



Sand Castles

Expert Mini-Workshop

Project Manager

As the Project Manager, you are responsible for seeing the project through to completion. You will need to constantly assess where team members need help and assist them. Keep the team rubric in hand and constantly refer back to it to make sure that your team is meeting the criteria.

As Project Manager, you will need to make sure that your team completes your project on time. You will also lead the discussion in deciding if the barrier system that has been designed protects your sand castle from erosion. It is your responsibility to make sure it is built correctly. Be sure you understand why the barrier works to protect the sand castle and be able to explain it with reasoning for your decisions.

Your job is to oversee the presentation of your product, make sure that all the criteria have been met, and demonstrate this through your presentation. You will also need to apply scientific principles, evidence, and reasoning to your barrier system in your presentation. You and your team members will present your final product along with reasoning for your decisions.

The resources your team will use include:

Reusable:

- Sand
- Large aluminum pans
- Electric fans (to provide wind)
- Water
- Pitchers (for pouring water)
- Colored pencils for sketches
- Materials for building barriers (fabric, sticks, cardboard, plastic bottles, etc.)
- 2 or 3 digital cameras

Consumable:

- 2 Chart paper (per group)
- 1 Lab Journal (per student)



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Team Rubric for a Problem/Project Based Learning Challenge

Category	Expert (4)	Competent (3)	Beginner (2)	Novice (1)
The problem is clearly identified, and the solution addresses the problem	Clearly identifies the problem, and the solution is clearly outlined	Clearly identifies the problem, and the solution is identified.	Identifies the problem, but does not completely address the solution.	Did not address the problem or the solution will not solve the identified problem.
Barrier System met criteria as outlined in Entry Document	At least three Barrier System models were built and tested based on strong understanding of erosion. Improvements were made based on evidence.	At least two Barrier System models were built and tested based on sufficient understanding of erosion. Some improvements were made based on evidence.	At least one Barrier System model was built. There was insufficient understanding of erosion. No improvements were made.	No Barrier System model was completed and castle was destroyed by wind and water.
21st-Century Skill Use of Innovation	Continuously applies innovative ideas to make a real and useful contribution to the project	Applies innovative ideas to make useful contributions to the project	Develops innovative ideas, but does not make a contribution	Does not attempt to develop innovative ideas
Scientific content shows depth in understanding and is applicable to the solution of the problem.	Solution shows a strong understanding of the forces of wind and water erosion. Modeling and testing was used to make good, logical decisions based on evidence and data.	Solution shows some connections to understanding erosion. Some modeling and testing was used to make decisions based on evidence and data.	Solution shows low-level knowledge of erosion. A model was built, but no testing occurred and therefore decisions were not based on evidence.	Solution does not show knowledge of erosion. No model was completed or tested.