GRADE 7 SCIENCE

Evaporation & Distillation

Name: Date:

INQUIRY

Ancient Chinese salt makers in Zigong (Sichuan) have been extracting salt from underground brine for 5,000 years. How does it work?

Discuss with your partner. Write your initial ideas below:

Key Vocabulary

Term	Definition
Evaporation	Heating a solution so solvent escapes, leaving solute behind.
Distillation	Heating a solution, then condensing the vapour to collect pure solvent.
Condenser	Cools vapour back to liquid using cold water.

Part A — Comparing Techniques

1. Complete the comparison: (a) Evaporation collects the _____ (solute/solvent). (b) Distillation collects the _____ (solute/solvent). (c) Which technique would you use to get salt FROM seawater? (d) Which to get pure water FROM seawater? [4 marks]

2. Describe the steps of simple distillation. Include: heat source, flask, condenser, cold water, collection flask. [3 marks]

Part B — Cultural Chemistry

3. Korean sea salt (cheonilyeom) is made by evaporating seawater in shallow pans on tidal flats. German salt is often mined from underground deposits. Compare the two methods and explain which uses evaporation. [3 marks]

4. Korean soju (14-20% alcohol) and German Schnaps (40% alcohol) are both made by distillation. Explain why Schnaps has a higher alcohol content — what step was done differently? [3 marks]

Part C — Application

5. A student heats 200 mL of salt water. After evaporation, 8 g of salt remains. What was the concentration of the salt solution in g/L? (Hint: 200 mL = 0.2 L) [2 marks]

Show your working:

6. In a survival situation on a desert island, you only have seawater. Design a simple solar distillation device using a plastic sheet, a container, and sunlight. Draw and label it, explaining how it works. [4 marks]