

Curriculum Links

TI-15 Explorer™: Finding Patterns

C

Year 6/7 Patterns and Algebra

Statement of Learning Opportunities

- Use a variety of methods and approaches to solve simple equations and explain reasoning
- Identify and continue number patterns, describing the patterns in words.
- Use whole number values to construct tables for functions (and draw corresponding graphs by plotting points and using technology)
- Specify rules of linear functions using words and symbols from tables of values, and use these to make predictions

Key Ideas

- All linear patterns can be described by a rule (called an equation)
- This rule can be discovered by dividing and establishing that the numbers in the pattern all have the same remainder when divided by a constant divisor
- Linear patterns can be represented as a straight line on a graph

Key Vocabulary

Integer, Quotient, Divisor, Dividend, Remainder, Axis, Linear, Vertical, Horizontal, Term; eg 3rd term, 7th term, nth term.

Lesson Overview

- i) Students discover linear patterns using non-negative integers only
- ii) Students establish a linear pattern by dividing numbers using a common divisor and establishing that those that have the same remainder are part of the same linear pattern
- iii) Students work out how to establish a rule for the pattern
- iv) Students use the rule to find the rest of the pattern
- v) Students graph their patterns
- vi) Assessment

Equipment

TI-15 Explorer™ calculators for students, Worksheets 1 and 2, Student CD, copies of Assessment Sheet, grid paper (BLM 1), ruler, PowerPoint display (optional)

Sequencing

- Use materials to represent number and spatial patterns
- Specify elements in a sequence or pattern in terms of their position

- Use whole number values to construct tables for functions (and draw corresponding graphs by plotting points and using technology)
- Specify rules of linear functions using words and symbols from tables of values, and use these to make predictions

- Formulate linear functions to describe a situation involving constant rate of change given various data
- Use a variety of methods including algebra to solve linear equations of the form $ax + b = c$

Indicators of Success

- Students know the terminology
- Students are able to predict numbers that will give the required remainder when divided by a given divisor, for example the terms in a pattern such as 2,5,8,..... which increases by 3 will, when divided by 3, all have the same remainder
- Students can develop a rule for making predictions about other, unknown terms in a linear pattern
- Students are able to draw the line on a co-ordinate axis, based on the given terms in the linear pattern and use it to predict other numbers that give the nominated remainder when divided by the given divisor