National Competitions

worldskillsuk

Funded by UK Government

# Technical Handbook 2026

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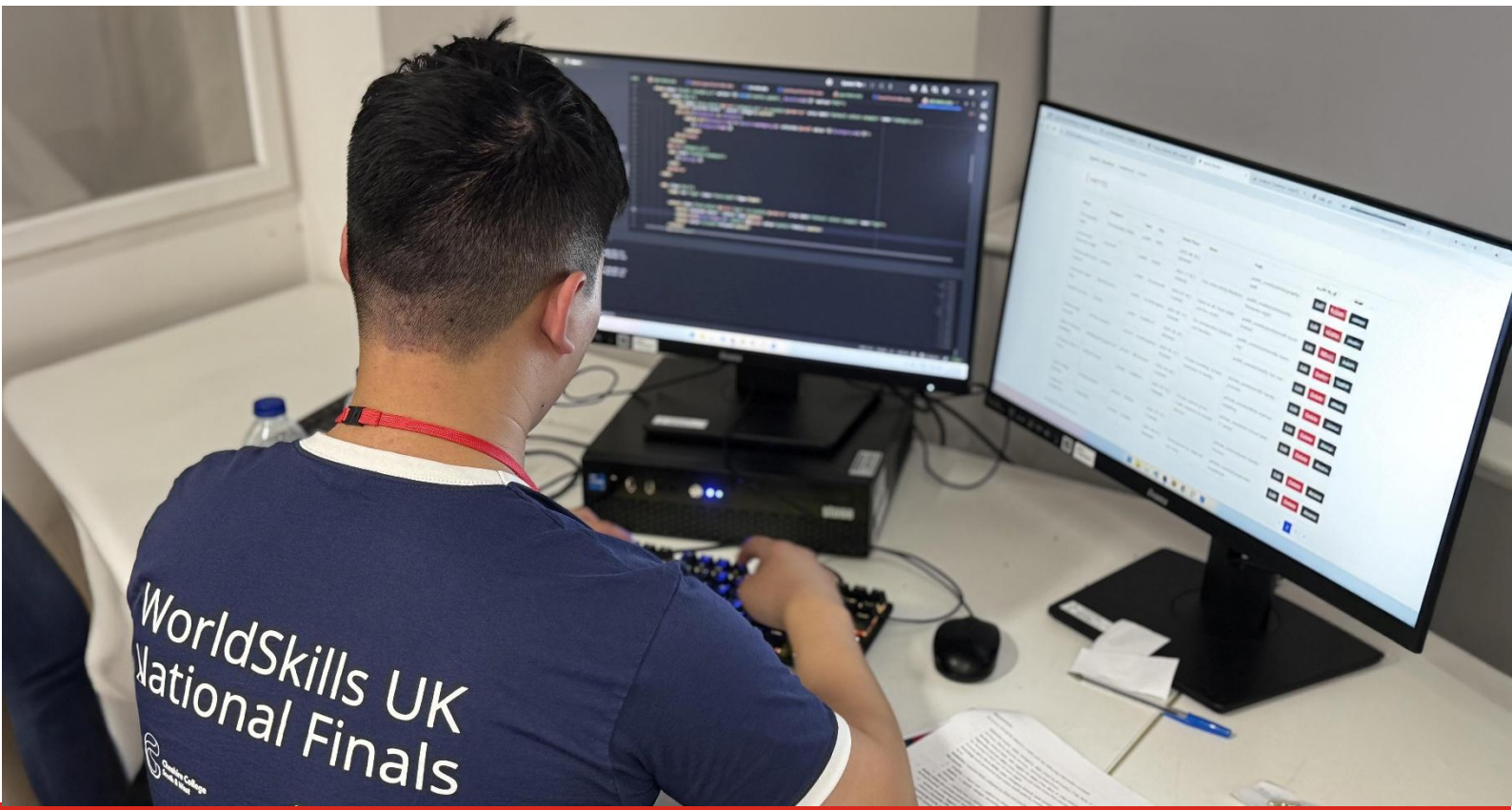
# INTRODUCTION

## Web Developer

*"A **Web Developer** is a programmer who creates the websites and web applications people use every day. They write the code that makes a site not only look good but also work properly — from loading pages quickly and responding to user actions, to saving data and connecting to online services. Web development usually involves a mix of technologies such as **HTML and CSS** (structure and styling), **JavaScript** (interactive behaviour and dynamic features), and server-side programming such as **PHP or JavaScript** to handle application logic. Most web applications also rely on **databases and SQL** to store and retrieve information reliably.*

*Web development is often described in two main areas: **front-end** and **back-end**. The **front-end** is everything the user sees and interacts with, such as layouts, navigation, forms, and accessibility features. The **back-end** runs behind the scenes and powers the website — including servers, databases, APIs, security, and the rules that control how the system behaves. While **Web Designers** focus primarily on the visual design and user experience, **Web Developers** are responsible for building the technical solution that turns an idea into a working product. Many modern Web Developers work across both areas, combining solid programming skills with an understanding of good design and usability."*

Web Developers apply their technical expertise to craft and maintain websites and web applications, leveraging their skills in coding, problem-solving, and design. Beyond just writing code, they handle tasks like creating user-friendly interfaces, managing databases, and ensuring smooth functionality. In this rapidly changing field, adaptability is key, as developers must keep up with evolving technologies and practices. A vital part of their work is ensuring websites and applications are accessible to all users, regardless of their device or location, making inclusivity and responsiveness central to their skills set.



# COMPETITION OVERVIEW

During the **WorldSkills UK - Web Development** competition, participants will receive a brief to work throughout the three competition stages. The competition includes a range of competencies for web designers and developers.

The competition journey will take you through the following steps outlined below:

## Registration

Once you have completed your registration (and accepted all terms and conditions), you will receive an email confirmation. When the registration period closes, you will be emailed a **unique link** to access the initial online assessment for the Entry Stage.

## STAGE 1: Entry Stage

The Entry Stage is designed to assess your core knowledge and readiness for the competition. It will typically include an online assessment covering key web development concepts and practical problem-solving.

Once the Entry Stage has been completed, your assessment will be reviewed, and you will be notified of the outcome. If you score high enough (**70% or above**), you will be invited to progress to the **National Qualifiers** (the semi-final round). You will then be informed when and how the National Qualifiers will take place, including dates, format, and the expectations for competitors.

***NOTE**: Progression from the Qualifier Stage is limited to a maximum of **three competitors per organisation**.*

## STAGE 2: National Qualifiers

The 2026 National Qualifiers are set to take place online, offering participants a dynamic three-hour challenge. This year's evaluation will spotlight coding expertise, with a strong emphasis on demonstrating skills in **Design Implementation**. While the use of **HTML, CSS, and JavaScript** will be assessed, participants may also be required to apply light **server-side logic** where appropriate (for example, handling form submissions or integrating basic data interactions). The incorporation of frontend frameworks such as React, Vue.js or Svelte a along with styling frameworks such as Bootstrap or Tailwind is permitted but not mandatory.

Ensure you're ready to compete in the National Qualifiers by reviewing the online training resources, core competencies, and marking guidelines below. This handbook outlines the type of tasks you will be expected to complete. Ask your lecturer or employer for support in any area where improvement is needed and aim to build practical experience across all task areas of the competition.

## STAGE 3: WorldSkills UK National Finals

The **eight highest-scoring competitors** across all National Qualifiers will be invited to compete in the **National Finals**, held at an in-person venue. Venue details will be confirmed at a later date.

To prepare for the UK National Finals, review the essential skills and marking criteria provided below. These guidelines outline the competencies you will be expected to demonstrate during the competition. If there are areas you feel you need to strengthen, seek support from your lecturer or employer. You should also aim to gain hands-on experience

across all task areas, ensuring you are confident working under competition conditions.

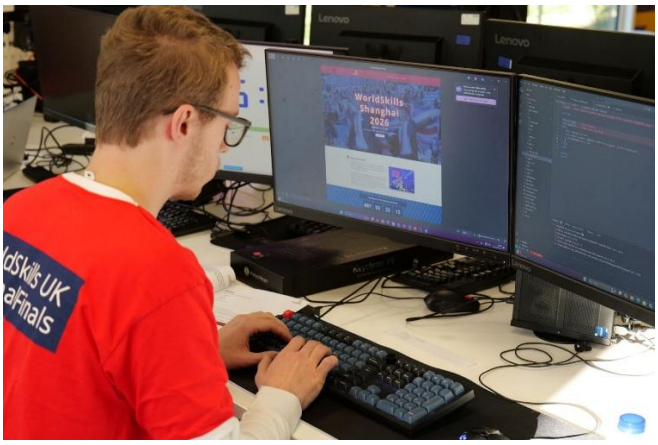
## STAGE 4: International Competitions

After the National Finals, competitors can explore numerous other opportunities. Those who are of the appropriate age and demonstrate exceptional skill, passion, and determination in the national finals will have the chance to train for and compete in the EuroSkills (https://worldskillseurope.org) and WorldSkills (https://worldskills.org) international competitions.


For those who do not meet the criteria for international competition, the Skills Champions programme offers an alternative path for continued participation. This programme provides opportunities to collaborate with WorldSkills UK and engage with schools, colleges, and various events to motivate future generations.

Moreover, if you are interested in training, you might consider assisting WorldSkills UK in planning, training activities, and even contributing to the success of future National Finals.

# CAREERS, JOBS & ROLES




Web development offers a wide range of career pathways, from designing how a website looks and feels, to building the systems that power it behind the scenes. Some professionals specialise in one area, while others develop broader skills and become Full-Stack Developers who can build complete web applications from end to end.

## Career Path Snapshot

There is no single "*correct*" pathway into web development, but common routes include:

- *Web Designer → Front-End Developer → Full-Stack Developer*
- Back-End Developer (*specialist route, often leading into full-stack or system architecture roles*)
- Progression in any role: Junior → Mid-level → Senior → Lead / Manager

Career pathways in web development are flexible and often non-linear. Many people begin in one area, such as design or front-end development, and gradually expand their skills into other areas as projects become more complex. For example, front-end developers commonly learn server-side development to handle data, authentication, and APIs, while back-end developers often build up their UI skills to better understand the user-facing side of an application. Over time, this progression naturally leads many professionals into ***full-stack development***, where they can build complete solutions end-to-end.

In industry, employers value developers who combine technical skills with professional practice, including source control, testing, structured problem-solving, and secure coding. Web development is a progressive career path, whether you specialise in one area or broaden into multiple roles.

## In This Competition...

This competition focuses on skills used across real-world web development roles. Competitors are expected to demonstrate:

- HTML & CSS (structure, layout, responsiveness, accessibility)
- JavaScript (interactivity and logic)
- Backend fundamentals (PHP and/or JavaScript where applicable)
- API integration (consuming and using data/services)
- Database interaction (structured data and queries)

In addition to core web technologies, competitors are expected to demonstrate professional development practice. This includes interpreting a brief accurately, structuring code clearly, and producing solutions that are responsive and accessible. Some tasks may involve data-driven features such as working with APIs, processing form inputs, or applying basic server-side logic where appropriate. Performance, security awareness, and debugging ability are also assessed through the quality and reliability of the final outcome.

## Role Profiles

The role profiles below provide a brief overview of common pathways within web development. They highlight typical responsibilities, core skills, and the tools and technologies associated with each role to support students and educators in understanding progression and career relevance.

### Web Designer

**What you build:** The visual design and user experience of websites and web applications.

**Typical tasks:**

- Creating layouts, page structure, and design systems
- Producing wireframes, prototypes, and UI assets
- Making design decisions for usability and accessibility

**Key skills:**

*Creativity • UI/UX understanding • Visual design principles • Communication • Attention to detail*

**Common tools/technologies:** Figma, Adobe XD, Photoshop/Illustrator, design systems, accessibility guidelines

**Progression:** Junior Designer → UI/UX Designer → Senior Designer → Lead Designer

Web design offers strong career opportunities in the UK across agencies and in-house digital teams. Entry-level salaries typically start around **£20,000–£28,000**, rising to **£30,000–£45,000+** with experience (and higher for senior UI/UX roles). Many employers also offer hybrid working, training budgets, and funded certifications.

### Front-End Web Developer

**What you build:** The user-facing parts of websites and web applications that run in the browser.

**Typical tasks:**

- Building responsive page layouts from designs
- Creating interactive features using JavaScript
- Ensuring accessibility, performance, and cross-browser compatibility

**Key skills:** *HTML/CSS • JavaScript • Responsive design • Problem-solving • Attention to detail*

**Common tools/technologies:** HTML, CSS, JavaScript, Bootstrap/Tailwind, React/Vue/Svelte (optional), Git, browser developer tools

**Progression:** Junior Front-End Developer → Front-End Developer → Senior Front-End Developer → Lead Front-End Developer

Front-end development offers strong career opportunities in the UK across digital agencies and in-house product teams. Entry-level salaries typically start around **£25,000–£35,000**, rising to **£40,000–£60,000+** with experience (and higher for senior or specialist roles). Many employers also offer hybrid working, training budgets, and funded certifications.

### Back-End Web Developer

**What you build:** The server-side systems that power websites and web applications, including databases, APIs, and application logic.

**Typical tasks:**

- Building server-side functionality and application logic
- Managing databases and structured data securely
- Developing and integrating APIs, authentication, and security controls

**Key skills:**

*Server-side programming • API development & integration • Database design & SQL • Problem-solving • Security awareness*

**Common tools/technologies:** Server-side languages (varies by organisation), SQL

databases, REST APIs, authentication, server configuration, Git

**Progression:** Junior Back-End Developer → Back-End Developer → Senior Back-End Developer → Lead Developer / Architect

Back-end development offers strong career opportunities in the UK across product companies, enterprise organisations, and digital services. Entry-level salaries typically start around **£28,000–£38,000**, rising to **£45,000–£70,000+** with experience (and higher for senior engineering, platform, or architecture roles). Many employers also offer hybrid working, training budgets, and funded certifications.

## Full-Stack Web Developer

**What you build:** Complete web applications across both front-end and back-end, from user interface to server logic and data storage.

**Typical tasks:**

- Building full features end-to-end (UI → server logic → database)
- Integrating APIs and external services
- Testing, debugging, and improving performance and reliability

**Key skills:**

*Front-end development • Server-side development • API integration • Database skills • Problem-solving*

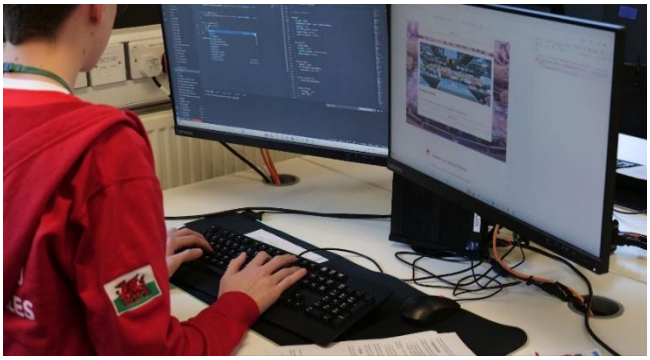
**Common tools/technologies:** HTML, CSS, JavaScript, server-side technologies (varies by organisation), SQL databases, REST APIs, Git

**Progression:** Junior Full-Stack Developer → Full-Stack Developer → Senior Full-Stack Developer → Lead Developer / Engineering Manager

Full-stack development offers strong career opportunities in the UK across start-ups, digital agencies, and product teams, as it combines both front-end and back-end capability. Entry-level salaries typically start around **£28,000–£40,000**, rising to **£50,000–£80,000+** with experience (and higher for senior lead roles depending on sector and location). Many employers also offer hybrid working, training budgets, and funded certifications.

# CORE COMPETENCIES

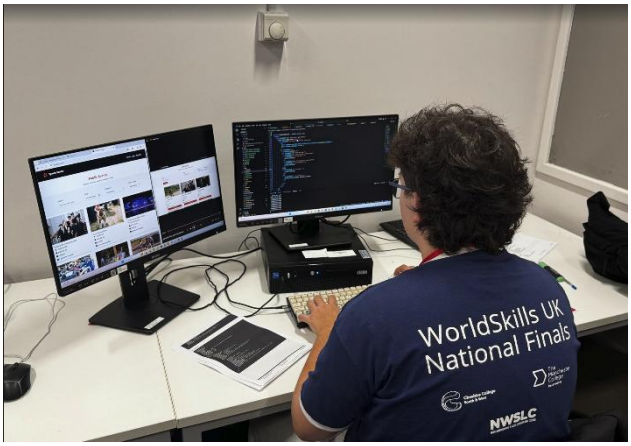
Core competencies are the essential skills and knowledge required in web development, and they are assessed throughout the competition journey. Competitors are expected to demonstrate capability across both **front-end** and **back-end** development, including the ability to build functional, responsive, and accessible web solutions under time constraints.



The competencies outlined below cover the full range of web development fundamentals. This includes **HTML, CSS, and JavaScript** for creating modern user interfaces, implementing interactive behaviour, and ensuring responsive layouts across devices. Competitors will also be assessed on server-side capability, including **database skills (SQL)**, structured data handling, and implementing backend logic that supports real application features. Where appropriate, competitors may also be required to work with **APIs**, including retrieving data, processing it correctly, and presenting it in a clear and usable format.

Competitors are encouraged to adopt industry-standard approaches during implementation. Common frameworks and libraries such as **React, Vue.js, Vite, Bootstrap, and Tailwind** may be used where permitted, but are not mandatory unless stated in the task brief. Marks are awarded for good practice, including clean structure, sensible file organisation, consistent naming, and building solutions that are maintainable and scalable.

In addition to technical ability, strong **problem-solving and debugging skills** are critical. Competitors must be able to interpret a brief accurately, plan an approach, identify issues quickly, and apply efficient fixes. Testing and troubleshooting are expected throughout development, including refining layout issues, resolving logic errors, improving performance, and ensuring the final solution behaves correctly across common browsers and screen sizes. Use of **version control (Git)** is also a key competency, reflecting real workplace practice and supporting structured development and reliable progress tracking.




The WorldSkills UK skills matrix provides a clear reference for these expectations across all stages of the competition, from **Stage 1** through to international standards

http://tinyurl.com/wsuk-matrix

# TECHNOLOGICAL SKILLS


**Web Development** combines a range of technologies that work together to create modern websites and web applications. In practice, development is often grouped into **front-end** (what the user interacts with in the browser) and **back-end** (the server-side logic and data layer that powers the application). Competitors are expected to demonstrate confidence across both areas, with an emphasis on implementing solutions that are functional, responsive, accessible, and maintainable.

## Front-End Development (Languages, Frameworks and Libraries)

Front-end development focuses on everything users see and interact with in the browser. The core front-end languages are **HTML**, **CSS**, and **JavaScript**. HTML provides the structure and content of a page, CSS controls layout and styling (including responsive design), and JavaScript enables interactive behaviour such as events, dynamic components, and data-driven page updates.

Competitors may also use modern front-end frameworks and libraries where permitted, particularly to support component-based development and efficient UI building. **Bootstrap** can be used for responsive layout and prebuilt UI components, while **Tailwind CSS** supports rapid, consistent styling through utility classes. For more advanced interface development, frameworks such as **React**, **Vue.js**, and **Svelte** may be used to build maintainable, scalable UIs using reusable components and structured state management. These tools are not mandatory unless stated in the task brief, but they reflect common industry practices.

## Back-End Development (Languages, Frameworks and Databases)

Back-end development powers the application behind the scenes. It handles server-side logic, authentication and security controls, database operations, and integration with external services. Within this competition scope, back-end development may be implemented using **PHP** or **JavaScript via Node.js**, depending on the permitted approach for the task. **SQL** is a core requirement for managing structured data, supporting features such as retrieving information, updating records, and implementing data-driven web applications.

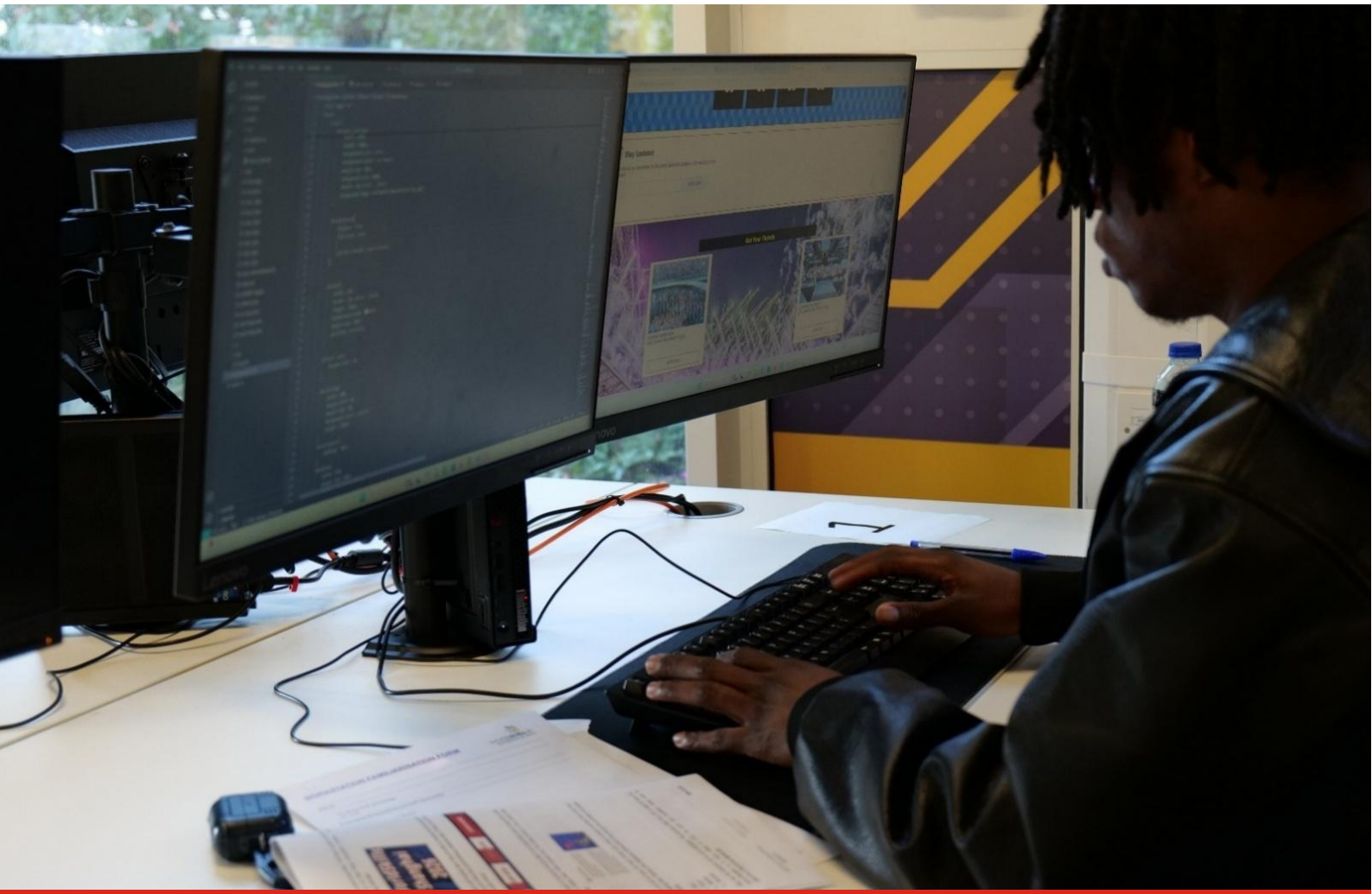
For PHP-based development, **Laravel** is a commonly used framework that provides structured tools for building web applications, including routing, validation, authentication, and database handling. For JavaScript-based server-side solutions, **Node.js** provides the runtime environment, and **Express.js** offers a lightweight framework for routing, request handling, and building APIs. For data storage and retrieval, **MySQL** is widely used as a relational database system, providing reliability and scalability for web applications that require structured data management.

**Note on Back-End Languages**: *While this handbook references specific technologies aligned to the competition, it is important to recognise that professional back-end development includes a broad range of programming languages and ecosystems. Technologies such as **Java, Python, Ruby, C#, and Go** are widely used in industry and offer different strengths depending on the application context. These alternatives are not*

*assessed within the scope of this competition, but they remain relevant within the wider web development career landscape.*

## Why these technologies are included

Although many other frameworks and tools exist, the technologies listed above have been selected due to their wide adoption, strong documentation, and relevance to modern web development practice. They also support consistent assessment across competitors, while still allowing different development approaches depending on the task requirements.



# WEB DEVELOPMENT TOOLS AND RESORCES

A list of commonly used software, applications, libraries, and frameworks for WorldSkills web development competitions is provided below for reference. Not all tools listed are required. Competitors should select the options that best suit their preferred workflow and the requirements of the task brief.

As a recommendation, focus on tools that match your strengths and ensure you are confident using them under time pressure. Strong performance in the competition depends not only on technical ability, but also on working efficiently with a familiar and reliable toolset.

**Note:** Although some design tools are included below as examples, they are **not part of this competition**. All design and layout elements must be produced directly through code, meaning competitors are expected to implement and refine the visual appearance during development.

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R = Recommended
M = Must

| Code Editors (IDEs) | | |
|---|---|---|
| **Tool** | **Available Platform/Purpose** | **Licence Type** |
| Visual Studio Code ($R^1$) | Win/macOS/Linux | Free |
| PhpStorm ($R^2$) | Win/macOS/Linux | Free (EDU Licence) |
| WebStorm | Win/macOS/Linux | Free (EDU Licence) |
| **Design Tools** | | |
| Figma ($R^1$) | Win/macOS | Free (3 Collaborative) |
| Lunacy ($R^2$) | Win/macOS/Linux | Free |
| Axure (Prototyping) | Win/macOS | Free (EDU Licence) |
| **Database Tools** | | |
| MySQL (R) | Win/macOS/Linux | Free |
| PostgreSQL | Win/macOS/Linux | Free |
| **Cross-platform web servers (localhosts)** | | |
| AMPPS ($R^1$) | Win/macOS | Free |
| XAMPP ($R^2$) | Win/macOS/Linux | Free |
| WampServer | Win | Free |
| **Version Control** | | |
| GitHub (R) | Win/macOS/Linux | Free + (EDU Licence) |
| GitLab | Win/macOS/Linux | Free |
| **Frameworks and Libraries** | | |
| Bootstrap | CSS/JS | Free |
| TailwindCSS | CSS | Free |
| Font Awesome | Icons | Free |
| Google Fonts | Icons | Free |
| React | JS | Free |
| Vue.js | JS | Free |
| Svelte | JS | Free |

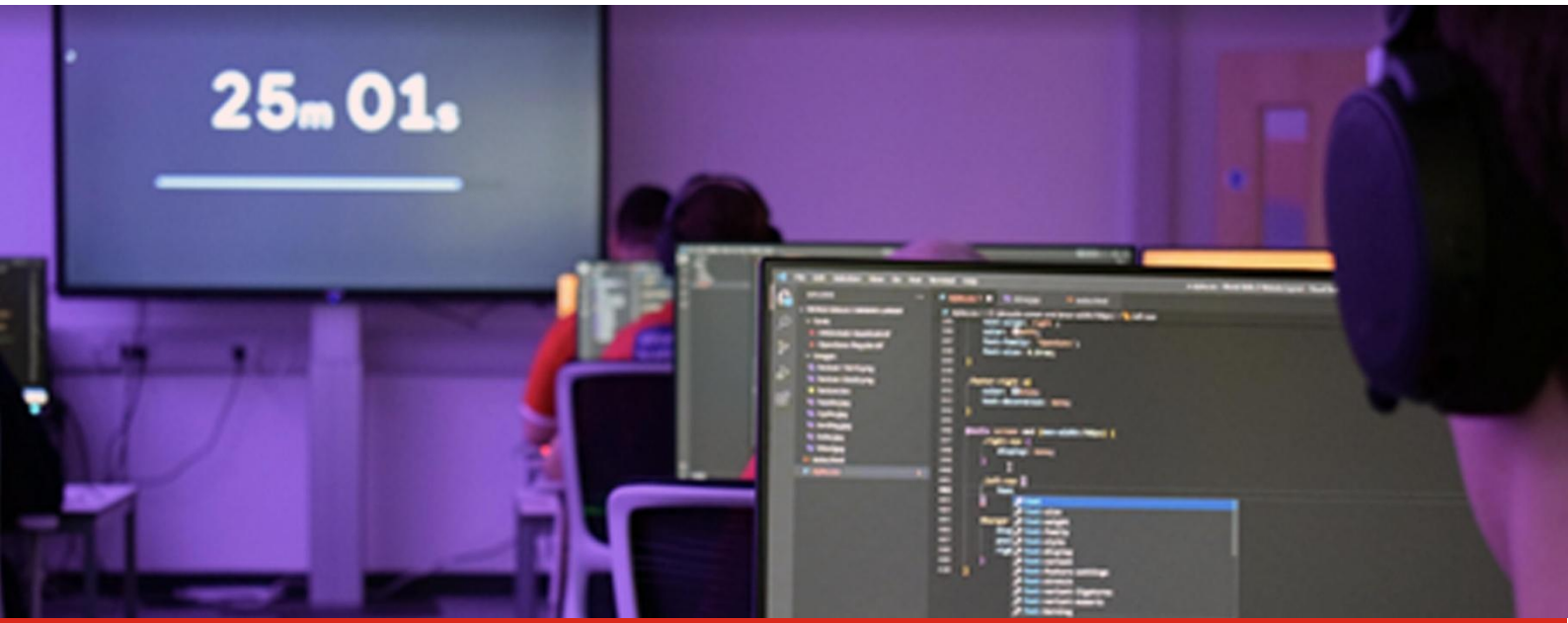
| | | |
|---|---|---|
| Laravel | PHP | Free |
| Node.js | JS | Free |
| Express | JS | Free |
| NPM | Library & Package Manager | Free - Part of Node.js |
| Browsers and Plugins | | |
| Chrome | Win/macOS/Linux | Free |
| Mozilla | Win/macOS/Linux | Free |
| Edge | Win/macOS/Linux | Free |
| AXE DevTools (R) | Chrome/Mozilla/Edge | Free |
| WCAG ContrastChecker (R) | Chrome/Mozilla/Edge | Free |
| Web Developer (R) | Chrome/Mozilla/Edge | Free |
| WAVE Accessibility | Chrome/Mozilla/Edge | Free |
| Learning material and additional resource | | |
| DevDocs (M) | *Official Documentations used in competition* | Free |
| Laracast | Laravel Learning | Free |
| CodeWars | Peer Skill Development | Free |
| CodeAcademy | Interactive Courses | Paid (Discount for Students) |
| freeCodeCamp | Interactive Courses | Free |
| SoloLearn | Interactive Courses | Paid |
| HappyCoding | Interactive Courses | Free |

**Competition Environment**

Although many applications are cross-platform, all WorldSkills competitions use **Microsoft Windows (currently Windows 11)** within a **dual-monitor** workstation setup.

All assessment work must be completed **offline**, with **no internet access** available during competition tasks.

The software listed in this handbook is widely used across Schools, Colleges, and Universities in the UK and internationally, and is generally straightforward to deploy. Most tools provide either **user-level installers** or **standalone/portable versions** to support environments where installation permissions or system deployment may be restricted, although this is not available for every application.



# PRE-COMETITION ACTIVITY and COMPETITION STRUCTURE

Alongside the marking guidelines and other materials in this handbook, competitors are encouraged to prepare using the example assessments provided below. These pre-competition tasks, based on previous competitions, illustrate the type of challenges and skills expected in the WorldSkills UK National Competition, including sample test projects and solutions.

## Sample Assessments and Training Resources

Example assessments for each module can be accessed and downloaded from the resource repository below. Additional training materials, expert guidance, and example work are also available to support competitors in preparing for this year's competition.

**Sample Test Projects:**
https://github.com/worldskillsuk/national-resources

## Entry Stage (Stage 1) - What to expect

Shortly after registration closes, competitors will be sent details of this year's online Entry Stage assessment. This stage is completed online and will test your knowledge of:

- Web technologies and browsers
- File types
- Core HTML, CSS, JavaScript and PHP
- SQL fundamentals
- APIs (basic concepts and data exchange)
- Accessibility

Participants will be able to take the test one time only, and the test will be formatted as a quiz with a duration of 1 hour and 45 questions.

## National Qualifier (Stage 2) - What to expect

For the National Qualifier, you will be required to put your coding skills to the test.
A brief/specification, a mock-up, assets (such as images and logos), and text for a sample website or web application will be provided. You will use your practical skills in **HTML, CSS, and JavaScript** to create a functioning solution that matches the required design and expected behaviours.

Depending on the task brief, you may also be expected to demonstrate basic **data handling**, such as working with structured content, consuming information from a simple source (for example an API), or applying light server-side logic where appropriate.

This task will take place under supervised conditions on a remote assessment platform, and you will have **3 hours** to complete it. Full instructions will be provided once you reach this stage.

## National Finals (Stage 3) - What to expect

The National Finals are designed to challenge competitors and assess performance under competition conditions. All core competencies will be evaluated through **four modules delivered over two days**. Competitors will take part **in person** at the host venue, providing a fully supervised, hands-on competition environment.

### *Module A - Design Implementation*

You will be required to develop a working website or web application based on a provided specification using **HTML, CSS, and JavaScript**. You will be given a brief, assets, and content, and will be expected to implement the design as accurately as possible, aiming for **pixel-perfect** visual fidelity.

Assessment will focus on **best practice**, **accessibility**, and strong front-end implementation, including **responsive and adaptive design techniques** and more advanced use of **CSS layout and styling**. The use of front-end frameworks is permitted, but not required, as the test project can be completed using **vanilla CSS and JavaScript**.

*Assessment Duration: 3/4 hours*
*Internet Access: None*

***Module B - Front-End Development***

You will be required to implement a solution to a set of tasks using **JavaScript**, focusing on interactive and data-driven front-end functionality. Tasks may include adding interactivity through **events** and **DOM manipulation**, debugging and correcting erroneous code, and **fetching data from a provided API** to display, process, and update dynamic content. This may include working with structured data linked to a database. Best practice is assessed throughout, including clean implementation and reliable behaviour.
Competitors are also expected to maintain a clear project structure and include appropriate code documentation. Front-end frameworks are not required to complete the test project; however, their use is encouraged where appropriate to demonstrate advanced skills and industry-relevant development practices.

*Assessment Duration: 3/4 hours*
*Internet Access: None*

***Module C - Back-End Development***

You will be required to develop a website or web application with server-side functionality. This module focuses on implementing core back-end features such as **authentication and authorisation**, **database integration**, and secure handling of user input and application data.
Typical requirements include building a login system, managing user sessions, and controlling access to protected areas of the application based on user roles or permissions. You will be expected to interact with a database to **create, read, update, and delete data (CRUD)**, and to implement structured server-side logic that supports the required application behaviour.
Your solution must be implemented using one of the permitted back-end technologies: **PHP** or **JavaScript (Node.js)**.

*Assessment Duration: 3/4 hours*
*Internet Access: None*

***Module D - Speed Test***
You will be required to complete a series of mini-tasks, grouped by their approximate completion time:

- L1 - Easy / 5 min
- L2 - Medium / 5–15 min
- L3 - Complex / 15-30 min

*Assessment Duration: 3/4 hours*
*Internet Access: None*

This module assesses efficient work under pressure, including organisation, time management, and problem-solving.

# RESOURCES AND FURTHER INFORMATION

If you have any questions regarding the competition, please do not hesitate to get in touch.

The resources provided in this handbook, alongside recommended external learning materials, are intended to support competitors in developing the skills required for high performance. Used effectively, these resources will help competitors strengthen understanding of core web technologies, improve coding efficiency, and apply best practice across both front-end and back-end development. They also provide clear guidance on the expected standards of implementation, including responsiveness, accessibility, data handling, and code quality.

Competitors are strongly encouraged to practise regularly beyond structured training. Web development is a fast-moving industry, and long-term success depends on building confidence through hands-on work and self-directed learning. Practical experience — such as building personal projects, recreating competition-style tasks under timed conditions, or reviewing previous test projects — helps competitors develop the speed, accuracy, and structured approach required in a competition environment. Engaging with official documentation, coding challenges, and version control workflows (such as GitHub) also supports industry-relevant development habits.

This competition is not only an assessment of technical capability, but also an opportunity to develop professional working practices under pressure. Competitors are encouraged to seek feedback from lecturers, employers, and experts, reflect on improvements after each practice task, and steadily increase both complexity and pace of development. With consistent preparation and effective use of the available resources, competitors will be well positioned to perform strongly at national level and beyond

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