



Shell Showdown

Student Worksheet

Brainstorm 3-5 ideas for your shell and describe them here.

Which design did you choose? Why did you choose it?

Draw your design here and label it.

Testing (the tests can be done in any order)

Weight of shell: _____g

Underwater Stability:

Station 1: Sink or Swim: In the clear container with water and gently place the shell model inside. Observe its buoyancy:

- Does it float, sink, or stay partially submerged?
- Time how long it takes for any sinking models to stabilize or reach the bottom.

Station 2: Whirlpool Woes: Create a mini whirlpool in the water using a paddle or spoon. Observe how the shell handles the movement.

- Does it stay upright, tilt, or tip over?
- Discuss how stability affects the crab's ability to feed and maneuver underwater.

Predator Protection:

Station 3: Crabby Critters: Use soft toys or stuffed animals as mock predators. Gently "attack" the models from different angles, observing how the shells protect the crab's vulnerable body
Record your observations:

Station 4: Pincer Pinch! Use a clothespin to simulate a predator's pincer pinch. Test how much force the shells can withstand before cracking or breaking. This station focuses on material strength and structural integrity.

Record your observations:

Other Tests:

Station 5: Camouflage Challenge: Test how well the shells blend into different environments (sand, pebbles, seaweed) (colored laminated pictures can also be used) What did you notice about your shell?

Discuss the importance of camouflage for predator avoidance and food acquisition.

Durability Test: Subject the shells to simulated wear and tear by gently scratching, dropping, or bending them. Analyze how different materials withstand stress and potential damage in the wild.

Describe the tests you did and what happened.

Analysis

Identify the strengths of your design:

Identify the weakness os of your design:

Describe your results: In general, were you successful in creating a shell that can withstand the conditions you simulated? Explain.

Ask other groups to share their results. Summarize what you learned from their shell designs.