

Dissolving and Solutions

KS3 Chemistry · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Sugar is stirred into tea. Name the solute, the solvent and the solution.

Step 1 · Solute — what dissolves

Sugar.

Step 2 · Solvent — the liquid it dissolves in

Water (in the tea).

Step 3 · Solution — the mixture formed

Sweet tea.

Answer: Solute: sugar; solvent: water; solution: sweet tea

Check: solute + solvent → solution.

2. Now try one with the steps

20 g of salt is dissolved in 180 g of water. What is the mass of the solution?

Step 1 · Mass is conserved

Step 2 · Add

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. What is the name for the substance that dissolves? [1]

2. What is the name for the liquid that does the dissolving? [1]

3. What word describes a substance that does NOT dissolve, like sand in water? [1]

4. What is a saturated solution? [1]

5. 10 g of sugar dissolves in 90 g of water. What is the mass of the solution, in g? [1]
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6. Give TWO ways to make sugar dissolve faster. [2]
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7. Is dissolving a physical or chemical change? [1]
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8. What is the difference between dissolving and melting? [2]
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9. Nail varnish does not dissolve in water but does dissolve in acetone. What does this show about solubility? [1]
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10. What is solubility? [2]
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11. At 60 °C, about 110 g of potassium nitrate dissolves in 100 g of water. At 20 °C, about 32 g. A saturated solution made with 100 g of water cools from 60 °C to 20 °C. How many grams of crystals form? [2]
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12. Name the independent and dependent variable when investigating how temperature affects solubility. [2]
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13. Why does a salt solution look clear even though the salt is still there? [2]
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14. Suggest how you could prove the salt is still in salt water. [1]
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4. Before you hand it in

"The sugar melted in the tea."

The sugar DISSOLVED: its particles spread between the water particles.

"Dissolved substances disappear, so the mass goes down."

Mass of solution = mass of solute + mass of solvent.

"Insoluble means it can't dissolve in anything."

Say 'insoluble in water'. Grease is insoluble in water but soluble in some other solvents.

Mixing up 'soluble' and 'solution'.

Soluble describes a substance that can dissolve; a solution is the mixture you get.