{5, 3, 8, 4, 2, 7, 1, 10, 6, 9}

We'll use the first element, **5**, as our pivot.

1. **Partitioning**: We'll partition the array around the pivot **5**. We'll start with two pointers, **i** and **j**, pointing to the beginning and end of the array, respectively. We'll move **i** to the right and **j** to the left, swapping elements if necessary, until **i** and **j** meet.

5, 3, 8, 4, 2, 7, 1, 10, 6, 9}

1. **Swap**: When **i** and **j** meet, we'll swap the pivot **5** with the element at **j**.

{1, 3, 4, 2, 5, 7, 8, 10, 6, 9}

1. **Recursion**: We'll recursively apply the quicksort algorithm to the left and right subarrays.

Left subarray: {1, 3, 4, 2} Right subarray: {7, 8, 10, 6, 9}

1. **Partitioning (left subarray)**: We'll partition the left subarray around the pivot **1**.

,1, 3, 4, 2}

1. **Swap (left subarray)**: When **i** and **j** meet, we'll swap the pivot **1** with the element at **j**.

i={1, 2, 4, 3}

1. **Recursion (left subarray)**: We'll recursively apply the quicksort algorithm to the left and right subarrays.

Left subarray: {1, 2} Right subarray: {4, 3}

1. **Partitioning (right subarray)**: We'll partition the right subarray around the pivot **4**.

i4, 3}

1. **Swap (right subarray)**: When **i** and **j** meet, we'll swap the pivot **4** with the element at **j**.

i=3, 4}

1. **Recursion (right subarray)**: We'll recursively apply the quicksort algorithm to the left and right subarrays.

Left subarray: {3} Right subarray: {4}

1. **Partitioning (right subarray)**: We'll partition the right subarray around the pivot **3**.

3}

1. **Swap (right subarray)**: When **i** and **j** meet, we'll swap the pivot **3** with the element at **j**.

3}

1. **Recursion (right subarray)**: We'll recursively apply the quicksort algorithm to the left and right subarrays (which are empty in this case).

Left subarray: {} Right subarray: {}

1. **Merge**: Finally, we'll merge the sorted left and right subarrays with the pivot **3**.

{1, 2, 3, 4}

1. **Merge**: We'll merge the sorted left subarray **{1, 2, 3, 4}** with the pivot **5** and the sorted right subarray **{6, 7, 8, 9, 10}**.

{1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

This is the final sorted array.