2 Week Independent Learning plan **Week 13 and 14**

**Support contact details:**

Email general queries to: nbaker@waseleyhills.worcs.sch.uk

**Teachers email addresses in this subject area:**

Subject Leader (MRS EADES) email: leades@waseleyhills.worcs.sch.uk

Subject teacher emails:

Mrs Reilly email: areilly@waseleyhills.worcs.sch.uk

Mrs Shepherd email: jshepherd@waseleyhills.worcs.sch.uk

Mrs Jackson email: tjackson@waseleyhills.worcs.sch.uk

Mrs Thomas email: aineson-thomas@waseleyhills.worcs.sch.uk

Mr Ryde email: nryde@waseleyhills.worcs.sch.uk

Monday July 6th to Friday July 17th

Subject: Science

Year: 10

Topic/theme: P5.2 Power and efficiency



Three stages to online learning

|  |  |  |
| --- | --- | --- |
| **Stage One – Reading Task** | **Stage Two – Completing Tasks** | **Stage Three – Assessing your learning and feedback** |
| Read the lessons in the table below. Think about what you need to learn from the task. It may help to look at the other lessons too as this will show you where your learning is heading.  | Find the resources you need. In some instances you may need to log into HomeAccess+ and find the file on the coursework drive (S). Login with your normal school username and password. Use the resource as described to complete the suggested task. Reflect on the teacher’s question.[Click here for HomeAccess+ drive](https://facility.waseley.networcs.net/HAP/login.aspx?ReturnUrl=%2Fhap)[Click here for help with accessing HomeAccess+](https://www.waseleyhills.worcs.sch.uk/coronavirus-independent-learning/help-for-parents-and-pupils) | At the end of the two weeks you will be set a task by your teacher on Show My Homework. This is submitted in SMHWK. This task will assess your learning and allow us to give you feedback.These assessment tasks are optional but submitting them is very helpful for you and your teacher to understand what you have learnt. |



We are here to help you within school opening hours:

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| **Email your teacher** | **Join your teacher for a support chat session** | **Ring school reception** |
| You can now email your teacher using your Office 365 email address. You can also email Mr Baker or the Subject Leader using the contact info above (top right). |  You will also receive an invite during the two week period to join an online support chat with your teacher. | Call 0121 4535211 within school hours. They will email your teacher and ask them to contact you. |

Learning tasks for this fortnight:

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| --- | --- | --- | --- |
| **Lesson**  | **Aim:**What you need to take from this lesson  | **Resource(s) to use:**Hyperlinks to videos etcHomeAccess+ file location | **Suggested task:** |
| 1 | **Energy and power**In this lesson you will learn to…- State the unit for Power. - Relate power ratings to different electrical devices. - Calculate power rating of electrical devices.- Calculate the energy used by electrical appliances.  | [BBC bitesize information](https://www.bbc.co.uk/bitesize/guides/ztgp7p3/revision/2)[Calculations video](https://www.youtube.com/watch?v=WLaUmNr4lho)HomeAccess+/Coursework drive S/Science/Year 10/ P5.2 (combined) Power and Efficiency: Remote Workbook | Description of what you need to do (step by step):* Use the link to BBC bitesize to find the basic information required for this lesson.
* Make your own notes but be sure to include the equation and the units for each variable, and the bit about what might increase the power output.
* Look around your house, can you find power ratings on your devices? Which has the highest?
* The calculations video will help if you need reminding how to use these equations.
* Open the P5.2 (combined) Power and Efficiency: Remote Workbook from the coursework drive.
* Complete the practice questions for Lesson 1.
* (not compulsory but strongly suggested for students aiming for a 4 or above) Complete the stretch questions which link the work to P3 (combined).

A question your teacher would have asked you at the end of this lesson is:What type of appliance is likely to need a high power rating? |
| 2 | **Cost of electricity**In this lesson you will learn to…- State what factors affect the cost of using electrical appliances.- Calculate the energy transferred by an electrical appliance. - Calculate the cost of using an appliance for a certain amount of time. | HomeAccess+/Coursework drive S/Science/Year 10/ P5.2 (combined) Power and Efficiency: Remote Workbook[UK Power](https://www.ukpower.co.uk/tools/running_costs_electricity) | Description of what you need to do (step by step):* Open the P5.2 (combined) Power and Efficiency: Remote Workbook from the coursework drive. (Or use your version if you saved it from earlier)
* Complete the practice questions for Lesson 2.
* Think about what factors affect how much it costs to run an appliance.
* Name two.
* Think about how you could save money on electricity by choosing which appliance you buy in the first place.
* Think about how you could save money on electricity by changing how much you use your appliances.
* If possible, discuss this with someone.
* Have a look at the link to the UK Power website, see if you can work out the cost of running YOUR home. How does this compare to your actual electricity bill?

A question your teacher would have asked you at the end of this lesson is:What two factors affect how much it costs to run an appliance? |
| 3 | **Energy analysis – electric current**In this lesson you will learn to…- Identify changes in some energy stores in electrical appliances.- State the processes that can transfer energy from one store to another in electrical appliances- Analyse a system where current flows and analyse a system where heat flows. | HomeAccess+/Coursework drive S/Science/Year 10/ P5.2 (combined) Power and Efficiency: Remote Workbook[Bitesize](https://www.bbc.co.uk/bitesize/guides/ztgp7p3/revision/1) | Description of what you need to do (step by step):* Open the P5.2 (combined) Power and Efficiency: Remote Workbook from the coursework drive. (Or use your version if you saved it from earlier)
* Complete the practice questions for Lesson 3.
* Follow the bitesize link
* Make notes on energy dissipation.

A question your teacher would have asked you at the end of this lesson is:How can you prevent heat dissipation? |
| 4 | **Thermal conductivity - walls and insulation** In this lesson you will learn to…- Identify some factors that affect the rate of heat transfer.- Describe how to improve heat transfer.- Explain, using results, which insulator was best at its job.- Apply your understanding of air as a conductor to explain why this was the best insulator. | HomeAccess+/Coursework drive S/Science/Year 10/ P5.2 (combined) Power and Efficiency: Remote Workbook[Insulation experiment](https://www.youtube.com/watch?v=KpHOq9nIVBY)[Bitesize](https://www.bbc.co.uk/bitesize/guides/ztgp7p3/revision/4) | Description of what you need to do (step by step):* Open the P5.2 (combined) Power and Efficiency: Remote Workbook from the coursework drive. (Or use your version if you saved it from earlier)
* Read through section 1 for lesson 4
* Watch the video on the insulation experiment – make notes so you could do this when we return.
* Answer the questions/follow the instructions in Section 2 of Lesson 4 from the P5.2 (combined) Power and Efficiency: Remote Workbook
* Make notes on the information on the bitesize page (scroll down a bit) on Thermal conductivity and how we try to keep it low in our buildings using different methods.
* Find out what kinds of insulation your house has!

A question your teacher would have asked you at the end of this lesson is: How would you keep yourself warm in a cold climate? |
| 5 | **Energy dissipation and efficiency**In this lesson you will learn to…- Consider the useful and wasted energy in a system and complete efficiency calculations- Identify the correct calculation to use on a particular problem- State where energy is lost in a particular system | [Useful vs wasted energy](https://www.youtube.com/watch?v=CVzT-Ya118A)HomeAccess+/Coursework drive S/Science/Year 10/ P5.2 (combined) Power and Efficiency: Remote Workbook[Bitesize](https://www.bbc.co.uk/bitesize/guides/ztgp7p3/revision/3) | Description of what you need to do (step by step):* Watch the video on useful vs wasted energy (make notes if this helps)
* Open the P5.2 (combined) Power and Efficiency: Remote Workbook from the coursework drive. (Or use your version if you saved it from earlier)
* Answer the questions in Section 1 of Lesson 5.
* Apply prior knowledge to answer the example exam question in Section 2.
* Follow the bitesize link to learn about efficiency (again, make notes if that helps)
* Answer the questions in Section 3
* When you have completed all the question, self-assess your work using the answers provided at the end in Lesson 5: Self assessment.
* Consider what you have done well and what hasn’t gone so well. Revisit content if you feel you need to improve.

A question your teacher would have asked you at the end of this lesson is:How do you calculate the efficiency of a machine. |
| **How will we assess you learning?**Years 7 and 8: Pupils will be set an interactive quiz using this information on Show My Homework or asked to submit a piece of work such as a photograph of art work.Year 9 to 11: Pupils may be set an interactive quiz or a written task via Show My Homework. |



**Need help?**

HomeAccess+ <https://facility.waseley.networcs.net/HAP/login.aspx?ReturnUrl=%2fhap> (use your normal school username and password).

Pupil and parent help page: <https://www.waseleyhills.worcs.sch.uk/coronavirus-independent-learning/help-for-parents-and-pupils>



**Fancy showing your best work off?**

You can email a photo of you doing something great, or an example of your best piece of work to your Head of Year for our celebrations assemblies when we return.

Yr 7 please email Mrs Williams at jewilliams@waseleyhills.worcs.sch.uk

Yr 8 please email Mrs Bridgeman at jbridgeman@waseleyhills.worcs.sch.uk

Yr 9 please email Mrs Bradley at kjbradley@waseleyhills.worcs.sch.uk

Yr 10 please email Mr Jones at djones@waseleyhills.worcs.sch.uk

Please keep your work organised in subjects as we are excited to see what you have achieved and reward you for it when we return.