

Scientist: _____



WORKSHEET 1: Marine Debris Toxicity Predictions & Methods

Question: Is marine debris leachate toxic to barnacle larvae (or brine shrimp)?

Treatments: cigarette filter leachate, cigarette tobacco leachate

Marine debris type: _____

Hypothesis: If _____ is toxic then _____

Serial Dilution Experiment:

Serial Dilution is a stepwise dilution of a substance in solution. Using the leachate, we will make a serial dilution, and then test toxicity (of varying strengths of the leachate) on barnacle larvae. Toxicity will be calculated by measuring the % mortality (total dead/total alive*100) of barnacle larvae.

Methods: Calculate your serial dilution:

	Marine Debris Water for dilution experiments: You will be making 10ml of solution at different concentrations. These will be used as your mixing stock for the experiments)				
Concentration level:	Full Strength	$\frac{3}{4}$ Strength	$\frac{1}{2}$ strength	$\frac{1}{4}$ strength	Control
Amount of water to add from marine debris water to test tube					
Amount of plain sea water to add to test tube					
TOTAL amount of liquid in test tube					

Which dilution do you predict will have the highest mortality?

Which dilution do you predict will have the lowest mortality rate?

Why?

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Graphically draw your predictions for your experiment:

What will be on the Y-axis? Units?

What will be on the X-axis? Units?

A large, empty rectangular box with a thin black border, intended for the student to draw their predictions for the experiment. The box is currently blank.

Do you think there will be a difference among the treatments (plastic water bottle leachate, cigarette tobacco leachate, and cigarette filter leachate)? Why or Why not?