

Mixtures: what do they look like?

How to teach mixtures and solutions

Education in Chemistry

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Example lesson plan

Lesson section	Notes	Resources
Starter/settler (10 minutes)	Question for students to consider: 'What does pure mean?' Use an image of a bottle of '100% pure orange juice' and one of a piece of copper as a prompt. Students should consider individually, then discuss their thoughts in pairs. Discuss the idea of pure in everyday life. Students will have a range of views from pure meaning good/ideal/perfect to a scientific view: 'contains only one chemical substance'. Make a note of some of these on the board to refer back to during the lesson.	'Pure' orange juice carton image, eg: flic.kr/p/5KZ69S Copper image, eg: bit.ly/2HcQGuz
Main activity 1 (15 minutes)	Introduce the main activity (Slide 4). If sufficient pots are available, groups of up to three will work. Otherwise distribute pots around the room and have students move between the stations. Key questions: • Which pots contain mixtures? • How can you tell? • What properties of the 'particles' are you using to make this decision? Circulate during the investigation period to help keep students on task. Ask them to justify their thoughts and make links to the starter activity.	'Mixtures – what do they look like' presentation available to download from rsc.li/2FxsuyJ Pots of beads
Main activity 2 (15 minutes)	Groups feedback and formalise concepts. Ask groups to feed back to the class – one speaker from each group, and three to four groups is usually sufficient. Make links back to ideas from the start of the lesson. Draw out the distinction between everyday pure and chemically pure. The nutritional contents list of the pure orange juice can be used to demonstrate that it contains multiple substances (sugars, vitamins etc).	'Mixtures – what do they look like' presentation available to download from rsc.li/2FxsuyJ

	Formalise the concepts of pure and mixture using slides 5–8. Construct summary notes with the students. Students then write a paragraph to explain which pots contained pure substances and which contained mixtures. Display and discuss 2–3 good examples of student explanations.	
Consolidation (10 minutes)	Display/draw some particle diagrams of pure substances/mixtures. Students identify and explain an example of a pure substance and a mixture. This can be done on individual whiteboards in pairs to allow quick formative assessment of any misunderstandings. Homework: Look out for and take photos of other examples of (everyday and chemically) pure substances from your everyday life.	Particle diagrams, eg: bit.ly/2q8KXqI Individual/personal whiteboards