# Quick-Learn Design Toolkit ▶ ▶ ▶ ▶ ▶

CDC Learning Connection

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# Contents

# Introduction

## The Toolkit

The Quick-Learn Design Toolkit is a set of resources to assist instructional designers and web developers with creating Quick-Learn lessons (**http://www.cdc.gov/ learning/quick_learns.html**). Quick-Learn lessons are a form of e-learning designed to address one or two learning objectives and require less than 20 minutes to complete. Through responsive web design techniques, the lessons are accessed through desktop computers and mobile devices alike, including smartphones and tablets. The Quick-Learn Design Toolkit comprises the following three sections:

- **Lesson Design Guide for instructional designers.** This section describes five key instructional aspects to consider when creating a Quick-Learn lesson.

- **Storyboard Template** (**http://www.cdc.gov/learning/local/ppt/ eqldt-storyboard.pptx**) for instructional designers. This Microsoft® PowerPoint® (Microsoft Corp., Redmond, Washington) template is used to lay out and evaluate lesson content.

- **Web Development Tips.** The tips include technical aspects to consider when developing the Quick-Learn lesson's content for online delivery.

Quick-Learn lessons are a form of e-learning designed to address one or two learning objectives and require less than 20 minutes to complete.

# Section I: Lesson Design Guide

During the process of building a Quick-Learn lesson, multiple instructional best practices should be considered. This section, Lesson Design Guide, focuses on five key areas for developing an effective Quick-Learn lesson: needs analysis, content, learning assessment, storyboard and web development, and formative evaluation. Because instructional designers have varying degrees of experience in creating electronic learning (e-learning) we recommend this guide be used in conjunction with the E-learning Essentials suite of products available at **http://www.cdc.gov/learning/quality/essentials.html**. Although this guide is primarily intended for instructional designers, the inclusion of web developers throughout the lesson design process is crucial for successful lesson execution.

## I-1. Needs Analysis

Typically, a Quick-Learn lesson is best suited for providing information or just-in-time training or for reinforcing learned skills. It is not ideal for teaching an elaborate skill set, a topic requiring in-depth content, or frequently changing content. Quick-Learn lessons should have only one or two simple learning objectives. If the scope of the desired lesson is complex, consider another approach, such as a training module that contains multiple lessons. For content with more than two objectives, consider creating a series of Quick-Learn lessons with one objective per lesson. Examples of training well-suited for the Quick-Learn format include the following:

- updates to manuals, changes in procedures, or simple concepts or processes with a limited number of steps or variables (e.g., illustrating the steps for handling biohazardous waste while collecting a blood sample);

- refreshers of key concepts learned in a course (e.g., providing a quick reference guide for reading laboratory test results);

- succinct case studies and realistic examples requiring learners to apply key concepts from learned lessons; and

- just-in-time training that guides learners through a specific task.

Ask the following questions during the needs analysis process:

- What learning need will be addressed with this Quick-Learn lesson?

- What skills and experiences does the learner already have?

- How will the learner demonstrate mastery of the content?

## I-2. Content Organization

If the Quick-Learn approach seems reasonable after conducting the needs analysis, begin thinking about the content. This involves a logical organization of text, graphics, or media such as audio, video, or animation, to help explain concepts. The text should be concise and follow plain language guidelines (**http://www.cdc.gov/healthliteracy/developmaterials/PlainLanguage.html**). Plain language does not mean that content has to be understood by everyone. It should be relevant and clearly written for the intended learner.

Consider the following principles when writing a Quick-Learn lesson:

- Keep the content short and focused and include only essential information. Each content screen should include three to five sentences at most. The text should not require scrolling, and it should be visually aligned to allow learners to skim information quickly (see Example 1).

- Use relevant images and graphics to illustrate important concepts or complex ideas. Remember a picture is worth a thousand words (see Example 1).

- Design interactions to promote interest, inquisitiveness, and challenges to engage the learner (see Example 2).

  — Use an animation to demonstrate procedures.

  — Develop a role-based simulation.

  — Provide explorative learning opportunities.

- Consider the challenges of navigating on a mobile device and include only buttons and links that are critical for functionality (see Example 1).

**Example 1**
**Concise text, relevant graphic, and easy navigation buttons**
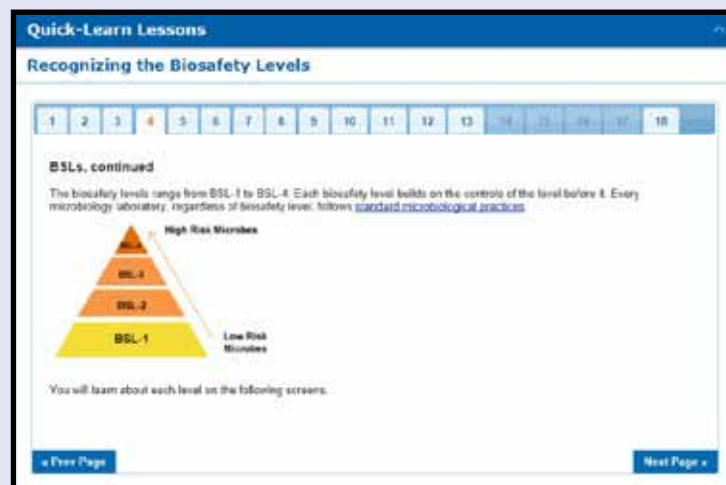


**Example 2**
**Interactivity consisting of a question with feedback authentic to the learner's role**
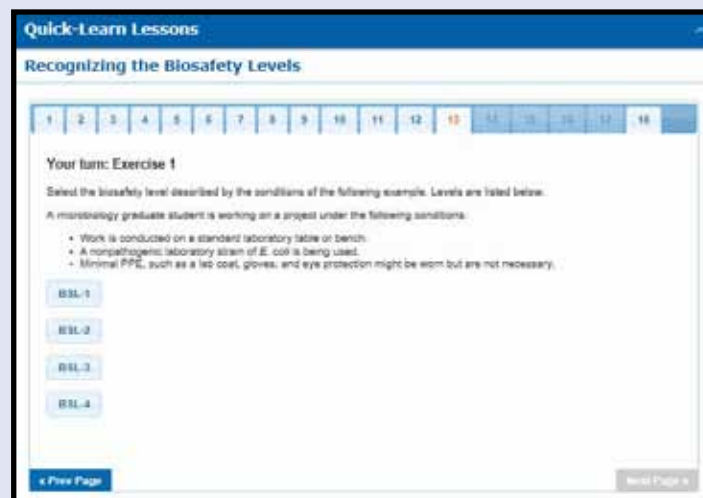
## I-3. Learning Assessment

Early in designing a Quick-Learn lesson, determine your assessment strategy to ensure the lesson is effective in achieving the intended results. Within the context of e-learning, an assessment is any interaction from which data is collected with the intent of making an inference about the learner. Assessment provides practical, objective, and measurable evidence that learning goals are achieved and ensures a degree of product integrity. Because e-learning assessment methods provide reliable results quickly, training decisions also can be made quickly. Moreover, assessment improves learning through interaction and feedback, identifies learner knowledge strengths and weaknesses, and helps to evaluate the effectiveness of the instruction.  Consider including a posttest with multiple-choice questions and immediate feedback. Consult the E-learning Essentials suite of products (**http://www.cdc.gov/learning/quality/essentials.html**) for best practices in developing high-quality learning assessments.

## I-4. Storyboard and Web Development

When the needs analysis, content organization, and assessment strategy are complete, the next step is laying out the Quick-Learn lesson. The Quick-Learn Design Toolkit Storyboard Template discussed in Section II is available for this purpose. The Storyboard Template is a Microsoft PowerPoint file and provides placeholders for interface and content elements. Web developers will use the completed storyboard and the Web Development Tips section of this guide to create the functioning lesson. We recommend that web developers be part of the design and storyboard planning process so they can convey any technical

considerations that might affect the lesson. As an integral member of the design team, the web developer's involvement in the storyboard process can assist his or her understanding of the overall goal for the Quick-Learn lesson.

## I-5. Formative Evaluation

Formative evaluation should occur multiple times during storyboard and web development. To ensure that any problems hindering learning are detected and corrected before launch, have an instructional designer and sample group of learners perform the steps outlined in the storyboard. To confirm the accuracy of the content, have subject matter experts review the content while it is still in storyboard form.

After the web developer builds the functioning lesson, pilot test the lesson with a sample group of learners. Thorough pilot testing will reveal inconsistencies in the training and ensure the learning objectives are achieved. Pilot testing also will help gauge usability and functionality and ensure that the content presentation and learning activities function correctly on multiple devices (computers, tablets, and smartphones).

**...determine your assessment strategy to ensure the lesson is effective in achieving the intended results.**

# Section II: Storyboard Template

The Storyboard Template is provided as a starting point for designing a Quick-Learn lesson. The complete storyboard is a Microsoft PowerPoint file and available for download at (**http://www.cdc.gov/learning/local/ppt/eqldt-storyboard.pptx**). A PDF version of the Storyboard Template is available at (**http://www.cdc.gov/learning/local/pdf/eqldt-storyboard.pdf**).

Web developers will use the finalized storyboard to create the fully functioning lesson. For more information about using this template and developing for online delivery, continue to Section III: Web Development Tips.

Examples 3, 4, and 5 are excerpted from the Storyboard Template.

**Example 3
Lesson layout**
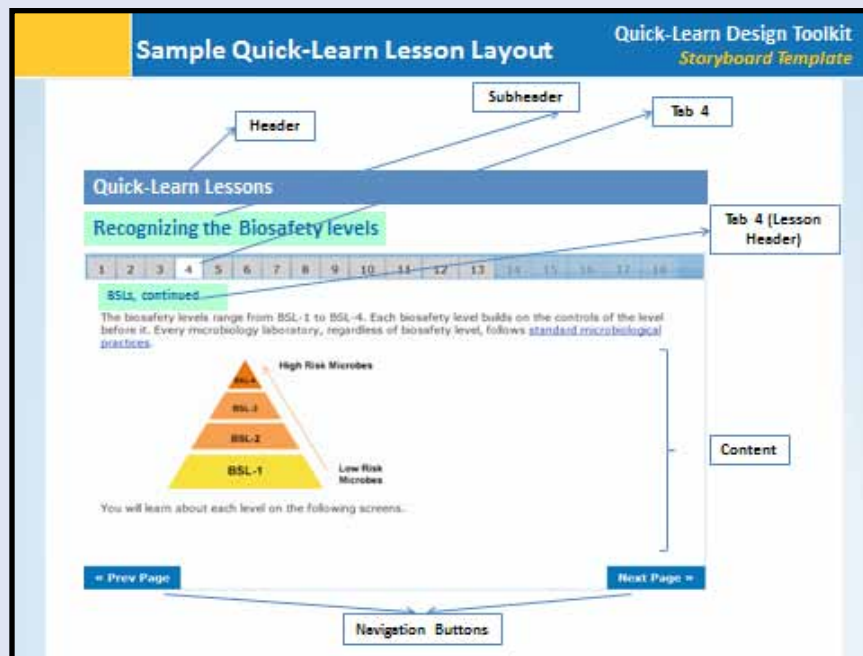
**Example 4**
**Section page with image placeholder**



**Example 5**
**Section page with knowledge check**

# Section III: Web Development Tips

The following web development tips assist web developers with determining the best technical solutions for developing the Quick-Learn lesson for online delivery. Before web development begins, the instructional designers responsible for the content of the Quick-Learn lesson should have reviewed Section I: Lesson Design Guide to determine the lesson content. They also should have laid out the lesson by using the downloaded storyboard template from Section 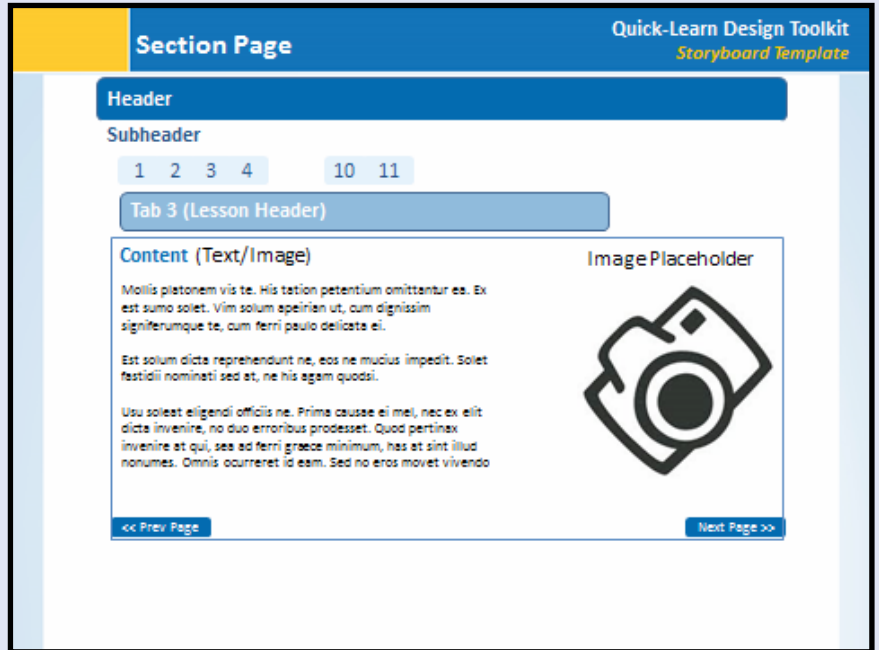II in collaboration with the web developer. Web developers will use the final storyboard to create a pilot-test version and then the final version of the functioning lesson.

## III-1. Preparation and Planning

The web development of a Quick-Learn lesson can be a substantial undertaking. Preparation and planning are key to remaining on schedule and delivering a quality education product.

### Preparation

Keep in mind that the amount of space for website content on a mobile device is often considerably smaller than the space available on a desktop computer screen, and scrolling horizontally might be impossible or impractical. Be sure to communicate these space limitations with the instructional designer(s) during the design and storyboarding stage of the project.

### Planning

The length of time for web development will vary on the basis of the lesson content. Consider working with the instructional designer(s) to draft a project schedule with clear milestones. Keeping

a log of activities to track the project's progress as well as ideas for revisions to make in future iterations of the lesson also will be helpful.

## III-2. Software Resources

Intermediate experience level with Dreamweaver® (Adobe Systems, Inc., San Jose, California) and other web-authoring and development tools is recommended. Table 1 highlights the capabilities of leading industry standard web development applications.

**Table 1**
**Web Development Software Comparison**

| Features | Dreamweaver* CSS and Later | Expression† | KompoZer§ | Captivate¶ |
|---|:---:|:---:|:---:|:---:|
| WYSIWYG | X | X | X | |
| Server-side scripting | X | X | | |
| Mobile device support | X | | | X |
| Template support | X | X | X | X |
| FTP support | X | X | X | X |
| ASP.Net and Visual Studio®** support | | X | | |
| CSS support | X | X | X | |
| JQuery support | X | X | | |
| SEO support | | X | | |
| HTML5 | X | | | X |
| Preview pages in different browsers | X | X | | |
| Accessibility support | | X | | X |
| Price comparison | $$ | $ | Free | $$$ |

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\* Adobe® Dreamweaver, Adobe Systems, Inc., San Jose, California (**http://www.adobe.com/products/dreamweaver.html**).

† Microsoft® Expression, Microsoft Corp., Redmond, Washington (**http://msdn.microsoft.com/en-us/expression/default**).

§ KompoZer is open-source software (**http://www.kompozer.net/**).

¶ Adobe Captivate, Adobe Systems, Inc., San Jose, California (**http://www.adobe.com/products/captivate.html**). Captivate is not a web authoring tool but a tool used to develop interactive e-learning content and integrates with Microsoft PowerPoint®.

\*\* Microsoft Corp., Redmond, California.

## III-3. Browser Support

The tips in this section cover methods that help ensure correct display of the lesson on different browsers and devices. The tips apply to the following programming languages:

### HTML

Verify that the HTML code is free from errors by using an HTML validator. Two validators are as follows:

| Validator | Link |
|---|---|
| W3C®* | http://validator.w3.org/ |
| Mozilla® Firefox®† | https://addons.mozilla.org/en-US/firefox/addon/html-validator/ |

\* W3C is open-source software.

† Mozilla, Mountain View, California.

### CSS

Apply CSS fallback techniques to optimize the lesson content for different browsers. For example, when using a CSS3 gradient to fill in a background, a browser that does not support the gradient will not render the background. Provide a solid background color or a gradient slice image to eliminate this problem.

### JavaScript®

JavaScript's (Mozilla, Mountain View, California) polyfills, shims, and Modernizr® can be used to emulate more advanced functionalities, such as HTML5 and CSS, in nonsupportive browsers. The following are examples:

| Example | Description | Link |
|---|---|---|
| Respond.js | Used to ensure media queries work correctly in older versions of Internet Explorer® (Microsoft Corp., Redmond, California). | https://github.com/scottjehl/Respond |
| HTML5 shiv | Used to force older versions of Internet Explorer to render HTML5 correctly. | http://code.google.com/p/html5shiv/ |
| Modernizr®* | Used for feature detection to ensure polyfills and shims are used only when needed. | http://modernizr.com/ |

\* Mozilla, Mountain View, California.

### III-4. Content

The tips in this section cover considerations when designing components of the layout for the Quick-Learn lesson. For more information regarding the lesson's layout, review Section II: Storyboard Template.

#### Layout

To achieve more flexible displays of the layout, use Responsive Web Design to ensure effective readability and navigation across different browsers and devices. Consider having at least three versions of the lesson to accommodate diverse browsers or devices that display at different pixels per inch, such as the following:

- 320 × 480 – Mobile
- 640 × 960 – Mobile
- 640 × 1,136 – Mobile and tablet
- 768 × 1,024 – Tablet and desktop
- 2,048 × 1,536 – Desktop

#### Images

Create fluid images by starting with a larger image that can be scaled down without distortion. The Adaptive Images tool, developed by Matt Wilcox, will assist with creating this functionality. It can deliver device-appropriate, rescaled versions of images. The tool is available at
**http://adaptive-images.com**

### III-5. Accessibility

When developing the Quick-Learn lesson, be sure the lesson is accessible not only to persons who use different types of browsers but also for persons with disabilities. Web developers should also be certain to determine if the lesson assessments and interactivity meet accessibility requirements and are supported by a range of browsers and devices. For example, Adobe Flash®

(Adobe Systems, Inc., San Jose, California) is not supported by all devices. Consider collaborating with the accessibility contact(s) in your organization early in the development process. The tips in this section include resources that will help ensure accessibility compliance according to the Section 508 Amendment to the Rehabilitation Act of 1973 (additional information is available at **http://www.fcc.gov/encyclopedia/section-508-rehabilitation-act**).

### III-6. Common Accessibility Concerns

To ensure popups and dialog boxes are accessible, add Accessible Rich Internet Application (ARIA) (W3C®, open-source software) properties. The following links provide more information:

| Tool | Link |
|------|------|
| WAI-ARIA | http://www.w3.org/WAI/intro/aria.php |
| Create an accessible dialog box | http://www.nczonline.net/blog/2013/02/12/making-an-accessible-dialog-box/ |

### III-7. Speech Browser Scans

The following are tools and products for testing and remediating lessons for Section 508 accessibility compliancy:

| Tool | Link |
|------|------|
| Screen-reading software | |
| Jaws® for Windows* | http://www.freedomscientific.com/products/fs/jaws-product-page.asp |
| Web-based accessibility testing tools | |
| Web Accessibility Evaluation Tool (WAVE) | http://wave.webaim.org/ |
| Web Accessibility Toolbar† | http://www.visionaustralia.org/business-and-professionals/digital-access/resources/tools-to-download/web-accessibility-toolbar-for-ie---2012 |

\* Freedom Scientific®, St. Petersburg, Florida.

† Freeware developed by Steve Faulkner in a collaboration between Vision Australia, the Paciello Group (Europe), and Jun of the Web Accessibility Tools Consortium.

### III-8. Additional Accessibility Resources

■ Web Accessibility Initiative (WAI) (**http://www.w3.org/WAI/**)

■ HHS.gov: Section 508 (**http://www.hhs.gov/web/508/index.html**)

■ Section508.gov: Opening Doors to IT (**http://www.section508.gov/**)

# Next Steps

Thank you for using the Quick-Learn Design Toolkit.

- Let us know if you have questions or suggestions regarding how to improve the Quick-Learn Design Toolkit. E-mail: **learning@cdc.gov**.

- Get ideas and inspiration for your Quick-Learn lesson by reviewing those already available: **http://www.cdc.gov/learning/quick_learns.html**.

- Also, let us know when you have created a Quick-Learn lesson. We might be able to promote it on the CDC Learning Connection: **http://www.cdc.gov/learning**.

When developing the Quick-Learn lesson, be sure the lesson is accessible not only to persons who use different types of browsers but also for persons with disabilities.

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