

# Filtration and Crystallisation

Use this worksheet after reading the lesson to practise the key ideas and prove you can meet the success criteria.

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

## 1. Key Ideas

In the 9th century, Arab chemist Jabir ibn Hayyan devised systematic methods for purifying substances — including filtration and crystallisation. His techniques, refined over 1200 years, are still used in every chemistry laboratory in the world today.

- The principle behind filtration and crystallisation
- Why particle size determines whether filtration works

## 2. Success Criteria

By the end, you should be able to:

- The principle behind filtration and crystallisation
- The key equipment used in each technique
- Which mixture types each technique is suited for

## 3. Key Terms

### Key idea

The central concept from Filtration and Crystallisation.

### Evidence

Information, observations or calculations used to support an answer.

### Explain

Give a reasoned answer that links cause and effect.

### Apply

Use a learned idea in a new example, problem or scenario.

## 4. Activity: Build the Lesson Map

Use the lesson to complete the table. Keep answers brief but specific.

Prompt	Your answer
Main concept	
Important example	
Common mistake to avoid	
How this links to the next lesson	

## 5. Short Answer Questions

1. 6. Describe the principle of filtration and explain why it cannot be used to separate sodium chloride from a sodium chloride solution.

BAND 3

3 MARKS

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2. 7. A student dissolves 80 g of potassium chloride in 100 mL of hot water, then allows the solution to cool to room temperature. They observe crystals forming. Explain why crystals form on cooling, referring to solubility and saturation.

BAND 4

3 MARKS

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3. 8. A chemist has a sample of impure table salt (NaCl with some coloured pigment impurities that are also soluble in water). Evaluate whether a single crystallisation step will produce chemically pure NaCl, and suggest how the chemist could improve the purity of their final product.

BAND 5

4 MARKS

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## 6. Extend: Apply the Idea

BAND 5/6

5 MARKS

A student gives a memorised answer about Filtration and Crystallisation but does not use evidence or reasoning.

Improve the answer by writing a stronger response that uses accurate terminology, a relevant example and a clear explanation.

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## 7. Multiple Choice

1. What is the best first step when answering a question about Filtration and Crystallisation?

- A. Identify the key concept being tested
- B. Write every fact from memory
- C. Ignore the command word
- D. Skip examples and evidence

2. Which answer would show stronger understanding of Filtration and Crystallisation?

- A. An answer with accurate terms and reasoning
- B. A copied definition only
- C. A single-word response
- D. An answer with no example

3. What should you do if a question asks you to explain?

- A. Link the idea to a reason or cause
- B. List unrelated facts
- C. Only draw a diagram
- D. Write the shortest possible answer

## 8. Success Criteria Proof

Finish with evidence that you can do each success criterion.

### SUCCESS CRITERION 1

**Prove that you can: The principle behind filtration and crystallisation**

**BAND 3**

**2 MARKS**

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### SUCCESS CRITERION 2

**Prove that you can: The key equipment used in each technique**

**BAND 4**

**3 MARKS**

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### SUCCESS CRITERION 3

**Prove that you can: Which mixture types each technique is suited for**

**BAND 5**

**4 MARKS**

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**One thing I still need help with:**

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