Develop jQuery script (with HTML/CSS) for:

a. Appends the content at the end of the existing paragraph and list.

b. Change the state of the element with CSS style using animate() method

c. Change the color of any div that is animated.

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>jQuery Script Tasks</title>
  <link rel="stylesheet" href="styles.css">
  <script src="https://code.jquery.com/jquery-3.6.0.min.js"></script>
  <style>
    body { font-family: Arial, sans-serif; margin: 20px; }
    p, ul, div { margin: 10px 0; padding: 10px; }
    p, ul li { color: #333; }
    .box { width: 100px; height: 100px; background-color: #f4f4f4; }
  </style>
</head>
<body>

  <h2>Append Content</h2>
```

```
<p id="para">This is an existing paragraph.</p>
<ul id="list">
  <li>Item 1</li>
  <li>Item 2</li>
</ul>
<button id="appendBtn">Append Content</button>


<h2>Animate Element</h2>
<div class="box" id="animateBox"></div>
<button id="animateBtn">Animate Box</button>


<script>
    $(document).ready(function() {
 let itemCount = $('#list li').length; // Initialize with the current number
of items in the list


 // Append content to paragraph and list with a unique item number
 $('#appendBtn').click(() => {
   itemCount++; // Increment the item number
   $('#para').append(` Appended text ${itemCount}.`);
   $('#list').append(`<li>Item ${itemCount}</li>`);
 });
});
```

```
    // Animate element and change color
    $('#animateBtn').click(() => {
        $('#animateBox').css({ width: '100px', height: '100px',
'background-color': '#f4f4f4' }) // Reset properties
    .animate({ width: '150px', height: '150px' }, 500, function() {
        $(this).css('background-color', 'lightblue');
    });
});
  </script>
</body>
</html>
```

Explanation

1. **DOCTYPE Declaration**: Defines the document type and version of HTML.
2. **HTML Tag**: The root element of the HTML document.
3. **Language Attribute**: Specifies the language of the document (English).
4. **Head Section**:
   - **Meta Charset**: Sets the character encoding to UTF-8.
   - **Title**: Sets the title of the page.
   - **Link**: References an external CSS file for styling.
   - **Script**: Includes jQuery library from a CDN.
   - **Style**: Defines inline CSS for quick styling.
5. **Body Section**:

- **Append Content Section**: Contains a paragraph, an unordered list, and a button to append content.
- **Animate Element Section**: Contains a div (box) and a button to animate the box.

6. **Script Section**:
   - **Document Ready**: Ensures the script runs only after the document is fully loaded.
   - **Append Content Functionality**:
     - **itemCount**: Initializes with the current number of list items.
     - **Append Button Click**: Appends text to the paragraph and a new list item with a unique number.
   - **Animate Element Functionality**:
     - **Animate Button Click**: Resets the box properties and animates it to a larger size, then changes its background color.

The code is structured to demonstrate the use of jQuery for DOM manipulation and animations, providing interactive features like appending content and animating an element.