



**Year 9  
Spring Term**

**Pathway 2/3/4**

**Subject: Design Technology (Electronics)  
Make a vacuum form shell ,battery powered car.**

## **Learning Intention: Electronics and materials**

This Unit will re-introduce students to electronic components and build on yr 7 in the way they can be used to form a circuit and the development of soldering skills and design.

**Key knowledge that should be learned  
during this SoW**

**All**

**Most**

**Some**

### **Concept:**

To make a battery control car using a frame structure with a vacuum form shell and electronic control motor to power the car.

To learn about how to vacuum form a mould and the properties of thermoplastics, plastics Learning about how to control a motor with a reverse switch. Using electronic components and how the circuit works in DC to control the car. By making examples of circuits with components. To achieve this students learn new skills and topics.

### **Knowledge:**

All students should be able to make a basic frame with gusset corners, and vacuum form and make a mould.

All students will be able to use the new tools safely for this project

All students will learn about the properties of thermoplastics.

Most students will be able to understand about making frames with gusset corners and cut the timber for this

Most Students will understand how a vacuum form machine works and write the procedure. They will make a

Some students can understand the theory of structures with frames and shells.

Some Students will be able to make a mould and use the vacuum form machine independently and name all the parts for the machine including

	<p>All students will recap about the electronic components and how to control a motor to go forward and reverse.with support</p> <p>All students will solder the components with complete support.</p> <p>All students should be able to make a controlled car and use a pre formed vacuum shell for the car with support.</p>	<p>simple mould and vacuum form it .</p> <p>Most students will recap about electronic components needed to make the car run and control it by making the forward and reverse switch,and how and why they are used in the circuit .</p> <p>Most students will be able to solder the parts of the motor and switch together and make it work.</p> <p>Most students will assemble the car wheels and pulleys and vacuum form a car shell to complete the car with some support.</p>	<p>safety procedures independently.</p> <p>Some students will recap about electronic components and name the ones needed for the motor circuit for the car and how to make a switch that will forward and reverse the car motor.</p> <p>Some students will assemble the switch and solder the components with a little supervision.</p> <p>Some students will be able vacuum form a car shell and fit the wheels and pulleys to the car independently.</p>
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<b>Key Skills:</b>	<p>To know some properties of thermoplastics and structures, shells and frames.</p> <p>To know how to use a vacuum forming machine safely.</p> <p>To know the names of the electronic components and make a motor working circuit and switch.</p> <p>Be able to assemble a motor with pulleys.</p>	<p>To know all the main properties and uses of thermoplastics and the structural theory of shells and frame structures.</p> <p>To know the names and what the electronic components do and make a circuit with a forward and reverse switch for the motor of the car</p> <p>To know how to make a vacuum form mould that will be removable after forming and use a vacuum form machine safely.</p> <p>To assemble a motor frame and shell to make a controlled car.</p>	<p>To know the properties and characteristics of thermoplastics and uses. The theory of structure looking at shell and frame structures making and using them..</p> <p>To know how the electronic components work in a circuit and make a circuit with a forward and reverse switch for the motor of the car</p> <p>To know all the separate steps to make a vacuum form mould that will be removable after forming and use a vacuum form machine safely.</p> <p>To assemble a motor frame and shell to make a controlled car.</p>
<b>Language and/or communication skills:</b>	<p>Coping saw, bench hook,G clamp, screwdriver vice steel ruler cordless drill.Soldering Iron pliers Vacuum former.</p>	<p>Electronic components</p> <p>Motor,wires,eccentric cam ,batteries,battery pack,screws, motor clip ,connector bar. Wires LED resistor,connector blocks.</p>	<p>Jelletong square wood MDF Hips plastic various colours.Copper self adhesive tapes wire and lead free solder.</p>
<b>Curricular Links</b>	<p>Links to other learning within the subject are: Science ,maths</p>		

