

## Further Maths Transition Work Y11 → Y12

### Sorting algorithms

<https://nrich.maths.org/8192>

Follow the instructions on the link. Make notes on each algorithm mentioned.

Make notes on the 5 questions given by trying each algorithm with a small set of cards where you put the cards into various orders (eg try the algorithms when the cards are randomly shuffled, and then less randomly shuffled). Think about how you should record your results and how you should analyse what you notice. Take time thinking about the following questions and make detailed notes of your findings. You will be studying sorting algorithms in the first term and the work and understanding you gain now will help when you start this topic.

- On average, which algorithm did you find to be quickest?
  - You will need to consider what you mean by 'quickest'.
- What is the 'worst-case scenario' for each algorithm?
- How long would it take in the worst case?
- Which would you choose if you had to keep the cards in a pile rather than laying them out?
- Which would you choose if you only had a limited amount of desk space to arrange the cards on?