Year 6 Science Assessment: Properties and Changes of Materials

Learning objective: To demonstrate understanding of how materials are sorted, separated, and changed based on their physical and chemical properties.

Read each question carefully. Use your scientific knowledge to provide clear and accurate answers. Write your responses in the spaces provided.

Nova the owl is helping Bea the honeybee sort through her collection of materials found near the hive. They have a mixture of sand, salt, iron filings, and plastic beads. To separate them, they need to use their knowledge of material properties.

Word bank: dissolving · solute · solvent · filtering · evaporation · reversible · irreversible · conductor · insulator · thermal

1. Nova wants to separate the iron filings from the sand. Which piece of equipment should she use, and why is this method effective? (2 marks)

2. Bea adds the remaining sand and salt mixture to water. The salt disappears. Explain the scientific term for what has happened to the salt. (2 marks)

3. Describe the process you would use to separate the sand from the salty water, and then how you would recover the salt from the water. (4 marks)

4. Kit the fox is building a new shelter. He needs to choose a material for the handle of his cooking pot. Explain why a metal handle would be a poor choice compared to a wooden one, using the terms 'thermal' and 'conductor' or 'insulator'. (4 marks)

5. Give one example of a reversible change and one example of an irreversible change. Explain the difference between them. (4 marks)

6. Max the monkey tries to bake a cake for his friends. He mixes flour, eggs, sugar, and milk, then bakes the mixture in an oven. Write a detailed explanation of why this is an irreversible change. Include references to new materials being formed and why the process cannot be easily undone. (9 marks)

Draw: Draw a scientific diagram showing a funnel, filter paper, and a beaker being used to separate a mixture of sand and water.

Extension challenge: Total: /25