

## Further Maths Transition Work Y11 → Y12

*Independent working is key to success in A Level Maths and Further Maths, but so is being able to do maths collaboratively. We are encouraging y11 mathematicians to set up virtual study groups so that you can work on some of this maths together and discuss things you are stuck on.*

### **Researching sorting algorithms (could be left until August)**

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

Follow the instructions on the link. Make notes on each algorithm mentioned, ready to explain any one of them in the first lesson.

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, ready to discuss in the first lesson.

- 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?