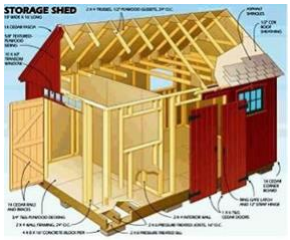
Xplorlabs Learning Experience: Designing and Building a Fire-Resistant Shed

Instructional phases	**Research**	**Design**	**Plan**	**Build**	**Evaluate & Reflect**
Visual storyline					
Standards	**CCSS.ELA 7.W.7**: Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation. **CCSS.ELA 7.W.8:** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	**CCSS 7.RP.A:** Analyze proportional relationships and use them to solve mathematical problems and problems in real-world context.	**Arizona State Science Standard 6.P1U1.1:** Analyze and interpret data to show that changes in states of matter are caused by different rates of movement of atoms in solids, liquids, and gases (Kinetic Theory) **Arizona State Science Standard 6.P1U1.2:** Plan and carry out an investigation to demonstrate that variations in temperature and/or pressure affect changes in state of matter.	**Construction Technologies:** Program includes instruction in construction equipment and safety; site preparation and layout; construction estimating; blueprint reading; building codes; framing; masonry; heating, ventilation, and air conditioning; electrical and mechanical systems; interior and exterior finishing; and plumbing.	**CCSS.ELA 7.W.3:** Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

Timing	2 weeks, 8 days	2 weeks, 8 days	Variable	4 weeks	1 day
Overview	Students will research building codes and designs, as well as fire science. Driving question – How does fire move through a house or shed in traditionally built structures? What kinds of alternative or natural building materials are the most fire resistant?	Draw blueprints/scale model of the most fire-resistant shed we can build that also has the highest R-rating for insulation.	Write grants, hold fund raisers, and gather all building materials and experts needed in order to build the shed.	Host and participate in a community build event. Build a 14' X 14' shed that is fire resistant and thermally efficient.	Reflect on learning, the experience, and finish writing a narrative presentation on the project, what was learned, and how it affected you.
Supporting Documents	Organic vs. Synthetic Fuels video: https://xplorlabs.org/resource/organic-vs-synthetic-fuels/				