

Sequences Starters

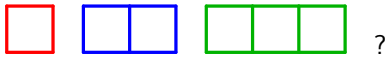
Sequences Starters

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Retrieve and Connect

Q1. Matchstick Pattern



- (a) Draw the 4th shape.
(b) How many matchsticks does it use?

Q2. Complete the Sequence

5, 10, 15, 20, __, __, __

Q3. Write the first 5 terms of the sequence with position-to-term rule: $2n$

__' __' __' __' __

Q4. Sam writes the 3 times table: 3, 6, 9, 12, 15...
He then **adds 2** to every term. Write the first 5 terms of Sam's sequence.
What is the n th term rule?

Q5. Extending Q1

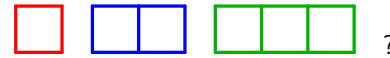
- Using the matchstick pattern from Q1:
(a) How many matchsticks in the **10th** shape?
(b) Write a rule for the n th shape.

Q6. Challenge

Is **100** a term in the sequence with n th term $3n + 1$?
Show how you know.

Retrieve and Connect

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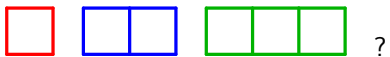
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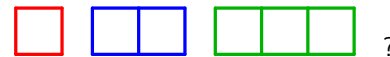
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Show how you know.

Retrieve and Connect

Q1. Dot Pattern



- (a) Draw the 4th picture.
(b) How many dots does it contain?

Q2. Complete the Sequence

4, 8, 12, 16, __, __, __

Q3. Write the first 5 terms of $3n + 1$

—' —' —' —' —

Q4. Alex writes the 5 times table: 5, 10, 15, 20, 25... He then **subtracts 1** from every term. Write the first 5 terms of Alex's sequence. What is the n th term rule?

Q5. Extend Q1

Using your dot pattern from Q1:

- (a) How many dots in the **10th** picture?
(b) Write a rule for the n th picture.

Q6. Challenge

Sequence A has n th term $4n - 2$.

Sequence B has n th term $2n + 6$.

Do they share a term
at the same position?

Retrieve and Connect

Q1. Dot Pattern



- (a) Draw the 4th picture.
(b) How many dots does it contain?

Q2. Complete the Sequence

4, 8, 12, 16, __, __, __

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Sequence B has n th term $2n + 6$.

Do they share a term
at the same position?

Retrieve and Connect

Q1. Matchstick Triangles



- (a) Draw the 4th shape.
(b) How many matchsticks does it use?

Q2. Complete the Sequence

7, 14, 21, 28, __, __, __

Q3. Write the first 5 terms of $5n - 2$

—' —' —' —' —

Q4. A sequence **starts at 5** and **increases by 3** each time. Write the first 5 terms. What is the n th term rule?

Q5. Extending Q1

Using your triangle pattern from Q1:

- (a) Write a rule for the n th shape.
(b) How many matchsticks in the **20th** shape?

Q6. Challenge

The n th term of a sequence is $4n + 3$. Which term is the **first to exceed 75**? Show your working clearly.

Retrieve and Connect

Q1. Matchstick Triangles



- (a) Draw the 4th shape.
(b) How many matchsticks does it use?

Q2. Complete the Sequence

7, 14, 21, 28, __, __, __

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Q6. Challenge

The n th term of a sequence is $4n + 3$. Which term is the **first to exceed 75**? Show your working clearly.

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- (a) Draw the 4th shape.
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7, 14, 21, 28, __, __, __

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Retrieve and Connect

Q1. Dots



- (a) Draw the 4th pattern.
(b) How many dots does it contain?

Q2. Complete the Sequence

1, 5, 9, 13, __, __, __

Q3. Write the first 5 terms of $10 - 2n$

— ' — ' — ' —

Q4. Mia writes the 6 times table: 6, 12, 18, 24, 30... She then **subtracts 4** from every term. Write the first 5 terms, find the n th term, and find the 50th term.

Q5. Find the n th Term

1, 5, 9, 13, 17, ...

What is the n th term rule?

Q6. Challenge

The n th term of a sequence is $10 - 2n$.

Which is the **last positive term**?

What is the **first negative term**?

Retrieve and Connect

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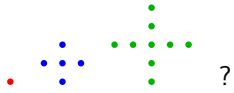
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Q1. Dots



- (a) Draw the 4th shape.
(b) How many dots in shape 5?

Q5. Jake says:

"I start at 3 and add 4 each time."

- (a) Write his first 5 terms, (b) find the n th term rule, and (c) decide whether 59 is in his sequence. Show your reasoning.

Q2. Complete the Sequence

1, 4, 9, 16, __, __, __

Q3. Write the first 5 terms of $2n + 5$

—' —' —' —' —

Q4. Find the n th Term

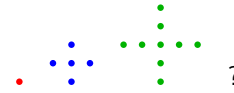
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Q6. Challenge

Mia's sequence has n th term $3n + 1$.
Jake's sequence has n th term $2n + 6$.
Find the **first three values** that appear in *both* sequences. What do you notice about them?

Retrieve and Connect

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- (a) Draw the 4th shape.
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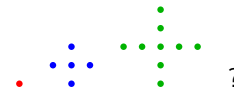
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- (c) Which times tables does the sequence represent?

Q2. Complete the Sequence

4, 8, 12, 16, __, __, __

Q3. The 3 times table has n th term rule $3n$, what is the n th term rule for the 5 times table? __

Q4. Write the first 5 terms of $3n + 4$

__, __, __, __, __

Q5. A sequence is made by taking the 3 times table and subtracting 2 from every term.

- (a) Write the first 5 terms.
- (b) What is the n th term rule?
- (c) Use your rule to find the **20th** term.
- (d) Is **100** in the sequence? Show your working clearly.

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Q1. Dots



- (a) Draw the 4th picture.
- (b) How many dots does it contain?
- (c) Which times table does the sequence represent?

Q2. Complete the Sequence

5, 10, 15, 20, __, __, __

Q3. Write the first 5 terms of $4n - 3$

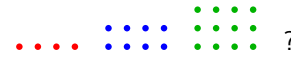
__' __' __' __' __

Q4. Start with the 5 times table and add 1 to every term.

- (a) Write the first 5 terms.
- (b) What is the n th term rule?
- (c) Find the 20th term.
- (d) Is 104 in the sequence? Explain how you know.

Retrieve and Connect

Q1. Dots



- (a) Draw the 4th picture.
- (b) How many dots does it contain?
- (c) Which times table does the sequence represent?

Q2. Complete the Sequence

5, 10, 15, 20, __, __, __

Q3. Write the first 5 terms of $4n - 3$

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- (b) What is the n th term rule?
- (c) Find the 20th term.
- (d) Is 104 in the sequence? Explain how you know.

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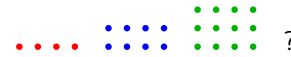
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- (c) Find the 20th term.
- (d) Is 104 in the sequence? Explain how you know.

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- (a) Draw the 4th picture.
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- (c) Find the 20th term.
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