# **Fundamental Testing Knowledge**

As a tester, there are several key skills and areas of knowledge that you should focus on to be effective in your role. Here's a breakdown of essential topics:

**1. Foundational Testing Concepts**

* **Software Testing Fundamentals**: Understand the basic principles of software testing, such as test cases, test plans, test strategies, and the software development life cycle (SDLC).
* **Types of Testing**:
  + **Manual Testing**: Learning how to manually test applications by executing test cases without automation tools.
  + **Automation Testing**: Using tools to automate test execution (Selenium, Cypress, TestNG).
  + **Functional vs Non-Functional Testing**:
    - Functional: Unit Testing, Integration Testing, System Testing, User Acceptance Testing (UAT).
    - Non-functional: Performance Testing, Security Testing, Usability Testing, Load Testing.

**2. Automation Tools**

* **Selenium WebDriver**: A widely-used automation tool for web applications.
* **Cypress**: A modern testing framework for front-end testing.
* **JUnit/TestNG**: Java-based frameworks for unit testing.
* **Postman/SoapUI**: Tools for API testing.
* **Appium**: For mobile testing automation (both Android and iOS).

**3. Programming/Scripting Skills**

* **Languages**: Learn a programming language like Java, Python, or JavaScript to write test scripts.
* **Scripting for Automation**: Understanding how to script automated tests and create reusable functions.

**4. Continuous Integration (CI) / Continuous Deployment (CD)**

* Familiarity with CI/CD tools such as **Jenkins**, **CircleCI**, or **GitLab CI**.
* Understanding how to integrate automated tests into CI pipelines.

**5. Version Control Systems**

* **Git/GitHub/GitLab**: Learn to manage and collaborate on codebases using version control systems.

**6. Test Management Tools**

* **JIRA, TestRail, HP ALM**: Tools for managing and tracking test cases, defects, and progress of test execution.

**7. Agile and DevOps Methodologies**

* Learn how testing fits into agile and DevOps frameworks.
* Get comfortable with **Agile Scrum** or **Kanban** and understand your role as a tester within sprints.

**8. Performance and Load Testing**

* **JMeter**: A tool for performance and load testing.
* **LoadRunner**: For testing how the system behaves under load.