

## Sixth Form Summer Transition Work

Welcome to Arnewood Sixth! You are about to embark on a busy and important two years of sixth form study.

Sixth form life is very different. You are going to feel much more independent, empowered and responsible for your own learning. The expectation is that this journey is down to you. You need to commit and relish in the challenge of sixth form life; ambition, belief and commitment are essential for your success.

Below is a transition activity designed for you to complete over the late spring into summer in preparation for your chosen course. By completing the task, you will be better prepared for the start of your course. Your A level teachers will check the work in September. Your commitment starts now!

Subject	Physics	
Key Question	What are the skills and prior knowledge needed for success in Physics at A level and what careers and directions does it open up for me?	
Resource List	<p>Institute of Physics Graduate Careers link</p> <p>Institute of Physics Apprenticeship Careers link</p> <p>Oxford Science A level Transition Pack</p>	<p><a href="http://www.iop.org/careers/undergrad-postgrad/your-future/page_64487.html">http://www.iop.org/careers/undergrad-postgrad/your-future/page_64487.html</a></p> <p><a href="http://www.iop.org/careers/technical-routes/meet-some-apprentices/page_69370.html">www.iop.org/careers/technical-routes/meet-some-apprentices/page_69370.html</a></p> <p><a href="https://arnewood.fireflycloud.net/science/my-teacher/dr-parkes/year-11-physics-transition-task-resources">https://arnewood.fireflycloud.net/science/my-teacher/dr-parkes/year-11-physics-transition-task-resources</a></p>

Gore Road, New Milton, Hampshire, BH25 6RS

**Telephone:** School 01425 625400 **Sixth Form Centre:** 01425 625408

**Email:** c.salt@arnewood.hants.sch.uk **Website:** www.arnewood.hants.sch.uk/sixth-form

Your Task

**There are 2 parts to the transition task, 2 compulsory and 2 optional.** Choose how you record your work – it could be handwritten or digital. You will need to bring it with you on your first lesson back.

### **Task 1 – Physics and You (compulsory)**

By studying physics at A level you're opening the door to a wide variety of rewarding careers. As well as learning about how the universe works, you'll get a broad training in skills that all employers value – an ability grasp concepts quickly, a determination to find coherent answers, not to mention problem-solving, analytical, mathematical and IT skills.

Even if you don't end up working in a physics-related industry, these skills are still highly regarded. Studying physics is a good way of keeping your options open and earning a good salary.

In this first task you will explore some of the opportunities open to both graduate physicists (those with a physics degree) and those who take the apprenticeship route into employment.

- Use the IOP graduate careers link and watch the videos you find there to find out what graduate physicists get up to and discover the sectors that physics graduates work in.
  - Use the IOP apprenticeship link to find out what it is like being an apprentice in a physics related environment
- **Outcome** (to bring with you on your first lesson back): write a paragraph to describe your future career ideas (of course, this may not be in a physics-related industry). Try and be as specific in this as you can. Then explain why you have chosen to take physics at A level.

Gore Road, New Milton, Hampshire, BH25 6RS

**Telephone:** School 01425 625400 **Sixth Form Centre:** 01425 625408

**Email:** c.salt@arnewood.hants.sch.uk **Website:** www.arnewood.hants.sch.uk/sixth-form

## Task 2 - Key Terms (compulsory)

There are two parts to this task. You must complete them both. You first need to download the Oxford Transition Pack pdf (see link on first page). This pack has been carefully designed by Oxford University Press to take you on from GCSE to be ready for A level. **It includes answers, so that you can check and correct your work.**

### Task 2 Part A (compulsory)

The goal of this task is to learn the key terms and concepts essential for success at A level and, very importantly, to identify any about which you are unsure.

- Follow the instructions on p2, 3 and 4 of the Oxford Transition Pack, in which you learn key practical terms, and key facts foundations of physics and matter and radiation facts
- **Outcome** (which needs to be brought in at start of next term in first lesson).
  - Be able to recall the key practical terms (you will be tested!)
  - Have a hard copy of the key practical terms and matter and radiation definitions, annotated to show us next term of any that you found tricky to recall. It can be printed out or hand written.

### Task 2 Part B (compulsory)

- Work through sections 1 and 2 (pages 5 to 9) and then section 4 (pages 11-13) of the pack. You will
  - perform maths skills including: unit conversions, uncertainties, using standard form and significant figures, rearranging equations
  - show how you can not only tackle questions, AND then use the answers at the end of the pack to help develop your understanding.
- **Outcome** (to bring along with you to your first lesson)
  - Your answers to questions 1-6 for sections 1.1, 1.2, 1.3. These need to be clearly marked and where there are mistakes, a correction must be added in, in a different colour pen. If you don't understand the corrections, add a comment so we can see where we would need to support you next term.
  - Your answers to questions 1-7 for sections 2.1, 2.2, 2.3, 2.4. Again, mark and add in corrections, and highlight any areas that we need to check in with you about next term.
  - Your answers to qs 1-3 for sections 4.1, 4.2. Again, mark and add in corrections, and highlight any areas that we need to check in with you about.
  - It would be good too to make notes on any key facts from above. You will be expected to know SI base and derived units, prefixes and standard form
  - From this task, state 2 main facts or techniques that you think you would appreciate more support in next year. Say why this is the case.

## Task 3 - Vectors, Work, Power and Efficiency (optional)

Study resolving vectors and equations of work, power, and efficiency. These ideas will be useful to you throughout the course

- Study section 3 and 5 from the booklet, and work through the questions there.
- **Outcome** State 2 main facts or techniques that you found trickier than the others. Say why this was the case.

## Task 4 - Recommendations (optional)

This is testing your research ability and also to show us areas of interest that you have.

- We would like you to create a recommendation list for fellow physicists, with a brief overview of what they are about.
  - This can be a youtube video, a book, a film, a website – or any other media!
  - For example, Miss Jarman loves this tv programme, especially this episode, as it shows how radio waves were detected by simple trial and error with basic bits of metal, and also has a timely reminder never to go on holiday if you have made a discovery!  
<https://www.bing.com/videos/search?q=you+tube+jim+al+kahlili&view=detail&mid=D8BB951E76E40D96D4A4D8BB951E76E40D96D4A4&&FORM=VDRVRV>
  - Dr Parkes loves this book. <https://www.amazon.co.uk/Surely-Youre-Joking-Feynman-Adventures/dp/009917331X> Winner of the Nobel Prize for Physics in 1965, Richard Feynman was one of the world's greatest theoretical physicists, but he was also a man who fell, often jumped, into adventure. An artist, safecracker, practical joker and storyteller, Feynman's life was a series of combustible combinations made possible by his unique mixture of high intelligence, unquenchable curiosity and eternal scepticism. Over a period of years, Feynman's conversations with his friend Ralph Leighton were first taped and then set down as they appear here, little changed from their spoken form, giving a wise, funny, passionate and totally honest self-portrait of one of the greatest men of our age.
- **Outcome** Write a list of recommendations, with a brief overview for each

**Finally, if you get stuck, or if you have finished this and want more ideas to be getting on with, or if you would prefer some more basic support work instead of instead of doing the optional tasks, email us and we can direct you to some other resources. Enjoy!**

Miss Jarman and Dr Parkes

[k.jarman@arnewood.hants.sch.uk](mailto:k.jarman@arnewood.hants.sch.uk)

[i.parkes@arnewood.hants.sch.uk](mailto:i.parkes@arnewood.hants.sch.uk)