Insertion Sorting Lesson Plan

Sorting is a technique commonly used in computer science to re-organize elements based on a certain variable. This can be size, value, length etc. This activity will allow students to engage in insertion sorting hands on by sorting circles of different sizes following this algorithm.

It is essential that students are doing their sort one-by-one since this is how the algorithm is completed within the computer. Start by having students cut out the circles on the attached sheets. Once these are cut out they may scramble the circles to the best of their ability.

A demonstration of the algorithm can now be given by the teacher. Insertion sorts follow the pattern of picking an element, comparing it to the element directly to the left of it, then replacing that number if it is less than the one we are currently observing. Please see the figure below on sorting from least to greatest.

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| --- | --- | --- | --- |
| 7 | 4 | 1 | 9 |

4 is the first number we’re observing. Since 4 is less than 7 it will be moved to the left of it

|  |  |  |  |
| --- | --- | --- | --- |
| 4 | 7 | 1 | 9 |

Once 4 is properly positioned we move on to the next number in the set which is 1. We compare this to the element directly to the left which is 7. Since 1 is less than 7 itll move to the left, then it will need to be compared with 4. 1 is less than 4 again so it will move to the left

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 4 | 7 | 9 |

The final number we must compare is 9. We take 9 and compare it to the element directly to the left of it once again. Since 9 is greater than 7, it will stay in the position it is currently in. We now have no numbers left in our set to compare so we know the set is now sorted.