Start with people, place and purpose

Purpose: Explore pattern, spatial reasoning and measurement through original paper weaving, alongside attributed learning about distinct cultural practices. Choose the page that suits learners; primary tasks suit approximately Years 3-6 and secondary tasks approximately Years 7-9, with adaptation.

Before teaching: Choose a publicly shared source by a named maker, community or cultural organisation. Identify whose practice you are discussing and where it comes from. Use maker-provided meanings; avoid guessing what designs symbolise. Public visibility does not automatically permit copying artwork or teaching a cultural technique.

Make the distinction clear: The grids in this pack are original classroom models, not Aboriginal, Torres Strait Islander or Māori cultural designs. Coiling, twining, plaiting and loom weaving are different structures. This simple over-under activity does not demonstrate every fibre practice.

Learning sequence: (1) Meet a maker through an approved public source. (2) Notice material, purpose and technique. (3) Explore the paper model. (4) Explain the mathematical choices. (5) Return to the source: what does our model leave out?

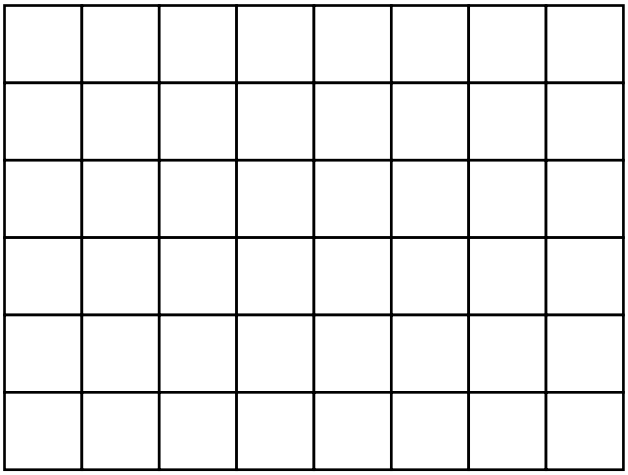
Access and safety: Offer wide pre-cut strips, high contrast colours, a partner, a tactile model, oral responses or photos. Supervise scissors; use paper rather than collecting plants. Arrange any cultural demonstration with the appropriate knowledge holder, agree permissions and remunerate their time.

Observe: EYL - predicting and positional language; primary - units, arrays and explaining fractions; secondary - rules, proofs and checking scale assumptions. Assess cultural learning through accurate attribution and recognising limits, not copying a motif.

Measure the pattern you make

Name: _____ Date: _____

Model a paper mat with 6 rows and 8 columns. Each grid cell represents a 2 cm by 2 cm crossing. Shade alternate cells, reversing the start in each new row.



1. How many cells are in the array? Show a multiplication calculation.

2. Calculate the model mat's width, height, area and perimeter. Include units. Assume no gaps or borders.

3. How many cells are shaded? Write the shaded fraction in simplest form. Explain how you counted.

4. Does your alternating pattern have a line of reflection symmetry? Test both the horizontal and vertical midlines. Explain using matching cells.

Extension: Double the strip width while keeping 6 rows and 8 columns. Predict which measurements double and which become four times as large.

Compare with care

Choose two publicly shared examples with your educator. Compare the evidence, not a whole culture. Record missing information as unknown. Younger learners can respond orally or draw.

Example A - maker, community/place, object and source

Example B - maker, community/place, object and source

What materials and making processes does each source describe?

What can we observe mathematically? What is our interpretation rather than a maker-stated meaning?

What does each source say about purpose, place or passing on knowledge?

One similarity and one difference supported by the sources

What would we need permission or local guidance to explore further?

What can the weaving tell us?



Photograph: Bronwyn Cochrane/TIPIAC, taken during a visit to Kakadu, NT, 11 June 2022. Maker and plant species are not identified here. Observe what is visible; use a maker's account to learn meanings and processes.

Notice: Point to or describe two repeated features. What direction do the fibres travel?

Compare: Where does the spacing change? Explain why a regular square grid may be an imperfect model.

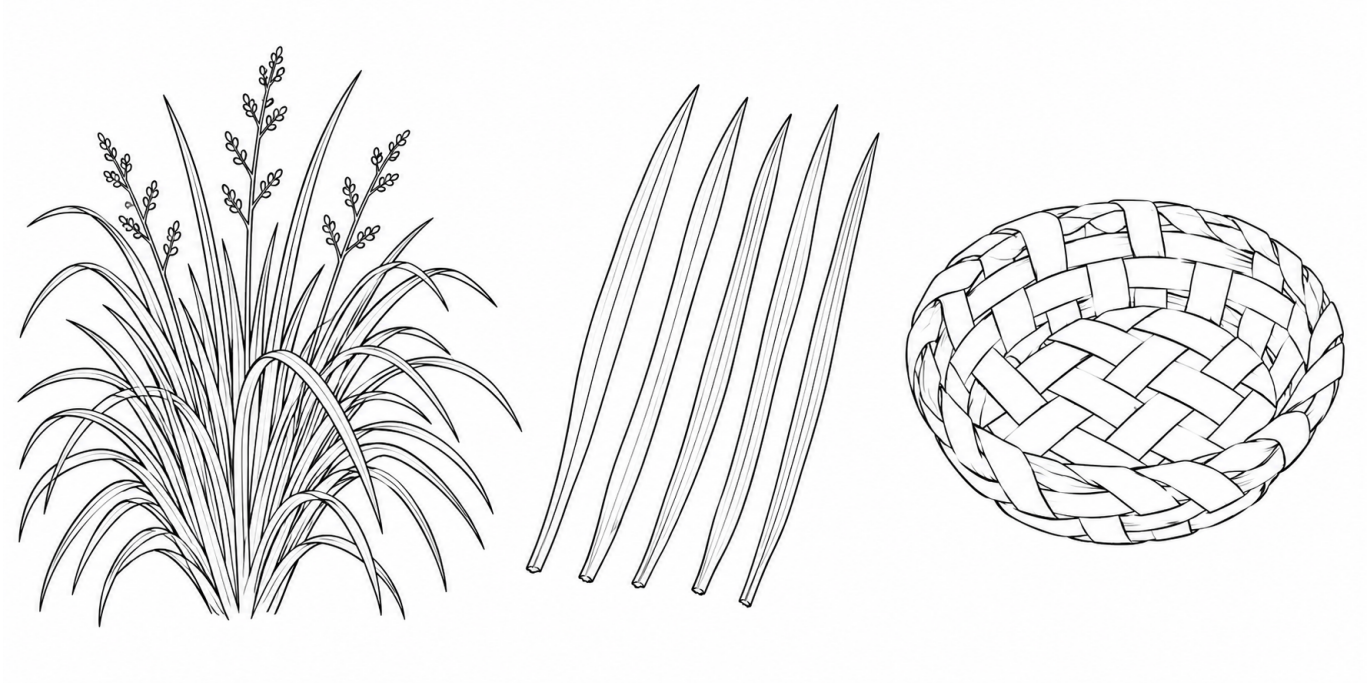
Ask the maker: What materials are used? What is the object for? Which knowledge may be shared?

EYL adaptation: Point, compare colours and use over/under language where crossings are visible.
Secondary extension: A photograph has perspective and no scale bar. Explain why its pixels cannot give the object's actual dimensions.

Lomandra and weaving materials

Name: _____ Date: _____

Lomandra longifolia is a mat-rush with long, narrow leaves. Australian National Botanic Gardens documents Aboriginal use of its leaves for baskets and nets. Practices vary by place and community.



Illustrations: a lomandra-like plant, five leaves and a generic woven bowl. AI-generated outlines for observation and colouring, not a plant-identification guide or instructions for a cultural technique.

1. Colour the outlines. Count the separate leaves in the middle picture: ____ . Compare two lengths.

2. Describe straight and curved lines. Where could we investigate shape, length or spacing?

3. Write or tell one question for a local cultural practitioner about materials and caring for Country.

Educator note: Five leaves are illustrated. No collection or preparation activity is required. Learn plant identification, harvesting permission and local protocols with appropriate expertise before considering live materials. Source: Australian National Botanic Gardens - Lomandra longifolia.

Check reasoning and attribution

EYL: Under comes next; 4 crossing strips. Accept pointing, movement, oral language and supported drawing. Compare actual strips, because lengths depend on preparation.

Primary: 6 x 8 = 48 cells. Width 16 cm; height 12 cm; area 192 cm²; perimeter 56 cm. 24 shaded cells, so 24/48 = 1/2. Neither horizontal nor vertical midline is a reflection symmetry of this coloured 6 by 8 checkerboard: a reflected cell has the opposite shade. It has 180-degree rotational symmetry. With 4 cm cells, width 32 cm, height 24 cm, area 768 cm² and perimeter 112 cm.

Secondary: O when r + c is even; U when odd. (7,11) is O; (8,11) is U. Width ns; height ms; area mns²; perimeter 2s(m+n). At 8 x 12 with s = 1.5: 18 cm by 12 cm; 216 cm²; 60 cm. At k = 3: 54 cm by 36 cm; 1,944 cm²; 180 cm. Perimeter multiplies by k, area by k². In 5 x 5: 13 O and 12 U. If at least one dimension is even, the counts match; if both are odd, the starting crossing type has one more.

Cultural responses: Answers vary. Require an identifiable source and accurate attribution; do not mark an invented symbolic meaning as fact. Counting crossings is an educator's mathematical observation, not proof that a maker uses the same school terminology.

Public starting points:
Tjanpi Desert Weavers - Materials
tjanpi.com.au/pages/fibre-art-materials
Bula'bula Arts - community organisation and public work
bulabula.com.au
Museum of New Zealand Te Papa Tongarewa - Raranga (plaiting)
collections.tepapa.govt.nz/topic/3647

Source context: Tjanpi describes contemporary fibre art using native desert grasses and other fibres. Bula'bula Arts shares practice from Ramingining. Te Papa describes Māori raranga as finger plaiting, with diagonal crossings. These are distinct examples, not a single technique. Sources consulted 14 October 2026. No source artwork has been reproduced in this pack.