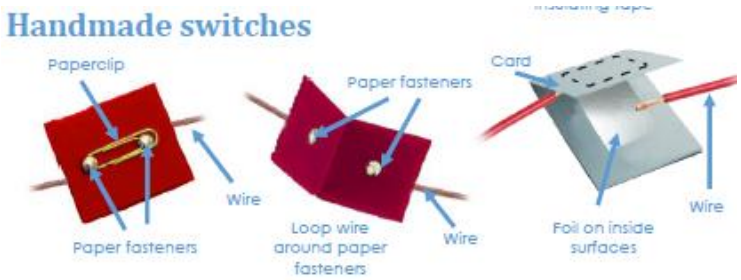
Springdale First School

Imagine, Believe, Achieve

Year 4 Design and Technology
Electrical

Children's prior learning in this area	Cultural Capital Opportunities	Key vocabulary and glossary
Science – circuits (dependant on when this is being covered). Recall and retrieve – electrical circuits. Playing electrical circuit games at home/school.	Games through time – history of the electrical game.  Hasbro games. History of - [Hasbro History: Founding, Timeline, and Milestones - Zippia]	• **Circuit –** path through which electricity passes. • **Conductor –** a material which allows an electric current to pass through it. • **Insulator –** a material which does not easily allow electric current to pass through it. • **Prototype –** a model made to test whether a design will work. • **Push-to-break switch –** a switch turned off by pressing it. • **Push-to-make switch –** a switch turned on by pressing it. • **Toggle switch –** a switch operated when a lever is pressed. • **System –** a set of related parts or components that together achieve a desired outcome. • **Output devices –** components that produce an outcome e.g. bulbs and buzzers. • **Input devices –** components that are used to control an electrical circuit e.g. switches.

Enquiry Question- How have board games changed over time?	Enquiry Question – Which switch is best?	Enquiry Question – What do I know to help me design an electrical game?
Concept – Enquire 	**Concept – Design** 	**Concept – Design – Written and drawn ideas**
Children will learn that electrical board games work by completing/ closing an electrical circuit using a switch. Talk about board games the children play & note down those that are electrical. Discuss Hasbro & the impact they have had on board games over time. Steer discussion to electrical boardgames. **Practise –** Look at Hasbro games & how they have changed over time. Tell the chn about the different games that Hasbro has designed – have some for the chn to play with. (Twister, **Operation*,** Connect4, **mastermind, Perfection,** Hungry Hippos, Game of Life, Mouse Trap…) **Apply** - Investigate what makes the games purposeful and who are the users? How is the game made challenging? How do you win/ lose? Create a mind map for the children to refer back to. **Deepen** – Look at how the electrical board games are powered – electrical circuit & switch.	**They will know the components of a simple circuit and circuit with a switch.** Introduce the children to a simple switch. **Practise** - Focus on the componenets – labelling the parts (using technical vocabulary) that make up a simple circuit & switch. Follow the PowerPoint in resources folder.  **Apply** – chn to make own switches and then draw and label these in their books. They will then evaluate their effectiveness, suitability, pros/ cons for a board game. (In groups make different switches) **Deepen** - Which switch could be used for a board game?	**Chn to design an electrical board game using design criteria.** **Practise –** discuss with the children that inventors first draw/ design their games before making them. Create a design criteria with the chn – what will your game need? Why. **Refer to FLUMPS.** **Apply –** Chn to design a game – think about product user. Use considered ideas and following the design criteria. **Deepen** - Annotate drawings and give reasons for choices. 

Let's make!	Enquiry Question – What worked? Why?
Concept – Make	**Concept – Evaluate**
Children will follow their design & step by step plans to make their product. Children will attach a wire to a battery – creating a series of buzzers/bulbs. Discuss the making process and make notes – evaluating as they go – annotate drawings & design.	**Using design criteria – chn will evaluate their product giving informed reasons.** **Practise** – model evaluating product using design criteria and notes form making process. **Apply** – chn to evaluate thir own product using design criteria – fit for purpose – compare with peers and discuss. Give considered improvements & explain why. **Deepen** – evaluate peer products.