

Lenses and Dispersion

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

Lenses redirect light to form images, while prisms separate white light into colours. Together they explain cameras, spectacles, telescopes, rainbows, and why different wavelengths of light do not all bend by the same amount.

- The difference between converging and diverging lenses
- How lenses form images by refraction at two surfaces

2. Success Criteria

By the end, you should be able to:

- The difference between converging and diverging lenses
- The key rays used in lens diagrams
- The thin lens equation and magnification relation

3. Key Terms

converging (convex) lens

thicker at the centre than at the edges

diverging (concave) lens

thinner at the centre

optical centre

the middle of the lens

principal axis

the line passing through the optical centre perpendicular to the lens faces

the algebra

similar to mirrors, but the ray rules are different because light passes through the lens

how large the image

relative to the object

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. 7. Explain the difference between a converging lens and a diverging lens.

BAND 3 3 MARKS

2. 8. A convex lens has focal length 10 cm and object distance 15 cm. Find the image distance.

BAND 4 3 MARKS

3. 9. Explain what dispersion is and why a rainbow shows violet and red in different directions.

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6

5 MARKS

A student gives a memorised answer about Lenses and Dispersion 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.

7. Multiple Choice

1. What is the best first step when answering a question about Lenses and Dispersion?

- 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 Lenses and Dispersion?

- 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 difference between converging and diverging lenses

BAND 3 **2 MARKS**

SUCCESS CRITERION 2

Prove that you can: The key rays used in lens diagrams

BAND 4 **3 MARKS**

SUCCESS CRITERION 3

Prove that you can: The thin lens equation and magnification relation

BAND 5 **4 MARKS**

One thing I still need help with:
