

## Tessellation – shapes that fit together

### WHAT THIS LESSON TEACHES

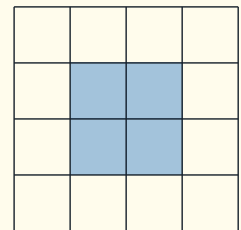
A tessellation is a pattern where copies of the same shape fit together to cover a surface with no gaps and no overlaps. Squares, equilateral triangles and regular hexagons tessellate; circles and regular five-sided shapes leave gaps.

- Square floor tiles laid side by side cover the floor with no gaps.
- Round coins laid together leave little empty spaces at every join.

### MODEL THIS ON THE BOARD

#### 4 SQUARES TESSELLATE

- 1 The grid shows 4 unit squares fitted edge to edge in a block.
- 2 Every shared side meets exactly, with no gap and no overlap.
- 3 The 4 corners meet in the middle and fill a full turn.
- 4 The block is one bigger square, so the squares tessellate.



### DISCUSSION STARTER

**REFLECT** Which shapes tessellate easily, and which leave gaps?

### ANSWER KEY

c) Both (triangles and hexagons); dots show angles fit round a point with no gaps

Q1: Yes

a) Always — Squares always tessellate because 4 corners fill a full turn.

b) Never — Round shapes always leave little empty spaces at every join.

c) Always — Regular hexagons always tessellate, like a honeycomb.

d) Never — A true tessellation has no gaps at all.

### EXTENSION SHEET · STRETCH ANSWERS

S1: translation

S2: rotation

S3: translation

S4: rotation

S5: reflection

**Investigation:** Which shapes tile the page? — open-ended; scan pupils' working for valid solution paths rather than a single answer.