

TOPIC 21

Number Patterns and Sequences

Strand: Algebra

Strand unit: Number Patterns and Sequences

Curriculum Objectives

- 326 Explore, recognise and record patterns in number, 0–999.
- 327 Explore, extend and describe sequences.
- 328 Use patterns as an aid in the memorisation of number facts.
- 329 Translate an addition or subtraction number sentence with a frame into a word problem.
- 330 Solve 1-step number sentences.

Looking back: What the 2nd class programme covered

1. Recognising pattern and predicting subsequent numbers.
2. Exploring pattern in addition facts.
3. Recognising the use of a frame in number sentences to show the presence of an unknown number.

Maths skills used in this topic

1. **Applying and problem-solving:** Analyse problems and plan an approach to solving them.
2. **Reasoning:** Explore and investigate mathematical patterns and relationships.
3. **Implementing:** Execute standard procedures efficiently with a variety of tools.

Concrete materials

Multi-link cubes, counters

Vocabulary

Pattern, sequence, repeating pattern



Teaching points

1. Don't presume sequencing is easy for children, they can find it particularly challenging.
2. When solving number sequences, encourage children to look at the relationship between each number. For example, in 2, 5, 9, __ the relationship between 2 and 5 is that it has a difference of 3, the relationship between 5 and 9 is that it has a difference of 4, therefore the next number should have a difference of 5.
3. Ensure the children understand that = means 'the same as' and is not the answer. Spend lots



of time making different equations where the children have to find the missing number. Make human equations, e.g. 2 children on one side, therefore 2 children are needed on the other side; 2 groups of 3 children on one side, therefore if there are only 3 on the other side, the missing number is 3 (not 6 as they may think).

Oral and mental activities

Fans:

Show the numbers that appear in the 2 times tables (0, 2, 4, 6, 8). Call out a telephone number for the 2 times tables. Children leave the fans laid out with these numbers displayed and start to count in 2s, watching the pattern that emerges:

2	4	6	8	10
12	14	16	18	20
22	24	26	28	30

Telephone number for the 5 times tables is 5 0. Display the telephone number for 5 times tables on the fans and watch the pattern that emerges:

5	10
15	20
25	30

Telephone number for 4 times tables: 4 8 2 6 0. Display on a fan and watch the pattern emerge.

Telephone number, for the 6 times tables: 6 2 8 4 0. Telephone number for 8 times tables: 8 6 4 2 0, display the numbers and count in 8s. 3 times and 7 times have the longest telephone numbers, 3 times: 3 6 9 2 5 8 1 4 7 0, 7 times tables: 7 4 1 8 5 2 9 6 3. Telephone numbers for tables could be displayed in the classroom to show the pattern of the numbers.



Topic suggestions

Finish the pattern:

Get children to create and investigate colour patterns using multi-link cubes. Working in pairs, encourage them to begin a pattern and then get their partner to continue it. Get them to extend this by creating their own patterns with number sequences that need to be continued.

Pattern in the environment:

Go on a class trip around the school or in the local area and get each child to record the patterns they see, including paving slabs, pillars, houses, windows, etc.

Multiplication patterns:

Get children working in groups or pairs to investigate patterns in multiplication and come up with tricks or ways of remembering their tables using these patterns.

Number and word problems:

In groups or pairs, get children to come up with their own patterns that need to be completed (both number and sequences). Get the children in the class to complete each other's patterns.



Activity A

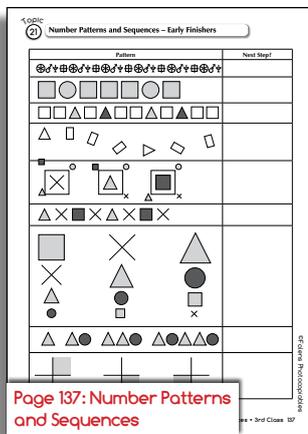
What comes next?

1. 25, 20, 15, 10, ___ (5)
2. 1, 3, 5, 7, ___ (9)
3. 10, 20, 30, 40, ___ (50)
4. 66, 55, 44, 33, ___ (22)
5. 14, 12, 10, 8, ___ (6)
6. 4, 8, 12, 16, 20, 24, ___ (28)

Differentiation

Higher attainers:

Separate activity sheet



Linkage

Number: Operations (multiplication, addition)

Integration

Art: Patterns in art

English: Spelling patterns

Music: Repeated bars and choruses

SESE Science: Pattern in the environment

Maths at home/parental involvement

Parents can encourage children to identify patterns in the environment and record them. At home these could include tiles and flooring and in pictures, etc. Parents could also get children to draw or create their own patterns.