

Does knowing the pattern rule make it easier to predict the next number in a sequence?

Create growing or shrinking numerical patterns.

- Create a growing numerical pattern by using a rule. For example, 5, 10, 15, 20..., where the rule is “start with 5 and add 5.” Ask your child to guess your rule and write the next three numbers in the pattern.
- Make a pattern and ask your child to extend it. Make it fair by showing the repeating pattern at least three times. For example, 3, 6, 5, 10, 9, 18, 17, ...
- Ask your child to be the mastermind and to create a pattern for you!

How can we predict what numbers will come later in a pattern?

Create a numerical pattern.

- Ask your child to predict what the number will be in the 8th place in a pattern such the one below:

Place	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
Number	1	4	7	10					

- Extend the pattern by writing the numbers past the 8th number in the pattern or by stating a pattern rule:

“I start with 1 and add 3 each time, so for the 8th place I would have 1 plus 7 threes or $1 + (3 \times 7) = 1 + 21 = 22$.”

What will the next palindrome be?

Numbers that can be read the same way forwards and backwards are called palindromes. Two examples of palindromes are 1881 and 9560659.

- Ask your child to make a list of all the palindromes between 1 and 200 and describe all the patterns that he or she can find in the list.
- Then ask your child to find palindromes to 1000. Is the pattern still the same, even though the palindromes are made up of larger numbers?

Can your child write word palindromes?

What relationships among multiplication facts can help with knowing other facts?

Use multiplication facts you already know to find other facts.

- For example, if you cannot recall the product of 6×4 , think:
 - I know that $6 \times 1 = 6$, and that $6 \times 2 = 12$. If I double the factor 6 twice to get 12, I can double the factor 6 four times to get 24.
 - Or, I know that $6 \times 2 = 12$, so I can double one factor in the equation (2×2), and that will double the product (12×2) and that gives me a product of $(6 \times 2) \times 2 = 12 \times 2 = 24$
 - If I forget the product of 6×4 , but I remember $6 \times 1 = 6$, and $6 \times 2 = 12$, I can add another six to that product to get $6 \times 3 = 18$, and then another six to that product to get my answer: $6 \times 4 = 24$. So 6×4 is the same as 3×6 plus one more 6.