A-Level Physics Summer Transition Work 2026

Task 1: IGCSE Physics Review

Create summary notes for the following topics:

Forces and Motion

- Speed, velocity and acceleration
- Newton's Laws of Motion
- Momentum
- Energy transfers

Electricity

- Current, voltage and resistance
- Series and parallel circuits
- Electrical power

Waves

- Wave properties
- Electromagnetic spectrum
- Sound waves

Atomic Physics

- Structure of the atom
- Radioactivity
- Nuclear decay

Produce no more than two pages of notes per topic.

Task 2: Essential Mathematics for A-Level Physics

Complete the following calculations and show all working.

Rearranging Formulae

1. Rearrange:
   $v = u + at$

   to make "a" the subject

2. Rearrange:
   $F = ma$

   to make "m" the subject

3. Rearrange:
   $V = IR$

   to make "R" the subject

Scientific Notation

Write the following in standard form:

1. 4500000
2. 0.000082
3. 0.0000000034

Calculator Skills

Calculate:

1. $(3.2 \times 10^{4})(5.6 \times 10^{-3})$
2. $(6.0 \times 10^{8}) \div (2.0 \times 10^{4})$
3. $\sqrt{(3.6 \times 10^{6})}$

Graph Skills

A car accelerates uniformly.

Time (s)	0	2	4	6	8	10
Velocity (m/s)	0	4	8	12	16	20

Plot a velocity-time graph and calculate:

a) The acceleration

b) The distance travelled

Task 3: Research Task

Choose ONE of the following physicists and prepare a one-page profile.

- Isaac Newton
- Albert Einstein
- Marie Curie
- James Clerk Maxwell
- Richard Feynman
- Stephen Hawking

Include:

- Brief biography
- Major discoveries
- Impact on modern science
- Interesting facts

Task 4: Physics in the Real World

Choose ONE modern technology that relies on Physics.

Examples:

- MRI scanners
- Electric vehicles
- Solar panels
- Satellites
- Nuclear power stations
- Smartphones

Prepare a one-page report explaining:

1. How it works
2. Which physics principles are involved
3. Benefits and limitations

Task 5: Pre-Course Reading

Read at least one popular science article or watch one documentary related to Physics.

Suggested resources:

- BBC Science Focus
- New Scientist
- Physics World
- TED Talks Science
- Brian Cox documentaries

Write a short reflection (200–300 words) explaining:

- What you learned
- What surprised you
- Any questions you would like to explore further

Task 6: Why I Chose Physics

Write a personal statement of approximately 250 words explaining:

- Why you chose A-Level Physics
- What careers interest you
- What you hope to gain from the course

Submission Checklist

Before the first lesson, ensure you have completed:

✓ Physics summary notes

✓ Mathematics questions

✓ Research task

✓ Technology report

✓ Reading reflection

✓ Personal statement

We look forward to welcoming you to A-Level Physics and helping you develop the skills of a successful physicist.

***Contact Ms Nagina and Mr Jonas for any physics queries.