

# Answer Key

Stage Number	Number of branches	Challenge Can you use repeated multiplication or exponents to find a pattern in the number of branches?
1	Major 3	3 or $3^1$
2	Medium 9	$3 \times 3$ or $3^2$
3	Small 27	$3 \times 3 \times 3$ or $3^3$
4	Tiny 81	$3 \times 3 \times 3 \times 3$ or $3^4$

**Just for laughs**

$$81 \times 5 + 27 \times 3 + 9 \times 2 = 504$$

