K-12 BLUEPRINT

Enhancing the NGSS Science & Engineering Practices Through Makerspaces

The Next Generation Science Standards (NGSS) advocate for 3-dimensional learning, pivoting away from content-driven instruction in favor of a more dynamic, connected classroom. One dimension, the Science and Engineering Practices (SEPs), describes the behaviors students should exhibit in the classroom. Similarly, the Makerspace Movement advocates for hands-on learning, putting tools in students' hands and allowing them creative space to invent. Through Makerspaces, students are afforded opportunities to exhibit the SEPs, and teachers are equipped with the the tools to facilitate scaffolded growth.

NGSS Science and Engineering Practices	*Behaviors in the Makerspace*							
	Hands-on Exploration	Iterative Testing	Computing for Construction	Externalizing Ideas	Inventing for the Real World	Design Thinking	Evaluating, Tinkering, & Improving	Engineering Design Process
1. Asking Questions and Defining Problems (2)	✋					🧠		
2. Developing and Using Models (3)				💡		🧠		</>
3. Planning and Carrying Out Investigations (3)					🌐			</>
4. Analyzing and Interpreting Data (3)		🔄	➕➖✖️🟰				🔧	
5. Using Mathematics and Computational Thinking (2)		🔄	➕➖✖️🟰					
6. Constructing Explanations and Designing Solutions (2)	✋				🌐			
7. Engaging in Argument from Evidence (3)				💡	🌐			</>
8. Obtaining, Evaluating, and Communicating Information (2)				💡			🔧	

Clarity Innovations