

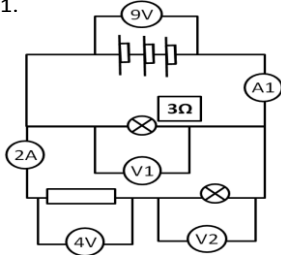
Week	Activity	Resources	How presented?
1	<p>Task 1 Quantum physics Watch the video https://www.youtube.com/watch?v=zBTbqOgdfEY Make sure you can answer these questions by the end of it (make some notes or flashcards):</p> <ol style="list-style-type: none"> 1. What did Planck discover? 2. How did Einstein explain the photoelectric effect? 3. How did Bohr explain an atoms stability? <p>Open the simulation below and explore how it links to the video and the photoelectric effect https://phet.colorado.edu/en/simulation/legacy/photoelectric</p> <p>Research one or more of the following topics related to quantum physics (make some notes or flashcards):</p> <ol style="list-style-type: none"> 1. Absorption and emission spectra 2. Electron diffraction 3. Schrödinger's cat 4. Heisenberg uncertainty principle <p>Task 2 Electric circuits Complete the worksheet Current Voltage and resistance (below) using the equation p.d. = current x resistance ($V=IR$) and the circuit rules explained in these videos</p> <p>GCSE Science Revision Physics "Current in Parallel Circuits" - YouTube</p> <p>GCSE Science Revision Physics "Potential Difference in Parallel Circuits" - YouTube</p> <p>then construct the circuits using this app: https://phet.colorado.edu/sims/html/circuit-construction-kit-dc/latest/circuit-construction-kit-dc_en.html and test to see if your calculations are correct.</p> <p>Include a photo of your answers and include them on the Powerpoint</p>	Web site as listed	<p>Record your work on Powerpoint or Word. You will then add further tasks into this document over the next 3 weeks (which you will then send to your A – level teachers)</p> <p>Include a photo of your answers and include them on the Powerpoint</p>

Current, Voltage and Resistance

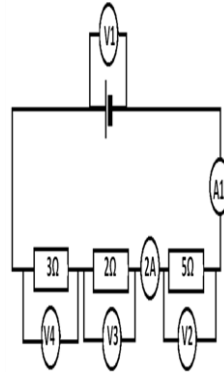
Apply the rules of current and voltage to the following circuits and use the $V=IR$ equation to work out the missing currents, voltages and resistances as required. Unless stated otherwise, assume all bulbs are identical. **DON'T FORGET YOUR UNITS!**

Remember: To work out resistors in series $R_{Total} = R_1 + R_2 + R_3$

1.

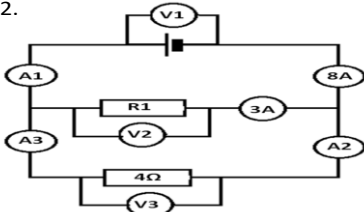


A1 = _____
 A2 = _____
 V1 = _____
 V2 = _____
 V3 = _____



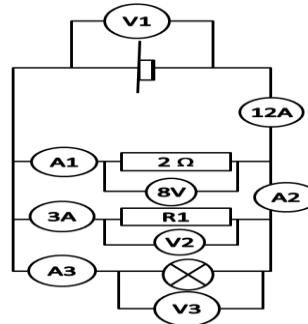
A1 = _____
 A2 = _____
 A3 = _____
 V1 = _____
 V2 = _____
 V3 = _____
 R1 = _____

2.



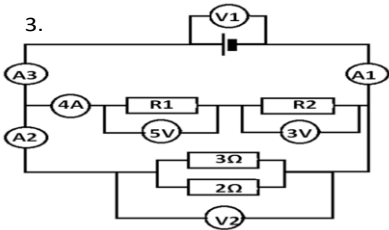
A1 = _____
 A2 = _____
 V1 = _____
 R1 = _____

6.



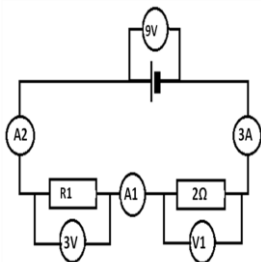
A1 = _____
 A2 = _____
 A3 = _____
 V1 = _____
 V2 = _____
 R1 = _____
 R2 = _____

3.



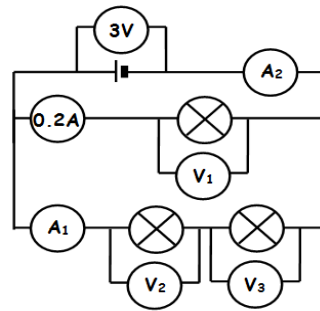
A1 = _____
 V1 = _____
 V2 = _____
 V3 = _____
 V4 = _____

4.



A1 = _____
 V1 = _____
 V2 = _____
 Calculate the resistance of:
 The bulb = _____
 The resistor = _____

7.



A1 = _____
 A2 = _____
 A3 = _____
 V1 = _____
 V2 = _____
 V3 = _____
 R1 = _____

Week	Activity	Resources	How presented?
2	<p>Task 1 Waves Watch and learn this song: https://www.youtube.com/watch?v=bjOGNVH3D4Y then produce a series of 7 powerpoint slides to include: the name of the type of radiation, its frequency and wavelength range, uses in communication, uses in medicine, uses in astronomy.</p>	Web sites as listed	Production of 7 slides and add these to the PowerPoint you began last week
	<p>Task 2 Newtonian Physics Isaac Newton was one of the great physicists. You will have studied his laws of motion at GCSE and we build on this knowledge at A-level. You may not be aware of some of his other contributions to science, some of which you will come across in your A-level studies</p> <p>Watch the video and listen out for some of his major contributions https://www.youtube.com/watch?v=PCxP24qj2UQ</p> <p>Remind yourself of Newton's laws of motions by watching these videos which explain it in slightly different ways All 3 laws https://www.youtube.com/watch?v=JGO_zDWmkvk Newtons 1st law https://www.youtube.com/watch?v=Q0Wz5P0JdeU Newton's 2nd law https://www.youtube.com/watch?v=WzvhuQ5RWJE</p> <p>Newton's 3rd law https://www.youtube.com/watch?v=8bTdMmNZm2M</p> <p>Click on the link below https://gradegorilla.com/gcse-physics-revision-questions.php#unit Complete the "Forces A" quiz. When you complete a task, it asks for "School", but just type "Guest". You then only need to enter your first name (or any name you like) and it will mark it.</p> <p>Take a screen shot of your score and include it in your powerpoint</p>		Screen shot your score and include it in your PowerPoint

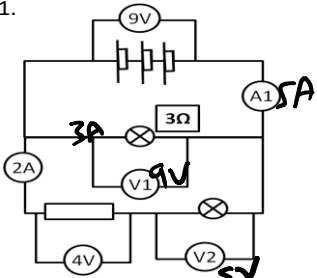
Week	Activity	Resources	How presented?
3	<p>Task 1 Moments</p> <p>This is a topic from the single (triple) science content for physics that we build on in A – level Revise your knowledge by watching these videos https://www.youtube.com/watch?v=22VGQM1jCn8 https://www.youtube.com/watch?v=nC_J3gRQHi8</p> <p>Open the simulation and play the “Game” https://phet.colorado.edu/en/simulation/balancing-act Now complete the quiz (when you click on the link it opens the quiz, you will have 10 minutes to complete it) https://gradegorilla.com/micro/forces/M_moments.php When you complete a task it asks for School, but just type “Guest”. You then only need to enter your first name (or any name you like) and it will mark it.</p> <p>Task 2 Archimedes</p> <p>You may have come across Archimedes at GCSE when looking at density. Remind yourself by watching this video https://www.youtube.com/watch?v=ijj58xD5fDI</p> <p>At GCSE you may have also looked at floating and sinking by calculating upthrust using liquid pressure. At A – level we use Archimedes principle to help calculate upthrust (or “buoyancy force”). Find out more by listening to this video and makes some notes of the key principles involved on your Powerpoint https://www.youtube.com/watch?v=0v86Yk14rf8</p> <p>A challenging extension question is provided below. If you think you can work it out, include your answer and explanation in your Powerpoint. You will need to carefully apply the principles you have used above <i>A man is on a pond in a boat. He drops his lead anchor overboard. Does this cause the water level of the pond to:</i></p> <ol style="list-style-type: none"> 1. <i>Increase slightly</i> 2. <i>Decrease slightly</i> 3. <i>Stay the same</i> <p>FINALLY We hope you have found the work useful. Please send your completed Powerpoint to listm@denbigh.net</p>		<p>Include a screenshot from Phet (of your score on level 4) and of your GradeGorilla score</p> <p>Include these on your Powerpoint that you have been compiling.</p> <p>For task 2, include notes as discussed in the tasks</p> <p>Then email your Powerpoint as explained at the end</p>

Current, Voltage and Resistance

Apply the rules of current and voltage to the following circuits and use the $V=IR$ equation to work out the missing currents, voltages and resistances as required. Unless stated otherwise, assume all bulbs are identical. **DON'T FORGET YOUR UNITS!**

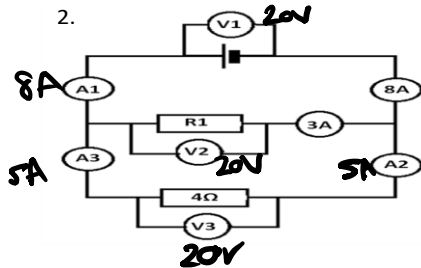
Remember: To work out resistors in series $R_{Total} = R_1 + R_2 + R_3$

1.



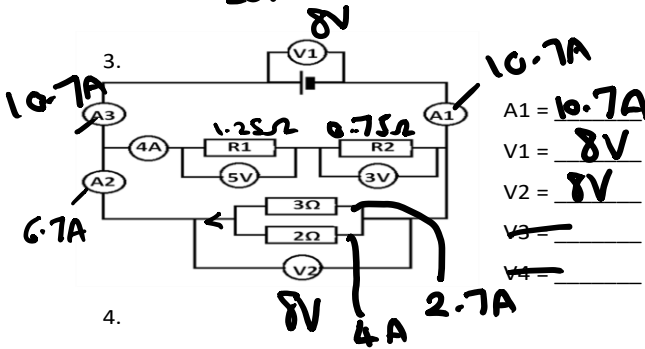
$A1 = 5A$
 $A2 = 3A$
 $V1 = 9V$
 $V2 = 5V$
 $V3 = \underline{\hspace{2cm}}$

2.



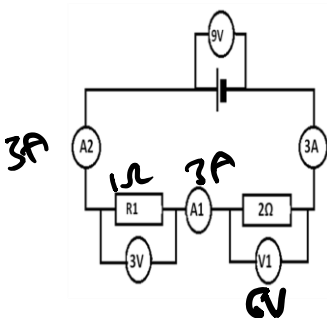
$A1 = 8A$
 $A2 = 5A$
 $V1 = 20V$
 $R1 = 6.7\Omega$

3.



$A1 = 10.7A$
 $V1 = 8V$
 $V2 = 8V$
 $V3 = \underline{\hspace{2cm}}$
 $V4 = \underline{\hspace{2cm}}$

4.

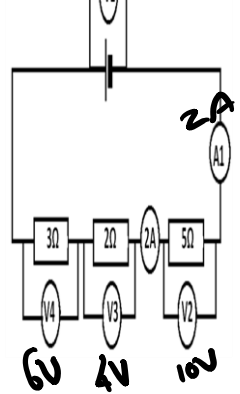


$A1 = 3A$
 $V1 = 6V$
 $V2 = \underline{\hspace{2cm}}$

Calculate the resistance of:

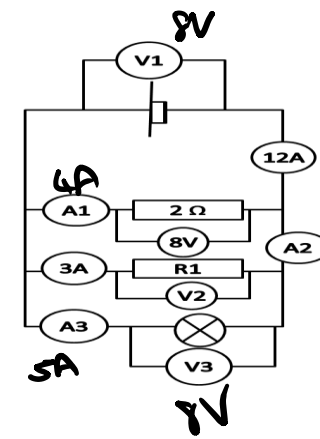
The bulb =
 The resistor = 1Ω

20V



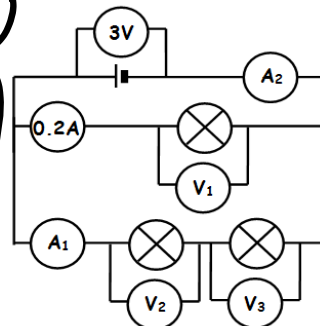
$A1 = 2A$
 $A2 = \underline{\hspace{2cm}}$
 $A3 = \underline{\hspace{2cm}}$
 $V1 = 20V$
 $V2 = 10V$
 $V3 = 4V$
 $R1 = \underline{\hspace{2cm}}$

6.



$A1 = 4A$
 $A2 = 8A$
 $A3 = 5A$
 $V1 = 8V$
 $V2 = 8V$
 $R1 = 2.7\Omega$
 $R2 = \underline{\hspace{2cm}}$

7.



$A1 = 0.1A$
 $A2 = 0.3A$
 $A3 = \underline{\hspace{2cm}}$
 $V1 = 3V$
 $V2 = 1.5V$
 $V3 = 1.5V$
 $R1 = 1.5\Omega$

not a good question; you have to assume all bulbs are identical and have same R (yet R varies with I!)