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 candy 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. Students will sort the candy based on a corresponding value that will be written on each piece.

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.

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



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





| 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.

In this activity students will follow their own sorting algorithms by completing a few sorting challenges using candy. Each piece of candy will be given a respective value and this value is what students will sort by. This is used to represent the values that are bound to variables (the candy itself) in computer science. The teacher’s steps to complete this activity are listed below:

1. Buy a bag of assorted miniature candy
2. Take each individual piece of candy and write a number directly on the packaging or tape a small piece of paper with a number to it
3. Mix all pieces together then randomly select 5 pieces to give to each student
4. Pass out the insertion sort worksheet and give assistance completing each challenge as needed