than passively reading a book or attending a lecture. Some examples include completing lab experiments in a chemistry class or writing a poem in an English class. This type of learning can lead to increased retention of the material and is a way for students to practice developing their problem-solving skills.

Hands-on learning is the process of learning by actually doing and experiencing something, rather than just being told about it. The term "hands-on" is used because these activities usually involve the physical use of the hands. For example, students might use manipulatives such as cubes to understand mathematical concepts of addition, multiplication, subtraction, and division or solving algebra or geometry problems using these manipulatives rather than just being taught the theory via books or pencil and paper exercises.

It's More Fun and Engaging
Adult and children alike earn from observing, copying, and experimenting with their hands and body. It's just more fun and engaging. Students develop skills much faster when they're having fun. For example, teaching the alphabet and basic letter forming skills can quickly become boring for young children with traditional pencil and paper or flashcards. There are all kinds of ways to make learning "hands-on". The Teachers need only get their creative juices flowing to think about how to take their teaching content and turn it into a hands-on experience for their students.

Allows Learning from Real Experiences
How would you like to learn about your microwave, from a textbook in class or in your kitchen, pressing buttons to get it to work. Boring and mundane activities for can become fun learning experiences when it is hands-on! Using actual experiences to learn concepts and skills is much more effective than simply being told about them. There is an old saying, "Tell me, I'll forget; show me, I'll remember; involve me, I'll understand." If you ever doubt this principle, just think about how many people learn to drive from reading a book! Or learn to cook from reading recipes and never actually cooking.

Encourages Interaction with the Indoor and Outdoor World
Interacting with objects and materials is important for people of all ages, aiding optimal physical and mental health. It's potentially even more important to encourage a love of the outdoors from a young age and encourage natural experimentation and interaction with the world outside the classroom.

Allows Exploration of all Five Senses for Imbedded Lifelong Learning
Interactive teaching and learning is messy. There is no question about this. But messy engages the body, mind, and spirit – the whole person and means that what is learned lasts a lifetime. Multi-sensory experiences, involving sight, touch, smell, sound, and even taste help students learn and remember most effectively. Exploring different tactile materials such as sand, water, paint, dough, and slime can also be a social activity and can encourage language development as students learn the physical properties of different materials and objects.

Engage Multiple Areas of the Brain
Hands-on learning engages both the right and left sides of the brain with regards to cognitive and creative thinking. The right side of the brain, most active during early school years, is engaged by visual and spatial activities, as well as anything involving creativity and the imagination. The more analytical left side of the brain, that deals with skills logic and mathematics does not start to develop in most children until the age of 10 or 11. Yet both sides of the brain, creative and analytical continue to develop throughout our lives. Learning should always engage the whole brain. When multiple activities such as talking, listening, and using the hands are combined, it activates more areas of the brain than a single activity. This helps to aid learning and recollection in the same way that multi-sensory activities do.

Builds Fine Motor Skills
Any activity that involves the hands such as cutting, sticking, sorting, molding, or manipulating helps to develop the fine precision that is needed for important real-world tasks. Hands-on activities help students strengthen the muscles of the hand, improve accuracy, and learn functional skills that they will use for the rest of their lives.

What is "Best Practice?"
Adapted from State Education Resource Center (SERC), Middletown, CT.

The term "Best Practice" is used to describe "what works best" in a particular situation or environment. Research dictates that there are nine standards that when implement support teachers' best practive.

1: A Clear and Common Focus - In high-performing schools, administrators, teachers, students, and parents share and commit to clearly articulated and understood common goals based on the fundamental belief that all students can learn and improve their performance. There is clear evidence of school practices to support this belief.

2: High Standards and Expectations - High-performing schools show evidence that each teacher believes "all students can learn and I can teach them." Staff members are dedicated to helping every student achieve challenging state and local standards. All students are engaged in an appropriately ambitious and rigorous course of study in which the high standards of performance are clear and consistent and the conditions for learning are modified and differentiated. This results in all students being prepared for success in the workplace, postsecondary education, and civic responsibilities.

3: Strong Leadership - School leadership is focused on enhancing the skills, knowledge, and motivation of the people in the organization and creating a common culture of high expectations based on the use of skills and knowledge to improve the performance of all students. Leadership fosters a collaborative atmosphere between the school and the community while establishing positive systems to improve leadership, teaching, and student performance.

4: Supportive, Personalized, and Relevant Learning - In high-performing schools, supportive learning environments provide positive personalized relationships for all students while engaging them in rigorous and relevant learning.

5: Parent/Community Involvement - In high-performing schools, parents and community members help develop, understand, and support a clear and common focus on core academic, social, and personal goals contributing to improved student performance and have a meaningful and authentic role in achieving these goals. The school community works together to actively solve problems and create win-win solutions. Mentoring and outreach programs provide for two-way learning between students and community/business members.

6: Monitoring, Accountability, and Assessment - In high-performing schools, teaching and learning are continually adjusted on the basis of data collected through a variety of valid and reliable methods that indicate student progress and needs. The assessment results are interpreted and applied appropriately to improve individual student performance and the instructional program.

7: Curriculum and Instruction - High-performing schools have aligned curriculum with core learning expectations to improve the performance of all students. Students achieve high standards through rigorous, challenging learning. Staff delivers an aligned curriculum and implements research-based teaching and learning strategies. Students are actively involved in their learning through inquiry, in-depth learning, and performance assessments.

8: Professional Development - Ongoing professional development aligned with the school's common focus and high expectations to improve the performance of all students is critical in high-performing schools. These professional development offerings are focused and informed by research and school/classroom-based assessments. Appropriate instructional support and resources are provided to implement approaches and techniques learned through professional development.

9: Time and Structure - High-performing schools are flexibly structured to maximize the use of time and accommodate the varied lives of their students, staff, and community in order to improve the performance of all students. The structure of programs extends beyond the traditional school day and year as well as beyond the school building. The program draws on the entire community's resources to foster student achievement.

Now All You Need Is To Imagine What You Can Do With Your Students to Intentionally Engage Them in Your "Best Practices" and "Hand-on Learning Experiences" using the following Marine/Maritime Themes In Your Classroom, On the Water, In the Water and Near the Water!

Curriculum Themes / Topics	In Classroom	On Water	In Water	Near Water/From the Shore
Astronomy	x	x		x
Boat Building	x			x
Boats	x	x		x
Bridge Administration	x	x		x
Bridge Simulation	x	x		
Canals	x	x		x
Channels	x	x		x
Chart Mapping	x	x		
Chart Reading	x	x		
Charts	x	x		
Civilian Marine/Maritime Careers	x	x		
Coast Guard JROTC	x	x		
Coastline Habitats	x	x	x	x
Cruise Ships	x	x		x
Dredging	x	x		x
Ecosystems	x	x	x	x
Environmental Science	x	x	x	x
Fishing	x	x	x	x
Fishing	x	x	x	x
Freighters	x	x		x
Full Mission Bridge	x	x		
Geographic Information Systems (GIS)	x	x		
GPS Satellite Communications	x	x		
Homeland & Port Security On U. S. Waterways	x			
Islands	x	x		x
Kayaks	x	x	x	x
Leisure and Sports	x	x	x	x
Lighthouses	x	x		x
Lighthouses	x			x
Literature of the Great Lakes	x	x		
Local, State & World Cargo/Transportation	x			

Locks	x	x		x
Marine Architecture	x			x
Marine Art	x			x
Marine Biology	x	x	x	x
Marine Culinary	x	x		x
Marine Science	x	x	x	x
Maritime History (States And Regions)	x			
Maritime Law	x	x		
Meteorology	x	x		x
Music of the Great Lakes and Seas	x	x		
Navigation	x	x		
Navy Sea Cadets	x	x		
Pollution Control	x	x	x	x
Port Authorities	x			x
Ports Of Call	x		x	x
Radar Simulation Radar	x	x		
Remote Operated Water Vehicles	x		x	x
Robotics	x		x	x
Rules Of The Road at Sea	x	x		
Sail or Power Boats	x	x		x
Scuba Diving	x		x	
Sea Scouts	x			
Sea Shanties	x	x		
Search And Rescue	x	x	x	x
Shipyards	x			x
Ship's Bells	x			
Shipwrecks	x		x	x
Simulator Radar Classroom	x			
Swimming	x		x	
Tall Ships	x	x		
The Economics: living on, near, or in the water.	x	x		
Vessel Types	x		x	
Water Safety	x	x	x	x
Wildlife	x	x		x
Yacht Clubs and Marinas	x			x