What is Complexity?

- Depending on how we do something, it can take longer or shorter amounts of time.
- It can take computers different amounts of time to do a task depending on how they do it too.
- Sorting video
- How it works
A less-clever sorting algorithm (selection sort)

- **Step 1:** Go through the list one at a time and keep track of the smallest number.
- **Step 2:** Once you have looked at all the numbers in the list, move the smallest to the front.
- **Step 3:** Now start again, but now only look at numbers you haven’t already moved to the front.
- **Step 4:** repeat above steps until sorted!
A clever sorting algorithm (merge sort)

- **Step 1**: Compare each pair of items, and put the smaller of each pair first. Do this for each of the pairs.

- **Step 2**: Now you have sorted pairs. Compare the first items in each pair. Put the smaller one in front, next compare the larger one to the second item in the other pair and put the smaller one in front. Finally compare the last two. Do this to make 2 groups of 4.

- **Step 3**: Now you have sorted groups of 4. Do a similar process to step 2 but with the two groups of 4.