SUMMING ARITHMETIC SERIES STUDENT RESOURCE

- Consider **1 + 2 + 3 + … + 98 + 99 + 100**
  What is the sum of all the integers from **1 to 100**?
  Try to find a quick way to do this.

- Now find the sum of all the integers from **1 to 1000**, which can be written as $\sum_{1}^{1000} r$

- Explain why $\sum_{1}^{1000} r$ is **NOT** equal to $10\sum_{1}^{100} r$

- Find a formula for $\sum_{1}^{n} r$ and show that it works for $\sum_{1}^{100} r$ and $\sum_{1}^{1000} r$

- Adapt the method and formula you have developed so far to calculate
  2 + 4 + 6 + … + 96 + 98 + 100
  1 + 3 + 5 + … + 95 + 97 + 99
  50 + 51 + 52 + … + 98 + 99 + 100
  1 + 4 + 7 + … + 34 + 37 +40

- Consider a general arithmetic series, whose first term is ***a*** and which increases in steps of ***d***.
  Write down the first three terms of the series and also the $\boldsymbol{n}^{th}$ term.

- Find a formula for the sum of this general arithmetic series and check that it works for the examples above.