

Year 7: Mood Light Year 7 Scheme of Work 2020-21

Lesson	Lesson content/Activity	Differentiation	Resources	Homework
1	Starter/ bell activity: Ten uses for electricity. Explain how the products use electricity. Plenary – assess work v's levels ladder. Make improvements. How electricity is generated, discussion and video. Fossil fuels v's renewable. Pupils draw Apex pyramid drawing of the best / worst forms of electricity production. Demonstrate mood light. Discuss the uses and user. Pupils to write and draw their target user. Introduction to the room and subject. Equipment talk room demonstration, show different equipment. Plenary: safety questioning, safety symbols flash cards/ppt. and setting of homework.	Support material Key words on the walls. Key words on the Extension material Use of levels ladder to make clear the criteria for high standard of work. Open ended tasks in the learning mat.	A3 Learning mats. Example mood light. Presentation including power production video and alternative energy examples. Online HWK prepared.	Workshop safety symbols design task.
	Bell activity: Mark their target user	Support material	Kitronik kit :	Collect hwk : workshop

2 Soldering irons and soldering (1.025 , 1.026)	v's levels ladder. Starter: Explanation of an electronic circuit. Physical enactment of a circuit and a resistor. Using kit of components to construct the LED circuit. This is normally preceded by learning how to use the soldering irons safely by using resistors and soldering them together. Draw two circuits they have made. Explain the function of a PCB to hold a circuit in place. Hand out their PCB and draw it. Plenary: Identify the circuit symbols / components by name. Pack away. Demonstrate soldering of a component.	Extension material More complicated designs to choose from.	PCB LED Resistor USB Power Supply Examples to handle and be inspired by. Physical and on the board.	safety
3 Soldering irons and soldering (1.025 , 1.026) Pillar drill (1.039)	Starter/bell activity: Identify electronic components / tools. Demonstrate soldering. Explain resistor colour code. Complete the soldering of the circuit. Test and check the circuit. Calculate the values of resistors using the colour code. Annotate this on their sketches of the PCB.	Support material Recap basic skills. Remind them about safety precautions. Examples of storyboards available to copy and complete. Extension material Explanation of the purpose of the tools and equipment as per levels ladder. Skilled pupils become quality		Component symbols task.

	Complete a storyboard on the learning mat of how to solder correctly. Demonstrate using the holes in the PCB to act as strain relief. Plenary: Pupils assess their storyboards using levels ladder.	control managers to check other pupils soldering and components. Quality control shown on the screen (good / bad joints). Concept of quality control mentioned.		
4 Soldering irons and soldering (1.025 , 1.026) Pillar drill (1.039)	Bell task: Register using the name of a tool used in circuit building.. Starter: Inputs Processes Outputs explain and identify (using learning mat) Explain function of a transistor. Physical enactment of a transistor circuit. Build a moisture sensing circuit with and without a transistor and demonstrate. Install the transistor. Install the battery snap. Complete the phone design task when waiting for soldering iron availability. Plenary: Peer assessment of quality of soldering. Correct installation of the transistor.	Support material Demonstration video. Identify weaker students and pair them with “quality control managers “. Extension material. Design task to add inputs and outputs to a phone design.	Component kits. Solder.	
5	Bell Activity: IPO card sort task.	Support material	Component kits.	LED research task.

Soldering irons and soldering (1.025 , 1.026) Pillar drill (1.039)	LEDs discussion, advantages / disadvantages uses etc. LED installation demonstrated. Optional flying leads with heatshrink attached to LED and LED installed. Testing and commissioning of the circuits. Plenary: Sharing problems and checking every ones' progress as a group.	Large reference photos to check the orientation of the components. Extension material Advanced pupils may investigate their circuit and attach a buzzer.	LED products. Wire Drill Solder Wire strippers and cutters.	
6 Soldering irons and soldering (1.025 , 1.026) Pillar drill (1.039) Hand tools (1.011)	Bell Activity: Demonstration of basic hand tools and types of joint. Demonstration of marking out and using bench mounted vice Demonstrate marking cutting and sanding of their boxes using sandpaper and files. Plenary: Clear away and clean tools. Identify types of joints – Kahoot optional when the room is tidy. How is it made? Show PLY wood manufacture video.	Support material Close assistance with cutting using coping saws and marking out. Templates available for marking joints. Key words on the board to help labelling. Extension material Explanation instead of labelling of the parts of the machine. Quality of artefact.	90mmx450mm x6mm plywood for the boxes. Coping saws Tenon saws Quick clamps.	

7	Pillar drill (1.039) Hand tools (1.011)	Starter/bell activity: Register using the name of a tool you have used last lesson. Design their silhouette, what logos and graphics will be successful. Design a range of ideas on paper. Ideas to be re-created in 2D design.- alternatively the designs can be drawn with thick black borders and scanned – processed by the teacher. Demonstrate the laser cutting process. Demonstrate the cutting and how to fit the joints together. Pupils work on multiple processes to complete their project. Plenary: Clean up and share work successes.	Support material Ready prepared stencils. Notes on techniques already prepared with gaps to fill in. Extension material Pupils may add additional LEDs, graphics etc. Add mechanisms / hinges for allowing access to the battery etc.		Homework: Mood light production plan.
8	Pillar drill (1.039) Hand tools (1.011)	Starter/Bell Activity: How to use 2D design from the start. Log on and introduce basic drawing tools. How to hand in work on the school network. Plenary: Share work drawn on CAD whilst checking that everyone has handed in successfully.	Support material Video demonstrations for reference. Large explanation keys to the function of the main tools in 2D design. Extension material More complicated designs, introduce different tools.		Homework : Spend their time installing CAD at home. E.g. sketchup.
9		Starter/ bell activity: Draw ten	Support material	Drawing/final design	

	cubes? Follow me drawing skills in isometric drawing. Leading to a 3D drawing of their product. Plenary: Give positive feedback on each other's work.	Stencils to draw/ trace. Extension material Evaluation of ideas identifying the positive aspects and areas for development for each idea.	learning mat. Pencils, colours. Templates Isometric paper.	
10	Starter/ bell activity: Odd one out? Pupils work on multiple processes to complete their project. Pupils learn to draw an isometric drawing (3D) of their jointed boxes. Complete the various elements of the project. Laser cut lids to be backed with tracing paper / dyed. Any failures to be addressed. Plenary: Peer assessment of each other's work. Photograph all completed projects.	Support material Help students with their making, problem solving. Extension material Pupils may add additional LEDs, buzzers etc. Add mechanisms for allowing access to the battery etc.		
11	Starter/ Bell Activity: Draw isometric cubes on paper. Using 2D design to draw 3D isometric	Support material Individual help with using the software. Video demonstrations.	2D design, computer access	

	shapes (builds directly from the hand drawn versions) Progress to drawing the mood light and drawing the advert that they designed. Plenary: complete the progress chart and set targets for the next lesson.	Extension material Act as group ambassadors, helping and teaching the less able students.		
12	Bell activity: What's in the box? Stick photos of their work in place. Evaluation of the product v's ACCESSFM criteria. Add details to the isometric drawing. Attempt exploded isometric drawing. Plenary: mini evaluation identifying skills learned.	Support material Word bank for ACCESSFM and examples for different products. Extension material		Homework : complete specification task.
13	Pillar drill (1.039) Hand tools (1.011) Starter: Tools identification Assess their folder of work and give time to checking the quality and completion. Finalise practical work ready for taking home. Plenary: complete the progress chart and set targets for the next lesson.	Support material Individual help particularly with the more dangerous equipment. Extension material Act as group ambassadors, helping and teaching the less able students.		