Beckfoot

Design & Technology; Engineering	Topic: Stead Hand Game	Year Group: 9

enjoy learn succeed

1. Process; Tools

1	**Soldering Iron** 	An electrical tool which applies heat, melting solder allowing you to join metals together.
2	**Die** 	These are used to create **screw threads**, which is called **threading**
3	**Wire Cutters** 	Hand held tool used to cut through wires or cables
4	**Wire Strippers** 	A hand-held tool designed to remove insulation from electrical wires.
5	**Jig** 	Its purpose is to provide repeatability and accuracy in the **manufacturing** of products.
6	**Hacksaw** 	A fine-toothed saw, suited for cutting through materials including metal and plastic.

4. Materials; Metals

1	**Ferrous Metals**	Metals which contain IRON. **Mild Steel, Tool Steel, High Speed Steel**
2	**Non-Ferrous Metals**	Metals which DO NOT contain iron; **Zinc, Aluminium, Copper, Gold.**
3	**Alloys**	A mixtures of two or more **metals; Brass, Bronze, Stainless Steel**

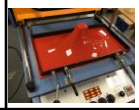
2. Electronic Components

1	**Battery Snap** 	Snap onto the leads on the terminal end of a standard 9V battery.
2	**Switch** 	A component that can disconnect or connect the path in an **electrical** circuit.
3	**Light Emitting Diode (LED)** 	A light source that emits light when current flows through it in the correct direction.
4	**Buzzer** 	Turns electrical energy into sound energy.
5	**Battery** 	A combination of electrochemical cells with external connections for powering electrical devices.

5. Process; Soldering

Step 1	Heat the connection with the tip of the soldering iron for a few seconds, then apply the solder.
Step 2	Keep the soldering tip on the connection as the solder is applied.
Step 3	Remove the tip from the connection as soon as the solder has flowed .
Step 4	Don't move the connection while the solder is cooling.
Step 5	Don't overheat the connection, as this might damage the electrical component you are soldering

3. Process; Vacuum Forming

Step 1		Place the mould into the vacuum former
Step 2		A plastic sheet should then be clamped above, but not on, the mould.
Step 3		The heater in the vacuum former should then be positioned above the plastic.
Step 4		Moved upwards and into the plastic. You can use a handle to do this. Switch the vacuum former on
Step 5		Once it has cooled, remove the plastic sheet from the vacuum former and trim excess plastic with a suitable tool.

6. Materials; Plastics

1	**Thermoplastics**	Plastics which can be remoulded over and over again with the application of heat
	High Impact Polystyrene (HIPS), Polythene, Polyvinyl Chloride (PVC), ABS, PET, Nylon, Bakelite	
2	**Thermoset Plastics**	Once set, these plastics cannot be remoulded.
	Urea-Formaldehyde, Epoxy Resin, Phenol-Formaldehyde, Polyurethane Resin, Melamine-Formaldehyde	

- ❑ The mould for vacuum forming must have sloping sides (draft), curved edges & not too tall
- ❑ Polymorph is a new material. At room temperature is very hard and machinable, but above 60 degrees centigrade can be easily (re)moulded.
- ❑ Know the black wire goes to the short leg on the LED. (Red – positive, Black – Negative)

Across

1. The modern material used in the project.
5. A mixtures of two or more metals.
8. Once set, these plastics cannot be remoulded.
9. A component that can disconnect or connect the path in an electrical circuit.
10. The colour of the positive wire in the circuit.
13. An electrical tool which applies heat, melting solder allowing you to join metals together.
15. The alloy used for soldering wires together.
17. The colour of the negative wire in an electrical circuit.
18. Metals which contain IRON.

Down

2. The plastic used for vacuum forming.
3. A combination of electrochemical cells with external connections for powering electrical devices.
4. Plastics which can be remoulded over and over again with the application of heat.
6. Metals which DO NOT contain iron.
7. A light source that emits light when current flows through it in the correct direction.
11. Its purpose is to provide repeatability and accuracy in the manufacturing of products.
12. Made from copper, allowing electricity to flow between components.
14. A non-Ferrous metal used for jewellery.
16. These are used to create screw threads, which is called threading.