The science behind the report:

Choose devices that keep students engaged and offer the widest support for different learning needs

This document describes what we tested, how we tested, and what we found. To learn how these facts translate into real-world benefits, read the report Choose devices that keep students engaged and offer the widest support for different learning needs.

We concluded our hands-on testing on October 14, 2022. During testing, we determined the appropriate hardware and software configurations and applied updates as they became available. The results in this report reflect configurations that we finalized on October 14, 2022 or earlier. Unavoidably, these configurations may not represent the latest versions available when this report appears.

Our results

To learn more about how we have calculated the wins in this report, go to http://facts.pt/calculating-and-highlighting-wins.
Unless we state otherwise, we have followed the rules and principles we outline in that document.

Operating system feature count summary

Table 1: Summary count of the accessibility features we reviewed at the operating system level.

Feature category	Windows 11	ChromeOS	Percent win
Vision	10	8	25.0%
Hearing	4	2	100.0%
Learning	0	0	N/A
Mobility	7	9	-28.5%
Mental health	5	3	66.6%
Neurodiversity	3	0	N/A
Total	28	22	27.2%

Application feature count summary

Table 2: Summary count of the accessibility features we reviewed at the application level.

Feature category	Windows 11	ChromeOS	Percent win
Vision	23	13	76.9%
Hearing	6	4	50.0%
Learning	50	5	900.0%
Mobility	1	1	0.0%
Mental health	0	0	N/A
Neurodiversity	1	2	-100.0%
Total	81	25	224.0%

Pen and ink application feature count summary

Table 3: Summary count of the pen and ink features for native applications we reviewed on each platform.

Feature category	Windows 11	ChromeOS	Percent win
Browser	2	2	0.0%
Notes app	4	2	100.0%
Word processing	5	2	150.0%
Mail	1	1	0.0%
Collaboration	3	2	50.0%
Presentations	5	2	150.0%
Spreadsheets	5	1	400.0%
Total	25	12	108.3%

Touchscreen gestures feature count summary

Table 4: Summary count of the touchscreen gesture features for native applications we reviewed on each platform.

Feature category	Windows 11	ChromeOS	Percent win
Browser	2	3	-50%
Notes app	1	1	0%
Word processing	7	2	250%
Mail	0	2	N/A
Collaboration	0	1	N/A
Presentations	1	2	-100%
Spreadsheets	3	1	200%
Total	14	12	16.67%

Glossary of accessibility features

Table 5: Descriptions of the accessibility features we reviewed.

Feature	Description
Vision	
Narrator/screen reader	Reads text aloud and describes events like notifications.
Contrast themes	Themes with high contrast to aid people with vision disabilities.
Mouse pointer adjustments	Customize mouse pointer to make it more easily visible.
Screen magnifier	Makes part or all of your screen bigger so you can see words and images better.
Braille display support	Support for external braille display devices.
Adjust language/speed/pitch of screen reader	Change the language, speed, and pitch of the narrator/screen reader feature.
Sticky keys	Serializes the keystrokes in shortcuts instead of requiring users to press multiple keys at the same time.
Color filters	Color filters change the color palette on the screen and can help you distinguish between things that differ only by color.
Touch indicator	Shows a circle on the screen for visual feedback when you touch the screen.
Text cursor indicator	Helps you see and find the text cursor. Select from a range of sizes for the text cursor indicator and make it a color easy for you to see.
Select-to-speak	Hear parts of a page, including specific words, read aloud with Select-to-speak.
Automatic alternative text	Generates a text description of an image automatically.
Spacing and font size	Change line spacing and font size for better visibility.
Accessibility checker	Checks Office files for issues that can make it difficult for people with disabilities to read and use the files.
Hearing	
Captions/subtitles	Text alternative for audio being played on your device.
Mono audio	Change audio from stereo to mono output.
Live captions	Converts audio being played on your device into easily readable text live.
Visual alternative to audio notifications	Make your screen flash during audio notifications.
Transcripts	Provides a text transcript of an audio recording.
Embedded captions	Embed captions into video files.
CART captions	A trained CART (Communication Access Realtime Translation) captioner listens to the speech and instantaneously translates all speech to text.
Learning	
Immersive reader	Full screen reading experience to increase readability of content and provide tools to users with learning difficulties.
Immersive reader for math	Support for math equations integrated into the immersive reader tool.
Math and equation support	Math equations recognized as equations, not just text.
Real-time translation (to 116 languages)	Instantly switch languages while reading and switch back and forth between languages instantly.
Math expression checker	Insert and solve math expressions.
Syllables and parts of speech identifier	Separates syllables and identifies parts of speech within reading material.
Syllables and parts of speech color coding	Color codes syllables and parts of speech.
Line focus	Shows only one or several lines of text at a time to help the reader focus.
Track reading progress	Supports and tracks reading fluency of students.

Feature	Description
Reading coach	Helps students practice words that they have had trouble with.
Picture dictionary	Select a word to see a related picture and hear the word read aloud as many times as necessary.
Speech to math	Dictate a math expression that is recognized as a math expression within the app.
Talking spell/grammar check	Narration of spelling and grammar errors as opposed to only visual cues.
Mobility	
On-screen keyboard	Displays keyboard on-screen to use as an alternative to a physical keyboard.
Touchscreen gesture controls	Certain gestures on the touchscreen can be assigned to perform certain actions as a shortcut.
Voice typing	Provides a speech-to-text transcription service for users with mobility or visual disabilities.
Speech recognition commands	Recognizes verbal commands to perform tasks on-screen.
Text prediction	Predicts the next word the user wants to input as they type.
Keyboard shortcuts	Shortcuts using keys on the keyboard to perform tasks.
Eye control compatibility	Compatible with external devices to enable the ability to control the screen with your eyes.
Switch access	Scans the items on your screen until you use a switch to make a selection. Use switches with the built-in keyboard, or an external device that you connect through Bluetooth or USB.
Automatic clicking	Set the cursor to automatically take action when the cursor stops moving for a certain amount of time.
Scroll as you hover	Similar to automatic clicking, except it will automatically scroll based on hovering mouse cursor.
Caret browsing	An alternative way of navigating and reading web pages on your browser using your keyboard to select texts and move through web pages.
Mental health	
Choose which apps display notifications	Change which apps display on-screen notifications and which apps don't.
Customizable taskbar	Ability to customize the taskbar at the bottom of the screen.
Customizable start menu	Ability to customize the menu displayed when clicking the Start button.
Limit late-night notifications	Sets "do not disturb" to turn on automatically during set times. You can also choose how often it repeats and the types of tasks that will turn on do not disturb automatically.
Adjust notification dismiss time	Customize how long notifications stay on your display before being dismissed.
Neurodiversity	
Always-visible scrollbars	Makes the scrollbar on the right side of an open window remain present regardless of cursor location.
Focus assist	Choose which notifications you'd like to see and hear; the rest will go straight to notification center where you can see them any time.
Disable transparency and animations	Disable all animation effects and transparency effects in the operating system UI.
Fluent fonts	Evenly space out letters horizontally, regardless of font size.
Change buttons to text	Change your buttons so that they show the name of the button instead of an icon.

Accessibility features comparison

Operating system

Table 6: Accessibility features we reviewed for the operating systems.

Feature	Windows 11	ChromeOS	Notes
Vision			
Narrator/screen reader	✔ Yes	✔ Yes	
Contrast themes	✔ Yes	✔ Yes	
Mouse pointer adjustments	✔ Yes	✔ Yes	
Screen magnifier	✔ Yes	✔ Yes	
Braille display support	✔ Yes	✔ Yes	
Adjust language/speed/pitch of screen reader	✔ Yes	✔ Yes	
Sticky keys	✔ Yes	✔ Yes	
Color filters	✔ Yes	✘ No	
Touch indicator	✔ Yes	✘ No	
Text cursor indicator	✔ Yes	✘ No	
Select-to-speak	✘ No	✔ Yes	
Total features	10/11	8/11	
Hearing			
Captions/subtitles	✔ Yes	✔ Yes	
Mono audio	✔ Yes	✔ Yes	
Live captions	✔ Yes	✘ No	
Visual alternative to audio notifications	✔ Yes	✘ No	
Total features	4/4	2/4	
Mobility			
On-screen keyboard	✔ Yes	✔ Yes	
Touchscreen gesture controls	✔ Yes	✔ Yes	
Voice typing	✔ Yes	✔ Yes	
Speech recognition commands	✔ Yes	✔ Yes	
Text prediction	✔ Yes	✔ Yes	
Keyboard shortcuts	✔ Yes	✔ Yes	
Eye control compatibility	✔ Yes*	✘ No	*External hardware required. Feature was available in the OS, but we could not test the function without external hardware.
Switch access	✘ No	✔ Yes	
Automatic clicking	✘ No	✔ Yes	
Scroll as you hover	✘ No	✔ Yes	
Total features	7/10	9/10	
Mental health			
Choose which apps display notifications	✔ Yes	✔ Yes	
Customizable taskbar	✔ Yes	✔ Yes	
Customizable start menu	✔ Yes	✔ Yes	
Limit late-night notifications	✔ Yes*	✘ No	*Sub-feature of Focus Assist
Adjust notification dismiss time	✔ Yes	✘ No	
Total features	5/5	3/5	

Feature	Windows 11	ChromeOS	Notes
Neurodiversity			
Always-visible scrollbars	✓ Yes	✗ No	
Focus assist	✓ Yes	✗ No	
Disable transparency and animations	✓ Yes	✗ No	
Total features	3/3	0/3	

Browser

Table 7: Accessibility features we reviewed for the web browsers.

Feature	Edge	Chrome	Notes
Vision			
Select-to-speak	✓ Yes	✓ Yes*	*Feature enabled from the OS
Automatic alternative text	✓ Yes	✓ Yes	
Spacing and font size	✓ Yes	✓ Yes*	*Only font & font size
Total features	3/3	3/3	
Hearing			
Live captions	✓ Yes	✓ Yes	
Total features	1/1	1/1	
Learning			
Immersive reader	✓ Yes	✗ No	
Real-time translation (to 116 languages)	✓ Yes	✗ No	
Syllables and parts of speech identifier	✓ Yes	✗ No	
Syllables and parts of speech color coding	✓ Yes	✗ No	
Line focus	✓ Yes	✗ No	
Picture dictionary	✓ Yes	✗ No	
Total features	6/6	0/6	
Mobility			
Caret browsing	✓ Yes	✓ Yes	
Total features	1/1	1/1	

Notes application

Table 8: Accessibility features we reviewed for the notes applications.

Feature	OneNote	Keep	Notes
Vision			
Select-to-speak	✓ Yes	✓ Yes*	*Feature enabled from the OS
Spacing and font size	✓ Yes	✗ No	
Accessibility checker	✓ Yes	✗ No	
Total features	3/3	1/3	

Feature	OneNote	Keep	Notes
Learning			
Immersive reader	✔ Yes	✘ No	
Immersive reader for math	✔ Yes	✘ No	
Math and equation support	✔ Yes	✘ No	
Real-time translation (to 116 languages)	✔ Yes	✘ No	
Math expression checker	✔ Yes	✘ No	
Syllables and parts of speech identifier	✔ Yes	✘ No	
Syllables and parts of speech color coding	✔ Yes	✘ No	
Line focus	✔ Yes	✘ No	
Picture dictionary	✔ Yes	✘ No	
Speech to math	✔ Yes	✘ No	
Talking spell/grammar check	✔ Yes*	✘ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Total features	11/11	0/11	

Word processing

Table 9: Accessibility features we reviewed for the word processing applications.

Feature	Word	Docs	Notes
Vision			
Select-to-speak	✔ Yes	✔ Yes*	*Feature enabled from the OS
Automatic alternative text	✔ Yes	✘ No	
Spacing and font size	✔ Yes	✔ Yes	
Accessibility checker	✔ Yes	✘ No	
	4/4	2/4	
Hearing			
Transcripts	✔ Yes	✔ Yes	
	1/1	1/1	

Feature	Word	Docs	Notes
Learning			
Immersive reader	✔ Yes	✘ No	
Immersive reader for math	✔ Yes	✘ No	
Math and equation support	✔ Yes	✔ Yes	
Real-time translation (to 116+ languages)	✔ Yes	✘ No	
Syllables and parts of speech identifier	✔ Yes	✘ No	
Syllables and parts of speech color coding	✔ Yes	✘ No	
Line focus	✔ Yes	✘ No	
Picture dictionary	✔ Yes	✘ No	
Speech to math	✔ Yes*	✘ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Talking spell/grammar check	✔ Yes	✔ Yes	
Total features	10/10	2/10	

Mail

Table 10: Accessibility features we reviewed for the email applications.

Feature	Outlook	Gmail/ Calendar	Notes
Vision			
Select-to-speak	✔ Yes	✔ Yes*	*Feature enabled from the OS
Automatic alternative text	✔ Yes	✘ No	
Spacing and font size	✔ Yes	✔ Yes	
Accessibility checker	✔ Yes	✘ No	
Total features	4/4	2/4	
Learning			
Immersive reader	✔ Yes	✘ No	
Real-time translation (to 116 languages)	✔ Yes	✘ No	
Syllables and parts of speech identifier	✔ Yes	✘ No	
Syllables and parts of speech color coding	✔ Yes	✘ No	
Line focus	✔ Yes	✘ No	
Picture dictionary	✔ Yes	✘ No	
Talking spell/grammar check	✔ Yes*	✘ No	**Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Total features	7/7	0/7	

Feature	Outlook	Gmail/Calendar	Notes
Neurodiversity			
Focus assist	✓ **Yes***	✓ **Yes****	*Feature enabled from the OS **Feature available only with a work or school account. We were unable to test the feature with our test account, but found evidence of the feature at https://support.google.com/calendar/answer/11190973?hl=en&co=GENIE.Platform%3DDesktop.
Change buttons to text	✗ No	✓ Yes	
Total features	1/2	2/2	

Collaboration

Table 11: Accessibility features we reviewed for the team collaboration applications.

Feature	Teams	Meet	Notes
Vision			
Select-to-speak	✓ **Yes***	✓ **Yes****	*Feature is not available in the Win32 application version, but can be mitigated by using the web app. **Feature enabled from the OS
Spacing and font size	✓ **Yes***	✗ **No**	*Feature is not available in the Win32 application version, but can be mitigated by using the web app.
	2/2	1/2	
Hearing			
Live captions	✓ Yes	✓ Yes	
CART captions	✓ Yes	✗ No	
	2/2	1/2	
Learning			
Immersive reader	✓ **Yes***	✗ **No**	*Feature is not available in the Win32 application version, but is available by using the web app.
Real-time translation	✓ **Yes***	✓ Yes	*This is automatically translated captions in Google Meet *Feature is not available in the Win32 application version, but is available by using the web app.
Syllables and parts of speech identifier	✓ **Yes***	✗ **No**	*Feature is not available in the Win32 application version, but is available by using the web app.
Syllables and parts of speech color coding	✓ **Yes***	✗ **No**	*Feature is not available in the Win32 application version, but is available by using the web app.
Line focus	✓ **Yes***	✗ **No**	*Feature is not available in the Win32 application version, but is available by using the web app.
Track reading progress	✓ **Yes***	✗ **No**	*Classroom in Teams required. We were unable to test the feature with our test account, but found evidence of the feature at https://www.microsoft.com/en-us/education/educators/literacy-solutions.
Reading coach	✓ **Yes***	✗ **No**	*Classroom in Teams required. We were unable to test the feature with our test account, but found evidence of the feature at https://www.microsoft.com/en-us/education/educators/literacy-solutions.
Picture dictionary	✓ **Yes***	✗ **No**	*Feature is not available in the Win32 application version, but is available by using the web app.
Talking spell/grammar check	✗ **No**	✓ Yes	
Total features	8/9	2/9	

Presentations

Table 12: Accessibility features we reviewed for the presentation applications.

Feature	PowerPoint	Slides	Notes
Vision			
Select-to-speak	✓ Yes*	✓ Yes**	*Feature is not available in the Win32 application version, but is available by using the web app. **Feature enabled from the OS
Automatic alternative text	✓ Yes	✗ No	
Spacing and font size	✓ Yes	✓ Yes	
Accessibility checker	✓ Yes	✗ No	
Total features	4/4	2/4	
Hearing			
Live captions	✓ Yes	✓ Yes	
Embedded captions	✓ Yes*	✗ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Total features	2/2	1/2	
Learning			
Immersive reader	✓ Yes*	✗ No	*Feature is not available in the Win32 application version, but is available by using the web app.
Real-time translation (to 116 languages)	✓ Yes*	✗ No	*Feature is not available in the Win32 application version, but is available by using the web app.
Syllables and Parts of speech identifier	✓ Yes*	✗ No	*Feature is not available in the Win32 application version, but is available by using the web app.
Syllables and parts of speech color coding	✓ Yes*	✗ No	*Feature is not available in the Win32 application version, but is available by using the web app.
Line focus	✓ Yes*	✗ No	*Feature is not available in the Win32 application version, but is available by using the web app.
Picture dictionary	✓ Yes*	✗ No	*Feature is not available in the Win32 application version, but is available by using the web app.
Talking spell/grammar check	✓ Yes	✓ Yes	
Total features	7/7	1/7	

Spreadsheets

Table 13: Accessibility features we reviewed for the spreadsheet applications.

Feature	Excel	Sheets	Notes
Vision			
Select-to-speak	✓ Yes*	✓ Yes**	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application. **Feature enabled from the OS
Spacing and font size	✓ Yes	✓ Yes	
Accessibility checker	✓ Yes	✗ No	
Total features	3/3	2/3	
Learning			
Talking spell/grammar check	✓ Yes	✗ No	
Total features	1/1	0/1	

Application ink + pen features comparison

Operating system

Table 14: Pen and ink features we reviewed for the web browsers.

Feature	Edge	Chrome	Notes
Bluetooth Stylus Support	✔ Yes	✘ No	
Ink directly in text box (ink-to-text) with touch (Handwriting recognition)	✔ Yes	✔ Yes	
Ink directly in text box (ink-to-text) with Stylus (Handwriting recognition)	✔ Yes	✔ Yes	
Ability to correct predicted handwriting output	✔ Yes	✔ Yes	
Screenshot and laser pointer shortcut with pen	✘ No	✔ Yes	
Native touch/pen notes/doodles app	✔ Yes	✔ Yes	
Support for handwriting into OS text fields	✔ Yes	✔ Yes	
Automatic "tablet mode" detection for 2-in-1 devices	✔ Yes	✔ Yes	
Total features	7/8	7/8	

Browser

Table 15: Pen and ink features we reviewed for the web browsers.

Feature	Edge	Chrome	Notes
Draw and write with ink	✔ Yes*	✔ Yes*	*When viewing a PDF file
Support for handwriting into text fields	✔ Yes	✔ Yes	
Total features	2/2	2/2	

Notes application

Table 16: Pen and ink features we reviewed for the notes applications.

Feature	OneNote	Keep	Notes
Draw and write with ink	✔ Yes	✔ Yes	
Shape recognition	✔ Yes	✘ No	
Support for handwriting into text fields	✔ Yes	✔ Yes	
Ink to math	✔ Yes	✘ No	
Total features	4/4	2/4	

Word processing

Table 17: Pen and ink features we reviewed for the word processing applications.

Feature	Word	Docs	Notes
Draw and write with ink	✔ Yes*	✔ Yes	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Shape recognition	✔ Yes*	✘ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Support for handwriting into text fields	✔ Yes	✔ Yes	
Ink to math	✔ Yes*	✘ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Ink replay	✔ Yes*	✘ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Total features	5/5	2/5	

Mail

Table 18: Pen and ink features we reviewed for the email applications.

Feature	Outlook	Gmail/Calendar	Notes
Support for handwriting into text fields	✔ Yes	✔ Yes	
Total features	1/1	1/1	

Collaboration

Table 19: Pen and ink features we reviewed for the team collaboration applications.

Feature	Teams	Meet	Notes
Draw and write with ink	✔ Yes*	✔ Yes**	*Requires Microsoft Whiteboard integration. We were unable to test the feature with our test account, but found evidence of the feature at https://support.microsoft.com/en-us/office/draw-and-ink-in-whiteboard-43bd83c0-4a0f-498b-824c-3c5bb480d787. **Requires Google Jamboard. We were unable to test the feature with our test account, but found evidence of the feature at https://support.google.com/meet/answer/10071448?hl=en#zippy=%2Cuse-jamboard-in-a-meeting.
Shape recognition	✔ Yes*	✘ No	*Requires Microsoft Whiteboard integration. We were unable to test the feature with our test account, but found evidence of the feature at https://support.microsoft.com/en-us/office/draw-and-ink-in-whiteboard-43bd83c0-4a0f-498b-824c-3c5bb480d787.
Support for handwriting into text fields	✔ Yes	✔ Yes	
Total features	3/3	2/3	

Presentations

Table 20: Pen and ink features we reviewed for the presentation applications.

Feature	PowerPoint	Slides	Notes
Draw and write with ink	✔ Yes	✔ Yes	
Shape recognition	✔ Yes*	✗ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Support for handwriting into text fields	✔ Yes	✔ Yes	
Ink to math	✔ Yes*	✗ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Ink replay	✔ Yes*	✗ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Total features	5/5	2/5	

Spreadsheets

Table 21: Pen and ink features we reviewed for the spreadsheet applications.

Feature	Excel	Sheets	Notes
Draw and write with ink	✔ Yes	✗ No	
Shape recognition	✔ Yes*	✗ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Support for handwriting into text fields	✔ Yes	✔ Yes	
Ink to math	✔ Yes*	✗ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Ink replay	✔ Yes*	✗ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Total features	5/5	1/5	

Gesture feature comparison

Either touch or pen and ink can execute gesture features.

Operating system

Table 22: Touch features we reviewed for the operating systems.

Feature	Windows 11	ChromeOS	Notes
Right-click functionality	✔ Yes	✔ Yes	
Multi-tasking gesture support	✔ Yes	✔ Yes	
Multi-finger gesture support	✔ Yes	✔ Yes	
Gestures			
Open notification center	✔ Yes	✘ No	
See widgets	✔ Yes	✘ No	
Switch desktops	✔ Yes	✘ No	
Show pinned apps	✘ No	✔ Yes	
Hide row of apps	✘ No	✔ Yes	
Split your screen	✘ No	✔ Yes	
Select an item	✔ Yes	✔ Yes	
Scroll	✔ Yes	✔ Yes	
Zoom in or out	✔ Yes	✔ Yes	
Show more commands (like right-clicking)	✔ Yes	✔ Yes	
Show all open windows	✔ Yes	✔ Yes	
Show the desktop	✔ Yes	✔ Yes	
Switch to the last open app	✔ Yes	✔ Yes	
Total features	13/16	13/16	

Browser

Table 23: Gesture features we reviewed for the web browsers.

Feature	Edge	Chrome	Notes
Touch			
Go to previous page	✔ Yes	✔ Yes	
Go to next page	✔ Yes	✔ Yes	
Pen and ink			
Delete text	✘ No	✔ Yes	
Total features	2/3	3/3	

Notes application

Table 24: Gesture features we reviewed for the notes applications.

Feature	OneNote	Keep	Notes
Pen and ink			
Delete text	✗ No	✔ Yes	
Apply highlighting	✔ Yes	✗ No	
Total features	1/2	1/2	

Word processing

Table 25: Gesture features we reviewed for the word processing applications.

Feature	Word	Docs	Notes
Pen and ink			
Circle to select text	✔ Yes*	✗ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Delete text	✔ Yes*	✔ Yes	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Apply highlighting	✔ Yes*	✗ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Join words	✔ Yes*	✗ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Split words	✔ Yes*	✗ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Insert a word	✔ Yes*	✔ Yes	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Make a new line	✔ Yes*	✗ No	*Feature is not available in the web app version (default Windows 11 SE experience), but is available by installing the Win32 application.
Total features	7/7	2/7	

Mail

Table 26: Gesture features we reviewed for the email applications.

Feature	Outlook	Gmail/ Calendar	Notes
Pen and ink			
Delete text	✗ No	✔ Yes	
Insert a word	✗ No	✔ Yes	
Total features	0/2	2/2	

Collaboration

Table 27: Gesture features we reviewed for the team collaboration applications.

Feature	Teams	Meet	Notes
Pen and ink			
Delete text	✗ No	✓ Yes	
Total features	0/1	1/1	

Presentations

Table 28: Gesture features we reviewed for the presentation applications.

Feature	PowerPoint	Slides	Notes
Pen and ink			
Delete text	✗ No	✓ Yes	
Apply highlighting	✓ Yes	✗ No	
Insert a word	✗ No	✓ Yes	
Total features	1/3	2/3	

Spreadsheets

Table 29: Gesture features we reviewed for the spreadsheet applications.

Feature	Excel	Sheets	Notes
Pen and ink			
Circle to select text	✓ Yes	✗ No	
Delete text	✓ Yes	✓ Yes	
Apply highlighting	✓ Yes	✗ No	
Total features	3/3	1/3	

System configuration information

Table 30: Detailed information on the systems we tested.

System configuration information	Lenovo® 300e Windows 11 SE	Lenovo 300e Windows 11 Pro Education	Lenovo 300e Chromebook™	Lenovo 500e Chromebook
Processor				
Vendor	Intel®	Intel	Intel	Intel
Model number	Celeron® N4120	Celeron N4120	Celeron N4120	Celeron N4120
Core frequency (GHz)	1.10	1.10	1.10	1.10
Number of cores	4	4	4	4
Cache (MB)	4	4	4	4
Memory				
Amount (GB)	4	4	4	4
Type	LPDDR4	LPDDR4	LPDDR3	LPDDR3
Speed (MHz)	2,133	2,133	1,866	1,866
Storage				
Amount (GB)	64	64	32	32
Type	eMMc	eMMc	eMMc	eMMc
Connectivity/expansion				
Wireless internet	802.11 AC	802.11 AC	802.11 AC	802.11 AC
Bluetooth®	5.1	5.1	4.1	4.1
USB	1x USB-C 2x USB 3.1	1x USB-C 2x USB 3.1	1x USB-C 1x USB 3.1	1x USB-C 1x USB 3.1
Video	HDMI	HDMI	HDMI	HDMI
Stylus				
Model	Lenovo Integrated Pen for 2nd Gen 300e Windows	Lenovo Integrated Pen for 2nd Gen 300e Windows	N/A	Lenovo 500e Chrome Pen
Battery				
Type	Lithium polymer	Lithium polymer	Lithium polymer	Lithium polymer
Rated capacity (Wh)	42	42	42	42
Display				
Size	11.6"	11.6"	11.6"	11.6"
Type	LED IPS	LED IPS	LED IPS	LED IPS
Resolution	1,366 x 768	1,366 x 768	1,366 x 768	1,366 x 768
Touchscreen	Yes	Yes	Yes	Yes

System configuration information	Lenovo® 300e Windows 11 SE	Lenovo 300e Windows 11 Pro Education	Lenovo 300e Chromebook™	Lenovo 500e Chromebook
Operating system				
Vendor	Microsoft	Microsoft	Google	Google
Name	Windows 11 SE	Windows 11 Pro Education	ChromeOS™	ChromeOS
Build number or version	22000.978	22000.978	105.0.5195.134	105.0.5195.1.34
Dimensions				
Height (in.)	0.8	0.8	0.8	0.8
Width (in.)	11.4	11.4	11.4	11.4
Depth (in.)	8.0	8.0	8.0	8.0
Weight (lbs)	2.9	2.9	2.9	2.9

How we tested

Setting up the systems (ChromeOS)

Perform the following steps on each ChromeOS device before testing.

1. Turn on the Chromebook.
2. Open Chrome.
3. In the address bar, enter `chrome://flags#scheduler-configuration`.
4. Next to Scheduler Configuration, choose Enables Hyper-Threading on relevant CPUs.
5. Select Restart.
6. At the bottom right, select the time.
7. Select Settings.
8. On the left, select Device.
9. Select Power.
10. Under When idle, next to While charging and While on battery, choose Keep display on.
11. Connect to Wi-Fi.
12. At the bottom right, select the time, and select Settings.
13. At the bottom left, select About ChromeOS.
14. Select Check for updates.
15. If an update is available, it will start to download automatically.

Setting up the systems (Windows 11)

Perform the following steps on each Windows 11 device before testing.

1. Boot the system.
2. Follow the on-screen instructions to complete installation, using the default selections when appropriate.
3. Set the Windows (plugged in) Power Mode to Best Performance.
   - Click the battery icon in the bottom right-hand corner, and move the slider to Best Performance.
4. Unplug the system and set the Windows (unplugged) Power Mode to Best Power Efficiency.
   - Click the battery icon in the bottom right-hand corner, and move the slider to Best Power Efficiency.
   - Click the Battery Saver drop-down menu, and turn off Lower screen brightness when using battery saver.
5. Set Screen and Sleep options to Never.
   - Right-click the desktop, and select Display settings.
   - From the left-hand column, select System.
   - Click Power & Battery.
   - For all power options listed under Screen and Sleep, select Never.
6. Disable User Account Control notifications.
   - Select Windows Start, type UAC, and press Enter.
   - Move the slider control to Never notify, and click OK.
7. Run Windows Update, and install all updates available.

Running the tests

Accessibility feature testing

For each device under test, check the operating system and its applications for functionality of the accessibility features listed below. For Windows devices, the apps are Edge, OneNote, Word, Outlook, Teams, PowerPoint, and Excel. For ChromeOS devices, the apps are Chrome, Google Keep, Google Docs, Gmail, Google Meet, Google Slides, and Google Sheets.

Operating system accessibility features

- Vision
  - Narrator/screen reader
  - Contrast themes
  - Mouse pointer adjustments
  - Screen magnifier
  - Braille display support
  - Adjust language/speed/pitch of screen reader
  - Sticky keys
  - Color filters
  - Touch indicator
  - Text cursor indicator
  - Select-to-speak

- Hearing
  - Captions/subtitles
  - Mono audio
  - Live captions
  - Visual alternative to audio notifications

- Neurodiversity
  - Always-visible scrollbars
  - Focus assist
  - Disable transparency and animations

- Learning
  - Read Aloud in 50+ languages

- Mobility
  - On-screen keyboard
  - Touchscreen gesture controls
  - Voice typing
  - Speech recognition commands
  - Text prediction
  - Keyboard shortcuts
  - Eye control compatibility
  - Switch access
  - Automatic clicking
  - Scroll as you hover

- Mental health
  - Choose which apps display notifications
  - Customizable taskbar
  - Customizable start menu
  - Limit late-night notifications
  - Adjust notification dismiss time

Application-level accessibility features

Below is a summary list of all the features found in the applications we evaluated. For specific feature lists for each application, see the Accessibility features comparison section on page 4.

- Vision
  - Select-to-speak
  - Automatic alternative text
  - Spacing and font size
  - Accessibility checker

- Hearing
  - Live captions
  - Transcripts
  - CART captions
  - Embedded captions

- Neurodiversity
  - Focus assist
  - Change buttons to text

- Mobility
  - Caret browsing

- Learning
  - Immersive reader
  - Immersive reader for math
  - Math and equation support
  - Math expression checker
  - Real-time translation (to 116 languages)
  - Syllables and parts of speech identifier
  - Syllables and parts of speech color coding
  - Line focus
  - Picture dictionary
  - Speech to math
  - Talking spell/grammar check
  - Track reading progress
  - Reading coach

Interaction mode testing (touch, pen, and ink)

For each device under test, check the operating system and its applications for functionality of the touch, pen, and ink features listed below. For Windows devices, the apps are Edge, OneNote, Word, Outlook, Teams, PowerPoint, and Excel. For ChromeOS devices, the apps are Chrome, Google Keep, Google Docs, Gmail, Google Meet, Google Slides, and Google Sheets.

OS Pen and ink features

- Bluetooth stylus support
- Ink directly in text box with touch (handwriting recognition)
- Ink directly in text box with stylus (handwriting recognition)
- Ability to correct predicted handwriting output
- Screenshot and laser pointer shortcut with pen
- Native touch/pen notes/doodles app
- Support for handwriting into OS text fields
- Automatic "tablet mode" detection for 2-in-1 devices

OS touch features

- Right-click functionality
- Multi-tasking gesture support
- Multi-finger gesture support
- Gestures:
    - Open notification center
    - See widgets
    - Switch desktops
    - Show pinned apps
    - Hide row of apps
    - Split your screen
    - Select an item
    - Scroll
    - Zoom in or out
    - Show more commands (like right-clicking)
    - Show all open windows
    - Show the desktop
    - Switch to the last open app

Application-level pen and ink features

- Draw and write with ink
- Shape recognition
- Support for handwriting into text fields
- Ink to math
- Ink replay

Application-level gestures

- Touch:
    - Go to previous page
    - Go to next page
- Pen and ink:
    - Circle to select text
    - Delete text
    - Apply highlighting
    - Join words
    - Split words
    - Insert a word
    - Make a new line

Read the report at https://facts.pt/Ow5bwEp ▶

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