Homework - HTML Teaching Series

Good.

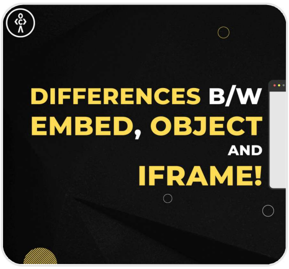
`<embed>` and `<object>` are **rarely taught properly**, yet they still appear in **legacy systems, enterprise apps, and interviews**.

We'll cover them **clearly, comparatively, and production-focused**, so you know **when to use, when to avoid, and why.**

🔷 HTML `<embed>` and `<object>`

(Embedding external resources — PDFs, media, plugins)

```
<!--Include HTML-->
<embed type="text/html" src="test
  #document
    <!--Embed-->
    <html>
      <head></head>
      <body>
        <div>
          <p>Test Paragraph</p>
        </div>
      </body>
    </html>
  </html>
</embed>
```



1️⃣ What `<embed>` and `<object>` Are (Mental Model)

Both `<embed>` and `<object>` are used to **embed external resources** into a webpage.

These resources can be:

- PDF files
- SVGs
- Media files
- Legacy plugin content (Flash — now obsolete)

They are **not HTML pages** like `<iframe>`.

Think of them as:

> "Insert this external file and let the browser decide how to render it."

2️⃣ `<embed>` — Simple, Direct Embedding

Basic syntax

```html
<embed src="file.pdf" type="application/pdf" />
```

Key characteristics

- Self-closing
- Minimal configuration
- No fallback content
- Browser-dependent rendering

Common attributes

Attribute	Purpose
`src`	Resource URL
`type`	MIME type
`width`	Display width
`height`	Display height

Example: Embedding a PDF

```html
<embed
  src="resume.pdf"
  type="application/pdf"
  width="100%"
  height="600"
/>
```

If browser supports PDF → it shows

If not → user sees nothing

3️⃣ `<object>` — Structured, Flexible Embedding

Basic syntax

```html
<object data="file.pdf" type="application/pdf"></object>
```

Key characteristics

- Has opening and closing tags
- Supports **fallback content**
- More semantic and controllable
- Better for accessibility

Example: PDF with fallback

```html
<object
  data="resume.pdf"
  type="application/pdf"
  width="100%"
  height="600"
>
  <p>
    Your browser cannot display PDFs.
    <a href="resume.pdf">Download the file</a>.
  </p>
</object>
```

This is **production-correct behavior**.

4️⃣ Attribute Comparison (`<embed>` vs `<object>`)

Feature	`<embed>`	`<object>`
Closing tag	❌ No	✅ Yes
Fallback content	❌ No	✅ Yes
Accessibility	Weak	Better
Configuration	Simple	Flexible
Modern usage	Limited	Preferred

5️⃣ Core Attributes Explained

🔹 `src` vs `data`

```html
<embed src="file.pdf" />
<object data="file.pdf"></object>
```

- `<embed>` uses `src`
- `<object>` uses `data`

Same purpose, different naming.

🔹 `type` — MIME Type (IMPORTANT)

```html
type="application/pdf"
```

Why this matters:

- Helps browser decide renderer
- Improves compatibility
- Avoids incorrect handling

Common MIME types:

- `application/pdf`
- `image/svg+xml`
- `audio/mpeg`
- `video/mp4`

🔹 `width` & `height`

Same reason as images and video:

- Prevent layout shift
- Control visible area

6️⃣ `<object>` with `<param>` (Legacy but Interview-Relevant)

```html
<object data="movie.mp4" type="video/mp4">
  <param name="autoplay" value="false" />
</object>
```

- `<param>` passes parameters to embedded resource
- Mostly legacy usage
- Still appears in old enterprise apps

7️⃣ Real-World Use Cases

A. PDFs (Most Common)

- Reports
- Resumes
- Legal documents

Preferred:

```html
```

```
<object> with fallback
```

B. SVG Graphics

```html
<object data="diagram.svg" type="image/svg+xml"></object>
```

Allows interaction inside SVG.

C. Legacy Media Systems

Older platforms still use `<object>`.

8️⃣ When NOT to Use `<embed>` or `<object>`

❌ Do not use for:

- Page navigation (use `<iframe>`)
- Modern video (use `<video>`)
- Audio (use `<audio>`)
- Complex interactive apps

9️⃣ Common Beginner Mistakes

❌ Using `<embed>` without fallback

User sees blank space.

❌ Forgetting `type`

Browser guesses incorrectly.

❌ Using `<object>` for layout

Wrong semantic purpose.

🔟 Production Rules (MEMORIZE)

- Prefer `<object>` over `<embed>`
- Always provide fallback content
- Always specify `type`
- Always define size
- Avoid for critical UX paths

Senior developers use these **sparingly and intentionally**.

1️⃣1️⃣ Interview Questions (Very Common)

1. Difference between `<iframe>` and `<object>`?
2. Why is `<object>` preferred over `<embed>`?
3. How do you embed a PDF accessibly?
4. What is fallback content?
5. What does the `type` attribute do?

🧠 Mental Model to Lock In

> `<embed>` **inserts a resource blindly.**
> `<object>` **embeds a resource thoughtfully.**
> **Fallback is what makes HTML robust.`**

➡️ NEXT TOPICS (Final HTML Areas)

We can now move to:

- **HTML** `<canvas>` **(conceptual + usage)**
- **HTML Accessibility Basics (ARIA intro)**
- **HTML SEO-focused tags**
- **HTML rendering pipeline (practical)**

Tell me which one you want next.