# Butterfly Wing Pattern Drawing: Repeat and Vary a Single Motif

Original tasks 1, 2 / independent work

## Task 1

You have a 3 by 3 grid. The motif fills two-thirds of the cell height. Your rotation rule is 90 degrees clockwise moving right, and 180 degrees in the next row. State the rotation value for each of the nine cells, starting with 0 degrees in the top-left cell.

## Task 2

A learner defines three variations: a notch, a vein, and a spot. In a 4 by 3 grid, they assign the notch to four cells, the vein to four cells, and the spot to four cells. Is this a valid variation plan under the lesson convention? Explain using counts.

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Original tasks 3, 4 / independent work

## Task 3

In a 4 by 3 grid, a learner uses rotations 0, 90, 180, and 270 degrees. They want each rotation to appear exactly three times. Is this possible with 12 cells? Show the arithmetic.

## Task 4

A learner draws a 4 by 3 grid but makes the motif fill the whole cell height in row 1 and two-thirds height in rows 2 and 3. They define three variations and apply a consistent rotation rule. Using the lesson convention, identify the problem and state a fix.