

# Patterns

We want students to look for patterns, find relationships and use them as much as they can.

## Growing patterns with whole number

In Kindergarten we use a number track from 0 to 30 when students start counting.



Later we use a hundred chart to help children see and understand the number patterns they are saying.

0	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

If you look at all the numbers in one vertical column some of the patterns you can see are:

**We are counting in multiples of 10 so:**

- The first digit of each number goes up by ones (0, 1, 2, 3 etc)
- The second digit of each number stays the same (in this case, all 3)
- There are 11 of the same digit (in this case 3).
- If you add the digits of each square, they increase by one as you go down the column ( $0 + 3 = 3$ ,  $1 + 3 = 4$ ,  $2 + 3 = 5$  etc).

## Geometric patterns



Number of triangles	1	2	3	4	5	6
Number of sides	3	6	9	12	15	18

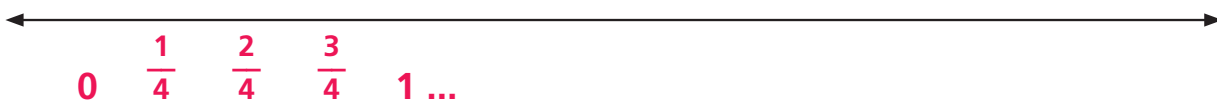
This pattern is growing by one triangle each time so the next picture would have four triangles and the tenth picture would have 10 triangles.

## Fractions and decimals

After creating many patterns with whole numbers, students learn to recognise, continue and create patterns using fractions and decimals:

- $0, \frac{1}{4}, \frac{2}{4}, \frac{3}{4}, \frac{4}{4}, \frac{5}{4} \dots$  This pattern increases by  $\frac{1}{4}$  s
- $2.6, 2.5, 2.4, 2.3, 2.2 \dots$  This pattern decreases by 0.1 each time

Students may use a number line to help them with this counting:



They could also use a chart of decimals:

0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
3	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9
4	4.1	4.2	4.3	4.4	4.4	4.6	4.7	4.8	4.9
5	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9

Mathematics is the study of patterns and relationships.