Nova’s Mixtures and Solutions Challenge

Learning objective: To identify and describe the properties of mixtures, solutions, and separation techniques in accordance with the Grade 5 Science curriculum.

Join Nova the barn owl to test your knowledge of mixtures. Read each question carefully and write your answers clearly.

Answer Key: 1. B (A mixture), 2. True, 3. False (it is a physical change), 4. Filtration, 5. Solute, 6. Evaporation, 7. Sieving, 8. True, 9. False (they remain chemically separate), 10. A (Sand and water).

Word bank: Solution · Solvent · Solute · Evaporation · Filtration · Sieving · Mixture · Insoluble · Dissolve

1. 1. What do we call a combination of two or more substances that are not chemically combined? A) A compound, B) A mixture*, C) An element, D) A reaction (1 mark)

2. 2. True or False: A solution is a special type of mixture where one substance dissolves into another. (1 mark)

3. 3. True or False: Dissolving sugar in water is a chemical change that creates a new substance. (1 mark)

4. 4. Which separation method would you use to separate an insoluble solid from a liquid, such as sand from water? (1 mark)

5. 5. In a cup of salt water, what is the 'salt' known as? (1 mark)

6. 6. Which process can be used to recover a solid that has dissolved in a liquid by heating the solution? (1 mark)

7. 7. What process is best for separating a mixture of solids of different sizes, such as pebbles and sand? (1 mark)

8. 8. True or False: A substance that does not dissolve in water is called 'insoluble'. (1 mark)

9. 9. True or False: In a mixture, the individual substances lose their own properties. (1 mark)

10. 10. Which of these is an example of an insoluble mixture? A) Sand and water*, B) Salt and water, C) Sugar and tea, D) Instant coffee and water (1 mark)

Draw: Draw a scientific diagram showing how you would use a funnel and filter paper to separate a mixture of soil and water. Label your beaker, funnel, and residue.

Extension challenge: Nova has a challenge: If you have a mixture of iron filings, salt, and sand, describe a step-by-step plan using magnets, sieves, water, and heat to separate all three components.