



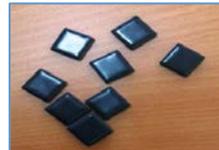
Number Patterns 2.1.6

Word Wall: number, pattern, rule, create, predict, grow, growing, add, repeat, same, different

Introduction Students will create a growing pattern, develop a rule for the pattern and link this rule to a number pattern

Resources

- Felt pieces
- Counters
- Tiles
- Whiteboard
- Whiteboard markers
- FISH Kit



Time / Classroom Organisation

This activity may be introduced in a small group as a 20 minute focused teaching and learning event.

Australian Curriculum

Year level: Two

ACMNA035 Describe patterns with numbers and identify missing elements (ACMNA035)

Proficiency Strand:

Understanding – connecting number calculations with counting sequences



Activity Process--- Growing Patterns

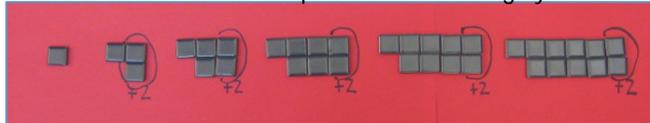
1. Create a growing pattern



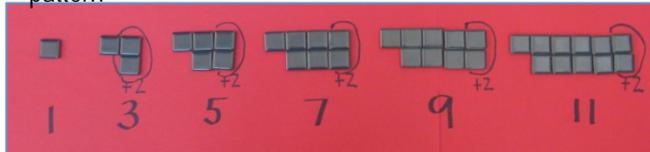
2. Ask students to copy and continue the pattern for three more terms



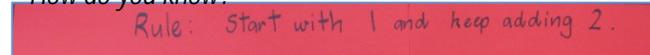
3. Ask students to circle the growing part of the pattern and write the number that the pattern is increasing by.



4. Write the number by which the pattern is growing and the numerical quantity underneath each term in the number pattern

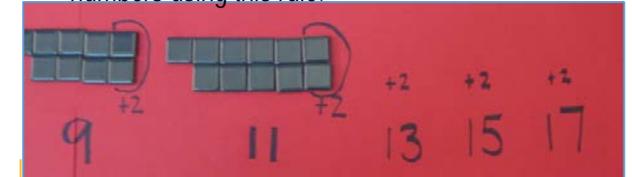


5. Ask: *Predict what the next number in the pattern would be. How do you know?*



6. Discuss the rule for this number pattern. For example: *We start with 1 and keep adding 2.*

7. Write the number pattern down and add three more numbers using this rule.



8. Repeat the above process using other growing patterns and different materials.



2 (+2) 4 (+2) 6



3 (+3) 6 (+3) 9

9. Encourage students to create their own growing patterns and write the number pattern and the rule for the number pattern.

10. Extension: Ask students what the 10th pattern item would be.



Catholic Education
Diocese of Cairns

Learning with Faith and Vision



Adapted for use in the Cairns Diocese with the permission of the Catholic Education Office Toowoomba

Variations & Extensions

1. Guess Missing Numbers

Resources: 10 cards

On a set of 10 cards, write a number on each card to create a number pattern. For example 0, 5, 10, 15, 20, 25, 30, 35 and so on. Remove two cards and shuffle the remaining eight cards.

Select a group of 8 students and ask them to take a card and order themselves from lowest to highest number. Ask the remainder of the class to work out what the number pattern is and what two numbers are missing.

Source: Linthorne, C. 2005. *Jigsaw Maths Teacher Resource Book 3*. Firefly Press: Buderim p 72

2. Tower Patterns

Resources: Blocks

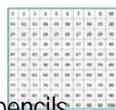
Ask students to build a growing pattern in a tower situation. For example ask students to build a tower pattern on 3, 6, 9, 12 and so on. Students should be able to clearly see a gap of three in each tower. Ask students to continue their patterns until the towers are too high to stay up!

Source: Linthorne, C. & Serenc, M. 2005.

Jigsaw Maths Teacher Resource Book 2. Firefly Press: Buderim p27

3. Hundreds Boards

Resources: Hundreds Boards, 6 coloured pencils
Give each student a copy of a hundreds board and six coloured pencils. Ask students to use the six coloured pencils to colour in the first 5 numbers of 6 counting patterns (addition or subtraction). Students then swap their hundreds board with another student and complete the counting patterns on their new boards.



Digital Resources

<http://www.ideal-resources.com.au/index.php>

Number Box
Can you work out what the missing numbers are to make the total displayed in each row and column correct? Use the - and + keys on the screen to display your answer. Lots of options to make this activity more challenging.



Contexts for Learning

Play:

Bracelets: Provide students with a selection of beads. Ask them to create a pattern bracelet for themselves.

Investigation:

Lucky 13: Ask students to find as many counting patterns as they can that contain the number 13. Repeat with other numbers.

Real life experience:

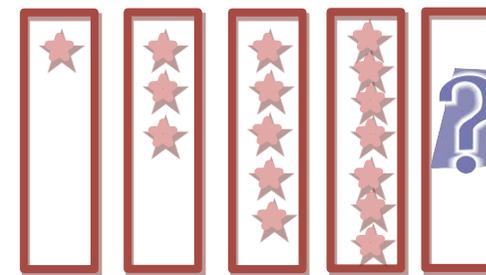
Birthdays: Ask students to work out what year they will turn 10, 20, 30, 40, 50, 60, 70, 80, 90, 100.

Routines and Transitions:

Circle Counting: Each day as a warm up or conclusion to a lesson ask your class to sit in a circle. Each day ask students to count around the circle a different counting pattern (addition or subtraction).

Assessment

Write a number pattern based on a visual pattern, for example: Indicating that the rule is adding 2 each time, and that there will be 9 in the next box.



Achievement Standard: identify the missing element in a number sequence

Background Reading

In most of the growth patterns we study with children, when you increase the number in one set (the number of people or the number of tricycles, for example), the number in the other set also increases (the number of eyes or the number of wheels). In the primary years of school, we focus on functions that come from growth patterns that we can describe with rules. All patterns are important for building children's understanding of what a function is - an important aspect of developing their algebraic thinking. Looking at patterns provides children experience with arithmetic thinking, helps them think about using patterns to figure beyond the information at hand, and provides a springboard for representing rules algebraically (with equations using variables) and also geometrically (plotting ordered pairs on graphs).

Year three NAPLAN Numeracy test links

- Number Patterns

Links to Related MAGs

- 1.4.6 Number Patterns from skip counting
- 2.1.1 Number sequences 1
- 2.3.2 Number sequences 2
- 2.3.7 Number Patterns 2