



Target Strategies

5th Grade - Mixtures and Solutions

Investigation 1

I can attempt to separate mixtures of solid materials and water with screens and filters.

I can discover that water and salt make a special kind of mixture - a solution - that cannot be separated with a filter.

I can add a measured amount of salt to a measured amount of water to make a solution.

I can compare the total mass of a mixture to the mass of its parts to infer that the invisible salt is still present.

I can evaporate the salt solution to reclaim the salt as crystals.

I can separate a new mixture by using magnets, screens, filters, and evaporation.

I can review the elements of engineering design as I design an efficient system to separate a dry mixture.

I am challenged to discover if natural materials in the schoolyard will make solutions when mixed with water.

I can observe that organic material changes the color of the water. I am introduced to the concept of an extract.

Investigation 2

I can make multi sensory observations of sealed black boxes in an effort to determine what is inside.

I can develop a model and try to reach consensus with other students.

I can construct physical models of black boxes in an effort to replicate the behaviors of the original black boxes.

I can observe a device that delivers 600-700 mL of water when only 100 mL of water is put in. I can develop conceptual models to explain how this device works.

I can use hot water to heat four common solid materials and observe that one melts, two soften, and one is unchanged.



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Investigation 2

I can use my knowledge of phase change and can develop models of dissolving and melting and can tell how they are different.

Investigation 3

I can observe and compare soft-drink solutions that differ in the amount of powder and water to develop the concept of concentration.

I can make salt solutions and compare my concentration with others.

I can use a balance to determine the relative concentration of the salt solutions.

I can determine the relative concentrations of three mystery salt solutions by comparing equal volumes on a balance.

I can observe that a mass piece sinks in one liquid and floats in another, because the liquids are different densities.

I can investigate four salt solutions to discover which is more concentrated based on how they layer.

Investigation 4

I can make a saturated solution by adding salt to water until no more salt will dissolve.

After separating the undissolved solid salt, I can use a balance to determine the mass of salt needed to saturate 50 mL of water.

I can identify the two components of a solution as the solvent and the solute.

I can add Epsom salts to water to make a saturated solution.

I can use a balance to determine the mass of Epsom salts in the saturated solution in order to compare the solubility of salt and Epsom salts.

I can collect water samples from the school and use observation and evaporation to determine what's in each sample.



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Investigation 4 -

I can find out about the source of local water, where it is stored, and how it is treated.

I can design a process to make ocean water suitable for drinking.

Investigation 5 -

I can use three substances to make three different combinations of two substances. I can add water and observe the changes that occur.

I can observe the changes that occur with the new products that form as evidence as a chemical reaction.

I can use techniques learned from earlier investigations to separate the products of the reactions.

I can identify the products by testing the precipitate and by evaporating the liquid.

I can use combinations of substances to produce chemical reactions.

I can observe the volume of gas and discover a new precipitate when all three substances are mixed in a bag.