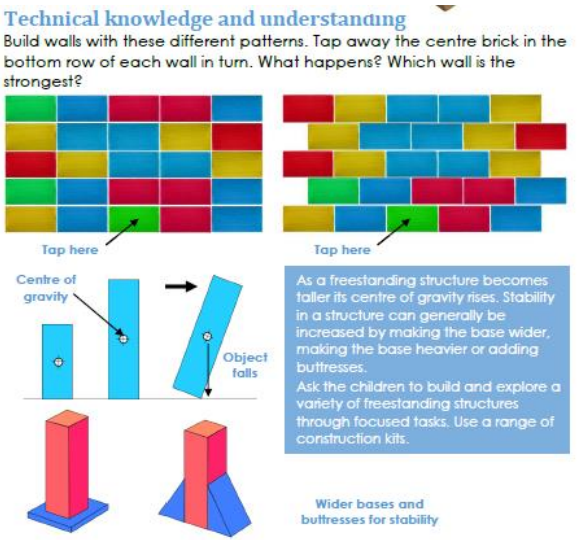
Imagine, Believe, Achieve

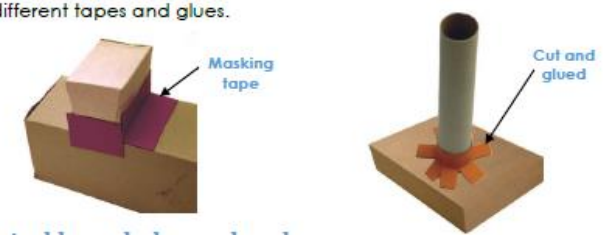
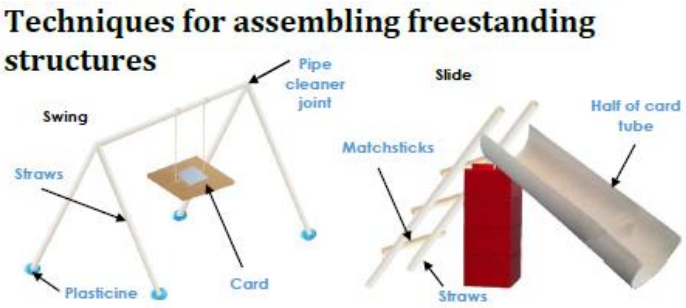
Springdale First School

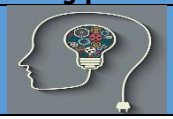
Year 2 / D&T / Structures – Playground Equipment

Children's prior learning in this area	Cultural Capital Opportunities	Key vocabulary and glossary
Children have previously learnt about structures in: **Rec:** Children have learnt about joining techniques – tape, glue. **Year 1:** Designing a freestanding structure - chair, including strengthening and joining technqiues (flange, slot etc.). They have also learnt that Sir Christopher Wren designed St Pauls Cathedral during their unit on The Great Fire of London.	Children will learn about Sir Christopher Wren, the designer of St Paul's Cathedral.  Chn will have the opportunity to visit Springdale Park to look at and use different playground equipment. You may like to visit different theme parks and playgrounds as well as look at different famous buildings (Taj Mahal, St Paul's Cathedral etc.)-*use interactive videos.*	• **Freestanding structure** – a structure that stands on its own foundation or base without attachment to anything else. • **Frame structure** – a structure made from thin components e.g. tent frame. • **Stability** – in relation to a freestanding structure, the extent to which it is likely to fall over if a force is applied. • **Buttress** – a structure added to a wall, tower or framework to make it more stable and/or reinforce it. • **Brick bonding** – arranging bricks in a wall to improve the performance of the structure or improve its appearance. • **Mock-up** – 3-D representation of a product.

Enquiry Question: Who was Sir Christopher Wren?	Enquiry Question: What does the playground equipment look like in Springdale Park?	Enquiry Question: How do I make a structure freestanding?
Concept - Enquire 	**Concept- Design**  	**Concept: Design**  
 **Children will know who Sir Christopher Wren is and the historical buildings he designed and built.**	 **Children will know the shapes found in structures and how this helps to strengthen them.**	 **Children will know how to use a buttress and overlap design to strengthen structures.**
R&R – What do you know about SCW? Sir Christopher Wren was born on 30th October, 1632 and died on 8th March, 1723. He is one of the highly acclaimed architects in British history. He rebuilt 52 churches after The Great Fire of London, including St Paul's Cathedral. He also designed Royal Chelsea Hospital, Old Royal Naval College and the south front of Hampton Court Palace. *Create a mind map for the children to refer to – record in books or photo flip chart.* **Deepen** – What impact have SCW designs had on our life today?	Children will visit Springdale Park to look at the different playground equipment – talk about the shapes found in the structures and how this might help to make them strong. How to make a structure stronger - BBC Teach Discuss the words sturdy, stable, stronger – What do they mean when we are talking about free standing structures? After visit, discuss freestanding and frame structures features – What makes them stand up and sturdy? Children will also note the use of triangles in the design as a strong shape. **Practise** – Look at different pictures of frame & freestanding structures – discuss how they stand freely, the shapes notices, features that make them sturdy and stable – create class 'Technical Vocabulary' flip chart for DT board. **Apply** – Draw/have pictures of free standing/frame sturctures (not just play equipment) & label using technical vocabulary. **Deepen** – Chn can caption explainations about how/why the strucutre is freestanding.	Children will learn that the higher a structure is, the less stable it becomes. A buttress is used to help stablise it (link to buttress roots). Children will also learn how walls are structured and how this overlaying design helps keep them stable. Discuss the words sturdy, stable, stronger, butress – What do they mean when we are talking about free standing structures?  **Practise** – In mixed ability groups - Using lego, duplo, counters, blocke etc – chn practise bulidng structures as high as they can before they fall. What

		could make this more stable – explian and investigate. **Apply** – Chn to share their findings with the class – discuss and make notes about finding for chn to refer to in books. **Deepen** – Draw & label a free standing structure focussing on using the technical vocabulary and showing what makes the structure sturdy.

Enquiry Question: How can I join my structure?	Enquiry Question: What will my playground equipment look like? Who is it for?	Enquiry Question: Was my product fit for purpose?
Concept: Design 	**Concept:**  **Design**	**Concept: Make** 
Children will know how to join materials using glue, tac and tape. They will know what will make a structure free standing. **R&R** - Give me 5! Joining techniques. Discuss joining techniques the chn already know, flange, tape, glue, tac. What might be useful to support their free standing structure? Children will use tape on the side of the structure and also cut the bottom of the structure (flange) to glue it. They will invesitagte which method is stronger. **Practise** – using different materials – chn to spend time investigating using different joining techniques to make a free standing structure and making it sturdy/strong. **Apply** – Record findings – chn to record what they have found out. Take a picture of free standing structure and record what worked. **Deepen** – Explain why the joining techniques worked. Show children how to join sheet materials and reclaimed boxes together using different tapes and glues. 	**Children will know how to design a simple structure and know how to make it sturdy using chosen joining techniques.** Children will draw and label a design of one piece of playground equipment. They will choose materials to use (give a range of materials). Remind chn of technical vocabulary flip. **Practise** – Chn will draw their own design for a piece of free standing playground equipment. **Apply** – Chn to label their design with materials, joining techniques and shapes chosen. **Deepen** – Caption their design with reasons for choice. Example structures are below: 	**Children will follow a design criteria to make their product.** Children will make their structures following theit design using different materials and joining techniques. **Apply** - Following their design, chn to make their product. Discuss and bubble up when questioning the chn abiut the techniques used and why. **Deepen** – annotate design. *Individual photo's of designs & finished products in books please.*

Enquiry Question: Was my product fir for purpose?		
Concept: Evaluate 		
Chn will follow design criteria to evaluate their product explaining why it was or was not fit for purpose. **R&R** – Give me 5! Tell me five things you know about freestanding structures. Chn to test out their product – is it fit for purpose? **Practise –** test out product – is it fit for purpose? How do you know? **Apply –** Chn will then evaluate their structures thinking about: fit for purpose, effectiveness, durability and strength, joining technqiues. Talk about what went well and what might be improved. **Deepen –** Explain what went well and why and then what might be improved and why. They will present their findings to the class.		