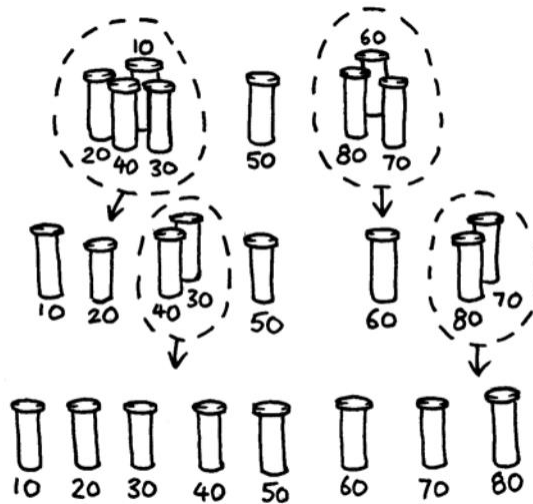


Unit 2 Exam

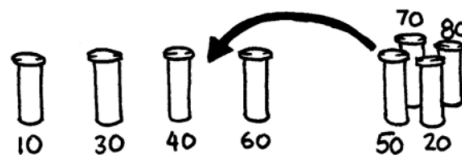
Match the best descriptor given with the appropriate word in the list.

- | | | |
|----------------------------------|-----------------------------------|--------------------------|
| _____ 1. Advocate | _____ 7. Decimal Numbers | _____ 13. Merge Sort |
| _____ 2. Aggregate | _____ 8. Dilation | _____ 14. Quick Sort |
| _____ 3. Algorithm | _____ 9. Discovery | _____ 15. Recursion |
| _____ 4. Binary Numbers | _____ 10. Insertion Sort | _____ 16. Reflection |
| _____ 5. Binary Search Algorithm | _____ 11. Iteration | _____ 17. Rotation |
| _____ 6. Bubble Sort | _____ 12. Linear Search Algorithm | _____ 18. Selection Sort |

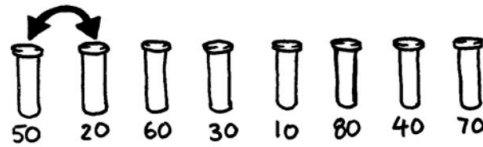
- A. When you either increase or decrease the size of an object to make a new image.
- B. A procedure that can be used to solve a problem.
- C. A base 10 number system.
- D. Method of sorting where you would select one item from your set of data at random. You would then compare this item to every other item in the set to sort into two sets, one larger, one smaller. You would repeat this process with one of the each of the new groups until all of the data is sorted.



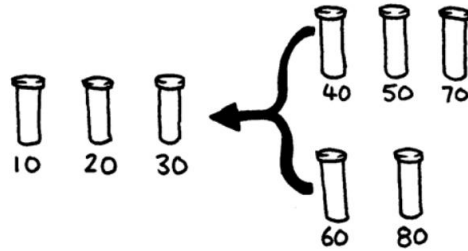
- E. Process of finding a solution by testing each item in a list of data one at a time until you find the answer.
- F. When you repeat the same math operation to the previous to the result of the previous answer. For example, in the corn row braiding project, you may have made each braid 95% as large as the braid before, or you may have rotated each braid 5% from the previous braid to make a spiral.
- G. When you collect data for the purpose of finding a general pattern.
- H. Method of sorting where an item from the unsorted group is inserted into its correct position in a growing list. This is repeated until the list is in order.



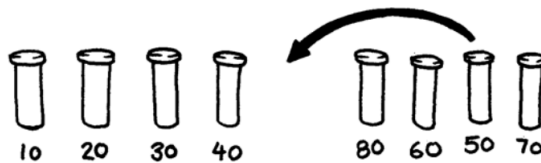
- I. When you take an object and turn it about an axis to make a new image.
- J. In computer science, it is the process of repeating the same steps to solve a problem. In our study of sorting things, any time we divided the set in half, then divided again, and again, and again, it was an example of this principle. We defined divide and conquer as an example.
- K. A base 2 number system.
- L. Method of sorting where you would go through the list again, and again, swapping items that are side by side that are in the wrong order until the list is in order.



- M. Data that is collected from multiple sources or groups.
- N. When you use collected data for the purpose of defending an idea or position. You collect data with hopes that it supports your claim.
- O. Method of sorting where the unsorted group is first randomly split into two equally sized groups. Each of the two groups is then sorted. Once the two groups are sorted, the lists are merged together in order.



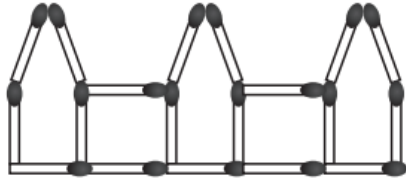
- P. When you take an object and reflect it across an axis (line) to make the new image.
- Q. Process of finding a solution by splitting a list of data in half, then eliminating the half that does not contain the solution. Then, this process is repeated until the solution is discovered.
- R. Method of sorting where you would first find the smallest value in the unsorted group and put it to one side. Next, you would find the item with the least value of those which remain and remove it from the unsorted group. This is repeated until the list is ordered.



Show all the work in these two problems.

19. Convert 183 to binary.

20. Convert 10110001101 to decimal.



Figures are made from matchsticks. Each figure has some pentagon shapes with rectangles built between them. There must be pentagons on each end of the figure. The number of right angles in each figure forms a pattern. There are 14 right angles in the figure above. Determine the number of right angles in the figure that contains 5 pentagons. Determine the number of right angles in the figure that contains 10 pentagons. Bonus: Determine the number of right angles in the figure that contains N pentagons. Describe your problem solving process. This can include figures, tables, or graphs.