

6 BEST PRACTICES



FOR



DESIGNING



ACCESSIBLE



E-LEARNING

Table of Contents

| | |
|---|----|
| Ready, Set, Design an Accessible Course | 3 |
| Make Your Course Keyboard Accessible | 5 |
| Provide Concise, Descriptive Alt Text | 7 |
| Order Objects and Text with Learners in Mind | 11 |
| Create Usable Navigation | 14 |
| Use Audio and Video with Care | 16 |
| Consider Visually Impaired Learners When Creating Software Training | 21 |
| Wrapping Up | 23 |
| Handy List of Do's and Don'ts | 25 |

Ready, Set, Design an Accessible Course



You've been asked to build a course that's Section 508 compliant. That is, **create a course that people with visual, auditory, or mobility disabilities can use just as effectively as people without disabilities.** So where do you start?

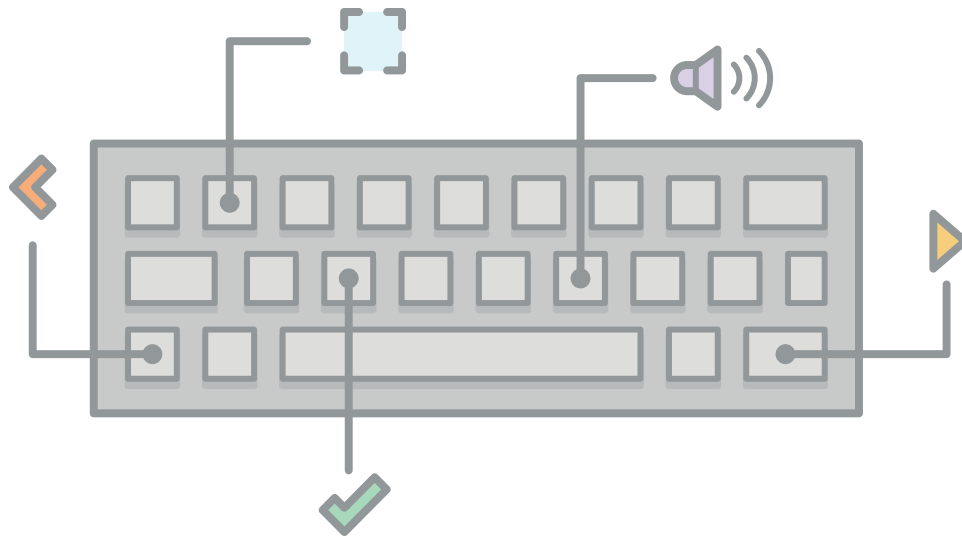
You'll need to choose an e-learning authoring tool that can produce Section 508 and WCAG 2.0-compliant content, such as Articulate Storyline. But that's only the first step.

While your choice of authoring software plays a role, equally important are the decisions you make while designing your course. Where should you place objects on a screen? What types of media can you include? How should learners navigate? It's these kinds of design choices that will ultimately determine whether your course is truly accessible.

Unfortunately, Section 508 and WCAG 2.0 won't be able to help you with these design decisions. They simply don't provide guidance specific to e-learning design.

Now, the good news. This e-book outlines some of the main course design and authoring issues that impact accessibility. So if you're not sure how to design an accessible course, you can refer to this e-book for best practices to get you started.

Make Your Course Keyboard Accessible



The first best practice is one of the most important—and it’s easy to follow. **Make sure that every activity, object, and element in your course that conveys meaning is keyboard accessible.** And just what does “keyboard accessible” mean? It means you shouldn’t include any activities that require a mouse—such as drag-and-drop assessments and rollover effects. If visually impaired learners can’t use their keyboards to access content or an activity, they’ll miss it.

Once your course is keyboard accessible, it will work with common assistive technology (AT) such as screen readers, which identify and interpret what’s on the screen and then present it to learners using text-to-speech, sound icons, or braille output devices. It will also work with

mobility-assistive devices such as keyboard overlays that make it easier for people with motor control difficulties to type.

Provide Concise, Descriptive Alt Text



Another really important—and remarkably simple—best practice for building accessible courses: writing good alternative text (alt text) for all relevant objects on every slide in your course. Screen readers read alt text in the place of objects, so providing descriptive alt text is absolutely essential.

To write good alt text, you'll want to:

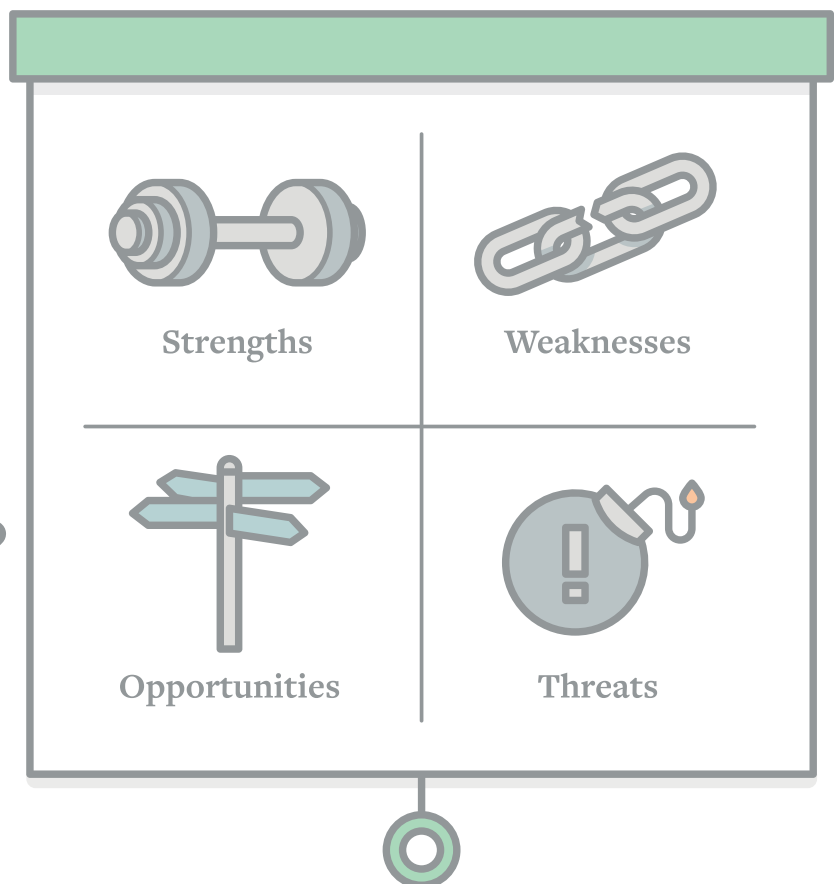
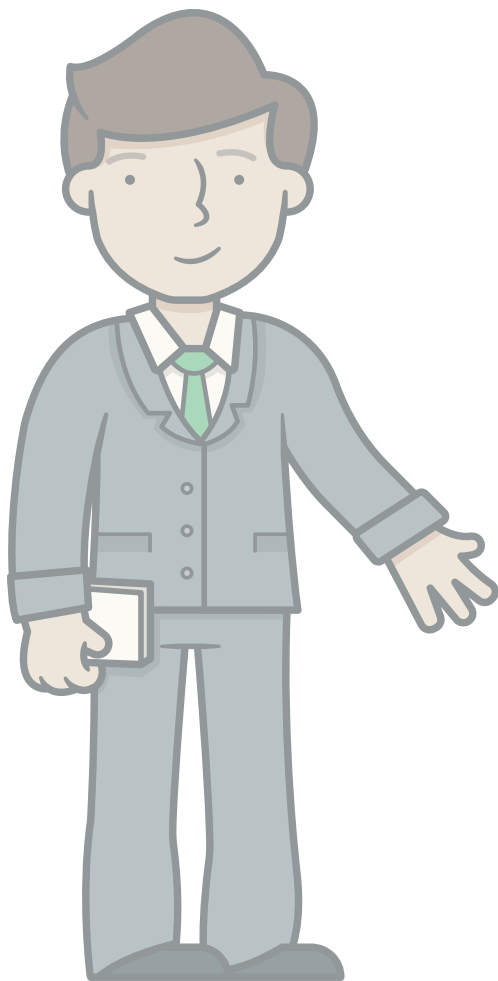
- Convey the same content and information presented by the object or image.
- Be concise without skimping on relevant information.
- Convey only information not already captured in other on-screen text.
- Avoid the phrases “image of” or “graphic of” and just provide the information the learner needs.
- Avoid abbreviations and excessive punctuation. Don't use punctuation such as *******, which screen readers will annoyingly read as “asterisk, asterisk, asterisk.”

Characters

Do you need to provide alt text for characters? It depends. If you have a smiling character pointing to the third point on a slide, ask yourself whether the character's presence, expression, and actions convey meaning not otherwise captured by text on the slide. If not, then the character doesn't need alt text. On the other hand, if your character is part of an interactive scenario where learners analyze or respond to what the character's doing or saying, then you'll definitely need to provide alt text for the character.

SWOT Analysis

Click each quadrant below to learn more about assessing your business strengths weaknesses, opportunities, and threats.



Groups of Images

If you're creating a visual out of several images or shapes—such as a diagram or a notepad you've drawn with rectangles and other shapes—

you should add alt text to one of the objects that summarizes the meaning and context of the whole group. Then, hide the alt text for the other images.



Order Objects and Text with Learners in Mind



Visually impaired learners tab through objects on a slide from left to right, top to bottom, so you'll want to order objects and text on the slide in the same way: left to right, top to bottom. For example, for a quiz slide, make sure that learners tab first to a question, then directly to the answer choices in sequence. Imagine how disorienting it would be to hear answers before the question.

Some helpful rules to follow:

- If you create your own player controls (such as Submit and Next buttons), put the buttons on the bottom right of your slide, so they're read last by screen readers.
- Avoid using more than one column of content; screen readers read from left to right without regard to columns, so the learner will hear disconnected information.
- Consider ordering text before graphics (such as the caption for a graphic). Or, save the learner tabbing effort by writing alt text that includes the image description and the caption text, then hide the caption from screen readers.

When using input fields, put a descriptor or instructions before the field, such as “Enter your name in the input field.” Screen readers don't read alt text for input fields, so don't rely on alt text to describe the input field. For example, in this slide, the descriptor and instructions for the input field are part of the alt text on the “cash flow” textbox just above the input field:

Cash flow

is the movement of money into and out of your business. Sometimes people refer to cash flow as inflows and outflows.

Type your response

Close

Close

SIZE

POSITION

ALT TEXT

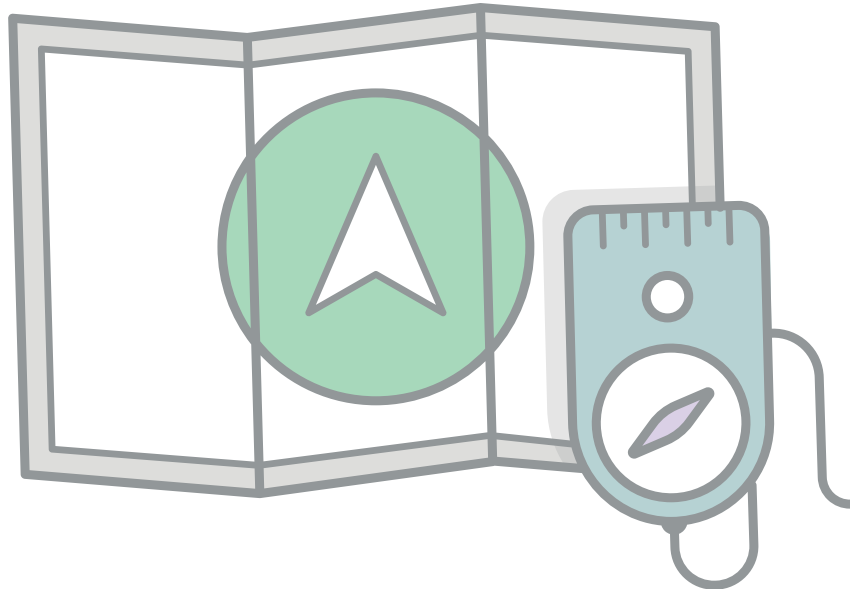
Cash flow is the movement of money into and out of your business. Sometimes people refer to cash flow as inflows and outflows. ... Press tab to access the text field where you can type your response

Object is visible to accessibility tools

Close

The image shows a learning interface for the concept of 'Cash flow'. On the left, there is a green banknote icon with arrows indicating movement. To its right is the title 'Cash flow' and a definition: 'is the movement of money into and out of your business. Sometimes people refer to cash flow as inflows and outflows.' Below the text is a text input field labeled 'Type your response' and a 'Close' button. An accessibility panel is open on the right, showing a list of controls: 'SIZE', 'POSITION', and 'ALT TEXT'. The 'ALT TEXT' section contains a description: 'Cash flow is the movement of money into and out of your business. Sometimes people refer to cash flow as inflows and outflows. ... Press tab to access the text field where you can type your response'. Below this is a checked checkbox labeled 'Object is visible to accessibility tools' and a 'Close' button at the bottom right of the panel.

Create Usable Navigation



You've made sure that learners can tab to all relevant objects. You've written highly descriptive alt text. And you've ordered your content from left to right, top to bottom so that it makes sense when read by a screen reader. Great, you're well on your way to creating an accessible course. But what about the learner experience? Accessibility is not just about providing access to content. It also involves **creating a positive navigation experience for disabled learners**. To create usable navigation, keep in mind the following tips.

First, you need to avoid persistent navigation. Imagine you're a learner taking a course with 30 slides. Now imagine that every slide has a sidebar

menu that the screen reader reads each time you go to a new slide. Pretty annoying! To comply with 508 regulations—and respect the ears of learners using screen readers— avoid persistent objects and navigation that appear on every slide. Or, make it easy to turn off any persistent navigation.

Some e-learning authoring tools like Articulate Storyline will do this for you. So when learners tab past the last object on each slide, their screen readers will instruct them to press the Enter key if they want to skip the player navigation and return to the first object on the slide.

If they don't press Enter, their next tab will take them to the nav buttons so they can proceed to the next slide (or continue tabbing through the other player elements, such as the menu, notes, and glossary).

Second, you can make it much easier for visually impaired learners to navigate your course by including hotkey shortcuts. For example, you could create a hotkey that lets learners advance to the next slide when they click the right arrow.

Use Audio and Video with Care

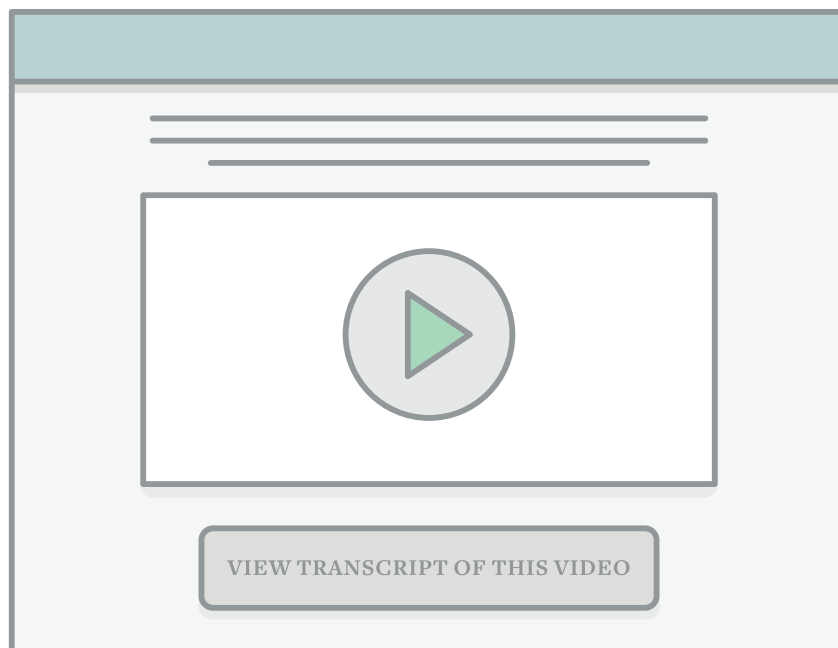


You can make courses with audio and video accessible to all—it just takes some effort. But don't worry, it's really not that hard. Just remember that any information conveyed in audio and video tracks needs to be accessible to people with both hearing and visual impairments. Here are some tips to get started.

Use Captions with Audio and Video

To make courses accessible to learners with auditory disabilities, you'll need to use captions. A side benefit: Captions also help learners who aren't fluent in the language spoken on your audio or video track.

When you write captions, be sure to include content equivalent to the audio or video track. We don't recommend timing objects to audio and video because learners who use screen readers might miss an object if they tab through the content before or after the object appears on the screen. However, if you do time objects to audio and video, you'll need to time the captions in the same way. Also, make captioning easy to turn on



and off. Along with captions, you'll want to include transcripts of audio and video. They're critical for deaf/blind learners who use refreshable braille and other devices to interact with your course.

Provide Transcripts of Audio and Video

While transcripts provide a verbatim account of your video and audio track, they may not include all important information a learner needs. Chances are that your video conveys some information visually but not auditorily, so you'll want to add explanations and details that cover this information.

You can display transcripts in a text box or in a Notes panel that's accessible via a Notes button on the player, so it only appears on the slide when notes and transcripts are needed. Another option is to add a button to your slide that opens a transcript document.

Incorporate Video in an Accessible Way

Videos are by nature visual. But that doesn't mean you have to exclude them from your accessible course. If you want to include a talking head video, you can simply provide captions and a transcript. (Transcription and captioning service providers, such as 3PlayMedia, can help.) Just note in a caption who's speaking before the video starts.

Demo Videos

But what about videos that include demonstrations? The on-screen narration may not fully convey what's happening, and you can't have a screen reader describing the visual while the video's audio is playing.

So are you out of luck? Not necessarily. You could use only process-oriented videos that include highly descriptive audio. Or you could provide a job aid that actually writes out the steps of the process or activity shown in the video. For example, a learner could click a button that hyperlinks to a document that explains the steps. Just be sure that whatever document you link to is also accessible.

Video Alternatives

Another option is to give visually impaired learners a way to navigate around video—and receive the information in other ways. For example, in Articulate Storyline, you can create a question that asks visually impaired learners to identify themselves. You can capture this information in a variable and then use it to branch visually impaired learners to a detailed document that describes the video content. Just keep in mind that some learners may not choose to self-identify as visually impaired.

Hand Over the Video Controls

Avoid starting videos automatically, since learners with visual impairments need full control over video playback. Or, if you want videos to autostart for nonimpaired learners only, you could keep the option on, but use a variable to suppress it if learners identify themselves as visually impaired.

You might want to put the video's start button in the lower right of the slide, so learners can consume all other slide content before starting the video. Also, provide controls that allow learners to pause, rewind, and fast-forward so they can listen to segments again and skip parts they've mastered.

Consider Visually Impaired Learners When Creating Software Training

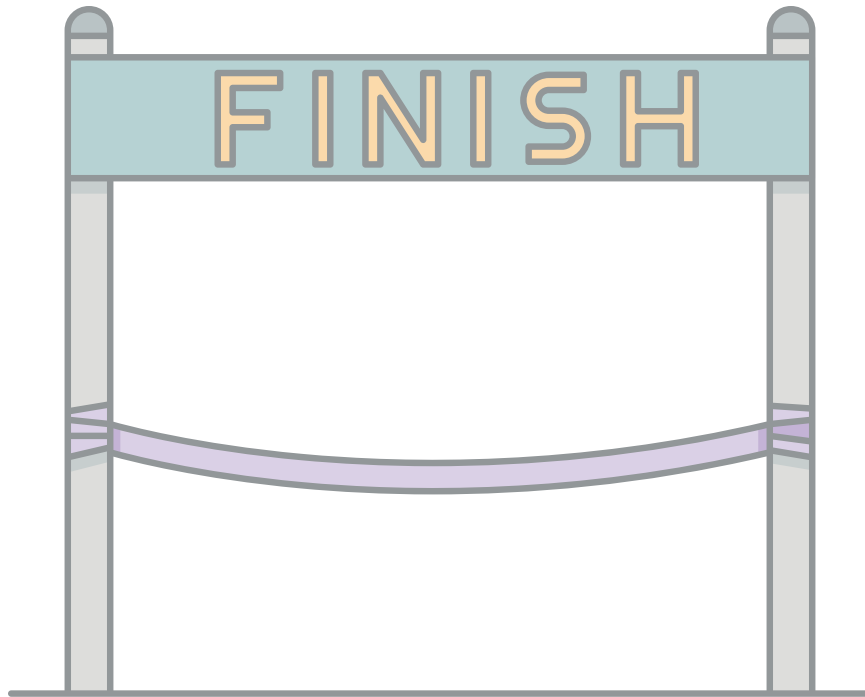


Last but not least, how do you develop accessible software training, specifically for learners with visual impairments? The most important rule: Remember that sighted learners and visually impaired learners use software differently. For example, a sighted learner will use a mouse, keyboard, and their sight to navigate software. A visually impaired learner will use a keyboard and screen reader to navigate software. To develop accessible software training, you'll need to address both ways of navigating and using software. You might even want to provide background, business rules, and conceptual training in your e-learning course, but give one-on-one in-person training to visually impaired learners.

Some helpful tips for creating software training for visually impaired learners:

- Provide instructions on how to complete tasks using a keyboard.
- Write highly descriptive alt text and textual labels. For example, use the textual label “cut” for a scissors icon.
- Make sure to describe in the audio narration both what an object looks like—“scissors”—and its textual label—“cut”—so that it makes sense to both visually impaired and sighted learners. Your audio might sound something like this: “To remove text, highlight it, then click on the Cut icon, which is the little pair of scissors you see up here.”
- Provide a full-text equivalent, keeping in mind that a transcript of the simulation isn’t a full-text equivalent. You’ll need to add descriptions of what’s happening on the screen, too.

Wrapping Up

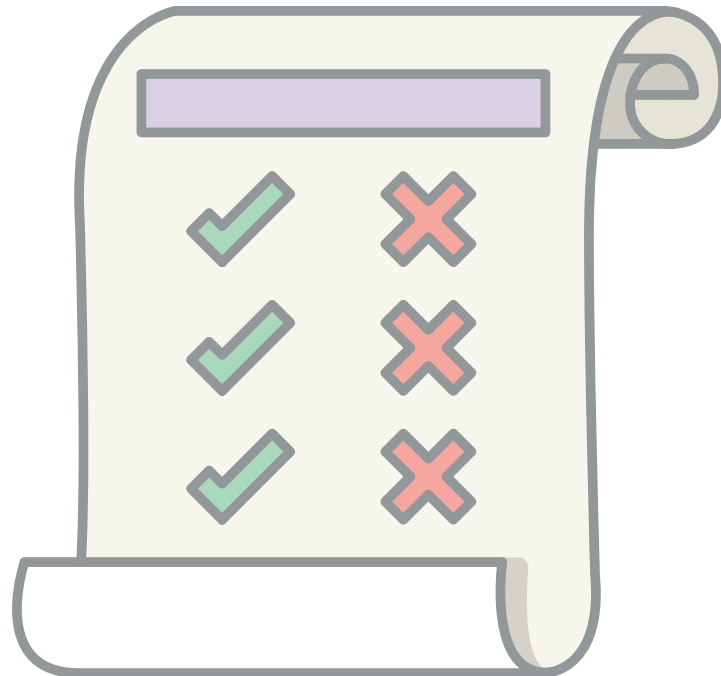


You made it! Hopefully this e-book has given you a basic understanding of what's involved in building an accessible course. By now, you probably realize that creating an accessible course is more art than science. It requires diligence, thoughtfulness, and attention to the best practices we've outlined here and the guidelines outlined in Section 508. To give you an extra leg up, we've included a list of do's and don'ts at the end of this e-book. You might want to have it handy while designing your accessible course. Good luck!

Go Further

For more information on Section 508 compliance, we recommend the Access Board's site, the Section 508 site, and www.webaim.org.

Handy List of Do's and Don'ts



Do

Make sure all course elements are keyboard accessible.

Provide a textual alternative to non-text content (such as images and form fields) that conveys meaning or context.

Don't

Don't use course elements that are only accessible with a mouse.

Don't provide textual alternatives for graphic elements that don't impart meaning or context.

| Do | Don't |
|--|--|
| Use high-contrast colors. | Don't rely on color alone to convey meaning; print your course in grayscale to make sure that you can understand course elements without color. |
| Provide audio-timed captions and a transcript for videos and audio, and include job aids as supplements. | Don't rely only on visuals in a video to convey information. Also don't assume that the screen reader will capture all items entering and exiting the slide. |
| Use talking head videos and videos that include audio descriptions of what's happening in the video, providing full playback control to the learner. | Don't automatically start videos and audio. |
| Place objects on the slide from left to right, top to bottom in the same order you want them read by a screen reader. | Don't include timers or other persistent objects (such as a side menu or Player tabs) that a screen reader will read on each slide. |
| Use only keyboard-accessible effects on objects that convey meaning or context. | Don't use rollover or hover effects; they are not keyboard accessible. |

| Do | Don't |
|--|--|
| Use variables to provide alternatives to slides with animations, nondescriptive audio, etc. | Don't have items appear and disappear because items can disappear before screen readers can read. |
| Use multiple-choice, true/false, fill-in-the-blank, numeric, short answer, multiple response, pick one, pick many, how many, matching drop-down, sequence drop-down, ranking drop-down, and essay question types; use Likert with caution as this question type may be difficult to parse. | Don't use word bank, matching drag-and-drop, sequence drag-and-drop, ranking drag-and-drop, which word, or hotspot question types. |
| Provide full-text equivalent for software training (remembering that a transcript is not a full-text equivalent). | Don't use software simulations without careful consideration of accessibility. |
| Break content up on separate slides if it won't fit on one slide. | Don't use scrolling panels. |

| Do | Don't |
|---|---|
| When publishing to Flash, include links to the Adobe Flash Player before the learner launches the course. Also provide links to Acrobat Reader or other plug-ins learners may need to view the content. | Don't assume your learner has all the software they need to view course elements. |
| Use markers with text content. | If your authoring software has markers, don't use markers with video or images that convey meaning; you might not be able to add alt text to objects within a marker. |
| Use a variety of assessments, giving learners all the time they need to complete them. | Don't include timed tests. |
| Add content to the Notes panel. | Don't put the same text on every Notes panel. |

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