

# Collision Theory & Reaction Rate

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

A glow stick glows brighter when you warm it in your hands and slower when you put it in the freezer &mdash; the same chemical reaction, running at different rates, because temperature changes how often and how hard particles collide.

- Key facts and terms for Collision Theory & Reaction Rate
- How the main ideas in Collision Theory & Reaction Rate connect

## 2. Success Criteria

By the end, you should be able to:

- Key facts and terms for Collision Theory & Reaction Rate
- Where this lesson fits in Module 3
- How the main ideas in Collision Theory & Reaction Rate connect

## 3. Key Terms

### Collision theory

The theory that chemical reactions occur when particles collide with sufficient energy and correct orientation.

### effective collision

An effective collision is one that results in the formation of products.

### Sufficient energy

Collision frequency is how often particles collide; collision effectiveness is whether those collisions have sufficient energy AND correct orientation.

### Synthesis reaction

A reaction where two or more reactants combine to form a single product.

### Decomposition reaction

A reaction where a single compound breaks down into simpler substances.

### Precipitation reaction

A reaction in which an insoluble solid forms when two solutions are mixed.

## 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. Explain this lesson goal in your own words: "Key facts and terms for Collision Theory & Reaction Rate". Use one specific example from the lesson.

**BAND 3** **2 MARKS**

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2. Apply this idea to a new example: "Where this lesson fits in Module 3". Show your reasoning clearly.

**BAND 4** **3 MARKS**

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3. Analyse why this idea matters for understanding Collision Theory & Reaction Rate: "How the main ideas in Collision Theory & Reaction Rate connect".

**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 Collision Theory & Reaction Rate 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 Collision Theory & Reaction Rate?

- 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 Collision Theory & Reaction Rate?

- 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: Key facts and terms for Collision Theory & Reaction Rate

BAND 3

2 MARKS

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### SUCCESS CRITERION 2

Prove that you can: Where this lesson fits in Module 3

BAND 4

3 MARKS

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### SUCCESS CRITERION 3

Prove that you can: How the main ideas in Collision Theory & Reaction Rate connect

BAND 5

4 MARKS

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One thing I still need help with:

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