Nova’s Scientific Experiment Record: Separating Mixtures

Learning objective: To identify and explain methods for separating mixtures, including filtration, sieving, and evaporation, based on the properties of the materials involved.

Help Nova the owl investigate how to separate different mixtures. Choose a mixture you would like to test (e.g., sand and water, salt and water, or pebbles and sand). Follow the scientific method to record your experiment. Use clear, scientific language and be precise in your observations.

Word bank: mixture · solution · dissolve · filtration · sieve · evaporation · residue · filtrate · solute · solvent

1. The Investigation: Describe the mixture you are testing. Why did you choose this mixture and what do you predict will happen when you try to separate it? (2 marks)

2. The Method: Explain the step-by-step process you used to separate the components of your mixture. Which equipment did you use and why? (3 marks)

3. Scientific Observations: What did you see happening during the separation process? Did all of the material pass through your filter or sieve? Explain why. (3 marks)

4. The Conclusion: Was your separation successful? If you were to repeat this experiment, would you change anything to improve your results? Explain your reasoning. (2 marks)

5. Real-World Application: Nova wants to know: how might these separation methods be used in a real-life setting, such as a water treatment plant or in a kitchen? (2 marks)

Extension challenge: Imagine you are given a complex mixture of iron filings, sand, and salt. Write a short plan explaining how you could use a magnet, a filter, and heat to separate all three components.