

Science Lab: Mastering Mixtures with Bea the Bee

Learning objective: To understand how to separate mixtures through filtering, sieving, and evaporating, and to identify which methods are suitable for different materials.

Read each question carefully and use your knowledge of materials and their properties to explain how to separate the mixtures. Remember to use scientific vocabulary.

Word bank: mixture · solution · filter · sieve · evaporation · insoluble · dissolve · residue

1. Bea the Bee has accidentally mixed a bowl of sand and marbles. Which piece of equipment should she use to separate them, and why is this the best method? (2 marks)

2. If Max mixes salt into a glass of water, the salt seems to disappear. Explain what has happened to the salt and name the process that would allow him to get the salt back. (2 marks)

3. Kit needs to separate muddy water. He decides to use a filter funnel and filter paper. Explain why the water passes through but the dirt stays behind. (2 marks)

4. List two examples of mixtures you might find in your kitchen at home and describe how you could separate the components of one of them. (3 marks)

5. Why is it impossible to use a sieve to separate a solution of sugar and water? Use the word 'dissolved' in your answer. (2 marks)

Draw: Draw a scientific diagram showing how you would separate a mixture of pasta shapes and flour. Label your equipment clearly.



Extension challenge: Imagine you are shipwrecked on a desert island with a supply of salty sea water and some sand. Write a short plan explaining how you would use your knowledge of separation techniques to obtain clean, fresh drinking water and dry sand.