

Optional command challenges for teams who escaped. Crack any of them and enter the answer on the escape screen — no calculators needed.

1 The Lineup

Copper(II) sulfate = 4 · Iron = 5 · Sodium chloride = 7 · Sand = 2

1. Bottle 1 dissolves to a colourless solution.
2. The blue solid is in bottle 2.
3. The one that will not dissolve is in bottle 3.
4. The magnetic one is in bottle 4.

BOTTLES 1-4

1

2

3

4

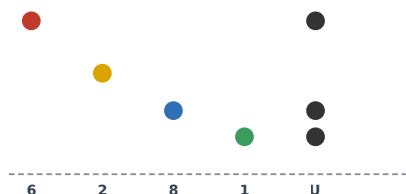
2 State Shift

solid = 1 · liquid = 2 · gas = 3

Sub.	m.p./°C	b.p./°C	state at each temperature	
P	0	100	-20°C 	50°C
Q	-219	-183	25°C 	-200°C

3 Chromato-Match

Each reference is one dye (with its digit). **U** is the unknown mixture – match its spots by height.



CODE

4 Separation Sequence

Mixture: **sand, salt, iron filings and water**. One technique is a decoy.

3 Using a magnet

1 Filtration

5 Crystallisation

9 Chromatography

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Optional command challenges for teams who escaped. Crack any of them and enter the answer on the escape screen — no calculators needed.

1 The Lineup

Copper(II) sulfate = **8** · Iron = **3** · Sodium chloride = **6** · Sand = **1**

1. Bottle 1 is a blue solid.
2. The one that will not dissolve is in bottle 2.
3. The magnetic one is in bottle 3.
4. Bottle 4 dissolves to a colourless solution.

BOTTLES 1-4

1

2

3

4

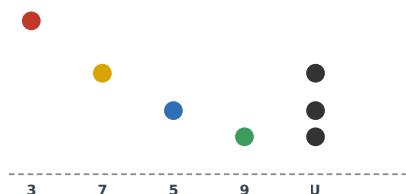
2 State Shift

solid = 1 · liquid = 2 · gas = 3

Sub.	m.p./°C	b.p./°C	state at each temperature	
P	-39	357	25°C 	400°C
Q	801	1413	25°C 	1000°C

3 Chromato-Match

Each reference is one dye (with its digit). **U** is the unknown mixture – match its spots by height.



CODE

4 Separation Sequence

Mixture: **sawdust, salt, iron filings and water**. One technique is a decoy.

2 Using a magnet

8 Filtration

4 Crystallisation

7 Simple distillation

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