Pure and impure matter

Skills: Planning and Design Topic: Pure and Impure Matter Date: January 13, 2012 Problem: Troy was told that the presence of an impurity raises the boiling point of water. Troy wanted to carry out an experiment with salt water and distilled water to determine which would have a higher boiling point. Suggest a plan and design for this lab. Hypothesis: The salt water will have a higher boiling point than the distilled water. Variables: Controlled: the amount of distilled water and salt. Manipulated: The temperature of the distilled water.

Responding: temperature of the salt water and temperature of the distilled water. Apparatus: beakers, bunsen burners, tripod stands, measuring cylinders, glass rod, electrical balance. Materials: distilled water, salt. Method: 1) get two beakers 2) Label them each, one salt solution and the other distilled water. 3) Measure 50cm3 of water into a measuring cylinder and pour into the beaker labeled salt solution. 4) Add 0. 8g of NaCl into the beaker labeled salt solution. 5) Stir until the NaCl is completely dissolved. 6) Place a thermometer into the beaker and apply heat.) Record the temperature of the solution as soon as it starts to boil. 8) Repeat steps 3, 6 and 7 using distilled water. 9) Make observations. Expected results: the boiling point of the salt solution will be higher than the boiling point of the distilled water because sodium chloride is a non- volatile substance and an impurity when added to water. Therefore the substance does not change to vapour under normal heat conditions, because the bonds in the substances are stronger so a lot of heat must be applies and this will cause an increase in the boiling point.