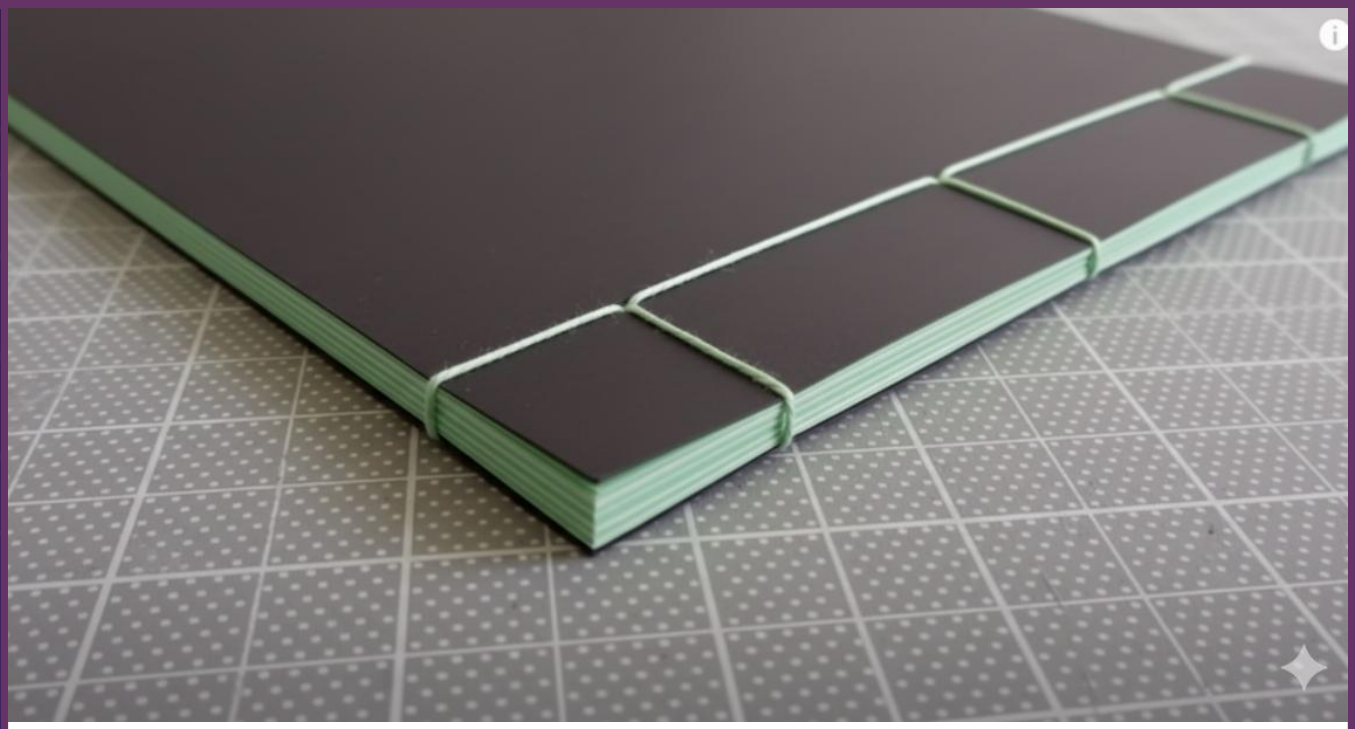
Beginner's Guide to Book Binding



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Often, we are left with a stack of loose one-sided sheets that we don't want to waste. Instead of throwing them away, we can turn them into beautiful and durable books. In the Japanese tradition, books are bound using sheets of paper without glue or a hidden spine. The stitches remain visible along the edge, giving the book both strength and a decorative pattern.

Material required: One-sided sheets (Size A5, A4), Two slightly thick sheets of the same size for front and back cover, awl (long, thick, pointed needle) to make holes, scissors, ruler, pencil, binder clips, thread and needle.

Step 1: Preparing the Sheets

- Stack the inner pages (~30 sheets) neatly between the front and back cover. The cover and back pages may be of a different colour.
- Make sure all edges are lined up and straight.
- Use a binder clip to keep the paper stack in place.

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Step 2: Mark Holes

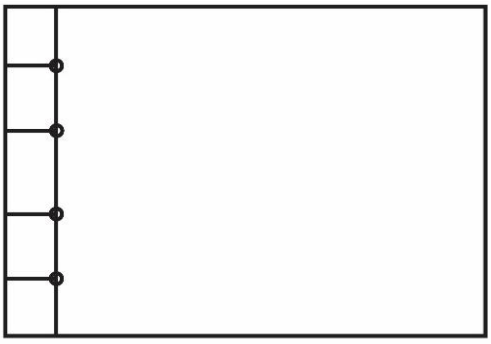
- On the left edge (binding edge), measure about 1 to 1.5 inch from the edge.
- Mark four spaced dots along that line (these will be the sewing holes).
- More holes can be added depending on the pattern chosen for stitching.

Step 3: Punch Holes

- Using an awl, carefully make holes through all layers at the marked points.
- The hole on each paper should be lined up so that a needle can go through it without difficulty.

Step 4: Threading (Stitching the Spine)

- Cut a long piece of thread (usually 4–5 times the book's height).
- Move to the middle of the book and from there, bring the needle out with thread coming out through the 2nd or 3rd hole (needle should emerge towards the top). Now hold all the 30 pages together and begin to stitch.



- As shown in the figure, loop the thread around the spine, pass it through each hole, and wrap it around the edges. The thread may pass through all the holes multiple times but should not retrace the path of the threads.
- At the last stitch, return the needle and thread back to the 2nd or 3rd hole, through the middle of the book from where you first started stitching (where the initial end of the thread is). Tie a secure knot there to finish the binding. Check this link for a visual guide: https://en.wikibooks.org/wiki/Bookbinding/Japanese_side_stitch

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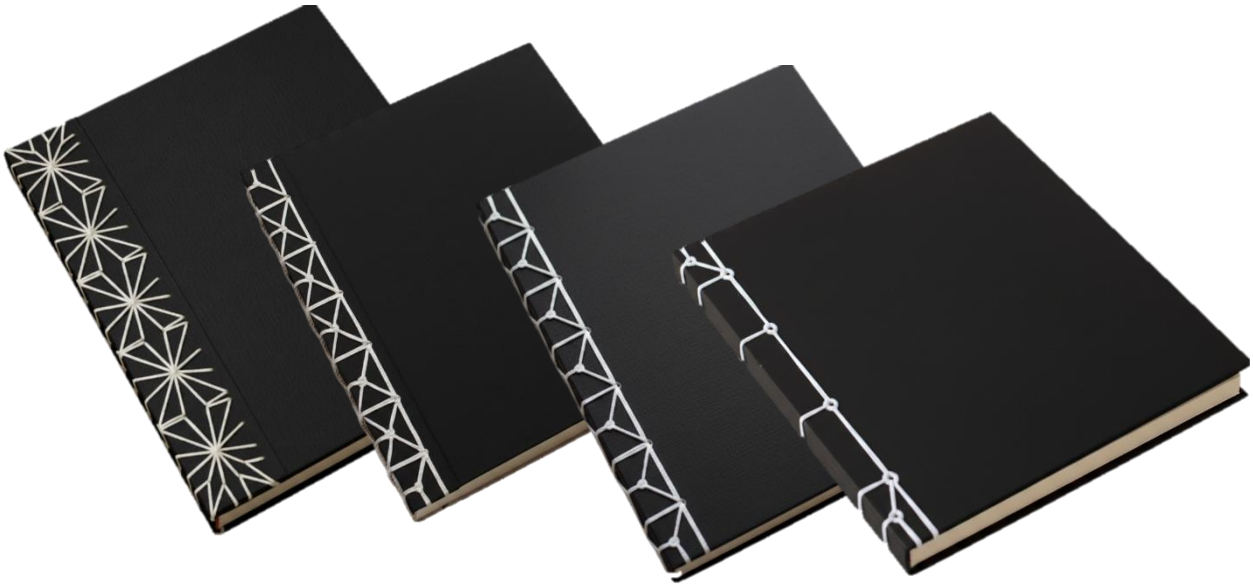
Here are some examples of books created using this binding technique, all made with the same procedure.



While sewing, the thread may pass through the same hole multiple times, but it must never retrace the exact same path. This idea closely resembles a classic problem in mathematics known as the "Seven Bridges of Königsberg." In the 18th century, mathematician Leonhard Euler was challenged to find a walk through the city of Königsberg that would cross each of its seven bridges exactly once without repeating any. He mathematically proved that such a walk was impossible, and in doing so, laid the foundation for what we now know as Graph Theory. This area of mathematics studies how points (called vertices) are connected by lines (called edges). It is widely used today in fields like computer science, biology, logistics, and network analysis.

The concept of non-retracing paths, whether in sewing or in solving complex mathematical problems, teaches logical thinking and problem solving skills. It also helps us appreciate how simple puzzles or day-to-day tasks can connect to deeper scientific and mathematical ideas.

Interested to explore more about this? Refer to the Vigyan Pratibha learning module titled "Finding the Right Path.

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Background

Moving from individual sheets to binding led to a technique viewed not just as fine art, but also as mechanical art and manufacturing process (Wheatley, 1880). Bookbinding is a complex craft involving precise tasks such as measuring, cutting, folding, stitching, and gluing to create a finished book (Robinson, 1968). This shift from treating individual sheets as separate entities to binding them together introduced innovations like folding individual sheets and specialized techniques, including butterfly and whirlwind bindings (Munn, 2009). These developments reflected the growing integration of artistic, mechanical, and functional considerations in bookbinding.

Involving children in bookbinding supports the development of a wide range of skills. Bookbinding fosters a thoughtful relationship with materials. Making objects by hand and engaging in craft activities serves as a form of thinking through manual engagement, cultivating tacit knowledge, which is an intuitive understanding that arises from direct hands-on experience (Carter, 2004; Pöllänen, 2009; Mirante, 2021).

References

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