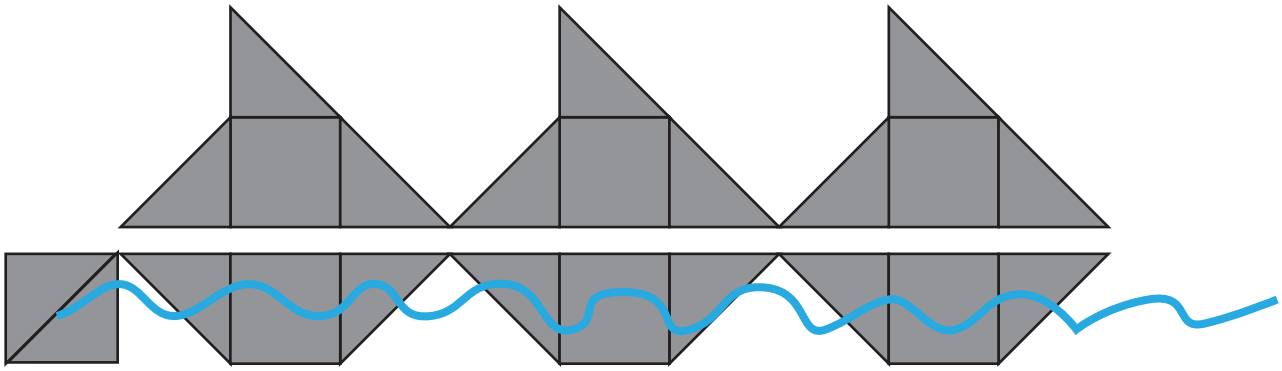
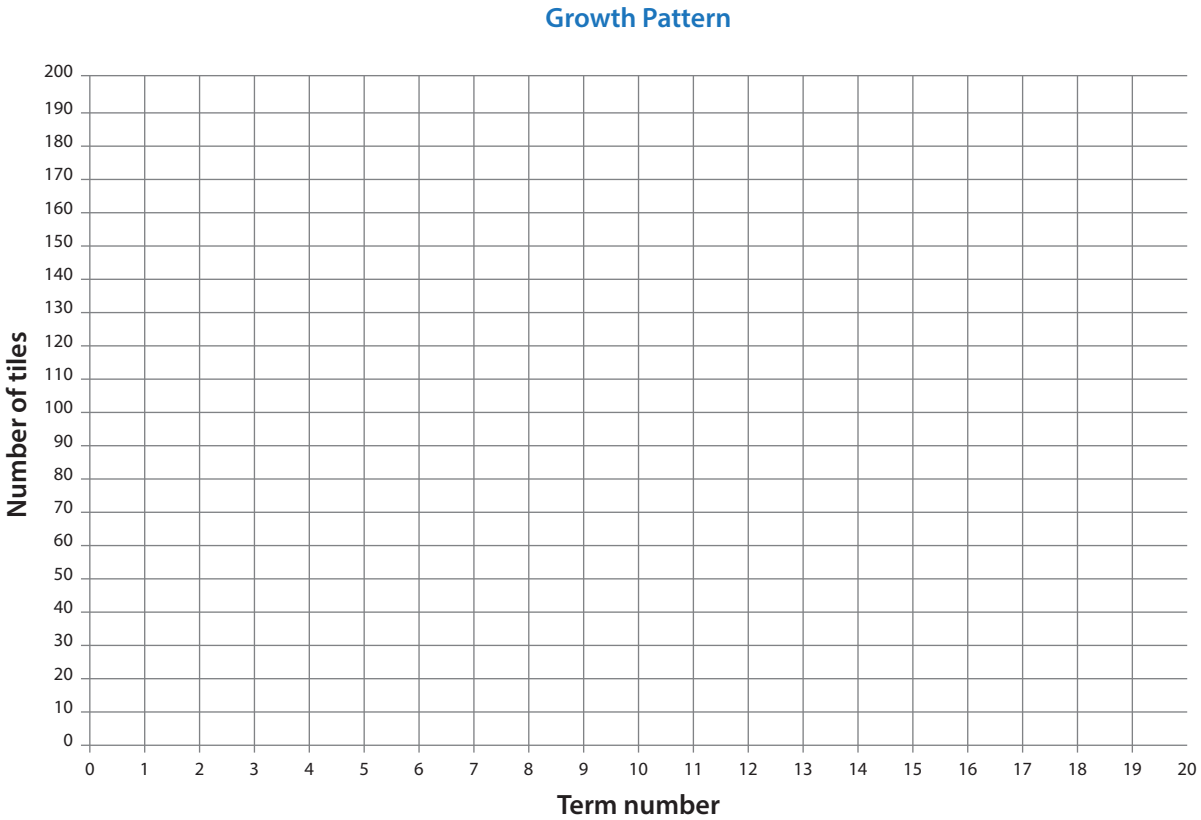
Kayla used isosceles triangular tiles like this, to build a growing pattern.
The tiles are half squares.

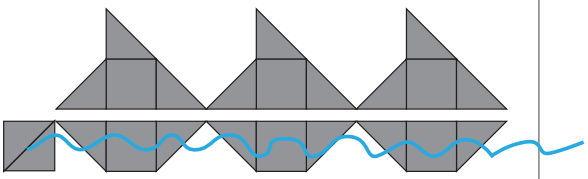
Here are three yachts moored to the jetty in a line.



1. To build a line of ten moored yachts, how many tiles will Kayla need?
2. Graph Kayla's pattern for 1 moored yacht, 2 moored yachts, 3 moored yachts, and ten moored yachts. The number of yachts is the term number in this pattern.



3. Is Kayla's pattern linear? Explain why.



4. Use the table to show the first ten terms of Kayla's pattern. Use a calculator if you need to.

No. of yachts										
No. of tiles										

5. Record an equation for working out the number of tiles Kayla needs to build a line of 100 moored boats.

6. Find a rule to work out the number of tiles for any number of moored yachts.

7. If Kayla uses exactly 272 tiles, how many moored yachts does she make?