Year : 4	Term : 3	Topic : Mechanical Books	
Learning Objectives (What will the children learn?)	**Class Activities** (What will the children do?)	**Resources** (What will I need?)	**Assessment** (Opportunities)
Investigative, Disassembly and Evaluative Activities (IDEAs)			
Children will learn: ▪ to investigate and evaluate products with lever and linkages systems, in order to learn how they function; ▪ to relate the way things work to their intended purpose; ▪ to use appropriate technical vocabulary to describe materials and mechanisms. • Discuss the attributes or features of existing products (Progression in Design Skills R5, E2)	▪ Provide a collection of products *e.g. books and greetings cards with pop-up and moving parts* for children to investigate. Discuss the designs with the children. *Why do you like/dislike them? What is moving? In what way does it move? Why are moving parts used? How are the mechanisms made? How do they work? How many different parts does it have? What movement is produced? Why has that mechanism been used? How are the moving parts joined together?* ▪ Discuss the processes used to decorate the cover and pages of the books, identifying the simplicity or complexity of the designs. ▪ Discuss the wording, layout and style of the text used on the cover and throughout the books	▪ a collection of books which have pop-up and moving parts ▪ other products which include linkages *eg toys, squeezy kitchen mops* ▪ examples of pop-up and moving mechanisms made beforehand	Can the children: ▪ recognise products that contain linkage-type mechanisms and can describe how they work and the movement produced; ▪ explain why a particular mechanism has been used and the way it works for the intended purpose; ▪ use technical vocabulary to describe the properties of materials and mechanisms *eg lever, linkage, pivot?*
Focused Practical Tasks (FPTs)			
Children will learn: ▪ to measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques; ▪ to join and combine materials and components accurately in temporary and permanent ways ▪ how simple mechanisms can be used to produce different types of movement ▪ how to use simple graphical communication techniques. • To use cheap materials to try designs, and suggest improvements **(Progression in Design Skills M1)**	▪ Using prepared examples, explain to the children how different types of pop-up, moving and linkage-type mechanisms can be created. ▪ Demonstrate and allow the children to try out different fonts, some simple graphics and/or collage ideas which might be suitable for their illustration. ▪ Demonstrate skills *eg accurately measuring, marking out, cutting, folding, scoring, using a hole punch, using paper clips, using glue and tape.* ▪ Children will model different types of pop-up mechanisms using paper, masking tape and glue. ▪ Children could model different types of moving and linkage-type mechanisms using strips of card, pieces of corrugated card, paper fasteners and drawing pins or map pins.	▪ squared paper, coloured paper and card, paper fasteners or binders, paper straws ▪ PVA glue, glue sticks, masking tape ▪ thick corrugated card and drawing pins for modelling ideas ▪ scissors, safety rulers, hole punch, wavy line cutters, perforation cutters ▪ computer and printer with graphics or word processing program.	Can the children: ▪ cut and shape materials and components with some precision, to enable their mechanism examples to work; ▪ produce a range of different mechanisms and develop an understanding of how they work; ▪ use a range of fonts and graphic techniques, which are suitable for different purposes?

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Design and Make Assignment (DMA)			
Children will learn: ▪ to explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways; ▪ to develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail; ▪ to evaluate their design ideas as these develop, indicating ways of improving their ideas and to evaluate the book against the original design criteria. • To plan the tools and materials necessary to make their product . (Progression in Design Skills P1)	Give the children the following design brief: **design and make an illustration with moving parts:** ➢ **Sliders, pop-ups, swivels, reveals or linkages** ▪ Explain to the children that their task is to design and make an illustration with moving parts. The pages of the book are to incorporate mechanisms *eg pop-up, sliding parts and linkages.* ▪ Ask the children to think carefully about the type of Illustration they might make. *Who will use it? What will be the storyline? Why will moving parts be useful in the story? What type of mechanisms may be included?* ▪ The children should make an outline plan with drawing or writing to show who will do each task and the order in which they intend to make the illustration. ▪ Encourage the children to keep their designs as simple as possible but encourage a high-quality finish. ▪ Encourage them to model their ideas *eg making paper models of pop-up designs and card strips attached to corrugated card for linkage-type mechanisms.* • Evaluate the finished product in use, highlighting strengths and discussing improvements that could be made. Ask them to compare their products with commercially made ones.		Can the children: ▪ apply what they have learnt through IDEAs/FPTs in their designing and making; ▪ identify the audience and purpose for their illustrations; ▪ produce alternative ideas for their illustrations using drawings and models, and make choices between them; ▪ produce an outline plan that identifies the main stages in making their product, and list the tools, materials and processes needed; ▪ identify what is and what is not working well in their product and what makes a quality finish?