

Factors, multiples, prime and composite numbers

WHAT THIS LESSON TEACHES

A **factor** of a number divides into it evenly with no remainder. A **multiple** is what you get counting up by that number. A **prime number** has exactly **two** factors — 1 and itself. A **composite number** has more than two.

→ **Factors of 12:** 1, 2, 3, 4, 6, 12 — they pair up: 1×12 , 2×6 , 3×4 .

→ **Multiples of 6:** 6, 12, 18, 24, 30, 36... (count up in 6s).

→ **Prime:** 2, 3, 5, 7, 11, 13, 17, 19, 23, 29... (1 is **not** prime — it only has one factor).

→ **Composite:** 4, 6, 8, 9, 10, 12, 14, 15... (more than two factors).

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

MODEL THIS ON THE BOARD

FIND EVERY FACTOR OF 24 (AND DECIDE: PRIME OR COMPOSITE?)

- 1 Try every number from 1 up: does it divide 24 evenly?
- 2 1 ✓ ($24 \div 1 = 24$), 2 ✓ ($24 \div 2 = 12$), 3 ✓ ($24 \div 3 = 8$), 4 ✓ ($24 \div 4 = 6$).
- 3 5 ✗ (leaves a remainder), 6 ✓ ($24 \div 6 = 4$ — we've reached 4 already, so we've found them all).
- 4 Factors of 24: **1, 2, 3, 4, 6, 8, 12, 24** — that's 8 factors, so 24 is **composite**.

ANSWER KEY

Warm-up: a) 345 b) 65 c) 261 d) 203

Q1: 1, 2, 3, 6, 9, 18

Q3: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48

Q2: 48 is composite — it can be divided evenly by 2 (so 1 and 48 are not its only factors).

Q4: 38 is composite — it can be divided evenly by 2 (so 1 and 38 are not its only factors).

EXTENSION SHEET · STRETCH ANSWERS

S1: 20 is composite — it can be divided evenly by 2 (so 1 and 20 are not its only factors).

S2: 1, 2, 19, 38