Here is a comprehensive list of CSS flexbox properties:

**Container Properties**

1. **display**
   * display: flex;
   * display: inline-flex;
2. **flex-direction**
   * flex-direction: row; (default)
   * flex-direction: row-reverse;
   * flex-direction: column;
   * flex-direction: column-reverse;
3. **flex-wrap**
   * flex-wrap: nowrap; (default)
   * flex-wrap: wrap;
   * flex-wrap: wrap-reverse;
4. **flex-flow**
   * Shorthand for flex-direction and flex-wrap
   * Example: flex-flow: row wrap;
5. **justify-content**
   * justify-content: flex-start; (default)
   * justify-content: flex-end;
   * justify-content: center;
   * justify-content: space-between;
   * justify-content: space-around;
   * justify-content: space-evenly;
6. **align-items**
   * align-items: stretch; (default)
   * align-items: flex-start;
   * align-items: flex-end;
   * align-items: center;
   * align-items: baseline;
7. **align-content**
   * align-content: stretch; (default)
   * align-content: flex-start;
   * align-content: flex-end;
   * align-content: center;
   * align-content: space-between;
   * align-content: space-around;

**Item Properties**

1. **order**
   * Defines the order of the flex items
   * Example: order: 1;
2. **flex-grow**
   * Defines the ability for a flex item to grow if necessary
   * Example: flex-grow: 2;
3. **flex-shrink**
   * Defines the ability for a flex item to shrink if necessary
   * Example: flex-shrink: 1;
4. **flex-basis**
   * Defines the default size of an element before the remaining space is distributed
   * Example: flex-basis: 20%;
5. **flex**
   * Shorthand for flex-grow, flex-shrink, and flex-basis
   * Example: flex: 1 0 auto;
6. **align-self**
   * Allows the default alignment (or the one specified by align-items) to be overridden for individual flex items
   * align-self: auto; (default)
   * align-self: flex-start;
   * align-self: flex-end;
   * align-self: center;
   * align-self: baseline;
   * align-self: stretch;
7. **margin**
   * Can be used to control spacing between flex items
   * Example: margin: auto; can center an item within a flex container

These properties provide powerful and flexible layout options in CSS, making it easier to create responsive and adaptive designs.