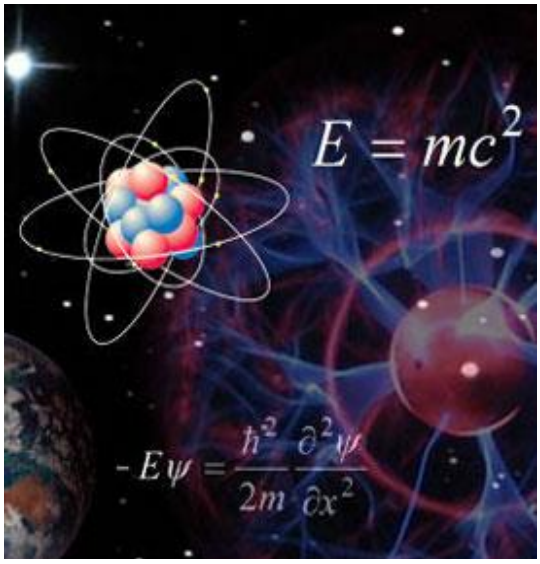
Heston COMMUNITY SCHOOL

Transition Tasks

A Level Physics

Year 11 → Year 12

Name: .....



edexcel

Compulsory Tasks *These must be completed before you start your course in September*	Minimum Time	Date
1. Consolidating GCSE: Head Start Books - Download the book on the Kindle App for free - LINK - Answer all the questions - Mark all questions using answers in the back - Add in your corrections in a green pen	10 Hours	
2. Consolidating GCSE: Educake Quizzes Get Above 80% in all Educake GCSE consolidation quizzes – you may repeat as many times as you need to - Scalars and vectors - Basic forces - Resolving forces - Pressure in fluids - Distance, speed and acceleration - Newtons Laws - Momentum - Maths for Physics - Working scientifically definitions including units	15 Hours	
3. KS5 Preparation: AO1 is for me In Post 16 you are expected to arrive to lessons having already learnt the key facts in advance [Assessment Objective 1] Prepare AO1 notes, in any form you wish and learn the key facts for the following sections of the specification [page 24] Link - Mechanics: Points 10-12, 17 and 20	10 Hours	
4. **Beyond the Specification: Research Articles** - Log in to "Physics Science Review" LINK *Username: AphysArchive Password:student* *Centre ID 18038* - Select Edexcel Physics Archive - Create "Cornell Notes" for 5 different articles of your choice LINK	5 hours	

Optional Challenge Tasks *These will look impressive on your UCAS Personal Statements*	Date
Suggested Reading - In Search of Schrödinger's Cat LINK - Q is for quantum LINK - Time and space LINK - Books by Brian Greene LINK - Open library https://openlibrary.org/	
Suggested Lectures - Everything and nothing LINK - Building blocks LINK - Quantum Physics LINK - The Universe LINK - NASA ISS LINK - How the Internet works LINK - Artificial Intelligence LINK	
Suggested Online Courses - Introduction to aeronautical engineering LINK - Life skills LINK - FutureLearn: STEM courses LINK	

Questions to test your understanding – 1 Hour

Units, symbols and prefixes: complete these tables and learn them.

Prefix	Symbol	Power of ten
		$\times 10^{-9}$
		$\times 10^{-6}$
milli	m	$\times 10^{-3}$
		$\times 10^{-2}$
		$\times 10^{3}$
		$\times 10^{6}$
		$\times 10^{9}$

Quantity	Symbol	Unit
Velocity	v	m/s or ms^{-1}
Acceleration		
Time		
Force		
Resistance		
Potential difference		
Current		
Energy		
Pressure		
Momentum		
Power		
Density		
Charge		

Task3 : Solve the following:

1. How many metres in 2.4 km?
2. How many joules in 8.1 MJ?
3. Convert 326 GW into W.
4. Convert 54 600 mm into m.
5. How many grams in 240 kg?
6. Convert 0.18 nm into m.
7. Convert 632 nm into m. Express in standard form.
8. Convert 1002 mV into V. Express in standard form.
9. How many eV in 0.511 MeV? Express in standard form.
10. How many m in 11 km? Express in standard form.

Task4: Complete the following:

1. Write 2530 in standard form.
2. Write 280 in standard form.
3. Write 0.77 in standard form.
4. Write 0.0091 in standard form.
5. Write 1 872 000 in standard form.
6. Write 12.2 in standard form.
7. Write 2.4×10^{2} as a normal number.
8. Write 3.505×10^{1} as a normal number.
9. Write 8.31×10^{6} as a normal number.
10. Write 6.002×10^{2} as a normal number.
11. Write 1.5×10^{-4} as a normal number.
12. Write 4.3×10^{3} as a normal number.

Significant figures

The website below summarises the rules and how to round correctly.

http://www.purplemath.com/modules/rounding2.htm

Task5: Give the following to 3 significant figures:

1. 3.4527
2. 40.691
3. 0.838991
4. 1.0247

Calculate the following to a suitable number of significant figures:

1. 63.2 ÷ 78.1 =
2. 39 + 78 + 120 =
3. (3.4+3.7+3.2) ÷ 3 =
4. 0.0256 x 0.129 =

ANSWERS

Prefix	Symbol	Power of ten
Nano	n	x 10^{-9}
Micro	μ	x 10^{-6}
Milli	m	x 10^{-3}
Centi	c	x 10^{-2}
Kilo	k	x 10^{3}
Mega	M	x 10^{6}
Giga	G	x 10^{9}
Quantity	**Symbol**	**Unit**
Velocity	v	ms-1
Acceleration	a	ms-2
Time	t	S
Force	F	N
Resistance	R	Ω
Potential difference	V	V
Current	I	A
Energy	E or W	J
Pressure	P	Pa
Momentum	p	kgms-1
Power	P	W
Density	ρ	kgm-3
Charge	Q	C

Answers to Task3

1. How many metres in 2.4 km? 2400m
2. How many joules in 8.1 MJ?8 100 000 J
3. Convert 326 GW into W. 326 000 000 000 W
4. Convert 54 600 mm into m. 5.46m
5. How many grams in 240 kg? 240 000 g
6. Convert 0.18 nm into m. 0.000 000 000 180m
7. Convert 632 nm into m. Express in standard form. 6.32×10^{-7} m
8. Convert 1002 mV into V. Express in standard form. 1.002V
9. How many eV in 0.511 MeV? Express in standard form. 5.11×10^{5} eV
10. How many m in 11 km? Express in standard form. 1.1×10^{4}m

Answers to Task4:

1. Write 2530 in standard form. 2.53×10^3
2. Write 280 in standard form. 2.8×10^2
3. Write 0.77 in standard form. 7.7×10^{-1}
4. Write 0.0091 in standard form. 9.1×10^{-3}
5. Write 1 872 000 in standard form. 1.872×10^6
6. Write 12.2 in standard form. 1.22×10^1
7. Write 2.4×10^2 as a normal number. 2400
8. Write 3.505×10^1 as a normal number. 35.05
9. Write 8.31×10^6 as a normal number. 8 310 000
10. Write 6.002×10^2 as a normal number. 600.2
11. Write 1.5×10^{-4} as a normal number. 0.000 15
12. Write 4.3×10^3 as a normal number. 4300

Answers to Significant figures

The website below summarises the rules and how to round correctly.

http://www.purplemath.com/modules/rounding2.htm

Task5: Give the following to 3 significant figures:

1. 3.4527 3.45
2. 40.691 40.7
3. 0.838991 0.839
4. 1.0247 1.02

Calculate the following to a suitable number of significant figures:

1. 63.2 ÷ 78.1 = 0.809 question gives 3 sf so answer should match
2. 39 + 78 + 120 = 237
3. (3.4+3.7+3.2) ÷ 3 = 3.4
4. 0.0256 x 0.129 = 0.00330 need the end zero to show its 3sf

END OF WORK