

# Year 6 - DT knowledge organiser - Underwater lamp design

## Health and Safety

-Remove any jewellery and tie back long hair. Wear an apron.

-Do not put fingers or objects in outlets.

-Never use anything with a plug, wire or cord around water.

Keep metal objects away from electrical heat sources – e.g. knife away from toaster.

Never pull a plug out by its cord.

Follow electrical signs and guidance carefully.

Return all equipment to the correct zoned areas of the classroom/ workshop.

Remember that electricity can cause burns, shocks, serious injury & even death.

## Designing

-You need to think about who your product is for – what is its purpose and who is going to use it?.

-Consider the materials that you will use – what type of input device (e.g. battery/cell), conductor (e.g. wires) and output device (e.g. bulb) are best for your purpose and audience?

-Consider whether to create a homemade switch or use a bought switch. Different switches work in different ways (see below) – think about which will be the most accessible/ appealing to your user.

As a part of the design process, you should be able to sketch and annotate different ideas. You should also be able to plan the main stages of making, using either a checklist, a storyboard, or a flowchart.



## Key Vocabulary

Simple Circuit  
Switch  
Current  
Short Circuit  
Battery/ Cell  
Switch  
Input/ Output Device  
Conductor  
Insulator

## Key Vocabulary

design	A plan or drawing produced to show the look and function of how something works.
functionality	The quality of being suited to suite a purpose well.
evaluate	To form an idea or evaluate success.
innovative	Advanced, original or one of a kind.
prototype	A first attempt or model of something.
specification	Describing or identifying precise requirements or needs.
purpose	The reason for which something is done.

## Making & Evaluating

### Making Electrical Systems

- In order to ensure that your circuit is closed, it is hugely important that your connections are secure.
- Connecting blocks and bulb holders are useful pieces of equipment for ensuring this.
- Twisting strands of wire and taping wire are also useful strategies for creating a secure connection.

### Switches

-Homemade switches can be made using this equipment:



-A range of bought switches can also be used. Reed switches operate by magnets, whereas toggle switches use a lever. Push-to-break switches are turned off by pressing them. Push-to-make switches are turned on by pressing them.

### Evaluating

-How well does your electrical system work? Does it work as planned?  
-Does it meet its purpose?

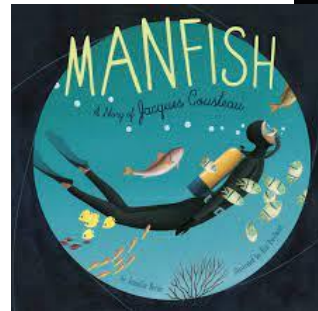
-What would your audience think about your product? What would they like about it? What would they not like?



-What type of switch did you choose to use? Why? What are the pros and cons of this type of switch?

What problems did you encounter? How did you fix them?

What could you still improve about your product? How would you do things differently next time?



Linked to our English book Manfish, the project is based on designing an underwater lamp or torch for a scuba diver ensuring it is fit for purpose.

