

# Comprehension Checks Universal Accessibility Features and Accommodations

Curriculum Associates Guidance Brief | October 2021



This document is intended for educators. If you are a family member, please contact your student's teacher for information about *i-Ready Classroom Mathematics*.

Thank you.

# Comprehension Checks Universal Accessibility Features and Accommodations Guidance

Curriculum Associates Guidance Brief | October 2021

# **Table of Contents**

Section 1: Overview	3
1.1 Dedicated to Creating Accessible Experiences	3
1.2 Accessibility Supports and Accommodations	3
1.3 Presentation of Material	
1.4 Universal Audio Support	
1.5 Comprehension Checks and WCAG	<i>.6</i>
Section 2: Accommodation Features and Processes forStudents Who Are Blind	or Have Low Vision6
2.1 General Guidance	
2.2 Screen Readers	
2.3 Refreshable Braille Displays	9
2.4 Color Contrast/Visual Design	9
Section 3: Accommodations Features and Processes forStudents Who Are Dear	f or Hard of Hearing10
3.1 General Guidance	
Section 4: Accommodations Features and Processes for Students with Learning	g Disabilities or Differences Such as Dyslexia
or Dyscalculia	-
Section 5: Text-to-Speech and Test-Read/Read-AloudAccommodations	11
5.1 Text-to-Speech	
5.2 Test-Read/Read-Aloud Accommodations	11
Section 6: Comprehension Checks and Students with Severe Cognitive Disability	ties12
Section 7: Comprehension Checks and Print/Paper and Pencil Accommodations	s12
Appendices	13
Appendix 1: Keyboard Commands for Common Screen Readers	
Appendix 2: Comprehension Checks—MathML	
Appendix 3: Coverage/Exceptions	
Appendix 4: Using Magnification Features in Desktop Computers	

# **Section 1: Overview**

Comprehension Checks include many universal accessibility features and supports for numerous accommodations. This document provides detailed descriptions of these features and supports and guidance for educators on effective implementation with students.

# 1.1 Dedicated to Creating Accessible Experiences

At Curriculum Associates, we believe every student has the potential for educational excellence. That's why we're dedicated to creating accessible materials that maximize usability for students with disabilities. We strive to ensure that accessibility and accommodation support considerations are incorporated into our product development process from the very beginning, and we've developed a continual improvement approach to accessibility that ensures we're always improving and learning.

# 1.2 Accessibility Supports and Accommodations

In Comprehension Checks, universal accessibility features are available to all students and do not require an educator to enable these features.

Conversely, there are processes and tools in Comprehension Checks that are only used to support students who require accommodations. Accommodations are usually mandated supports provided as a part of a student's IEP or 504 plan. IEP teams and other educators within the school determine which accommodations a student receives. Although Curriculum Associates provides guidance on how to implement various accommodations, it is up to educators who work with individual students to determine which accommodations are needed and how to correctly implement these accommodations.

The following pages contain a table and footnotes that describe *i-Ready Classroom Mathematics*' current accessibility supports and accommodations. The footnotes include details about coverage in Comprehension Checks. <u>Additional information about other accessibility features is available on *i-Ready Classroom Central*.</u>

# i-Ready Classroom Mathematics: Accessibility Supports and Accommodations

This table contains information about accessibility features and support for accommodations in *i-Ready Classroom Mathematics*. Important footnotes to this table are available on the following page.

Universal Supports	Designated Supports	Accommodations
Available to all students, regardless of their disability status or any other type of documented need	Available for use by any student determined by an educator familiar with the student's characteristics and needs	Available to students in accordance with their IEPs/504 plans
Embedded Embedded universal supports available within the <i>i-Ready</i> interface require no additional configuration.  • Audio and text-to-speech (1) • Keyboard access (2) • Calculator** • Color contrast (3) • Closed captioning (4) • Digital Math Tools (5) • Presentation of material for ageappropriate pedagogy and legibility (6) • Built-in zoom-in/zoom-out magnification*(7) • Highlighting and notetaking capability* • Multilingual Glossary*  Non-embedded  Non-embedded  Non-embedded universal supports include: • Audio amplification • English dictionary (when appropriate) • Noise buffer (e.g., earmuffs, audio aids) • Scratch paper (i.e., blank paper) • Thesaurus (when appropriate) • Student Bookshelf and Interactive Practice contain scaffolded support (i.e., lesson-specific, interactive elements).  *= Student Bookshelf only  **= Inc.	Embedded Audio support for Diagnostic items for Grades 6+ will be available as a designated support in September 2021. Educators will need to enable this feature.  All other traditionally embedded designated supports are available universally to students in the Diagnostic, Student Bookshelf, Comprehension Checks, and Interactive Practice. No further configuration by educators is required.  Non-embedded Educators can make the following non-embedded designated supports available to students:  Billingual dictionary Magnification device (7) Native language translation of directions Student reads test aloud.	Embedded At this time, traditionally embedded accommodations are handled through universal and designated supports or through non-embedded accommodations.  Non-embedded The following non-embedded accommodations can be made available to students:  • Abacus • Alternate response options • Calculator • Extended time breaks and flexible scheduling • Graphic organizer/reference sheet/checklist • Human reader • Human signer • Multiplication table • Scribe • Screen reader (8)

## i-Ready Classroom Mathematics: Accessibility Supports and Accommodations Explained

- (1) **Universal audio support** (i.e., prerecorded human-voiced audio of text) is currently available in Grades K–5 Diagnostic items, Grades K–1 Comprehension Check items, and Grades K–8 Interactive Practice lessons, with limited exceptions. Text-to-speech is available only in the Student Bookshelf.
- (2) **Keyboard access** is currently available with documented exceptions.
- (3) Contrast requirements: All Interactive Practice lessons include global lesson navigation controls that adhere to Web Content Accessibility Guidelines (WCAG 2.0) AA requirements for color contrast. In the Diagnostic and Comprehension Checks, we are compliant with WCAG 2.0 AA requirements for minimum contrast with documented exceptions. The majority of text in the Student Bookshelf meets WCAG 2.0 AA minimum contrast requirements. There are limited exceptions where contrast is just below the requirement. Documentation of these exceptions is ongoing.
- (4) **Closed captioning** is available in Interactive Practice, Develop Session Videos, and in the Family Resources Unit Flow & Progression Videos on the Student Bookshelf. The Diagnostic Introductory Videos include closed captioning for Grades 3+ and by December 2021, some of the Diagnostic Introductory Videos for Grades K–2 will also include captioning. Comprehension Checks content does not require closed captioning.
- (5) **Digital Math Tools** are universally available to students in their dashboard, and specific tools are available within lessons on the Student Bookshelf. In the Diagnostic, Comprehension Checks, and Interactive Practice, tools are available on specific items or lessons.
- (6) Presentation of material for age-appropriate pedagogy and legibility include visual mathematical models/representations that present multiple solution strategies, the use of clear, concise, chronological directions, student-friendly fonts, and easily legible formatting.
- (7) A built-in zoom-in/zoom-out **magnification tool** is included in the Student Bookshelf. The Diagnostic, Comprehension Checks, and Interactive Practice do not have built-in magnification tools. Browser zoom controls can be used to zoom in on content for many items in the Diagnostic and Interactive Practice. While we have not performed extensive testing with third-party or built-in operating system magnification tools, educators may find the following documents helpful:

For PCs | For Macs® | For iPads® | For Chromebooks™

(8) The Diagnostic, Student Bookshelf, and Comprehension Checks have been tested with JAWS®, NVDA, and VoiceOver with specific browser combinations. Reduction of exceptions and improved usability are part of our ongoing work. Educators should refer to documentation on the student's screen reader before determining if the accommodation is appropriate for the student.

Mac® and iPad® are registered trademarks of Apple, Inc. Chromebook™ is a distinct brand feature of Google, LLC. JAWS® is a registered trademark of Freedom Scientific, Inc.

## 1.3 Presentation of Material

As indicated above, Comprehension Checks have many universal accessibility features built into the program to help address the needs of students with specific accommodations stipulated in their IEP or 504 plans. These features include:

- Visual mathematical models/representations that present multiple solution strategies
- A large, easily legible format for all items
- · Large, student-friendly fonts
- Clear and concise directions
- Universal keyboard navigation (with documented exceptions—see details in Appendix 3: Coverage/Exceptions)

The documents *i-Ready Classroom Mathematics* Accessibility and Accommodations Update and the FAQ: In *i-Ready Classroom Mathematics*, what accessibility features are available in the Diagnostic, Student Bookshelf, and Comprehension Checks? How can they be enabled? include additional details. These documents and other accessibility information are available on *i-Ready Classroom Central*.

## 1.4 Universal Audio Support

Universal audio support (i.e., embedded human-voiced audio) is available in Comprehension Checks items for Grades K–1. These universal supports are available to all students assigned these Grades K–1 items, regardless of IEP or 504 plan requirements. They do not require educator assistance or management.

Universal audio support does not require additional hardware or software (beyond a standard computer speaker or headphones). The embedded audio support cannot be slowed or accelerated, and it does not read aloud alternative text for user interface features and test item images. For more information on screen-reader support, which reads aloud alternative text, see Section 2. For more information on text-to-speech and/or test-read/read-aloud accommodations, see Section 5.

# 1.5 Comprehension Checks and WCAG

As of August 2021, Comprehension Checks meet many Level AA standards under WCAG 2.0, with documented exceptions. Appendix 3 of this document provides detailed information about coverage and exceptions. Additional information on *i-Ready Classroom Mathematics*' WCAG documentation is available from your *i-Ready* account manager, and further information about WCAG is available from the W3C® WAI.

# Section 2: Accommodation Features and Processes for Students Who Are Blind or Have Low Vision

#### 2.1 General Guidance

Comprehension Checks support a wide range of industry-standard accommodation tools for students who are blind or have low vision. We recommend educators supporting students who are blind or have low vision preview the content to ensure the items are appropriate for the student and to prepare any additional supports, including tactile graphics, prior to test administration. Any educator with access to Comprehension Checks can preview all test forms via the educator dashboard.

For students who are blind or have low vision who are not users of screen readers, a proctor may read the text and describe other on-screen material such as images as needed. In addition to the supported technologies detailed in the following bullets, there are other options available that may meet the needs of some students without the use of additional technology or process changes.

W3C° is a trademark (registered in numerous countries) of the World Wide Web Consortium; marks of W3C are registered and held by its host institutions MIT, ERCIM, Keio, and Beihang.

The following options could be helpful for students:

- A larger monitor (or dual monitors)—The size that works best will depend on the individual (24-inch to 27-inch screens seem to be the most common).
- Increased DPI (dots per inch) from standard 100% to something larger—This maintains the aspect ratio but just makes everything very large (some trial and error may be needed to find what works best).
- **Built-in "magnify" option in the operating system**—With larger monitors, this can prove useful to some students to reduce scrolling (see Appendix 4 for more detail).\*
- Third-party screen magnification software (e.g., MAGic®, ZoomText®, etc.)—This type of software may provide thecustom tools to adjust the settings to suit the needs of the individual.\*
- Use of a supported third-party screen reader (e.g., JAWS, NVDA, or VoiceOver)\*

\*Please note that except for JAWS on Chrome™, NVDA on Firefox®, and VoiceOver on Safari®, Curriculum Associates has not extensively tested the third-party and operating system solutions across all supported browsers and platforms, and we cannot make any claims to their reliability and usability with Comprehension Checks.

#### 2.2 Screen Readers

Comprehension Checks are compatible with select screen readers with documented exceptions as detailed in Appendix 3: Coverage/Exceptions. This compatibility began in December 2019 to provide students with more independence while completing Comprehension Checks.

We recommend educators supporting students using a screen reader preview content to ensure items are appropriate for the student and to prepare any additional supports—including tactile graphics—prior to test administration. Educators with access to Comprehension Checks can preview all test forms via the educator dashboard.

Students who are comfortable using screen readers will likely be able to independently take most parts of the test without educator assistance. However, some test questions—including those that are heavily dependent on complex graphics—will require an educator to supply the student with a tactile graphic or manipulative.

For items where a tactile graphic is required, the alt text will briefly tell the student that there is a graphic and direct the student to ask their teacher for a tactile graphic. In some instances, alt text is provided for complex graphics. That may be sufficient for some students, but a tactile graphic may be helpful to others. In this case, the alt text will end with the following language: "A tactile graphic may help with this question."

There may be items where alt text is insufficient and a tactile graphic or manipulative cannot be provided. In this case, a teacher can advise a student to select a random answer to bypass the item. It is important for teachers to note which item was bypassed and take that into consideration when analyzing the student's score report.

Additionally, students may require educator assistance to complete item types with documented exceptions.

MAGic® and ZoomText® Magnifier are registered trademarks of Freedom Scientific, Inc. Chrome™ is a distinct brand feature of Google, LLC. Firefox® is a registered trademark of the Mozilla Foundation. Safari® is a registered trademark of Apple, Inc.

## **Screen Readers Tested with Comprehension Checks**

The JAWS screen reader software works with Windows® (best used with Chrome) and requires purchasing a license. <u>Information about purchasing options</u> is available for educators.

The following screen reader software is available for both Windows and Mac at no additional cost:

- Windows (best used with Firefox):
  - o NVDA
  - o MathPlayer™

(MathPlayer is required to read any mathematics formatted as Mathematical Markup Language (MathML) using NVDA. Students may encounter this type of mathematics in Grades 1 and higher.)

- Mac (best used with Safari):
  - o VoiceOver

For more information about these screen readers, see:

- Surfing the Internet with JAWS!
- NVDA User Guide
- VoiceOver Getting Started

For information on supported keyboard navigation options for each screen reader, see Appendix 1: Keyboard Commands for Common Screen Readers.

## Recommended Screen Reader Skills by Grade

Students may encounter the following types of content when using their screen reader to access Comprehension Checks:

- Tables
- Headings
- Lists
- MathML
- Images with alt text and dialog boxes

For additional information on MathML, see Appendix 2: Comprehension Checks—MathML. The table below outlines helpful screen-reader skills by grade level.

Grades	Helpful Screen-Reader Skills
2+	Use headings and lists with a screen reader.
3+ (Mathematics Only)	Read simple mathematics expressions coded as MathML.
4+ (Mathematics Only)	Read and navigate grouped expressions coded as MathML.

# 2.3 Refreshable Braille Displays

Curriculum Associates is in the process of testing the validity and usability of Comprehension Checks with refreshable Braille displays. We have tested Comprehension Checks with JAWS, NVDA, and VoiceOver without the use of a refreshable Braille display, but each of these screen readers can be used with some refreshable Braille displays.

Educators should refer to documentation on the student's screen reader and refreshable Braille display before determining if the accommodation is appropriate for the student. Keep in mind that Comprehension Checks provide test content to screen readers as text, HTML, and MathML. NVDA and JAWS can be set up to convert MathML to Nemeth Braille on a Braille display.

# 2.4 Color Contrast/Visual Design

Examples of specific improvements that will benefit students who have low vision and/or have color blindness include:

- Meeting the WCAG 2.0 AA color contrast requirements for text against background with documented exceptions (See Appendix 3: Coverage/Exceptions for more details.)
- Minimizing the use of colors that would cause problems for students with color blindness, particularly those with red–green color blindness
- Presenting items in a large, easily legible format specifically chosen for its readability

However, there are documented exceptions (see Appendix 3: Coverage/Exceptions) that may impact some students. Additionally, we are evaluating approaches to meet the expectations of the WCAG 2.1 Level AA standards, which extend the color contrast requirement to technical artwork (e.g., bar graphs, charts, icons).

# Section 3: Accommodations Features and Processes for Students Who Are Deaf or Hard of Hearing

#### 3.1 General Guidance

Provided the student can read the text presented on the screen, Comprehension Checks can be used by students who are deaf or hard of hearing.

Students who are deaf or hard of hearing may have the test directions signed to them. However, signing the questions and response options for the students is not suggested by Curriculum Associates, as it may undermine the validity of the resulting test scores.

The use of auditory amplification devices, hearing aids, noise buffers, etc. are permitted accommodations for Comprehension Checks that can be considered based on individual student needs and any IEP or 504 plan available for the student.

# Section 4: Accommodations Features and Processes for Students with Learning Disabilities or Differences Such as Dyslexia or Dyscalculia

For students who have been identified as exhibiting risk factors for dyslexia, or have received a formal diagnosis of dyslexia, the *i-Ready Assessment* suite has some relevant characteristics to help those students demonstrate their reading and mathematics proficiency on these assessments. Many of the assessments in the *i-Ready Assessment* suite engage students' auditory, visual, and kinesthetic pathways through multiple approaches, which can be beneficial to students with dyslexia or risk factors for dyslexia. Although these assessments are not instructional tools in that their primary role is not to teach students, they do engage simultaneous multisensory pathways within the limits of computer-delivered assessments. Some of the ways these assessments meet students' multisensory needs are outlined on the next page.

- **Virtual manipulatives:** Many of these assessments have technology-enhanced item types that engage students with virtual manipulatives and tools, including:
  - Measurement and geometric tools (e.g., protractors and rulers)
  - On-screen number pads
- **Tech-enhanced item types:** These assessments include many innovative item types that involve kinesthetic engagement and leverage the value of a digital online assessment platform. Innovative item types include:
  - o Drag-and-drop
  - o Dropdown
  - Interactive bar and line graphs
- Audio and visual support: The assessments have universal accessibility features that address audio and visual sensory needs and are available to all students.
- Attentional anchors: For students who require support for the stamina of their auditory, visual, or cognitive attention, the assessment incorporates additional multisensory stimuli to anchor student attention, including:
  - Supporting images
  - o Multimedia elements

Although *i-Ready* cannot be used as a diagnostic tool to identify students with dyslexia, the *i-Ready Dyslexia Screener* combines the *i-Ready Diagnostic* with a one-on-one task-based system to screen for potential risk factors for dyslexia. Many states have detailed requirements for dyslexia screening. For more information about how *i-Ready* can help identify and support students in your state, please contact your account manager.

For students with risk factors for or who have been diagnosed with dyscalculia, please contact your account manager for further information.

# Section 5: Text-to-Speech and Test-Read/Read-Aloud Accommodations

# 5.1 Text-to-Speech

Although some third-party browser extensions may be able to read aloud some portions of the text in Comprehension Checks, use of these extensions is not recommended at this time, as initial testing for validity and usability have shown a high degree of variance based on the item type, extension, browser, hardware, etc.

Curriculum Associates is currently exploring the viability of possible solutions for an embedded text-to-speech solution within Comprehension Checks, but we do not have a target release date at this time.

# 5.2 Test-Read/Read-Aloud Accommodations

Test-read/read-aloud accommodations may be appropriate for individual students. Below are supported read aloud accommodations that can be implemented for ensuring the least impact on the validity of the inferences that can be made from test scores. These options should be considered based on individual student needs and any IEP or 504 plan available for the student.

- Read text portions of items aloud to students.\*
- Read guestion stems and the associated response answer choices of math items aloud to students.

<sup>\*</sup>Educators providing accommodations, specifically human read aloud and scribing, need to be neutral in responding to the student during test administration and must not lead a student to a particular item response. Each student's response must accurately represent their choice to ensure valid, reliable assessment results.

# Section 6: Comprehension Checks and Students with Severe Cognitive Disabilities

Comprehension Checks do not currently have an Alternate Assessment version built on Alternate Achievement Standards (commonly known as AAS). Additionally, Comprehension Checks have not been evaluated for use with students with severe cognitive disabilities who are nonverbal. We encourage teachers to review Comprehension Checks to evaluate if they would be appropriate for use by each student.

# Section 7: Comprehension Checks and Print/Paper and Pencil Accommodations

Comprehension Checks items are technologically enhanced and include interactivity within many item types. Because of the interactive nature of these items, paper versions are not available. If a paper assessment is needed, educators may print out a lesson quiz from *i-Ready Classroom Mathematics* that assesses the same standard.

# **Appendices**

# **Appendix 1: Keyboard Commands for Common Screen Readers**

Screen reader users who use JAWS, NVDA, or VoiceOver applications to navigate accessible areas of Comprehension Checks can use the information below for relevant keyboard shortcuts.

#### JAWS for Windows Keyboard Shortcuts—Best Used with Chrome Browser

Screen reader users may reference information on JAWS keyboard shortcuts.

#### NVDA for Windows Keyboard Shortcuts—Best Used with Firefox Browser

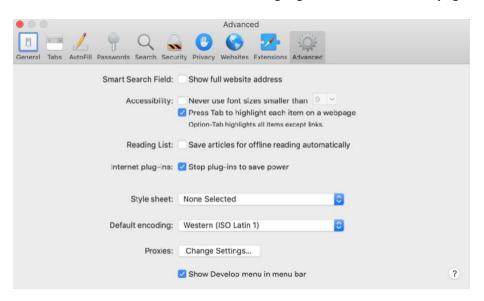
Please note that some keyboard shortcuts require using the NVDA modifier key. Additional information about the NVDA modifier key and keyboard shortcuts in NVDA is available in the NVDA User Guide.

#### VoiceOver for Mac Keyboard Shortcuts—Best Used with Safari Browser

Please note that keyboard accessibility is NOT enabled by default on a Mac. To set up a Mac for students who rely on keyboard access, or to set up a Mac to try keyboard access as your students will experience it, keyboard accessibility can be enabled as follows:

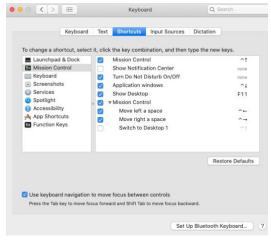
#### **How to Enable Tabbing for Keyboard Navigation in Safari:**

- 1. Open Safari browser.
- 2. Click on Safari menu.
- 3. Select Preferences.
- Select Advanced tab.
- 5. Select checkbox next to "Press tab to highlight each item on a webpage."



#### How to Enable Tabbing for Keyboard Navigation in System Preferences:

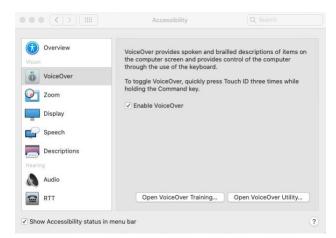
- 1. Open System Preferences.
- 2. Select Keyboard.
- 3. Select Shortcuts tab.
- 4. Select checkbox for "Use keyboard navigation to move focus between controls."
- 5. The macOS® User Guide provides additional information.



#### **How to Enable VoiceOver on Mac:**

- 1. Open System Preferences.
- 2. Select Accessibility.
- 3. Open the VoiceOver section.
- 4. Select checkbox for "Enable VoiceOver" to turn on VoiceOver, or unselect checkbox to turn it off.

  Hint: You can also use command + F5 to turn VoiceOver on or off. Additionally, on newer MacBooks® with Touch ID®, you can turn VoiceOver on or off by holding the command key while triple-pressing Touch ID. Additional information about the Accessibility Options panel on Mac is available here.



#### Reading and Navigation—General Keyboard Shortcuts

Please note that VoiceOver uses the **Control + Option** keys before each command. The combination is referred to as **VO** in the keyboard shortcuts which can be found in this guide to VoiceOver commands and gestures.

macOS®, MacBook®, and Touch ID® are registered trademarks of Apple, Inc.

# Appendix 2: Comprehension Checks—MathML

#### How to Read MathML in NVDA with Firefox and MathPlayer

- To enter mathematics, use insert + alt + M.
- To explore in more detail, use the down arrow.
- To explore in less detail, use the **up arrow**.
- When mathematics content is encountered, the full equation will be read.
- To go to previous or next item/segment, use the **left arrow** or **right arrow**.
- To exit mathematics, press escape.

#### How to Read MathML in JAWS with Chrome

- To enter mathematics, press **space** or **enter** while on the math.
- To explore in more detail, use the down arrow.
- To explore in less detail, use the **up arrow**.
- When mathematics content is encountered, the full equation will be read.
- To go to previous or next item/segment, use the **left arrow** or **right arrow**.
- To exit mathematics, press escape or alt + F4.

#### How to Read MathML in VoiceOver with Safari

Mathematics navigation is the same as the default navigation:

- To explore in more detail, use **control + option** (or customized VoiceOver key) **shift + down arrow**.
- To explore in less detail, use **control + option** (or customized VoiceOver key) **shift + up arrow**.
- To go to previous or next item, use **control + option** (or customized VoiceOver key) **left arrow** or **right arrow**.

# **Appendix 3: Coverage/Exceptions**

Information on the coverage and documented exceptions for various universal accessibility and accommodations-related features available in Comprehension Checks:

#### **Keyboard Navigation**

- Available for:
  - Navigation elements
  - Multiple choice, multiple response, checklist/choice matrix, dropdown menu, drag-and-drop, short response, hotspot, and shading question types
- Exceptions include:
  - Graphing, number line, and data chart question types

#### Screen Reader Support

- Available for:
  - Navigation elements
  - Multiple choice, multiple response, checklist/choice matrix, and dropdown menu question types
- Partially available or usability enhancements planned
  - Drag-and-drop questions have screen reader controls available, but further usability improvements are planned.
  - Math short-response questions have some screen reader controls, but there are known usability issues with math input for screen reader users.
- Exceptions include:
  - Shading, hotspot, graphing, number line, and data chart question types do not currently have screen reader support.

#### Color Contrast for Text (Using WCAG 2.0 AA Requirements for Minimum Contrast)

- Available for:
  - Navigation elements
  - All question/answer text in items
- Exceptions may include:
  - Text embedded in images or graphics within an item may not meet WCAG 2.0 Level AA requirements for minimum contrast.

# **Appendix 4: Using Magnification Features in Desktop Computers**

Magnifier makes part or all of a screen bigger so students can see words and images better.

## **Enabling Magnifier in Windows**

## **Turning Magnifier on and Off**

To turn Magnifier on: Press the Windows logo key and the plus sign (+) on the keyboard.

To turn Magnifier off: Press the Windows logo key and the esc key.

**To turn Magnifier on and off using a touchpad or mouse:** Select the **Start** button, then select **Settings** > **Ease of Access** > **Magnifier**, and switch on the toggle under **Turn on Magnifier**.

You can also turn off Magnifier by selecting the **Close** button on the Magnifier toolbar.

## **Zoom In and Out and Use of Magnifier Views**

When Magnifier is on, zoom in and out by pressing the **Windows logo key** and the **plus sign (+)** or **Windows logo key** and the **minus sign (-)**.

You can also zoom in and out using the mouse by pressing **ctrl + alt** and rotating the wheel on your mouse.

You can use Magnifier in three different views: full screen, lens, or docked. To change views, use the **Views** menu on the Magnifier toolbar.

**Full-screen view** magnifies the entire screen. You won't be able to see the whole screen at the same time, but you'll see parts of it as you move around.

**Lens view** is like moving a magnifying glass around the screen. You can change the size of the lens in Magnifier settings.

**Docked view** works on the desktop. In this view, Magnifier is anchored to your screen. As you move around the screen, parts of the screen are magnified in the docking area even though the main part of the screen is unchanged.

Further information about the Magnifier feature in Windows is available here.

## **Enabling Zoom on the Mac**

If items on the screen are too small, you can zoom in to make content larger and easier to see. You can zoom in on the entire screen or a portion of the screen.

1. To set zoom options, choose Apple menu > System Preferences > Accessibility > Zoom.



- 2. Enable either of the following options:
  - To zoom with keyboard shortcuts, select "Use keyboard shortcuts to zoom."
  - To zoom with your mouse or trackpad, select "Use scroll gesture with modifier keys to zoom."
- 3. Decide where the magnified content appears with the "Zoom style" popup menu. You can display the magnified content in a window near the mouse cursor by selecting the Picture-in-picture option (which allows users to zoom in on a small section while still viewing the entire screen). You also can display it on the entire screen by selecting Fullscreen.

The macOS User Guide contains guidance on enabling Zoom appearance and controls options.

Additional information on built-in operating system Zoom controls for iPads and Chromebooks can also be found at the links below:

- iPads
- Chromebooks