

Learning objective	Success criteria
To follow my design brief to make my pop-up book.	- I can use paper, card and glue to make my book structure. - I can make mechanisms and structures as detailed in my design template by using sliders, pivots and folds to create movement.
Before the lesson	
Watch Teacher video: Making my pop-up book Pupil video: Making my pop-up book Pupil video: Pop-up book design (part one) Pupil video: Pop-up book design (part two) Have ready <i>Presentation: Speak like an expert.</i> - A selection of pop-up/interactive books and greeting cards (a selection per table – see Attention grabber). - A demonstration model pop-up book (see Lesson 1: Pop-up book page design). - The children's completed <i>Activity: Pop-up book design template</i> from Lesson 1: Pop-up book page design. - Equipment to make the book structure and mechanisms (see Main event): - A3 card (three sheets each, two sheets trimmed one centimetre shorter – see Teacher knowledge); - Rulers (one each); - Scissors (one between two); - Glue sticks (one between two); - Rubbers (one between two); - Scrap or smaller pieces of card to create the mechanisms and structures (a selection per table); - Split pins (enough for the children making levers). Print in advance - Activity: Jack and Jill moving pop-up parts (support - see Adaptive teaching). - Activity: Jack and Jill book template (support - see Adaptive teaching).	
Recap and recall	
Display the <i>Presentation: Speak like an expert</i> and arrange the children in pairs. Allow each child one minute to talk about motion and mechanisms based upon their learning in the last lesson. Presentation: Speak like an expert¹ Take feedback and ensure the following points are discussed: - Motion refers to the movement that an object makes when it is controlled by an input, such as a push or pull. - An output is the motion that an object makes in response to an input. - Mechanisms are systems of moving parts; for example, in a pop-up book, a mechanism on a page could include sliders or levers with different objects attached.	

Attention grabber

Explain that in this lesson, the children will begin by making the structure of their book and then start to make the mechanisms and structures that they designed in the last lesson.

Play the *Pupil video: Making my pop-up book*, which models how to fold card and glue them together to make the structure of a book.

Pupil video: Making my pop-up book

Emphasise safety points and how to work safely with the tools and equipment the children are working with.

Main event

Hand out the A3 card (three sheets each, two sheets trimmed one centimetre shorter), rulers, scissors and glue sticks.

Making the book structure

Instruct the children to make the structure of their books. Consider playing the *Pupil video: Making my pop-up book* on a loop without sound to support the children or provide a live demonstration of the process.

Replay the Pupil video: Making my pop-up book

Mechanisms and structures

Display the model pop-up book and recap the different features used:

- **Mechanism:** a set of parts of a machine that work together.
- **Structure:** something which stands, usually on its own.
- **Slider:** part of a mechanism which allows an object to move from side to side or up and down.
- **Lever:** a mechanism where a bar moves around a fixed point or pivot.
- **Spacers:** small pieces of slightly raised card used to restrict the movement of a slider.
- **Layers:** shapes cut out from paper or card to hide mechanisms underneath.

Hand out the children's copies of the *Activity: Pop-up book design template* they completed in [Lesson 1: Pop-up book page design](#) and ask them to label lightly in pencil where they want their chosen structures and mechanisms to go on each page.

Hand out scrap or smaller pieces of card, split pins and rubbers.

Optional: play the *Pupil video: Pop-up book design (part one)* and the *Pupil video: Pop-up book design (part two)* from [Lesson 1: Pop-up book page design](#) to recap how to make sliders, spacers, layers and levers.

Pupil video: Pop-up book design (part one) Pupil video: Pop-up book design (part two)

Allow the children time to create their own mechanisms and structures on each page. Explain that they should not secure their pieces to their book structure (they will do this in [Lesson 3: Using layers and spacers](#)) but lightly sketch where they intend the pieces to go on each page instead.

Wrapping up

Arrange the children in pairs and ask them to show each other their creations. Ask volunteers to suggest a really good mechanism or structure they have seen someone else make and show it to the class.

Vocabulary

Layer

A shape cut out from paper or card to hide mechanism underneath.

Lever

A mechanism where a bar moves around a fixed point or pivot.

Mechanism

A set of parts of a machine that work together.

Model

A practice version that lets an idea be tested to see how it will look and work.

Slider

A part of a mechanism which allows an object to move from side to side or up and down.

Spacers

Small pieces of slightly raised card used to restrict the movement of a slider.

Structure

Something which stands, usually on its own.

Assessing progress and understanding	Adaptive teaching
Pupils with secure understanding indicated by: producing the structure of the book; sketching where the structures and mechanisms will be attached to each page; beginning to assemble the components necessary for their first mechanisms and structures. Pupils working at greater depth indicated by: using more demanding mechanisms and structures; creating a product of exceptionally high quality that is neatly and accurately cut and assembled.	Pupils needing extra support Could use the <i>Resource: Jack and Jill book template</i> (support) to help them create their levers and mechanisms; could use the <i>Resource: Jack and Jill moving and pop-up parts</i> (support) for the background of their pop-up book pages. Pupils working at greater depth Should work independently and make use of more complex mechanisms and sophisticated structures.