Merging

**Merge.**

- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.

```
smallest

A G L O R

H I M S T

A

auxiliary array
```
Merging

Merge:
- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.

A G L O R

H I M S T

auxiliary array
Merging

**Merge.**
- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.

```
<table>
<thead>
<tr>
<th>A</th>
<th>G</th>
<th>L</th>
<th>O</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>I</td>
<td>M</td>
<td>S</td>
<td>T</td>
</tr>
</tbody>
</table>
```

```
| A | G | H |
```

auxiliary array
Merging

Merge.
- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.

A G L O R

H I M S T

A G H I

auxiliary array
**Merging**

**Merge.**
- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.

---

![Diagram showing merging process]

- Auxiliary array

A G L O R

H I M S T

A G H I L
Merging

**Merge.**
- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.
Merging

Merge.
- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.

```
A G L O R
H I M S T
```

auxiliary array
Merging

**Merge.**
- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.

\[ \text{auxiliary array} \]

![Diagram showing merging process with arrays A G L O R and H I M S T, and auxiliary array highlighting elements A G H I L M O R}
Merge.

- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.
Merging

**Merge.**
- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.

```
AGLOR
```

```
HIMST
```

```
AGHILMORS
```

auxiliary array

first half exhausted

smallest
Merging

Merge.
- Keep track of smallest element in each sorted half.
- Insert smallest of two elements into auxiliary array.
- Repeat until done.