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# Course transcript

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# Module 1: Introduction to accessibility

Accessibility is important for creating inclusive and equitable environments. This module introduces key concepts around accessibility, disability, and how assistive technologies can help.

## Introduction to accessibility

Technology can empower people to achieve more, help strengthen education opportunities, and make the workplace more inviting and inclusive for people with disabilities.

With more than 1.3 billion people in the world living with disabilities, accessibility and inclusion are essential for fostering innovation.

In this module, you’ll learn how to define disability, what accessibility means, why it's important for technology to be accessible to everyone, and different types of assistive technology.

## What is disability?

In the past, disability was defined as a personal attribute or lack of ability. Now, we look at disability as context dependent, a mismatch between the person and the environment. For instance, when bright sunlight causes a person to be unable to see their phone screen, they are experiencing a situational disability.

At some point, we all may experience some form of disability, which may be categorized as permanent, temporary, or situational.

Disability can include and intersect across the following segments: vision, hearing, mobility, mental health, neurodiversity, and speech.

## What is accessibility?

Accessibility is the practice of making information, environments, and technology meaningful and usable for as many people as possible. The ways in which people with disabilities interact with technology can vary greatly. In today’s connected world, access to technology is central to the way we operate, and it is fundamental to a more inclusive society and equitable future.

## Accessibility: An example

Accessibility settings can help people who are experiencing a wide range of disability. For instance, Microsoft’s notifications settings allow people to customize how and when they want to receive alerts.

A person with a **permanent disability**, such as anxiety, might turn off notifications permanently.

A person with a **temporary disability**, such as a family emergency, might choose to adjust how notifications are received, filter messages by type, or set temporary notification-free periods.

A person with a **situational disability**, such as heightened stress, might temporarily turn off notifications during an overwhelming work period.

Ultimately, accessibility is about providing people with the opportunity to use the technology in the way that works for them.

## Video: Accessibility and assistive technology

Accessibility is a fundamental right. When technology is designed from its earliest planning stages with that in mind, people with disabilities can access, enjoy, and benefit more from technology. 1.3 billion people experience disabilities, whether permanent, temporary, or situational, where there's a mismatch between the person and their environment.

And while some disabilities may be apparent, like vision or mobility, 75% are non-apparent, like dyslexia, autism, anxiety, or chronic health conditions.

Assistive technology can help improve functional capability for people with disabilities. And it's estimated that by 2050 3.5 billion people will require its use. Examples of assistive technology are built into Windows. The keyboard shortcut **Windows + U** opens accessibility settings. Here, anyone can customize their device to support their needs and preferences.

**Magnifier** allows you to zoom in and enlarge text and images for people with vision disabilities.

**Narrator** audibly describes what's on the screen and allows people who are blind or have low vision to navigate with the keyboard.

**Captions** help people who are deaf or hard of hearing consume audio and video content.

**Voice Access** enables people with mobility disabilities such as limited reach or strength to control their device and author text using only their voice.

And **Focus** minimizes distractions and notifications, making it easier to stay on task and take scheduled breaks.

All these innovations and more create customizable ways for people with disabilities to participate more freely in digital experiences, making technology more accessible and inclusive today.

## Assistive technology

Some people with disabilities might use assistive technology (AT) to access technology or perform tasks. According to the Assistive Technology Industry Association (ATIA), “assistive technology is any item, piece of equipment, software program, or product that is used to increase, maintain, or improve the functional capabilities of people with disabilities.”

Microsoft's Windows operating system has several built-in accessibility features designed to help with a wide range of needs and preferences.

Continue to the next page to learn more about Windows accessibility settings.

## Assistive technology | Explore

In Windows 11, the keyboard shortcut Windows + U opens accessibility settings that help to make it easier to interact with your display and device. *Scroll down to learn about Windows accessibility settings.*

### Magnifier

Someone with low vision might use **Magnifier** to zoom in to enlarge text and images when viewing a web page, email, or a document.

### Narrator

A blind person may choose to use **Narrator**, the Windows built-in screen reader.

### Captions

**Captions** can support people who are Deaf or hard of hearing consume audio and video content.

### Voice access

**Voice access** can be used by people with mobility disabilities to control their device, author text, and interact with UI elements using only their voice.

### Focus

**Focus** minimizes distraction, making it easier for someone who is neurodiverse or has a mental health condition to schedule focus time and work breaks.

In Windows 11, Focus settings are located under **Start > Settings > System**. You can start a focus session on that panel. Alternatively, you can select the time and date in the taskbar, and then select **Focus**.

## Knowledge check

### Question 1

What is accessibility? *Select the best answer.*

1. Word used to describe how people access products
2. Word used to describe whether a product or service can be used by people with disabilities
3. Word used to rate the ease with which a person can use a product
4. Word used to describe the security of products

**The correct answer is B.**

### Question 2

What is a disability? *Select the best answer.*

1. A personal health condition or attribute
2. A mismatch between the person and the environment
3. A lack of ability

**The correct answer is B.**

### Question 3

A parent who is holding a baby and using a mobile phone is an example of what kind of disability? *Select the best answer.*

1. A situational disability
2. A permanent disability
3. A temporary disability
4. None of the above

**The correct answer is A.** A situational disability is one that only arises in certain situations.

### Question 4

Which of the following are examples of assistive technology? *Select the best answer.*

1. Screen readers, screen magnifiers, captions
2. Prosthetics, adaptive mice, switches
3. Wheelchairs, canes, refreshable braille displays
4. All of the above

**The correct answer is D.** Assistive technology is any kind of technology that helps to increase accessibility for people with disabilities.

## Summary and completion

In this module, you've learned about the meaning and significance of the concepts of accessibility and disability, and why accessibility is important for people with disabilities. Here’s content that we covered:

* Why accessibility is important for creating inclusive and equitable environments.
* How disability is context dependent and defined as a mismatch between the person and the environment, rather than a personal attribute or lack of ability.
* Examples of permanent, temporary, and situational disabilities.
* How people with disabilities can utilize assistive technology to better interact with technology.

## Module 1 completion

You have completed module 1, “Introduction to accessibility”.

Thanks for taking the time to learn more about the importance of accessibility, the meaning of disability, and how assistive technology can support people with disabilities.

### Learn more

* [Microsoft Accessibility](https://www.microsoft.com/en-us/accessibility/): Discover more about how Microsoft approaches accessibility, resources to help people with disabilities, and how we promote disability inclusion.
* [World Health Organization](https://www.who.int/about/communications/accessible/ensuring-accessibility): Explore principles of accessibility for communication and design.
* [Assistive Technology Industry Association (ATIA)](https://www.atia.org/home/at-resources/what-is-at/): More information about products, equipment, and systems that enhance learning, working, and daily living for persons with disabilities.

# Module 2: Web accessibility principles and guidelines

Web accessibility principles relate to different standards and regulations and are a valuable tool to guide accessible web development.

## Introduction to web accessibility standards and guidelines

Web accessibility is the practice of making websites and web applications usable and accessible for people with disabilities.

Beyond being a moral and ethical business responsibility, it’s required by law. People with disabilities have the right to access information and communication technologies equally as those without disabilities.

By ensuring web content is easy to navigate, clear, and consistent for all users, we can enhance user experiences for everyone and meet legal obligations. Technical standards explain how we can make web content accessible.

In this module, we explore how standards impact web design and development.

## Web Content Accessibility Guidelines (WCAG)

Internationally recognized, the industry standard for web accessibility is the [Web Content Accessibility Guidelines (WCAG)](https://www.w3.org/WAI/standards-guidelines/wcag/). This standard explains how to make web content more accessible to people with disabilities and is organized into four principles: **Perceivable**, **Operable**, **Understandable**, and **Robust**.

Each principle has several guidelines, with a varying number of success criteria. The WCAG success criteria are further divided into three levels of conformance: **A**, **AA**, and **AAA**, indicating a degree of accessibility and compliance.

## Other accessibility laws and standards | Explore

How does WCAG relate to other accessibility laws and standards? Different countries and regions have their own laws and regulations. Many may reference or incorporate WCAG principles, while also including their own specific requirements and exceptions.

Here are three other standards or laws that incorporate the Web Content Accessibility Guidelines (WCAG).

### EN 301 549

**EN 301 549** is a European standard for the accessibility of information and communication technologies like websites, software, and hardware.

It sets requirements for public procurement in Europe and also has been adopted as a procurement standard in many non-European countries.

EN 301 549 is also expected to set the compliance bar for the European Accessibility Act (EAA), a law that sets accessibility requirements for many products and services offered in the European Union as of June 28, 2025.

The current version of EN 301 549 incorporates WCAG 2.1 level AA.

### Section 508

**Section 508 of the Rehabilitation Act** is a law in the United States that requires federal agencies to ensure their electronic and information technology is accessible to people with disabilities.

A federal agency called the United States Access Board creates specific regulations explaining what Section 508 requires. Those regulations incorporate WCAG 2.0 level AA as the standard for web accessibility.

### EU Web Accessibility Directive

The **EU Web Accessibility Directive** requires public sector websites and mobile applications in the European Union to be accessible to people with disabilities.

It requires compliance with WCAG 2.1 level AA.

## Principles of accessibility: POUR

WCAG industry standard guidelines for web content accessibility are organized around four principles: Perceivable, Operable, Understandable, and Robust. To remember these principles, many people use the acronym POUR. These universal POUR principles provide the foundation for web accessibility and ensure that web content is accessible to people with diverse needs and preferences.

According to the [World Wide Web Consortium (W3)](https://www.w3.org/TR/UNDERSTANDING-WCAG20/intro.html), anyone who wants to use the web must have content that incorporates all four POUR principles. On the following pages, we'll explore what each of these mean.

## Principles of accessibility: Perceivable

Information and user interface components must be presentable to users in ways they can perceive. This means ensuring all users can see, hear, or sense all elements of a design. While many users may be able to understand visually, other users may perceive through sound or touch. This is when tools like alt text for images and links, high-contrast color, captions, and transcripts can help.

## Principles of accessibility: Operable

This principle requires all user interface components and navigation must to be operable. So, users must be able to successfully use controls, buttons, navigation, and other interactive elements. Not everyone can use a mouse. For many, being able to operate a website or web application means using assistive technology like voice recognition, keyboards, or screen readers. Here are some examples of web features that increase operability:

* Visible focus: A website with a visible focus ring around a link
* Pause button: A web animation that has a pause button on it
* Skip to main content link: A web page that has a “Skip to main content” link at the top of the page

## Principles of accessibility: Understandable

Users must be able to comprehend the information on a website as well as how to access and navigate the site. This principle calls for sites and web applications to be predictable in design and usage patterns. They should be easy to navigate and read. This means creating a visual hierarchy that emphasizes headings and content structure with clear instructions and consistent navigation.

Understandability can be context specific. For example, a website explaining how to complete a complex coding task can include information that would be understandable to a developer but might not be understandable to someone with no coding background.

Here are some examples of web features that increase understandability:

* Acronyms explained: Spelling out an acronym such as GAAD, Global Accessibility Awareness Day
* Error identification: A web form showing error messages where the user has not enetered their email address and password
* Consistent navigation: A web page that has a clear and concise drop down menu at the top of the page

## Principles of accessibility: Robust

This principle requires content to be able to be accessed and interpreted reliably by a wide variety of user agents, including assistive technologies like screen readers, speech recognition, and text magnification. As agent technologies advance and evolve, the content should remain accessible across different types of devices and browsers.

## Accessibility ratings

How do you rate the accessibility of a website or web application?

Each of the four WCAG principles has guidelines with specific recommendations for web design and development. These guidelines are further broken down into measurable and testable "success criteria" or statements that define the minimum requirements for web accessibility.

There are three levels of conformance: A, AA, and AAA.

This rating system indicates the level of compliance and conformity to accessibility guidelines – with A being the minimum level and AAA the maximum level of compliance. The recommended level of accessibility for most web content is the intermediate level of accessibility AA.

Levels are cumulative, meaning intermediate level AA web content must also meet all minimum level A success criteria, while AAA content must also meet success criteria for both level A and AA.

## Levels of conformance | Explore

Let’s compare the three levels of conformance by reviewing some sample success criteria for each of the POUR web accessibility principles.

Perceivable

* A: Provide text alternatives for non-text content (e.g., images, audio, and video)
* AA: Provide captions for live audio content (e.g., webinars, podcasts, and broadcasts)
* AAA: Provide sign language interpretation for pre-recorded audio (e.g., videos, animations, and presentations)

Operable

* A: Make all functionality available from a keyboard (e.g., links, buttons, and forms).
* AA: Provide enough time to read and use content (e.g., allow adjusting or extending time limits).
* AAA: Provide the option to re-authenticate without losing data (e.g. save progress or resume later).

Understandable

* A: Make sites appear and operate predictably (e.g., with consistent navigation and feedback mechanisms).
* AA: Make text readable and understandable (e.g., use clear, simple language; define unfamiliar words).
* AAA: Provide a way to expand abbreviations (e.g., by using element, or by providing a glossary).

Robust

* A: Maximize compatibility with future user agents (e.g., use valid, well-formed markup; follow standards).
* AA: Provide name, role, and value for all user interface (UI) components, by using appropriate HTML elements and attributes or WAI-ARIA\* roles and properties.
* AAA: Provide the purpose and meaning of UI components (e.g., by using WAI-ARIA landmarks and labels.)

\*(WAI-ARIA): [Web Accessibility Initiative – Accessible Rich Internet Applications standard](https://www.w3.org/WAI/standards-guidelines/aria/)

## Knowledge check

### Question 1

What is web accessibility? *Select the best answer.*

1. Practice of designing web content to be fun and entertaining
2. Practice of making web content usable and accessible for people with disabilities
3. Practice that makes the web more secure for children
4. Practice that web designers and developers use to access the Internet

**The correct answer is B.**

### Question 2

You can enhance user experiences for people with disabilities by: *Select the best answer.*

1. Failing to compy with web accessibility standards and regulations
2. Ensuring web content is easy to navigate, clear, and consistent
3. Focusing on the needs of only users who have accessed your prior content
4. Completing this training and relying on others to address accessibility issues

**The correct answer is B.**

### Question 3

What are the POUR web accessibility principles? *Select the best answer.*

1. Powerful, Objective, Uniform, and Realistic
2. Presentable, Obtainable, Useful, and Respectful
3. Perceivable, Operable, Understandable, and Robust
4. Punctual, Observable, Unmistakable, and Reversible

**The correct answer is C.**

### Question 4

Which of the following is an example of the POUR principle: Perceivable? *Select the best answer.*

1. Captions for podcasts
2. Works on Androids and iPhones
3. You can use keyboard to access content

**The correct answer is A.**

### Question 5

Which of the following is an example of the POUR principle: Operable? *Select the best answer.*

1. Captions for podcasts
2. Works on Androids and iPhones
3. You can use keyboard to access content

**The correct answer is C.**

### Question 6

What is the recommended level of compliance for most web content? *Select the best answer.*

1. A: minimum level of accessibility
2. AA: intermediate level of accessibility
3. AAA: maximum level of accessibility

**The correct answer is B.**

## Summary and completion

In this module, you've learned about the practice and standards of web accessibility and why it is important for people with disabilities. Here’s the content that we covered:

* Why accessibility is important for creating inclusive and equitable websites and applications.
* Examples of Perceivable, Operable, Understandable, and Robust web design principles.
* How web standards may differ around the globe, yet all share a mission to make web accessible.
* A, AA, and AAA levels of compliance define various requirements for web design and development.

## Module 2 completion

You have completed module 2, “Web accessibility principles and guidelines”.

Thanks for taking the time to grow your knowledge of accessibility fundamentals!

### Learn more

* [Microsoft Accessibility](https://www.microsoft.com/en-us/accessibility/): Microsoft’s approach to accessibility accessibility, resources to help people with disabilities, and how we promote disability inclusion.
* [World Health Organization](https://www.who.int/about/communications/accessible/ensuring-accessibility): Principles of accessibility for communication and design and design.

### Web Accessibility Regulations

* [Web Content Accessibility Guidelines (WCAG)](https://www.w3.org/WAI/standards-guidelines/wcag/): Guidelines published by the Web Accessibility Initiative of the World Wide Web Consortium.
* [European Accessibility Act (EAA)](https://ec.europa.eu/social/main.jsp?catId=1202&intPageId=5581&langId=en#:~:text=The%20European%20Accessibility%20Act%20identifies,uses%20functional%20EU%20accessibility%20requirements.): A directive that requires some everyday products and services to be accessible for persons with disabilities.
* [ICT Accessibility 508 Standards](https://www.access-board.gov/ict/): US standards addressing access to information and communication technology (ICT) under Section 508 of the Rehabilitation Act of the United States.
* [European Union Web Accessibility Directive](https://digital-strategy.ec.europa.eu/en/policies/web-accessibility-directive-standards-and-harmonisation): EU legislation, technical standards, and W3C international best practices on web accessibility.
* [Web Accessibility Initiative – Accessible Rich Internet Applications standard (WAI-ARIA)](https://www.w3.org/WAI/standards-guidelines/aria/): A technical specification to improve accessibility and interoperability of web content with assistive technologies.

# Module 3: Create accessible content

Accessible content serves diverse audiences and situations. In this module, we'll look at best practices, benefits, and principles of creating accessible content.

## Introduction to creating accessible content

Creating accessible content helps users to better understand and interact with your content. Microsoft 365 provides built-in accessibility features and tools to ensure everyone can create accessible content.

In this module, we explore how to utilize these applications to create accessible headings/titles, images, color, and multimedia. You’ll learn how to use the Microsoft 365 Accessibility Checker and Accessibility Assistant to get help creating and editing documents, presentations, emails, and websites that are accessible to people with disabilities.

## Video: Creating accessible content

Creating accessible content helps people with disabilities better understand and interact with your content.

Start by using Accessibility Checker in Microsoft 365 to ensure everyone can enjoy what you and your team create. From any email, document, presentation, or spreadsheet, you'll find Accessibility Checker in the review tab. It will present a list of errors, warnings, and tips with how to fix recommendations for each that will make your content more accessible.

Another way to create accessible content is to use headings to organize your text.

This makes it easier for screen readers and other assistive technologies to identify the structure and hierarchy of your content and make it easier to understand for everyone.

For people who are blind or have low vision, who may not be able to see or perceive visuals, use alt text to describe any images, charts, graphs, or other visual elements.

Alt text helps people and assistive technologies understand the meaning and purpose of visual content.

When you have audio or video in your documents and presentations, you'll always want to provide alternative ways for people to access it. Captions and transcripts can help people who are deaf or hard of hearing follow along with narration and sounds, while audio descriptions can help those who are blind or have low vision, understand your video’s visual elements in action.

Finally, make text more readable by using sufficient color contrast between text and backgrounds. This makes it easier for someone with colorblindness or who has low vision to distinguish foreground from background, more readily understanding and enjoying your content.

So, design for everyone! Accessible content ensures people with disabilities will be able to engage with, understand, and enjoy your content more fully.

## Headings and titles

When creating your content, you’ll want to provide an overview and context for the content you share. **Headings and titles** make text stand out, so people can understand how your document is organized, and screen readers can understand navigational structure.

People using screen readers and other assistive technologies may navigate your content by using keyboard shortcuts to move from heading to heading. A **title** is usually the first thing a screen reader will read as the highest-level **heading**, followed by **subheadings** for other sections or topics.

Let’s see how to add headings and titles in Word, PowerPoint, and Outlook.

### Steps to apply headings in Word

To apply headings in Word, first select the text you want to format as a heading.

In the **Home** tab of the ribbon, select **Styles**.

Choose **Heading 1**, **Heading 2**, or **Heading 3** depending on the hierarchy of your content. Properly nesting the order of headings in your document is critical to informing screen reader users how to navigate.

You can also modify the appearance of any heading by changing the **font**, **size**, **color**, or **alignment**.

### Try it: Apply headings in Word

Download Ex 1 - Headings - Begin.docx and open it in Word to practice applying headings yourself.

1. **Examine the text that is used as headings in the document:**
2. Select the title "Contoso Interior Design".
3. Examine the **Home** tab on the ribbon and the **Styles** section of that tab.
4. Notice that the style is set to "Normal". The text is not formatted with a heading style currently.
5. **To make this document more accessible, apply heading styles to the document:**
6. Select the text you want to format as a heading.
7. From the **Styles** section of the **Home** tab, choose an appropriate heading style to organize your content.
8. Repeat this process to correctly format all of the headings in the document.
9. Notice that the default heading styles in Word also improve the contrast of this text. If you wish, you can modify the appearance of the headings.
10. **Now examine the structure you have applied by using headings:**
11. Select the **View** tab on the ribbon
12. Select the **Navigation Pane** checkbox.
13. Notice the heading titles in the pane that appears.
14. Does the pane correctly reflect the intended hierarchy of the document? If not, adjust your heading styles as needed.

If you'd like to see how our document turned out, you can download the version with headings applied and formatting cleaned up here: Headings exercise 1 - end.docx

Note that there are still additional accessibility concerns in this document. We will resolve them as this module continues.

### Apply headings in Outlook

To apply headings in Outlook, first select the text you want to format as a heading.

In the **Format Text** tab of the ribbon, select **Styles**.

Choose an appropriate **Heading** style depending on the hierarchy of your content.

### Add titles in PowerPoint

To add titles in PowerPoint, explore the built-in **Layouts** available in the **Home** tab of the ribbon.

Depending on the design and content of your presentation, you can choose from different types of layouts, such as **Title Slide**, **Title and Content**, or **Title Only.**

## Accessible images

Images are a great way to add visual interest or include graphics in your creations. **Alternative text**, or **alt text**, is a brief description of an image that helps people who cannot see the image understand its content and purpose. Alt text is read by screen readers and other assistive technologies. The alt text you write should convey the “why” of the image as it relates to the content of a document or webpage.

### Best practices

As a best practice, alt text should be purposeful and meaningful about what’s in the image. It’s recommended to write alt text that is **less than 150 characters** in length since assistive technologies will read through the whole description without the ability to navigate or skip through it.

Including alt text for every image that provides context or meaning is important because it makes your web content more accessible and inclusive for people with vision disabilities, as well as people using low-bandwidth connections or browsers with images turned off.

Decorative images (like borders) should be marked "decorative" if they do not provide context or meaning to the content.

Let’s see how you can add alt text to images in Word, PowerPoint, and Outlook.

### Add alt text to an image in Word

Follow these steps when you want to add alt text to an image in Word:

1. Open the **Alt Text** pane, using one of the following methods:

* Right-click on an image or press the applications key. A context menu will appear. Select **View Alt Text**.
* Select an image. Then in the ribbon, under **Picture Format**, select **Alt Text**.

1. The **Alt Text** pane will open.
2. Enter a description of the image in the **Alt Text** field or approve the AI-created alternative text.
3. If an image does not convey any essential information and is simply part of the page design, select the box to mark the image as decorative.

### Try it: Add alt text to an image in Word

To do this exercise, either continue with the document you already applied headings to or download Ex 2 - Alt text - Begin.docx. Open the document to practice adding alt text to images.

1. Select the first image in the document.
2. Open the **Alt Text** pane, using one of the following methods:

* Right-click on an image or press the applications key. A context menu will appear. Select **View Alt Text**.
* Select an image. Then in the ribbon, under **Picture Format**, select **Alt Text**.

1. The **Alt Text** pane will open.
2. Enter a description of the image in the **Alt Text** field or approve the AI-created alternative text.

Note that the automatically generated descriptions are generally accurate, but it is often a good idea to add additional nuance that is suited to your purposes. For instance, "A white chair next to a white cabinet" does not describe the interior design in a way that would serve to enhance the appeal of the designer's work.

Continue this process until you have added alt text to all of the images in the document.

If you'd like to see how our document turned out, you can download the version with alt text applied here: Ex 2 - Alt text - End.docx

Note that there are still additional accessibility concerns in this document. We will resolve them as this module continues.

### Add alt text to an image in PowerPoint or Outlook

When you want to add alt text to an image in PowerPoint or Outlook, the process is the same as it is in Word.

## Color contrast

### How color contrast influences accessibility

One of the key steps in making content in documents accessible is to ensure color contrast between text and backgrounds is sufficient to be readable by everyone, specifically people with low vision or color blindness.

### How to check color contrast

1. Use a color contrast analyzer or the built-in **Accessibility Checker** to verify contrast. Accessibility Checker can automatically detect and report any color and contrast issues.
2. Adjust based on results and suggestions on how to fix issues. For example, change the color or font size, or weight, or add alternative text to images.

By following Accessibility Checker suggestions, you will ensure your documents are accessible and readable by everyone. More information on the Accessibility Checker is presented later in this module.

## Accessible multimedia

An important way to ensure your multimedia is accessible to people with disabilities is to provide captions and audio descriptions for your video and audio files. This will make your documents more inclusive and engaging for everyone. Both captions and audio description can benefit people who are learning a new language, are neurodiverse, or have difficulty hearing or seeing the content due to environmental factors.

### Captions

**Captions** are the text of the spoken content and sound effects in a video or audio file. Captions can be either open or closed. Consider your audience and purpose when deciding whether to use open or closed captions for your multimedia.

* **Open captions** are always visible on the screen and cannot be turned off. These are useful when you want to ensure everyone can read the captions regardless of their device or settings, such as when in a public display or a social media post.
* **Closed captions** can be turned on or off by the user. These are useful when you want to give the user the option to choose whether they need captions or not, such as in an online course or a video player.

### Steps to add captions to videos in PowerPoint

Follow these steps to increase multimedia accessibility in PowerPoint by adding captions:

1. Insert the video into your slide by selecting **Insert** > **Video** > **This Device or Online Video**.
2. Select the video on the slide, and then select **Playback** > **Video Options** > **Insert Captions**.
3. Once you select a caption file, the captions will appear below the video when you play it.

### Audio description

**Audio description** is the narration of the visual elements in a video or audio file. This description is meant to paint a vivid picture of a scene for people with low or no vision.

*Example:* [Accessible Multimedia video](https://learn-video.azurefd.net/vod/player?id=63c69938-4615-4131-ba28-6cf1710e1ec6)

## Helpful tools

Tools such as Accessibility Checker and Accessibility Assistant can help you make more accessible content with less effort. Let's see how you can use these tools to review and edit documents to make them more accessible for people with disabilities.

### Check and edit documents with Accessibility Checker

The [Accessibility Checker](https://support.microsoft.com/en-us/office/improve-accessibility-with-the-accessibility-checker-a16f6de0-2f39-4a2b-8bd8-5ad801426c7f) in Microsoft 365 is a tool that helps you create and edit documents, presentations, emails, and websites that are accessible to people with disabilities. It provides suggestions on how to fix issues and improve the accessibility of your content.

Accessibility Checker can automatically identify any issues that might make your content difficult or impossible to access, such as missing alt text for images, missing slide titles, or poor color contrast.

### Steps to use Accessibility Checker

Follow these steps to use the Accessibility Checker in Word, PowerPoint, and Outlook:

1. Open the document, presentation, or email that you want to check for accessibility issues, and in the **Review** tab, select **Check Accessibility**. The Accessibility Checker pane will open.

**Tip:** For Word, Excel, and PowerPoint desktop, select the lower half of the Check Accessibility button for more options.

1. Review the list of issues and warnings that the accessibility checker has found.
   * + **Issues** are more severe and should be fixed as soon as possible.
     + **Warnings** are less critical but will still affect some users.
2. Select an error or warning to see more details and suggestions on how to fix it.

### Try it: Use Accessibility Checker

In previous exercises in this module, you added headings and alt text to a Word document for Contoso Interior Design. Now let's use Accessiblity Checker to see what issues remain.

You can use your own document that you have been working on, or download Ex 3 - Accessibility Checker - Begin.docx. Open the document in Word to practice using Accessibility Checker.

1. In the **Review** tab, select **Check Accessibility**. The Accessibility Checker pane will open.
2. Review the list of issues and warnings that the Accessibility Checker has found. Our document shows:

* Numerous errors titled "Image or object not inline"
* A few warnings titled "Hard-to-read text contrast"
* If you missed adding any alt text to images, that would appear as additional errors here.

1. Select each error or warning to see more details and suggestions on how to fix it.

If you'd like to see how our document turned out, you can download the version with all accessibility issues addressed here: Ex 3 - Accessibility Checker - End.docx

#### Our solution

After changing each of the photos to be inline with text, we cleaned up some odd text wraps.

In the "Portfolio" section, we decided to keep the alt text that we had previously added to the photos, but you could alternatively mark them as decorative since the caption also describes the photo.

Images that are marked as decorative do not need to be formatted inline with text for accessibility purposes.

In the "Meet the Team" section, we decided to mark those images as decorative since there was not a lot of meaningful content in the alt text.

We also addressed the color contrast issue by changing the font to a darker gray color.

### Handle accessibility as you go with Accessibility Assistant

The [Accessibility Assistant in Microsoft 365](https://www.microsoft.com/en-us/microsoft-365/blog/2023/03/08/create-inclusive-content-with-the-new-accessibility-assistant-in-microsoft-365/) is a powerful set of tools that will help creators produce more accessible content with less effort—within your natural flow of work – flagging issues as they occur and providing simple fixes ‘in the moment.’ This workflow helps creators avoid getting to the end of a project only to find a huge list of issues that’ll take time and energy to fix.

Expanding on the existing **Accessibility Checker** (which we reviewed on the previous page), **Accessibility Assistant** introduces three key innovations:

1. Better defaults to prevent issues before they occur,
2. Real-time and in-context remediation to correct issues as they arise, and
3. Clear, simple guidance that appears in the flow of work.

### Accessibility Assistant Categories

When using the **Accessibility Assistant** pane, the following five major categories of issues are checked and flagged:

* Color and Contrast
* Media and Illustrations
* Tables
* Document Structure
* Document Access

By flagging any issues that could prevent your documents from being accessible, **Accessibility Assistant** helps ensure your readers can understand and use the content as you intended.

### Steps to use Accessibility Assistant (Public Preview)

As you create a document in Microsoft 365, if you put something in your document that Accessibility Assistant recognizes as an accessibility issue, an icon in the shape of a person appears on screen in the margin.

When this happens, you can take these steps:

1. Select the icon next to the flagged text to review open Accessibility Assistant. To check for accessibility issues manually at any time, select **Review** > **Check Accessibility** or **Accessibility: Investigate** in the status bar at the bottom of the Word app window.
2. To fix the issue, select an action from the suggested options.

To check for accessibility issues manually at any time, select **Review** > **Check Accessibility** or **Accessibility: Investigate** in the status bar at the bottom of the Word app window.

## Knowledge check

### Question 1

What is the purpose of alt text for images in a document? *Select the best answer.*

1. To provide a description of the image for people who use screen readers or have low vision
2. To provide a caption for the image that appears below it
3. To provide a keyword for the image that can be searched online
4. To provide a link to the source of the image

**The correct answer is A.**

### Question 2

Accessibility Checker is available in which of the following apps? *Select the best answer.*

1. Word
2. Excel
3. Outlook
4. PowerPoint
5. All of the above

**The correct answer is E.**

### Question 3

Which of the following statements is true about captions? *Select the best answer.*

1. Open captions can be turned on or off by the user.
2. Closed captions are always visible on the screen and cannot be turned off.
3. Closed captions can be turned on or off by the user.

**The correct answer is C.**

### Question 4

If an image doesn't have alt text, how will the Accessibility Checker flag it? *Select the best answer.*

1. As an error
2. As a warning
3. As a tip
4. It will not flag the image

**The correct answer is A.**

### Question 5

How does the Accessibility Checker help you create accessible content? *Select the best answer.*

1. After accessing it from the Review tab, it lists accessibility issues and warnings.
2. It provides suggestions on how to fix accessibility issues.
3. It sometimes presents a Fix button to apply the suggested changes automatically.
4. All of the above.

**The correct answer is D.**

### Question 6

As you are creating a document, how does Accessibility Assistant assist you? *Select the best answer.*

1. It flags any issues that could prevent your documents from being accessible.
2. It presents real-time, in-context remediation to correct issues as they arise.
3. It delivers clear, simple guidance that appears in the flow of your work.
4. All of the above.

**The correct answer is D.**

## Summary and completion

In this module, you learned how to create content with Microsoft 365 in a way that enables greater accessibility. Here are some of the things we covered:

* The Accessibility Checker in Word, PowerPoint, Excel, and Outlook.
* How to create accessible content in Word, PowerPoint, Excel, and Outlook.
* The built-in accessibility tools and features of each of these apps.

## Module 3 completion

You have completed module 3, “Create accessible content”.

Thanks for taking the time to grow your knowledge of accessibility fundamentals!

### Learn more

* [Accessibility for Microsoft 365](https://www.microsoft.com/en-us/accessibility/office?activetab=pivot_1:primaryr2): Descriptions of Microsoft 365 accessibility tools and features.
* [Accessibility Tools for Microsoft 365](https://support.microsoft.com/en-us/office/accessibility-tools-for-microsoft-365-b5087b20-1387-4686-a0a5-8e11c5f46cdf): Accessibility resources for Word, PowerPoint, and Excel, and tools to make your content accessible for everyone, including people with disabilities.
* [Rules for the Accessibility Checker](https://support.microsoft.com/en-us/office/rules-for-the-accessibility-checker-651e08f2-0fc3-4e10-aaca-74b4a67101c1): Learn more about what this free tool can do, and its limits.
* [How to Use the Accessibility Checker](https://support.microsoft.com/en-us/office/improve-accessibility-with-the-accessibility-checker-a16f6de0-2f39-4a2b-8bd8-5ad801426c7f): Follow this tutorial to learn more about using the tool.
* [Create inclusive content with the Accessibility Assistant in Word](https://insider.microsoft365.com/en-us/blog/create-inclusive-content-with-the-accessibility-assistant-in-word): Feature deep-dive blog designed to help you learn more about how to use Accessibility Assistant while creating content.

# Module 4: Build accessible SharePoint sites

When creating a website in SharePoint, follow web accessibility principles and best practices, and make use of the tools and features SharePoint offers to help make sites accessible.

## Introduction to building accessible SharePoint sites

In this module, you will learn how to create and maintain SharePoint sites that provide a positive user experience for people with disabilities.

As a web-based platform, SharePoint enables the creation, management, and sharing of information within an organization via web sites that can take the form of an intranet, extranet, or public-facing web site. SharePoint sites can be used to collaborate, communicate, and manage documents. While it does not automatically make your sites accessible, SharePoint does offer many tools and features to help you make sites accessible, like SharePoint templates, web parts, themes, styles, and layouts.

It's recommended to follow web accessibility principles and guidelines when designing and developing your SharePoint sites. Consider the needs and preferences of your target audience. Implement best practices and recommendations for improving accessibility and usability. And test sites for accessibility issues.

## Common accessibility needs

When creating your SharePoint site, usability is critical. Think of it this way: if you can’t easily move around your site to get what you want or accomplish what you need to do, how can others?

In this unit, we’ll explore some of the common barriers to access and the types of assistive accessibility needs that people with disabilities may have. This will help you have a clearer understanding of customizations you may need to make to ensure your SharePoint site is inclusive to all users.

We’ll now explore examples of accessibility needs for some disabilities, including:

* Vision
* Hearing
* Mobility
* Learning
* Mental health
* Neurodiversity

### Vision

Some considerations for browsing a SharePoint site for people with vision disabilities such as blindness and low vision are:

* **Keyboard interaction** to easily navigate a page with the keyboard alone, such as pressing the tab key to move between all interactive elements.
* **Name and role of elements** that provide information on how to interact with the control, such as a link or button.
* **Larger typefaces** that make text easier to read, and black or high-contrast text.
* **A predictable tab order and landmarks** on a web page (including dialog boxes) that enable users to build a mental model of the page so they can stay oriented and not lose track of where they are.
* **Alternatives to visuals** (images, icons, etc.) and descriptive alternative text (alt text) for all images.
* **Audio descriptions for videos.** And settings for video players, such as the ability to turn off autoplay, so a video’s audio and the audible feedback from a screen reader don’t overlap.
* **Inclusive language that doesn’t always refer to “seeing” an element.** For example, instead of saying, “See XYZ,” you could say, “XYZ is included.” Instead of saying, “Watch the video,” you could provide a clear and inclusive alternative: “Watch the video or listen to the audio transcript for the video.”
* **Alternatives to color to convey important information:** Ensure that color is not the only means of conveying information on your site. For example, ensure that a hyperlink that’s is highlighted by color is also underlined, so a person who is color-blind knows it is’s a link, even if they can’t see the color. When colors are used to convey or differentiate information—like in a pie chart or bar graph, this information should also be provided in another way, such as text or captions. Try textures instead of colors. Contrasting patterns help users with certain types of color blindness see things more clearly.

### Hearing

Some considerations for browsing a SharePoint site for people who are Deaf or Hard of Hearing are:

* **Captions and text transcripts for videos.** Adding closed captions makes video content accessible to a larger audience, including people with hearing disabilities and those who speak languages other than the one in your video, or those playing your video in a noisy environment. Transcription and Closed Captions are automatically generated for video files that are uploaded to SharePoint.
* **Text transcripts for audio.** By using the transcribe feature in Microsoft Office, you can convert speech to a text transcript with each speaker individually separated.
* **Text or visual alternatives to sounds.** Users can get visual cues instead of sound alerts in Windows by changing their settings. Here’s how to access alternatives to audible cues.
* **Language that provides alternatives to “hearing” or “listening to” an element.** For example, rather than writing, “Listen to the audio,” use clear and inclusive language that instead says, “Listen to the audio, or read the text transcript for it.”

### Mobility

Here are some considerations for people with mobility disabilities when browsing a SharePoint site:

* **Keyboard access.** Not everyone can use a mouse, so build your site so content is accessible via the keyboard
* **Opportunities to cancel major actions**, such as providing a Cancel button when deleting a channel on a video portal. This ensures users can recover from any mistakes made with an input device.
* **Ways to skip long lists.** When scrolling is difficult, consider providing, for example, anchor links that enable a person to navigate to the top, to the end, or to the next section on a list or page in a site.

### Learning

Here are some considerations for people with learning disabilities when browsing a SharePoint site:

* **Clear and consistent headings, labels, and navigation** menus that help people find the information they need and avoid distractions.
* **Alternative formats** for text-heavy content, such as images, audio, video, or infographics, that can convey the same message in different ways.
* **Clear and concise information or instructions** and include definitions or explanations in plain language.

### Mental health

Some considerations for browsing a SharePoint site for people with mental health conditions are:

* **Options for adjusting the contrast, font size, and color scheme** of the site, as some people may have preferences or sensitivities that affect their comfort and focus.
* **Avoid using flashing, blinking, or moving elements** that may trigger anxiety, stress, or seizures. If such elements are necessary, provide a warning and an option to turn them off.
* **Clear and consistent navigation and layout**, and provide breadcrumbs, search functions, and feedback mechanisms to help users find what they need and avoid frustration or confusion.

### Neurodiversity

Some considerations for browsing a SharePoint site for people who are neurodiverse are:

* **Simple and clear language**, avoid jargon and idioms, and provide definitions or explanations for uncommon terms or acronyms.
* **Avoid flashing or flickering images**, animations, or videos that may trigger seizures or sensory overload.
* **Alternative text or captions for images**, audio, or video content to help users who prefer or need textual information.
* **Consistent and meaningful color schemes**, fonts, and icons to convey information, and provide options for users to adjust the contrast, size, or appearance of the site elements.
* **Organize the content logically** and hierarchically, and use headings, subheadings, lists, and tables to structure the information and make it easier to scan and understand.

## Built-in features

SharePoint has many built-in features that help people with different abilities to use and contribute to your site. SharePoint is tested thoroughly to make sure that users can move around any SharePoint page and use any button or command by using only the keyboard.

Over the next few pages, we'll explore some of SharePoint's built-in features, such as accessible **templates**, **alternative text** for images, and hierarchical **heading styles**.

### Accessible templates

You can easily create sites using the standard, “out-of-the-box” templates available in SharePoint. These standard templates place content on the pages in your site designed with accessibility in mind.

When you choose a fully accessible, tested template and theme, you know you’ll get an accessible look for your site that people with low vision can read more easily. You can also use fonts, colors, and themes to maximize the inclusiveness of your site.

### Alt text

**Alt text** (alternative text) is descriptive text added to images. It provides context for screen readers and people with vision disabilities in understanding the content of an image.

#### Add alt text to an image in SharePoint

1. Select the image. A contextual menu will appear.
2. Select the **Edit Details** button (pencil icon) from the contextual menu. The Image panel will appear.
3. In the **Accessibility** section of the panel, add alt text or edit any existing alt text. If the image is not meaningful, check the **Mark as decorative** option.

### Alt text for images in web parts

Web parts such as "Hero images" are frequently used design elements in SharePoint templates. Images that appear in these content blocks should also have alt text or be marked as decorative.

#### Add alt text to a Hero image in SharePoint

Follow these steps when you want to add alt text to a Hero image on a SharePoint page:

1. Select the web part you wish to inspect. A contextual menu will appear.
2. Select the **Edit Details** button (pencil icon) in the lower left corner of the selected web part.
3. A panel of options will appear. Select the **Accessibility** tab.
4. On the **Accessibility** tab, add alt text or edit any existing alt text. If the image is not meaningful, select the **Mark as decorative** option.

### Headings

Properly structured **headings** enhance the accessibility and organization of web pages. When you apply heading styles in SharePoint, SharePoint inserts the appropriate tags into the web page (<h1>, <h2>, etc.) This helps screen readers navigate content and provide a clear hierarchy.

To apply a heading style, use the SharePoint Font **Format** drop down list and select a heading level. The heading levels begin with "Heading 2" since the page level heading is always level 1.

### Accessible interactivity

If your SharePoint site includes interactive forms, the following built-in features will help ensure they are accessible.

* **Name/Role/Value:** These attributes are crucial for accessible forms and interactive elements. They ensure screen readers announce the purpose and state of form fields, buttons, and other controls. Use built in buttons or web parts and provide an accessible label.
* **Focus Order:** A logical focus order improves usability for users by determining the sequence in which interactive elements receive focus when navigating with keyboard or assistive technology. When using an accessible template, logical focus order is embedded from the start.
* **Relationships:** To ensure screen readers understand the connections within a page, you must establish relationships between elements. For example, associating a form’s label with its corresponding input field.

## Best practices

### Design with accessibility in mind

Accessibility should be a component of the design process you consider before work on any SharePoint site begins. While site innovation is important, predictability is essential. When you make the navigation on your site easy to understand and predictable, it is more accessible to everyone. Designing sites with accessibility in mind helps to make your sites accessible no matter:

* The device or input method someone may be using (for example, desktop browser, voice browser, mobile phone browser, automobile-based computer, and so on).
* The constraints under which someone may be operating (for example, noisy surroundings, rooms with varying degrees of illumination, hands-free driving environments, and so forth).

Follow these best practices to make your web or company intranet site accessible to people with disabilities:

1. **Identify your company’s accessibility policies, requirements, and guidelines** to which you must conform when building sites, including customized sites in SharePoint Online.
2. **Get in touch with the accessibility contact in your organization** and discuss the implications of customizing your site. Ask them to recommend tools for testing your site’s accessibility.
3. **Share your content plans with your accessibility contact** and have them assess your plans and site customization progress at regular intervals to avoid potential accessibility roadblocks.
4. **Talk with people in your organization who have disabilities.** Ask for their opinion about your plans to customize your site in SharePoint Online. They may be able to provide insights into the daily challenges they face when using websites, in general, and the specific problems they encounter when using intranet sites—both of which will help you set realistic goals.

### Resources

Explore these resources to help you customize your site while keeping it accessible:

* [Make your SharePoint site accessible to people with disabilities](https://support.microsoft.com/en-us/office/make-your-sharepoint-site-accessible-to-people-with-disabilities-53707eb5-b7b8-4ee0-ae82-9d4d916f7fe1" \l "bkmk_alttextmod&PickTab=Online_Modern_Experience)
* [Plan customizations, solutions, and apps for SharePoint Online](https://support.microsoft.com/en-us/topic/b7898ebf-69b7-4196-81e3-b04e1a4e7d67)

## Knowledge check

### Question 1

Why should you design your SharePoint site to be accessible for people with disabilities? *Select the best answer.*

1. So that it can be used as an intranet, extranet, or public-facing web site
2. For better search results when users try to find the SharePoint site online
3. So that external users can collaborate, communicate, and maange documents
4. So that no one is excluded from being able to access and operate your web site.

**The correct answer is D.**

### Question 2

How does alt text help people with disabilities understand your content? *Select the best answer.*

1. Alt text provides context for users of with disabilities to understand your site structure.
2. Alt text provides context for screen readers to understand video captions.
3. Alt text provides context for screen readers to understand the content of an image.
4. Alt text provides context for people with low vision to understand decorative images.

**The correct answer is C.**

### Question 3

Which of the following is NOT true? *Select the best answer.*

1. SharePoint page visitors can access and operate your site by using only the keyboard.
2. There’s no need to test SharePoint sites because they automatically meet all accessibility standards.
3. SharePoint templates, web parts, themes, styles, layouts, and checkers help with accessibility.
4. Transcription and Closed Captions are automatically generated for videos uploaded to SharePoint.

**The correct answer is B.**

### Question 4

What are some best practices for improving SharePoint accessibility and usability? *Select the best answer.*

1. Choose a SharePoint site template for content designed with accessibility in mind.
2. Select a fully accessible, tested theme with color and contrast settings that increase usability.
3. Share your content plans with your accessibility contact at your organization.
4. Include people with disabilities in your organization when testing SharePoint sites.
5. All of the above.

**The correct answer is E.**

## Summary and completion

In this module, you learned how to create content with SharePoint templates, tools, and built-in features to provide greater accessibility. Here are some of the things we covered:

* Common challenges faced by people with disabilities when using SharePoint sites.
* The built-in accessibility features and tools in SharePoint to create and test accessible sites.
* Best practices for improving SharePoint site accessibility and usability.

## Module 4 completion

You have completed module 4, “Build accessible SharePoint sites”.

Thanks for taking the time to grow your knowledge of accessibility fundamentals!

### Learn more

* [Using templates to create different kinds of SharePoint sites](https://support.microsoft.com/en-us/office/create-different-kinds-of-sharepoint-sites-using-site-templates-449eccec-ff99-4cf3-b62e-dcfee37e8da4): Information on the types of sites you can create in SharePoint Online and how to use them.
* [Make your SharePoint site accessible to people with disabilities](https://support.microsoft.com/en-us/office/make-your-sharepoint-site-accessible-to-people-with-disabilities-53707eb5-b7b8-4ee0-ae82-9d4d916f7fe1#PickTab=Online): Step-by-step instructions and best practices for making your SharePoint site accessible and unlocking your content to everyone.

# Module 5: Accessibility evaluation and testing

Accessibility evaluation and testing are essential processes to ensure that accessibility is achieved and maintained throughout a product’s lifecycle.

## Introduction to accessibility evaluation and testing

Accessibility is the practice of designing and developing digital products and services that can be used by people with disabilities. Accessibility is not only a legal requirement, but also a moral and ethical responsibility, as it ensures that everyone can participate and benefit from the digital world.

Accessibility evaluation and testing are essential processes to ensure that accessibility is achieved and maintained throughout a product’s lifecycle.

* **Accessibility evaluation** is the process of identifying and analyzing the accessibility issues and barriers that affect the user experience of people with disabilities.
* **Accessibility testing** is the process of verifying and validating the accessibility of a product or service, using various methods and tools.In this module, we explore how standards impact web design and development.

## Accessibility evaluation and testing | Key points

In this module, you will:

* Learn about the different types of accessibility testing, including manual testing, automated testing, and user testing.
* Develop the skills to conduct accessibility evaluations and testing, using Accessibility Insights and Accessibility Checker, two popular tools that help you identify and fix accessibility issues.
* Understand how to interpret the results of accessibility testing and make recommendations for improvements.
* Learn how to collaborate with others to identify and address accessibility issues and promote a culture of inclusion and accessibility.

## Video: Accessibility evaluation and testing

[insert script here]

## Types of accessibility testing

Accessibility testing is classified into three main types: **manual testing**, **automated testing**, and **user testing**. Each type of testing has its own advantages and limitations, and they complement each other to provide a comprehensive assessment of accessibility.Principles of accessibility: Perceivable

Information and user interface components must be presentable to users in ways they can perceive. This means ensuring all users can see, hear, or sense all elements of a design. While many users may be able to understand visually, other users may perceive through sound or touch. This is when tools like alt text for images and links, high-contrast color, captions, and transcripts can help.

## Types of testing | Manual testing

### What is manual testing?

Manual testing is the process of checking the accessibility of a product or service by manually inspecting its elements and features, using the keyboard, mouse, screen reader, or other assistive technologies.

This type of testing can help you identify issues that automated testing may miss, such as:

* the logical order of content,
* the clarity of labels and instructions,
* the color contrast of text and images, and
* the compatibility with different browsers and devices.

### How to perform manual testing

Manual testing is performed by following accessibility guidelines and standards, such as the [Web Content Accessibility Guidelines (WCAG)](https://www.w3.org/TR/WCAG21/), which provide a set of criteria and techniques to make web content accessible.

One way to perform manual accessibility testing is to use the keyboard and assistive technology, such as screen readers, magnifiers, or voice access. By using only the keyboard, you can check if the content is operable without a mouse and if the focus order and navigation are logical and intuitive. Manual testing with the keyboard and assistive technology requires some familiarity with the tools and the accessibility guidelines, but it can help you discover issues that affect the user experience and satisfaction of your product or service.

## Types of testing | Automated testing

### What is automated testing?

Automated testing is the process of checking the accessibility of a product or service by using software tools that scan and analyze code and content and generate reports of accessibility issues and errors.

It helps you identify issues that manual testing may overlook, such as:

* the presence and validity of HTML attributes,
* the structure and hierarchy of headings,
* the alternative text of images, and
* compliance with accessibility standards and rules.

### How to perform automated testing

Automated testing can be performed by using accessibility tools that help you detect and fix accessibility issues and provide guidance and resources to improve your accessibility knowledge and skills.

* [Accessibility Insights](https://accessibilityinsights.io/) is an extension that can be installed on your browser and run on any web page that helps you identify and fix accessibility issues on web pages and applications.
* [Accessibility Checker](https://support.microsoft.com/en-us/office/make-your-content-accessible-to-everyone-with-the-accessibility-checker-38059c2d-45ef-4830-9797-618f0e96f3ab) is a tool that’s natively available in Microsoft 365 to test document accessibility that generates a list of accessibility issues and tips on how to fix them.

## Types of testing | User testing

### What is user testing?

User testing is the process of checking the accessibility of a product or service by involving real users with disabilities, who interact with it and provide feedback on their experience and satisfaction. User testing can help you identify issues that manual and automated testing may not capture, such as the usability, functionality, and accessibility of the product or service from the perspective of the target audience.

### How to perform user testing

User testing can be performed by recruiting and engaging users with disabilities, who represent a variety of needs, preferences, and abilities.

## Evaluation and testing tools

In this section, you will learn how to use two popular and powerful accessibility tools: Accessiblity Checker and Accessibility Insights. Both accessibility tools help you conduct accessibility evaluations and testing and improve the accessibility of your digital products and services.

### Accessibility Checker

Helps you identify and fix accessibility issues in M365 products.

**Use it for:** Word, Outlook, and PowerPoint and more

[Learn more about Accessibility Checker](https://support.microsoft.com/en-us/office/make-your-content-accessible-to-everyone-with-the-accessibility-checker-38059c2d-45ef-4830-9797-618f0e96f3ab)

### Accessibility Insights

Helps you identify and fix accessibility issues on web pages and applications.

**For web:** Use it in Chrome and the new Microsoft Edge

**For Windows apps:** Use the desktop app

[Learn more and download Accessibility Insights](https://accessibilityinsights.io/)

## Evaluation and testing tools | Accessibility Checker

Accessibility Checker is a tool that helps you identify and fix accessibility issues in M365 products, such as Word, Outlook, and PowerPoint.

To use Accessibility Checker in M365, you can follow these steps:

1. Open the document, email, or presentation that you want to check for accessibility issues.
2. Click on the **Review** tab and select **Check Accessibility** from the ribbon. A pane will appear with a list of accessibility issues and tips on how to fix them.
3. Choose an error, warning, or tip from the list and select the drop-down menu to see more details and suggestions. Some issues may have a Quick Fix option that allows you to automatically correct them such as color contrast, alternative text, and slide titles.

## Evaluation and testing tools | Accessibility Insights

**Accessibility Insights** is a tool that helps you identify and fix accessibility issues on web pages and applications. It is available as a browser extension for Chrome and Edge, and as a desktop application for Windows. With it, you can perform manual accessibility testing and automated testing. And it provides detailed reports and recommendations via its two main features: **FastPass** and **Assessment**.

* **FastPass** is a quick and easy way to find the most common and impactful accessibility issues on a web page or application. It runs an automated scan that checks for 50 accessibility criteria and generates a report that shows you the issues and how to fix them.
* **Assessment** is a comprehensive and thorough way to evaluate the accessibility of a web page or application. It guides you through a series of manual tests that cover all the WCAG success criteria and generates a report that shows you the results and how to improve them.

## Interpreting results

After conducting accessibility testing, you will need to interpret the results and make recommendations for improvements. The results of accessibility testing can help you identify the accessibility issues and barriers that affect the user experience for people with disabilities, and how to address them. The results can also help you measure the accessibility level and compliance of your product or service, and how to enhance it.

## Interpreting results | Factors

When interpreting the results of accessibility testing, you should consider the following factors:

### The type and severity

Some issues and errors may have a higher impact and priority than others, depending on how they affect the functionality, usability, and accessibility of the product or service. For example, missing alternative text on all images may have a higher impact than a low color contrast of an individual icon.

### The number and frequency

Some issues and errors may occur more often and consistently than others, depending on how they relate to the design and development of the product or service. For example, a missing or invalid HTML attribute may occur more frequently than a broken link.

### The source and cause

Some issues and errors may originate from different sources and causes, depending on how they relate to the content, code, and technology of the product or service. For example, incorrect use of color may be caused by a design choice, a coding error, or a browser setting.

### The solution and recommendation

Some issues and errors may have different solutions and recommendations, depending on how they relate to the guidelines, standards, and best practices of accessibility. For example, a missing alternative text for an image may be solved by adding a descriptive and meaningful text, or by removing the image if it is decorative.

## Identify and address accessibility issues

Accessibility is not a one-person job, but a team effort. To ensure that your product is accessible, you will need to collaborate with others, such as designers, developers, testers, program managers, and users. By collaborating with others, you can leverage their expertise, perspectives, and feedback, and create a more inclusive and accessible product or service. Additionally, starting accessibility from the beginning of the product planning phase is key to ensuring your product is accessible upon release.

## Identify and address accessibility issues | Strategies

When collaborating with others to identify and address accessibility issues, consider the strategies on this page. By doing so, you can promote a culture of inclusion and accessibility at your organization – not only in your products and services, but in the methodology used to collaborate in the design, development, assessment, and testing of your processes and products.

### Communicate and educate

It’s important to communicate the importance and benefits of accessibility to your team and stakeholders, and educate them on the accessibility guidelines, standards, and best practices. You can also share the results and recommendations of your accessibility testing and provide them with resources and tools to learn and improve their own accessibility skills.

### Involve and engage

You’ll want to involve and engage your team and stakeholders in the accessibility process and assign them roles and responsibilities. An important step is to involve and engage users with disabilities and solicit their feedback and suggestions. You can also create and participate in accessibility communities and networks, and exchange ideas and experiences with other accessibility professionals and advocates to broaden your inputs and deepen your insights.

### Review and improve

Accessibility is not a one-and-done exercise. It’s important to review and improve your product or service regularly and monitor its accessibility performance and compliance. You can also review and improve your accessibility process and evaluate its effectiveness and efficiency. Take the initiative to seek and apply feedback and suggestions from your team, stakeholders, and users, and implement changes and improvements accordingly.

## Knowledge check

### Question 1

What are the three types of accessibility testing? *Select the best answer.*

1. Unit testing, system testing, performance testing
2. Manual testing, automated testing, and user testing
3. Beta testing, alpha testing, compatibility testing

**The correct answer is B.**

### Question 2

Accessibility Insights can do a lot. Which of these can it NOT do for you? *Select the best answer.*

1. Help you perform both manual and automated accessibility testing.
2. Equip you with detailed accessibility reports and recommendations.
3. Use AI to develop branded copy and captions for all your web pages.
4. Solve accessibility issues before you ship your apps to your customers.

**The correct answer is C.**

### Question 3

What does the Microsoft Accessibility Checker do to improve accessibility? *Select the best answer.*

1. Ensures PowerPoint, Word, and Outlook content is easy for people with disabilities to read.
2. Finds accessibility problems in your documents; generates a list of accessibility errors/warnings.
3. Presents how-to-fix recommendations for any accessibility issue it uncovers in your documents.
4. All of the above.

**The correct answer is D.**

### Question 4

What are the benefits of collaborating with others when testing accessibility? *Select the best answer.*

1. You can leverage others’ expertise, perspectives, and feedback to improve your product or process.
2. You can create a more inclusive and accessible product, service, and community.
3. You can broaden your knowledge with input from other accessibility professionals and advocates.
4. All of the above.

**The correct answer is D.**

## Summary and completion

Accessibility evaluation and accessibility testing are essential to ensuring accessibility is achieved and maintained throughout a product’s lifecycle. By completing this module, you’ve accomplished a lot, including:

* Learning different types of accessibility testing, including manual, automated, and user testing.
* Developing skills to use Accessibility Insights and Accessibility Checker to conduct accessibility evaluations and testing.
* Understanding how to interpret accessibility testing results to make recommendations for accessibility improvements.
* Learning how to best collaborate with others to identify and address accessibility issues and to promote a culture of inclusion and accessibility across your organization.

## Module 5 completion

You have completed module 5, “Accessibility evaluation and testing”.

Thanks for taking the time to grow your knowledge of accessibility fundamentals!

### Learn more

* [Accessibility Checker](https://support.microsoft.com/en-us/office/make-your-content-accessible-to-everyone-with-the-accessibility-checker-38059c2d-45ef-4830-9797-618f0e96f3ab): Helps you identify and fix accessibility issues in M365 products.
* [Accessibility Insights](https://accessibilityinsights.io/): Helps you identify and fix accessibility issues on web pages and applications.

# Module 6: AI and accessibility innovation

Artificial Intelligence (AI) offers both challenges and opportunities for accessibility. In this module, we'll look at the principles and practices of responsible and inclusive AI for accessibility.

## Introduction to AI

Artificial Intelligence (AI) has the potential to transform many domains and industries across education, health, entertainment, and business. By enabling new ways to interact, communicate, and assist – AI can also offer new opportunities and solutions for accessibility.

However, AI also poses ethical and social challenges for accessibility. These challenges include managing AI systems for privacy, fairness, accountability, inclusiveness, and transparency. If not done responsibly, new barriers or risks for people with disabilities could be created by AI, such as the digital divide, and bias or discrimination. Therefore, it is important to understand the principles and practices of responsible and inclusive AI for accessibility.

## Which AI tech is used in accessible solutions?

Simply put, AI is software that imitates human behaviors and capabilities. Some key AI technologies that are used regularly in creating accessible solutions include:

* **Machine learning** - This is often the foundation for an AI system and is the way we "teach" a computer model to make predictions and draw conclusions from data.
* **Computer vision** - Capabilities within AI to interpret the world visually through cameras, video, and images.
* **Natural language processing** - Capabilities within AI for a computer to interpret written or spoken language and respond in kind.
* **Speech recognition** - Also known as automatic speech recognition (ASR) or speech-to-text enables a program to process human speech into a written format.
* **Generative AI** - Capabilities within AI that create original content in a variety of formats including natural language, image, code, and more.

## Video: Accessibility drives innovation

**Narrator:** A more accessible world takes innovation. In fact, accessibility drives innovation. In 1880, the first typewriter was invented for someone losing her sight. And Alexander Bell's mother and wife's deafness led to his invention of the telephone and recorded audio.

Today, different types of artificial intelligence are hard at work powering new assistive technologies and accessibility innovations.

**Microsoft Copilot** is an everyday AI companion that enhances the productivity and creativity of users, especially people with disabilities who may experience accessibility barriers. For example, people with dyslexia may struggle with reading long documents. By prompting Microsoft Copilot, which uses generative AI to summarize information in a lengthy Word document, an individual with dyslexia can enhance their comprehension, accuracy, and productivity.

**Voice Access** transcribes speech into text and can be used to support people with mobility disabilities.

**Natural language processing** enables anyone to interact with apps, bots, and IOT devices using conversational speech in diverse languages.

**Computer vision** in tools like Microsoft Seeing AI app assist people with vision disabilities by harnessing the power of AI to describe people, text, and objects nearby, or in images and videos.

And **custom machine learning models** can be created with no data modeling experience necessary with tools like Microsoft's Azure Open AI to help anyone extract text from tables, translate documents, and turn text into speech.

There are challenges and limitations of using AI for accessibility, like data quality and bias. AI models require large amounts of high quality data to be effective, and lack of data that is representative of people with disabilities can lead to inaccurate or harmful outputs.

A more accessible world also requires collaboration with customers, partners, and the disability community at your organization. Supporting one another and sharing knowledge, we can all work together with innovations like AI to develop more inclusive digital experiences for everyone.

## Examples of AI in accessibility innovation

### Building an accessible future now

It’s essential that we build a future where people of all abilities benefit from technology. People with disabilities have a fundamental right to access technology. And breakthroughs such as generative AI, when done in an accessible manner, can be a game changer for people with disabilities.

In the video on the next page, witness how individuals with disabilities leverage Microsoft Copilot as their “everyday AI companion” to enhance productivity, creativity, energy management, and discoverability.

## Video: “This is my Copilot”

**Rylin Rodgers:** Hi, I'm Rylin Rogers. I work as Microsoft's Disability Policy Advisor. I'm based in the United States in Washington DC. I'm often following hearings, policy announcements, and happenings in legislative bodies around the world. In public policy words matter ... a lot!

So my notes for these hearings need to be accurate. As a dyslexic notetaker, this used to mean listening and re-listening, and then checking transcripts.

Now Copilot really is my hearing assistant. I will ask for a summary of the hearing and then follow up seeking direct quotes for the topics I'm following.

This saves me time, helps me review more hearings, and creates high quality notes with citations that I can return to whenever I need them.

*Onscreen text:* To explore the full series on Copilot, visit [aka.ms/Copilotplaylist](https://aka.ms/Copilotplaylist).

## How AI can remove barriers

Two examples of how AI can remove barriers and help people with disabilities be their best selves are “energy management” and “discoverability.”

**Energy management:** The spoon theory explains that people living with chronic illness, chronic pain, and disability have limited energy resources. They also expend more energy on everyday tasks than people without illness and disability. With a virtual assistant to support design and other tasks, AI gives these individuals some of their time back, producing the joy of barrier-free creativity.

**Discoverability:** Another often ignored barrier to equal access to technology is discoverability. This is the degree to which something, especially a piece of content or information, can be found in a search of a file, database, or other information system. Technology can become so feature rich that many people may not know anymore what is available or what can be done with a tech solution.

## Accessibility considerations for AI copilots

### What are AI copilots?

AI copilots are systems that provide guidance, feedback, or assistance to users in completing tasks, such as writing, coding, or designing. They are useful tools that can enhance the productivity and creativity of users, especially people with disabilities who may experience accessibility barriers.

For example, people with dyslexia may struggle with reading long documents. By prompting Microsoft Copilot to use generative AI to summarize information in a lengthy Word document, an individual with dyslexia can enhance their comprehension, accuracy, and productivity.

AI copilots must be designed and developed in ways that respect the diversity and preferences of users and ensure the system's accessibility, usability, and quality.

## Accessibility considerations for AI copilots | Explore

Let’s look at some accessibility considerations for AI copilots.

### Keyboard interaction

AI copilots should allow users to navigate and interact with the system using the keyboard and follow a logical and consistent order of focus. This can benefit users who have difficulties using the mouse or other pointing devices, such as people with mobility disabilities or low vision. Keyboard interaction should also support common keyboard shortcuts and commands. They must also provide visual indicators of the current focus and selection.

### Prompt suggestions

AI copilots should provide simple and clear prompt suggestions that are understandable to a global audience and avoid complex or specialized terms. This can benefit users who have limited literacy or language skills, such as people with cognitive disabilities or non-native speakers. Prompt suggestions should also be relevant, appropriate, and helpful for the user's task and context, and avoid misleading, confusing, or offensive content.

### Sounds that convey important information

AI copilots can provide sounds to indicate the availability, completion, or error of a task. Sounds can also convey the presence of new or updated prompts. These sounds should be distinct, recognizable, and consistent, and provide options to adjust the volume, frequency, and duration.

### Cognitive overload

AI copilots should avoid overwhelming the user with too much information or too many options. They need to provide a user-friendly and intuitive interface. This can benefit people who have difficulties processing or remembering large amounts of information. Cognitive overload can be reduced by providing clear and concise instructions, using visual cues and icons, grouping and organizing related items, and allowing people to control the pace and sequence of the interaction. These best practices should enable a consistent experience across all applications.

### Multiple types of input/output

AI has the potential to allow people to interact with the system through various modes of input and output, such as voice or keyboard input, to increase usability and accessibility. This can benefit people with speech disabilities or mobility disabilities who have preferences or limitations in using certain modalities. Multiple types of input/output can also enhance the flexibility and adaptability of the system and enable natural, conversational interaction.

## How do AI copilot innovations impact users?

In this video, you will learn how Copilot innovations in Windows and Microsoft 365 are opening new AI-powered accessibility experiences for people with disabilities.

**Ioana Tanase, Senior Program Manager:** AI has a massive opportunity to help people with disabilities, like me.

**Anne Taylor, Principal Accessibility Program Manager:** I'm gonna show you some of my favorite features that help improve my productivity on the daily basis.

**Jeremy Curry, Senior Support Escalation Engineer:** And I'll just go into Copilot and say, summarize this email.

**Christina Mallon, Director of Inclusive Design:** I'm able to really use my voice through the microphone and voice access that's built in to Copilot. I say, tell me the changes in accessibility for the past month.

**Anne Taylor:** I'm gonna launch Word.

**Windows Narrator:** Describe what you'd like to write, including notes, or an outline,and Copilot can generate a draft to help you get started.

**Anne Taylor:** In this case, I'm going to ask it to write about the history of computer science.

**Windows Narrator:** History of computer science. Generate.

**Ioana Tanase:** One of the things that is challenging when you have dyslexia is writing. So, to help with that,I will ask Copilot to write a draft email. I'm gonna ask it to still keep my tone, because I want it to sound like me, and I want it to be short, asking Mary to do a pre-read of the document. And it's now generating a template email, which is short and sweet, which is a brilliant productivity enhancement for me.

**Jeremy Curry:** When I think about Generate AI, I think about things that I've done in my 20+ year career in accessibility that we've not been able to do before now, and some of these thingsare literally life changing.

**Ioana Tanase:** This process, without Copilot, usually takes an hour. But this took three minutes. It's important to give me the time back to work on the things that I love, and Generative AI does that.

**Anne Taylor:** If you want to make AI more accessible and better for you, use it, and provide feedback. I'm excited about the possibility that it will help bridge the disability divide.

## Designing and evaluating accessible AI solutions

While generative AI can greatly enhance productivity for people with disabilities, it’s also important to understand the challenges and risks for accessibility they pose when not built responsibly, especially related to biases and ableism.

* **Biases** are the unfair or inaccurate assumptions or preferences that affect the data, algorithms, or outcomes of generative AI. An example of bias is the lack of representation or diversity of people with disabilities in the data sets or models used for generative AI, which can lead to inaccurate, inappropriate, or harmful outputs.
* **Ableism** is the discrimination or oppression of people with disabilities based on the assumption that they are inferior or less capable than others. An example of ableism in generative AI is the exclusion or marginalization of people with disabilities in the design, development, or evaluation of generative AI for accessibility. This exclusion prevents individuals with disabilities from having a voice or a choice in the solutions that affect them.

It is important to consider the ethical and social implications of generative AI for accessibility and to involve people with disabilities as co-creators and stakeholders in the process. When this is done, generative AI can become a powerful tool for empowering and enabling people with disabilities, rather than a source of harm or discrimination.

## Inclusive design principles for AI solutions

Designing accessible AI solutions requires understanding the specific user needs and contexts and applying the principles of inclusive design.

To ensure a solution meets user expectations and requirements and does not produce any unintended consequences or harm, user testing and evaluation of accessible, inclusive AI solutions are essential.

* User testing and evaluation should involve a diverse and representative sample of users, who can provide feedback on the usability, usefulness, and desirability of the solution.
* User testing and evaluation can be conducted through various methods, such as interviews, surveys, observations, or experiments, depending on the research questions and goals.
* User testing and evaluation results should inform improvement and refinement of the solution.

## Knowledge check

### Question 1

What is the benefit of allowing keyboard interaction for AI copilots? *Select the best answer.*

1. It allows users to use voice commands instead of typing.
2. It allows users to access the system without downloading any software.
3. It allows users to navigate and interact with the system using the keyboard.

**The correct answer is C.** People with disabilities may use assistive technology to navigate these systems. By ensuring they are keyboard accessible, people who use the keyboard can easily use the AI tools.

### Question 2

What is the benefit of providing simple and clear prompt suggestions for AI copilots? *Select the best answer.*

1. It reduces the amount of data and bandwidth required by the system.
2. It increases the accuracy and reliability of the system's output.
3. It makes the system understandable by a global audience and avoids complex terms.
4. It enhances the security and privacy of the system and the user’s data.

**The correct answer is C.** By providing clear prompt suggestions, people with disabilities can easily select these prompts to generate clear content that meets the needs of the user.

### Question 3

What is the main purpose of user testing and evaluation of accessible and inclusive AI solutions? *Select the best answer.*

1. To ensure the solution meets user expectations and requirements and does not produce any unintended consequence or harm.
2. To compare the performance of the solution with other existing solutions in the market.
3. To showcase the features and benefits of the solution to potential customers and investors.
4. To provide feedback and suggestions for improving the solution based on their own preferences and needs.

**The correct answer is A.** User testing and evaluation can help identify and address any potential issues or risks related to usability, accessibility, inclusion, fairness, accountability, and transparency of the solution.

### Question 4

Why is it important to involve a diverse representative sample of users in the design and development of AI solutions? *Select the best answer.*

1. To gain a competitive advantage over other AI solutions.
2. To persuade customers and investors to buy or support the solution.
3. To satisfy the personal preferences and opinions of the developers.
4. To avoid any bias or discrimination in the design and development of the solution.

**The correct answer is D.** By involving a diverse representative sample of users, you can avoid any bias or discrimination in the design and development of the solution and ensure that it meets the needs and preferences of all potential users. This can also enhance the accessibility, usability, and trustworthiness of the solution.

## Summary and completion

In this module, you learned how and why it’s important to create accessible AI solutions. Here are some of the things we covered:

* Generative AI can enhance accessibility for people with disabilities.
* Examples of AI applications for accessibility include speech recognition, natural language processing, computer vision, and machine learning.
* Accessibility considerations for AI copilots.
* Generative AI challenges and risks for accessibility related to biases and ableism.
* The benefits of user testing and evaluation of accessible and inclusive AI solutions.

## Module 6 completion

You have completed module 6, “AI and accessibility innovation”.

Thanks for taking the time to learn more about how AI can empower and enable everyone.

We hope this training will empower you to create innovative solutions that are inclusive and accessible.

### Learn more

[AI and Accessibility Innovation](https://www.microsoft.com/en-us/accessibility/innovation#coreui-banner-w8w4v2v): Learn how Microsoft supports projects that use AI technology to empower people with disabilities.