Student Engagement & Mentoring in Technology

1. Language Sorting Drag & Drop

Objective: Help learners correctly categorize programming languages based on how they are executed or used.

How It Works:

- Learners are presented with a set of draggable "language tiles" (e.g., **Python**, **C++**, **HTML**, **SQL**, **Assembly**, **R**, **Java**, **Perl**).
- They drag each tile into one of the following category boxes:
  - **Interpreted – Scripting**
  - **Interpreted – Markup**
  - **Compiled**
  - **Assembly**
  - **Query**

Why It Works:
This helps learners **internalize distinctions** between language types and reinforces memory through tactile interaction.

---

2. Execution Model Simulation (Animated Walkthrough)

Objective: Visually demonstrate how code flows from source to output for both **interpreted** and **compiled** models.

How It Works:

- Learners click through two animated paths:
  1. **Interpreted Flow:** Source Code → Interpreter → Output
  2. **Compiled Flow:** Source Code → Compiler → Executable → Output
- Tooltips or "info spots" explain key components (e.g., interpreter, compiler, executable file).
- Optionally, include sample pseudo-code for each.

Why It Works:
Supports **conceptual clarity** by transforming abstract ideas into step-by-step visual models.

---

3. Code Identification Challenge (Mini Quiz Game)

Objective: Allow learners to practice recognizing languages and code structures based on small snippets.

How It Works:

- Learners are shown brief code snippets and asked to:
  - **Identify the language**
  - **Classify its type** (e.g., "compiled," "markup," "query")
- Examples:

```
python
CopyEdit
print("Hello World")  → Python → Interpreted/Scripting
html
CopyEdit
<b>Hello</b> → HTML → Interpreted/Markup

SELECT * FROM Users; → SQL → Query Language
```

Why It Works:
Strengthens **recognition and classification** skills, which are directly tested on the ITF+ exam.

Bonus Activity:

"Language Detective" Scavenger Hunt

- Embed code snippets throughout the course site or slides.
- Learners must find and categorize them using a printable or digital worksheet.

Summary Table

Activity Name	Purpose	Format/Interaction Type
Language Sorting Drag & Drop	Categorize languages	Hands-on, drag-and-drop
Execution Model Simulation	Visualize interpreted vs. compiled	Animated walkthrough
Code Identification Challenge	Recognize code snippets	Quiz-style interactive game
Language Detective Scavenger Hunt	Explore code in context	Self-guided digital exploration