

Scheme of Learning

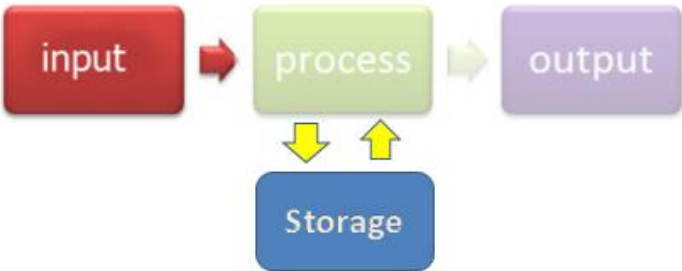
Curriculum area: KS3 Computing and ICT

Key Stage: 3

Resources Location: KS3 > Under The Hood

Unit/Topic Title: **KS3 Under The Hood**

N°	Lesson Aim	Learning Objectives / Outcomes	Lesson Content	Prior and Cross Curricular Learning	Home learning links
1	Students to be able to identify different parts of a computer system	<ul style="list-style-type: none">To be able to identify parts of a computer system.To be able to research the parts of a computer system effectively.	<p>Students are told about Starter for 10 keywords and prompted that the first one is next lesson</p> <p><u>Starter</u> Students told to create a circle map of the different parts that make up a computer. (LO1) (I CAN I WILL: Drive, Risk Taking,). Timed activity 3 minutes. Give an example before you start.</p> <p>Go through answers with pupils. Write on the board as pupils answer.</p> <p><u>Main</u></p> <p><u>Task 1</u> Teacher briefly identifies the main parts of a computer system (LO1)</p> <p>Computer systems Activity: Teacher gives each pair a computer part and card paper to do the task on. (If small group give one each). For each computer part given pupils need to (LO2):</p> <ul style="list-style-type: none">In pairs research the part of the computer system you have been given.Explain what your item is and what it does.Include imageHow can it be used <p>After 15 minutes stop the group and each pair will share their findings with the rest of the class.</p>	<p><u>Prior Learning</u> Student expected to know some parts of a computer basic tasks e.g. keyboard mouse</p> <p><u>Cross Curricular</u></p> <p>Problem Solving skills</p>	<p><i>Lesson Content in more detail on Lesson PowerPoint</i></p> <p>Lesson PowerPoint Task 1- computer part storyboard Task 2- inside a computer task sheet</p> <p>More able students expected to complete more detailed storyboard of computer part</p> <p>Oak Academy: https://classroom.thenational.academy/lessons/get-in-gear-6wuket</p>

			<p><u>Task 2</u></p> <p>Inside a computer Teacher gives all pupils sheet which shows inside of a computer, pupils to label it. (LO2). (I CAN I WILL: Initiative, Flexibility of Mind). Teacher to go through answers. Activity: students to complete inside a computer task sheet.</p> <p><u>Plenary</u> Key Questions are asked to students around the class to determine their understanding and if they have met the learning objectives (I CAN I WILL: Reflectiveness).</p> <p><u>Homework-</u> Students to prepare for Starter for 10</p>		
2	<p>Computer Parts</p> <p>Students to Classify and explain computer components into different types of devices e.g. Input, output and storage.</p>	<ul style="list-style-type: none"> Recognise and Identify different parts of a computer system. Classify computer components into different types of devices e.g. Input, output and storage. Explain the function of common computer components. 	<p><u>Starter</u> Starter for 10 on keywords for the topic (I CAN I WILL: Resilience).</p> <p>Ask pupils what the following diagram shows?</p>  <p>Teacher to explain the stages a computer goes through when processing data.</p> <p><u>Main</u> Teacher to ask pupils the different parts of a computer (LO1). (I CAN I WILL: Reflectiveness).</p> <p>Ensure to print off sheet input, process and output. Pupils to Complete worksheet and do the following:</p> <ol style="list-style-type: none"> Research each part of the computer system. Name and describe the part 	<p><u>Prior Learning</u> Identifying the different computer parts based on what was covered last lesson.</p> <p>Understanding of computer parts</p> <p><u>Cross Curricular</u> How different computer parts are used at home, school and work</p> <p>Problem Solving skills</p>	<p><i>Lesson Content in more detail on Lesson PowerPoint</i></p> <p>Lesson PowerPoint Task 1- input, process, output, storage</p> <p>Homework sheet</p> <p>Oak Academy: https://classroom.thenational.academy/lessons/under-the-hood-60t36r</p> <p>BBC Bitesize: https://www.bbc.co.uk/bitesize/guides/zxb72hv/revision/1</p>

			<p>3. State if it is input, process, output and storage. (LO2 & 3) Time the activity based on the ability of the group. Then go through the answers with the group and pupils to purple pen. (I CAN I WILL: Drive, Flexibility of Mind).</p> <p><u>Extension</u> If your group have completed the task above. Pupils to complete the timeline activity.</p> <p><u>Plenary</u> Key Questions are asked to students around the class to determine their understanding and if they have met the learning objectives (I CAN I WILL: Reflectiveness). Or if time permits give pupils a Kahoot challenge)</p> <p><u>Homework</u> Complete worksheet on input, output and storage</p>		
3	<p>Software</p> <p>Students to identify and explain the different computer software programs</p>	<ul style="list-style-type: none"> Identify different types of Computer Software Explain the purpose of different types of software 	<p>Pupils need to log on and take out homework. Teacher to go through homework with group and deal with any misconceptions.</p> <p><u>Starter</u> Students will be shown images of different operating systems and students need to identify which ones they are. (I CAN I WILL: Initiative). Go through answers.</p> <p><u>Main</u> Question students on the following: What is computer software? What is application software? What is systems software? Go through answers. (LO1) (I CAN I WILL: Resilience, Risk taking). Based on the ability of your group show them videos if you feel they still haven't fully understood the different software.</p>	<p><u>Prior Learning</u> Beneficial if students have knowledge of different software programs they us</p> <p><u>Cross Curricular</u> Software programs they use for different purposes and subjects</p> <p>Problem Solving skills</p>	<p><i>Lesson Content in more detail on Lesson PowerPoint</i></p> <p>Lesson PowerPoint Task 1- Computer Software worksheet</p> <p>Task 1 can be completed on the computer</p> <p>Oak Academy: https://classroom.thenational.academy/lessons/orchestra-conductor-74tkac</p> <p>BBC Bitesize: https://www.bbc.co.uk/bitesize/guides/zcxgr82/revision/1</p>

			<p>Activity: Students to complete the worksheet on computer software:</p> <ol style="list-style-type: none"> 1. Research each type of the computer software. 2. Explain what it is used for in your own words. 3. Add an image so that you can recall it next lesson. <p>(I CAN I WILL: Drive, Flexibility of Mind) (LO2)</p> <p>Extension: Students to create a poster on the different software programs. (I CAN I WILL: Resilience).</p> <p><u>Plenary</u> Key Questions are asked to students around the class to determine their understanding and if they have met the learning objectives and plenary questions. (I CAN I WILL: Reflectiveness).</p> <p><u>Homework</u> Students prepare for Starter for 10 next lesson</p>		
4	<p>RAM & ROM</p> <p>Students to identify the differences between RAM and ROM.</p>	<ul style="list-style-type: none"> • Identify the purpose of RAM & ROM • Explain the key characteristics of RAM & ROM • Identify and explain the purpose of the different storage devices 	<p><u>Starter</u> Starter for 10 on keywords for the topic (I CAN I WILL: Resilience).</p> <p>Show pupils images of RAM and ROM to see how many pupils can recognise them? Ask pupils what is memory? Show pupils the video on RAM and ROM.</p> <p><u>Main</u> Ask pupils the following questions: What is the purpose of RAM? Characteristics? What is the purpose of ROM? Characteristics? (I CAN I WILL: Resilience, Drive, and Curiosity). (LO1) Teacher to go through answers and deal with any misconceptions.</p> <p>Activity: Students to complete fill in the gaps worksheet (I CAN I WILL: Risk Taking, Drive, Flexibility of Mind). (LO2)</p>	<p><u>Prior Learning</u> Student are expected to have a minimum basic knowledge of memory .</p> <p><u>Cross Curricular</u> Storage they use at home</p> <p>Problem Solving skills</p>	<p><i>Lesson Content in more detail on Lesson PowerPoint</i></p> <p>Lesson PowerPoint Task sheets</p> <p>Task 1 can be completed as a class or on printed out table for lower ability groups</p> <p>Oak Academy: https://classroom.thenational.academy/lessons/its-only-logical-6xgpac</p> <p>BBC Bitesize: https://www.bbc.co.uk/bitesize/guides/zd4r97h/revision/1</p>

			<p>Task 2: pupils to define storage and create a circle of the different storage devices. Teacher to go through answers.</p> <p>Activity: Students to complete storage worksheet (I CAN I WILL: Risk Taking, Drive, Flexibility of Mind). (LO3)</p> <p><u>Plenary</u> Key Questions are asked to students around the class to determine their understanding and if they have met the learning objectives (I CAN I WILL: Reflectiveness).</p> <p><u>Homework</u> Pupils to complete worksheet OR Sam learning task can be set on storage</p>		
5	<p>Central Processing Unit</p> <p>Students to identify and describe the role of the CPU.</p>	<ul style="list-style-type: none"> To be able to categorise the parts of a computer correctly. To be able to understand the role of the CPU To be able to describe the role of the fetch-decode and execute cycle 	<p>Pupils to take out homework if on paper go through. Or if Sam learning task set check pupil progress on sam learning.</p> <p><u>Starter</u> Students to identify the main parts of computer? Give out sheet and go through answers. (LO1) (I CAN I WILL: Initiative, Risk Taking, Resilience).</p> <p>Tell pupils to find out what the CPU is and what it does? (LO2)</p> <p><u>Main</u> Teacher to go through fetch-decode-execute cycle of the CPU. (I CAN I WILL: Initiative, Risk Taking, Resilience). (LO2) Activity: Students to Create a function machine, like the one in the diagram:</p> <ol style="list-style-type: none"> Decide on an input Describe the processing that will take place Think about the resulting output <ul style="list-style-type: none"> Create 3 cards containing this information. Place the cards face down on the function machine. 	<p><u>Cross Curricular</u> Use of justification to explain answers, English Lesson</p> <p>Problem Solving skills</p>	<p><i>Lesson Content in more detail on Lesson PowerPoint</i></p> <p>Lesson PowerPoint Task 1- CPU worksheet Task 2- Revision Document</p> <p>Learning Map on under the hood given to the pupils.</p> <p>Oak Academy: https://classroom.thenational.academy/lessons/thinking-machines-75j3er</p> <p>BBC Bitesize: https://www.bbc.co.uk/bitesize/guides/zws8d2p/revision/1</p>

			<ul style="list-style-type: none"> Turn over the input and output cards, and ask a peer to work out what the processing card has on it. <p>(I CAN I WILL: Initiative, Drive, Resilience). (LO2+3)</p> <p>Activity: Students to complete worksheet on the CPU (I CAN I WILL: Initiative, Drive, Resilience). (LO3)</p> <p><u>Plenary</u> Students Complete a Kahoot on CPU using their real names so scores can be recorded as additional assessment (I CAN I WILL: Reflectiveness).</p> <p><u>Homework</u> Students prepare for Starter for 10 next lesson Students use revision sheet to prepare for assessment on under the hood</p>		
6	<p>Under The Hood Assessment</p> <p>Complete Assessment to test knowledge and understanding of under the hood</p>	<ul style="list-style-type: none"> Prepare for Lesson Assessment on under the hood Complete Assessment on under the hood Review Assessment on under the hood 	<p><u>Starter</u> Starter for 10 on keywords for the topic (I CAN I WILL: Resilience)- also acts as last minute review/revision before assessment</p> <p><u>Main</u> Students given some time to revise and prepare for assessment. As this was the homework as well, the amount of time given is at teacher's discretion. (I CAN I WILL: Drive). (LO1)</p> <p>Activity: Students have 35 minutes to complete the assessment on Under The Hood (I CAN I WILL: Initiative, Resilience, Risk Taking). (LO2)</p> <p>Activity 2: Depending on time given to revising before assessment, once assessment is complete students can peer mark the assessments. All students trade papers and as class go through paper with students correcting answers in purple pen (I CAN I WILL: Reflectiveness). (LO3)</p>	<p><u>Prior Learning</u> Skills taught throughout the unit</p> <p><u>Cross Curricular</u> Problem Solving skills</p> <p>Assessment considers other areas of life i.e. sports, lessons in day, etc.</p> <p>Use of maths to work out percentage</p>	<p><i>Lesson Content in more detail on Lesson PowerPoint</i></p> <p>Lesson PowerPoint Under The Hood Assessment Under The Hood Mark Scheme</p> <p>Revision can be differentiated by time given</p> <p>Assessment can be differentiated by assistance given with prior revision and time allotted can be adjusted</p>

			<p><u>Plenary</u> Students get own papers back and total their marks for the assessment and write in the back, along with any scores from homework (SAM learning). (I CAN I WILL: Resilience).</p> <p>Papers are collected in for teacher to review the marking and check answers</p> <p><u>Homework</u> None</p>		
7	<p>Assessment Review</p> <p>Target gaps in student's knowledge and areas for improvement</p> <p><i>This lesson could be completed with the assessment in a single lesson for high ability students</i></p>	<ul style="list-style-type: none"> • Reflect on your performance in the Under The Hood Assessment • Complete review questions based on the assessment topics • Engage in DIRT to make improvements to work 	<p><u>Starter</u> Students think of 1 thing about Under The Hood they can tell the class; avoid repeating information (I CAN I WILL: Initiative). Teacher goes around room asking students for 1 fact/piece of information</p> <p><u>Main</u> Activity: Using their assessments, students reflect on how they performed and consider where they struggled most. (I CAN I WILL: Reflectiveness) (LO1) They then complete 3 questions based on the topics they struggled on the most (personalised learning)- 1 from each category (I CAN I WILL: Resilience, Drive) (LO2)</p> <p>Activity: Students look through their books and complete any improvements needed i.e. complete work, incorrect work, presentation, etc. (I CAN I WILL: Resilience, Reflectiveness) (LO3)</p> <p><u>Plenary</u> Students Complete a Kahoot on hardware and software, using their real names so scores can be recorded as</p>	<p><u>Prior Learning</u> Students to have completed the assessment on Computational Thinking</p> <p><u>Cross Curricular</u> Use of justification to explain answers, English Lesson</p> <p>Problem Solving skills</p>	<p><i>Lesson Content in more detail on Lesson PowerPoint</i></p> <p>Lesson PowerPoint</p> <p>Review questions completed are personalised and differentiated, but can be further through questions completed (not 1 from each category)</p>

			<p>additional assessment (I CAN I WILL: Reflectiveness). This acts as a good “make it stick” activity to test how much they remember</p> <p><u>Homework</u> Homework could be set for Starter for 10 for next topic</p>		
			<p>Extra lessons on binary can be found in the same folder.</p>		