

Lesson 21 **NUMBER****Multiplication: the 5, 3 and 6 tables and patterns**

CURRICULUM ALIGNMENT

NUM.OPS.3

understand and apply flexibly the four operations; and the relationships between operations.

ALG.PRR.3a

identify rules that describe the structure of a pattern and use these rules to make predictions.

INTERACTIVES **Hundred Square** · challenge, display, explore

WHAT THIS LESSON TEACHES

Multiples are the numbers you land on when you count in equal steps of another number. Facts in the 6-times table are double the matching facts in the 3-times table.

→ Counting in fives gives the multiples 5, 10, 15, 20.

→ $3 \times 4 = 12$ so $6 \times 4 = 24$ because 12 doubled is 24.

MODEL THIS ON THE BOARD

DOUBLE A 3-FACT TO MAKE A 6-FACT

- 1 Write the known 3-times fact $3 \times 4 = 12$.
- 2 Double the product: $12 + 12 = 24$.
- 3 Write the matching 6-times fact as $6 \times 4 = 24$.

LESSON ARC

Count the class round in fives, writing each number on the board so the 0/5 endings stay visible. On the hundred-square interactive, shade the fives (two columns), then the threes (slanting stripe), then trace the sixes landing on every second three — six is two threes. Pupils double the three-table beside each fact in their copy. The Class Challenge builds and clears each shading in turn, ending on the both-3-and-6 reveal that lands exactly on the sixes.

TEACHING MOVES

1. **Getting Started.** Count round the room one number per pupil and write each on the board so the list stays visible. Stop past thirty, then take three hands-up answers to 'what's the last digit each time?' — steer to 0 or 5 but don't confirm it yet; that's the Watch and Notice pay-off.
2. **Watch and Notice.** Shade the fives on the hundred-square interactive and read down the two columns. Trace the threes' slanting stripe and pause on 15 — 'have we shaded this before?'. For the sixes, count the two jumps aloud (3, 6, that's two threes) and trace each pair so the class sees the six landing on every second three. Say 'six is two threes'.
3. **Try It Together.** Call 5×4 , 3×6 , 6×3 , 6×5 in turn; one pupil shades each while the class skip-counts aloud to read the answer. For each six-fact, ask the class to check it lands on a shaded three. Watch for pupils counting every cell one by one — nudge them to count in the table's jumps.
4. **Double the Threes in Your Copy.** Model the layout first — three-fact on the left, its doubled six-fact beside it. Walk the room and glance for pupils lining each six-fact up against its three and doubling correctly.
5. **Class Challenge.** Keep the board brisk — pupils take turns shading fives, threes, sixes, checking each as they go. Warn the class the final both-3-and-6 shading will look identical to the sixes: that sameness is the point. Drop the 'use a three-fact you know to get the six-fact' callout as they see it.

6. What Did We Notice?. Ask how a three-fact hands you a six-fact for free. Revoice a strong answer: 'I know 3×7 is 21, so I double it — 6×7 is 42, no counting'. Head off any sense that the sixes are a whole separate table to memorise.

COMMON MISCONCEPTIONS

⚠ A pupil reads a fact off the hundred square by counting every shaded cell one at a time — '1, 2, 3...' — instead of skip-counting in the table's step.

Stop them mid-count and point to the jumps: 'don't count squares, count the fives — 5, 10, 15'. Trace the leaps with a finger on the interactive so the step size is visible, then have them re-read the fact.

⚠ Pupils treat the sixes as a brand-new table to learn from scratch and don't connect them to the threes they already know.

Go back to the shaded picture — every six sits on a shaded three. Rebuild one six-fact live: $3 \times 4 = 12$, so 6×4 is 12 doubled = 24. Repeat 'six is two threes' and have the class say it back.

DIFFERENTIATION

EMERGING

- Keep these pupils on the fives only while the class moves to threes — the 0/5 columns are the most visible pattern to hold onto.
- For the copybook doubling, give them the three-facts already written so they only add the doubled six-fact beside each.

DEVELOPING

- After the copybook page, ask: the twos double to fours the same way threes double to sixes — is that true? Check one on the hundred square.
- Give a missing-number six-fact: $6 \times ? = 42$. Ask them to find it via the three-fact rather than counting.

PROFICIENT

- Ask: which table would land on every THIRD three? Let them predict, then shade the nines on the interactive to test whether the trick holds when you triple instead of double.
- Have them explain to the class, using the shaded grid, why every multiple of 6 is also a multiple of 3 but not the other way round.

✚ **Cross-curricular:** Tie to PE and GAA — a hurling team is 15 players, so count teams in fiftens, or fields of players in fives, and read off the multiples.

ANSWER KEY

Scaffold: visual check on the page

Q1: 10

Q2: 21

Q3: 15

Q4: 12

Q5: 18

Q6: 24

a) Always : Skip-counting in fives always lands on a number finishing with 0 or 5.

b) Always : Because 6 is double 3, every product is simply doubled.

c) Sometimes : Only the even multiples of 3, such as 12 or 18, are multiples of 6.

d) Sometimes : Fifteen is a multiple of both, yet ten is a multiple of 5 only.

EXTENSION SHEET · STRETCH ANSWERS

Investigation: Trails on the hundred square — open-ended; scan pupils' working for valid solution paths rather than a single answer.