

Using WordQ for Chrome™ in the Classroom

Basic Operation

Introduction

WordQ® for Chrome is a web application for Google Chrome™ that includes an easy-to-use document editor and a PDF viewer/editor. Both editors include writing supports for students in the form of word prediction, speech feedback, speech recognition, customizable static topics, ThoughtQ® dynamic topics, and proofreading.

WordQ for Chrome provides a simple, self-contained environment for students to work on documents and PDFs with these integrated writing supports. Students can access, edit, create, and save documents and PDFs from both their Google Drive™ account and their local computer. Although WordQ for Chrome is designed primarily for Chromebooks running ChromeOS, it can also be run in the Chrome browser in Windows and macOS.

WordQ's main purpose is to provide ongoing compensatory support for students with learning differences (e.g., dyslexia) or physical disabilities, and in general, any student who faces barriers to writing for any reason. As well, it can complement reading and writing instruction for students who are learning English as a second language. In this tutorial, we will be looking at how to use some of the WordQ features that are designed to help in these situations.

Initial Setup for use

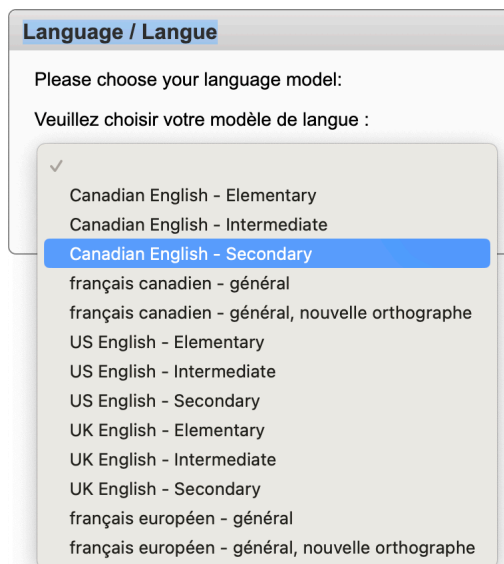
Run WordQ

Installation instructions for WordQ for Chrome are provided separately.

First-time configuration

1. Choose Language/Vocabulary

The first time you run WordQ Chrome you are presented with a dialog to choose from three levels of English vocabulary with Canadian, US, or UK spelling: **Elementary** (up to grade 3 level); **Intermediate** (grade 2 to 8), and **Secondary** (grade 8 and above). These vocabularies (5,000 – 15,000 words) represent words that are commonly used at these levels and are a subset of a larger background dictionary (80,000 words). Think of a vocabulary as words within your head that are most familiar. With word prediction, words are first suggested from your vocabulary, then from the background dictionary.



Choose a vocabulary that best fits your writing. Although this vocabulary choice can be changed anytime, WordQ remembers your last choice and loads that vocabulary on subsequent startups so that you don't have to choose every time.


2. Doc editor vs PDF viewer/editor

When WordQ opens you will notice two icons in the upper left-hand corner:

 indicates the document editor;  indicates the PDF viewer/editor.

Click on either one to switch between them. This introductory tutorial focuses on the document editor. The PDF viewer/editor is covered in a separate tutorial.

3. Choose a voice for speech feedback.

WordQ makes use of built-in text-to-speech voices for speech feedback voices. Under  **Options>Speech Feedback**, choose a voice that makes sense for the dialect of English that you are using (e.g., American English, UK English, Australian English, etc.).

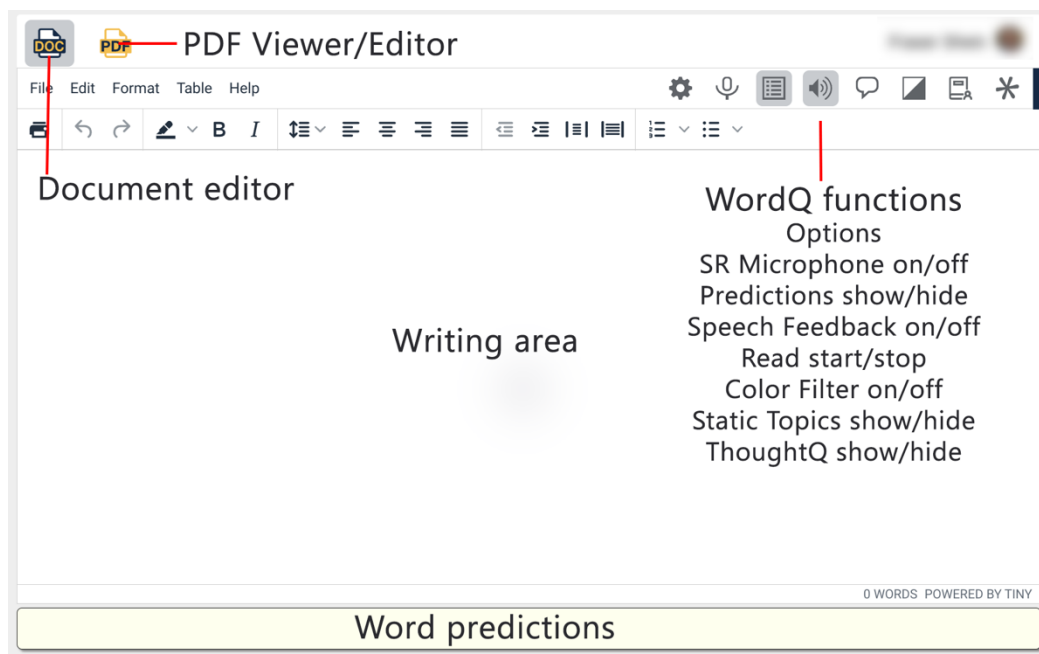
Tips

- The average person may only use a couple of hundred unique words throughout the day.
- Approximately 3 billion words of text from a wide variety of public sources were used in the data analysis to create the word prediction. Given the public nature of this data, Quillsoft hand-checked the user vocabularies and the background dictionary to remove any profanities or biases.
- A modestly large background dictionary of 80,000 was hand-curated rather than an extremely large dictionary, say 500,000 words. Such a massive dictionary may be useful for playing Scrabble, but not for someone who has difficulty writing where a misspelling may exist as some obscure word.

The WordQ Document Editor

At the top right-hand side of the WordQ window, you should notice a series of icons. These buttons and menus control WordQ's behavior. At the bottom of the window is a light-yellow area that displays word predictions.

The middle area is a document editor like Google Docs but simpler. Here, a student can create and edit documents with the support of WordQ's features.



This user interface offers the student assistance with converting their ideas into writing, in ways that we'll look at in detail in the sections that follow. Please note that by design, WordQ does not write for the student or automatically fix their mistakes. They must still do their own writing, but using WordQ makes it easier for them to be more independent. We call this type of technology IA, or Intelligent Assistance, as opposed to AI. WordQ offers no criticism or pressure, so writing can be more enjoyable. The hope is that this type of support can reduce the likelihood of arguments at homework time because students know they can get their ideas into writing more easily and independently. Let's talk about the specific ways WordQ is designed to help make that happen.

WordQ Toolbar Buttons

A Note on Keyboard Shortcuts

As described previously, WordQ can be used on a Chromebook or in the Chrome browser in Windows or macOS. We use the CTRL key on the Chromebook and Windows as part of most keyboard shortcuts for triggering WordQ commands. Consistent with usual practice, the CTRL key is replaced by the CMD key in macOS (often shown on the keyboard as ⌘). You will see both CTRL and ⌘ in the keyboard shortcut descriptions below. The ⌘ key is for the Mac only.



Options: Show/hide options to customize WordQ.



CTRL (⌘) + 7 **Microphone:** Turn microphone on/off for speech recognition.



CTRL (⌘) + 8 **Words:** Show/hide word predictions.



CTRL (⌘) + 9 **Speech:** Turn speech feedback on/off.



CTRL (⌘) + 0 **Read:** Start/stop reading selected text.



Color Filter: Turn color filter on/off.



Static Topics: Show/hide customizable static topics.



ThoughtQ: Show/hide ThoughtQ dynamic topics.

These WordQ buttons and keyboard shortcuts work the same in both the Document editor and the PDF Viewer/Editor.

Writing with WordQ

Word prediction with speech feedback

For demonstration, we're going to type a short sentence that would contain some spelling errors if written without WordQ. We'll show how the student can use WordQ to enter the sentence without the errors.

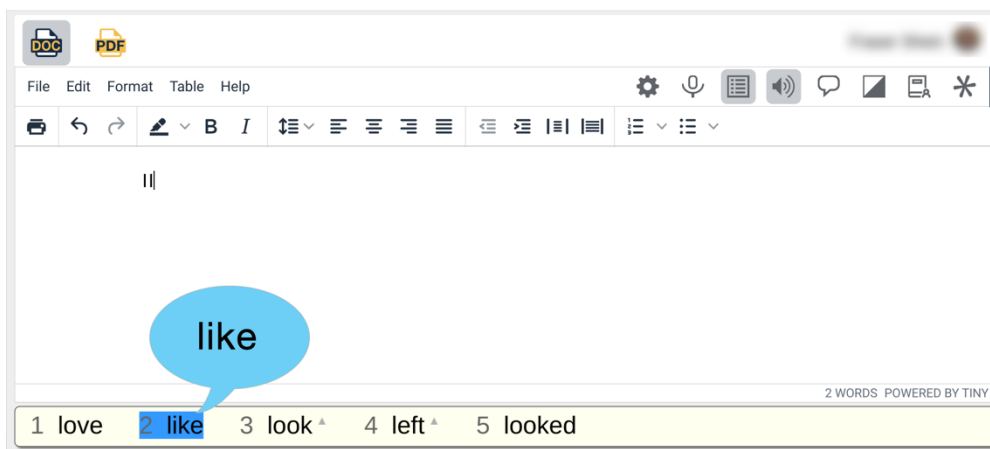
The sentence will be:

"I liek the weakened."

We want to enter **"like"** and **"weekend"** instead.

Type the capital "I" followed by the spacebar. When you hit space, the prediction area will offer words that naturally follow "I". You should notice that the desired word **"like"** is suggested. This is the first way we typically avoid spelling errors when using WordQ: its word combination knowledge helps it promote words that make sense given the student's previous word(s).

There are a couple of ways to review and select words in the list. You can hover over a word with the mouse and hear it spoken out loud.



When highlighted with the mouse, you can select and insert the word into the document with a mouse click. You can also use CTRL (⌘) + RIGHT and CTRL (⌘) + LEFT arrows on the keyboard; with each arrow keypress an adjacent word in the list is highlighted and spoken aloud. When highlighted, the desired word can be inserted with the ENTER key. Of course, if you recognize

the desired word in the list by sight, you can select it by hitting the number key corresponding to the number beside a suggested word.

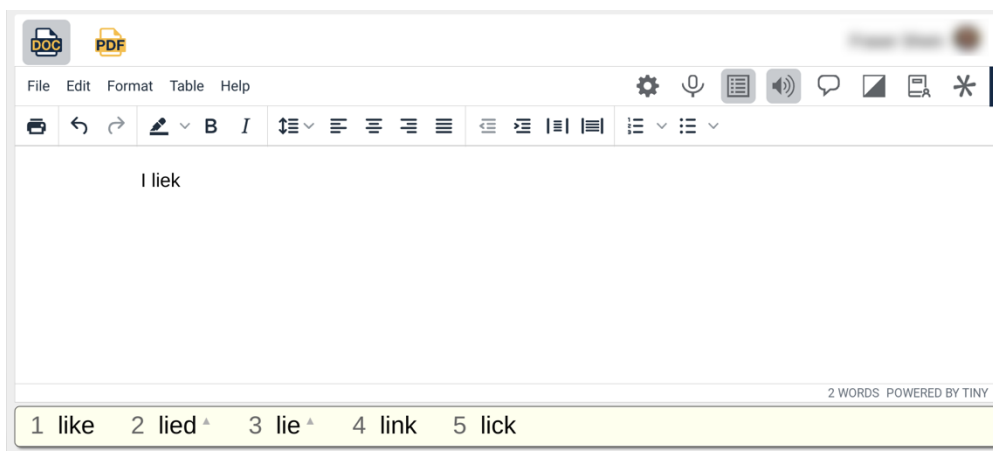
What if I select a word by accident?

If you select a word by accident, you can quickly undo the insertion by hitting the ESC key. However, this undo will only work immediately after the selection.

In this example, the desired word “**like**” is shown immediately after typing “l” and so the misspelling may never have happened.

We’re going to pretend that we don’t see the correct word and continue to type out “**liek**” ***but don’t press the spacebar.***

With “**liek**” in your document, you should see a prediction list containing spell-corrected choices like **like, lied, lie, link, and lick**



Review the words as before, and select “like” using either the mouse or the CTRL (⌘) + ARROW keys & ENTER. You should hear each word spoken aloud when highlighted.

The ability to review words in the list and have them spoken aloud helps the student find the correct word despite issues with spelling that can come with a learning difference. If the student does not hear the desired word in the list, more letters can be typed until the word does appear. As we’ve seen, the prediction algorithm is forgiving when it comes to the student supplying incorrect letters.

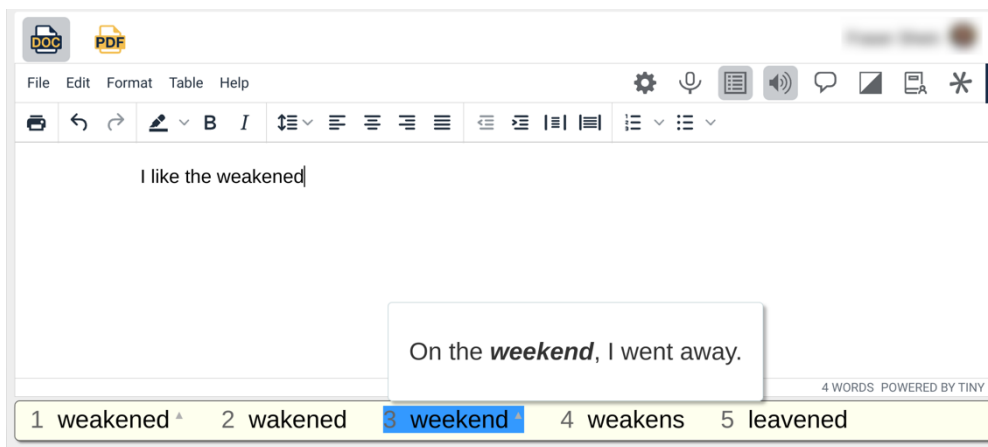
The word “**the**” should have been predicted automatically after choosing “**like**” so it can be selected immediately. Do that by typing the number beside “**the**”.

Now start typing “**weakened**”. Again, the correct form of the word should show up in the list after the first couple of letters, but pretend you don’t see it, and type out the full word “**weakened**”, which is a correctly spelled word, but it is the wrong near homonym for the writer’s intent.

After typing out “**weakened**”, you should see both “**weakened**” and the correct “**weekend**” in the list. Both words have a triangle beside them pointing upwards. A triangle indicates that the word choice has a usage example that’s designed to help differentiate between homonyms in these situations.

Hover over the incorrect homonym “**weakened**” in the wordlist using the mouse. After a second or so, you should see the usage example appear (something like “**My flu weakened me**”). When you highlight the word choices with the CTRL (⌘) + ARROW keys, you can see the usage example with the CTRL (⌘) + UP ARROW key. A second or so after the usage example appears, it will be read aloud for reinforcement.

Now highlight the correct form “**weekend**” and show its usage example (“**On the weekend, I went away.**”)



Through these usage examples, students can differentiate between homonyms and near homonyms to choose the word that makes sense in the sentence they’re writing.

Choose the correct word “**weekend**” any way you like.

Type the period to finish the sentence. You’ll notice that a couple of things happen automatically at this point. First, the space that was automatically added after selecting and inserting “**weekend**” is deleted so that the period is in the correct location. Second, the entire

sentence is automatically read back so that you can hear whether the word flow makes sense to catch mistakes and learn proper pronunciation. (If something sounds wrong, you can go back and edit the sentence, however, it is often better to continue getting ideas down first without distraction; then go back and proofread/edit later.) Third, when you type the next letter, it will be capitalized automatically so that you can begin your next sentence without having to press SHIFT.

Tips



- Since WordQ is using the numbers for inserting word predictions, you might be wondering how you can add numbers to your document. Simply turn off word prediction temporarily by toggling the **Word Predictions** button in the toolbar (or pressing CTRL (⌘) + 8), then turn it back on when done.
- WordQ provides several independent selection methods for inserting a predicted word into the document. Students with limited mobility (e.g., those with cerebral palsy or a spinal cord injury) may get the most utility from selecting predictions by number, as the main consideration is to reduce the physical effort of typing by reducing the number of keystrokes the student must type. Students with learning differences (e.g., dyslexia) or other barriers to reading and writing might use the arrow keys or mouse selection more, because the primary need is to hear possible word choices spoken aloud to help with spelling.
- A student can experiment with typing different letters to see and hear what words are formed with those letters. Also, for a student having difficulty reading or decoding suggested words, hearing words spoken helps them choose their desired word. If their desired word is not displayed, a student can continue typing until it is displayed or try different letter combinations. While WordQ incorporates creative spelling in its prediction algorithm and will account for misspelling when making suggestions, it is a useful strategy to see and hear what words are suggested. The student then learns how different letters generate different words.
- A student who struggles with spelling may or may not need to use word prediction with every word. Generally, they do not, and the word prediction is most useful for more difficult-to-spell words and when the effort of spelling blocks them from advancing in the sentence. In this situation, word prediction helps them continue writing with minimal effort.

- WordQ continues to suggest words in the background, even when the word list is hidden (toggled off). A student may hide the word list until they need it and toggle it on for appropriate suggestions.
- Sometimes, a root of a word (e.g., “begin”) may appear early before various forms with different endings (e.g., “beginning” or “beginnings”). Here, the root word can be selected followed by pressing BACKSPACE to display variations of that word with different endings.
- As you move the text cursor through a document you will notice that appropriate word predictions will be shown wherever the cursor is placed, even midway through a word, as WordQ considers both preceding letters and words in its suggestions.
- The display of the word predictions can be customized to display 1 – 7 words; font size; and whether to show usage examples and whether to predict next words automatically.
- By default, speech feedback is provided for word, sentences, word predictions, and speech recognitions. Speaking individual letters is also an option, which may be useful for students with physical disabilities who might like auditory confirmation of each selected letter.

Speech Recognition

WordQ uses Google Voice Typing™ for speech recognition. Speech recognition permits a student to quickly say a word or phrase to avoid losing their train of thought, that is, to get ideas down quickly and independently. At any time, students have the choice of typing with the keyboard, using word prediction, or speaking text straight into their document. A high-speed internet connection is required for speech recognition. Recognized text is immediately spoken aloud for confirmation.

The simplest way to understand how speech recognition is used within WordQ is to simply start using it. (If you speak English with an accent other than American, you may want to customize the speech recognition settings. See the Tips section below.)

When ready, click the spot in your document where you want to enter text by voice. Turn on microphone by clicking the  **Microphone** button or pressing CTRL (⌘) + 7. Speak a short phrase after the Microphone button changes to waiting . Speak as clearly as possible and not too softly. Recognition is best with short phrases (maximum 30s). Recognized text is spoken back for confirmation if speech feedback is turned on, something that turns out to be quite useful for someone with dyslexia (i.e., how can you know if the speech recognition transcribing your speech correctly if you have difficulty reading what’s on the screen?). You can undo a misrecognition by pressing ESC.

A limited set of punctuation characters may be spoken:

- Period
- Comma
- Question mark
- New Line
- New paragraph

It's important to emphasize that you can use speech recognition in combination with typing and word prediction. Speech recognition is just another option for getting ideas into writing. Students may benefit from some guidance about when to use speech recognition vs typing with word prediction. It can be useful, for example, to reserve speech recognition for situations where the word is difficult enough that the student knows how to use it correctly but has difficulty knowing how to start typing it. Speech recognition can eliminate that barrier and help them move on with getting their ideas down. For this reason, the microphone automatically turns itself off after each recognition by default. (This behavior can be changed if desired, see Tips below).

Tips

- The speech recognition in WordQ focuses on text generation. There are no speech commands for the student to memorize or for the computer to possibly get confused with actual text. You just say the text you want in your document, nothing more. However, this means that WordQ is not a fully hands-free solution.
- You can choose a dialect for the speech recognizer through the **Options>Speech Recognition** dialog. Choose a Language for recognition. You may choose Australia, Canada, India, New Zealand, South Africa, United Kingdom, or United States.
- The Speech Recognition dialog also includes options for controlling when the microphone should turn itself off. By default, the microphone turns off automatically after each recognition. You can also set it to turn off never (it will continue recognizing everything you say until you manually click the microphone button to turn it off), or to turn off only while editing (i.e., after you move the text insertion point to another location in the document).



Proofreading/Editing

WordQ supports proofreading by allowing students to listen to their work being read aloud while their text is simultaneously highlighted. The voice acts as an unbiased observer speaking back exactly what was written. Mistakes, such as wrong word choices, missing words, or poor word order, stand out as sounding strange. Students then step through the sentence word-by-word to locate any mistakes. Proofreading is designed to be used alongside word prediction to help the student review and refine their writing so that the result sounds like what they had in mind when they originally imagined it.

In this section of the tutorial, we will be working with a short paragraph. To begin with, please copy this short paragraph below into a document. It has intentional mistakes with spelling, missing words, and word reversals. Use this as an opportunity to try out the various prediction selection and echo features that we covered earlier.

The four seasons is gentle reminder that of pasting of time. The year cycle of bedding growth harvest and rest provided regular signal to us that time marching forward in spite of our occasional in ability to note it.

Proofreading Strategy

1. Position the text cursor anywhere in the sentence.
2. Click Read  or press CTRL (⌘) + 0 to highlight the sentence.
3. The sentence will be highlighted, and word predictions will be replaced by the play/pause etc., buttons typically used for controlling audio.
4. Press SPACE, to begin reading the sentence. Each word is highlighted as it is spoken. Listen for any mistakes. Press SPACE to pause/resume reading.
5. The sentence will be highlighted again after it has been read so that your focus remains on the sentence.
6. When reading or paused, you can locate specific errors by repeatedly pressing RIGHT or LEFT arrow keys to move word-by-word within the sentence. When a word sounds wrong, or when words together sound wrong, you have located an error.
7. Press the ESC key or click in the text with your mouse/trackpad to leave proofreading mode and make edits using word prediction and/or resume writing.
8. Read the sentence again by clicking **Read**  or press CTRL (⌘) + 0.
9. Repeat stepping through a sentence to locate mistakes and edit.
10. Go to the previous or next sentence by pressing UP or DOWN arrow keys.

This is the general strategy that students can use to proofread their writing, finding, and fixing errors along the way. We'll look at how we would use this strategy to fix the paragraph that you just transcribed.

Place the insertion point anywhere in the first sentence and click **Read**. Notice that the sentence is highlighted. Press SPACE to start reading. The first thing you might notice is that “**is gentle**” doesn't sound right together; a word is missing — “**a**” after the word “**is**”. Read the sentence again by hitting SPACE, but this time use the RIGHT and LEFT arrow keys to step through the sentence word-by-word. When the word “**is**” is highlighted, hit ESC to leave reading mode and notice that the insertion point is just to the right of the end of that word. Now you can either select “**is a**” from the prediction list or type SPACE then add the “**a**”.

Click the **Read** button so that the sentence is read again. This time, notice that “**pasting**” doesn't sound right. Again, use the RIGHT and LEFT arrows to step word-by-word until “**pasting**” is highlighted, hit ESC and notice that the insertion point is just to the right of the end of the word. You might find that the correct word, “**passing**” has been predicted and you can

select it. If it hasn't been predicted, just backspace letter-by-letter and/or add more letters until the correct word appears, and then select it.

Read the first sentence again. Notice that the word **"that"** is out of place in the sentence and should be deleted. Hit ESC, select **"that"** and delete it or backspace over it. Read it again and it will still sound odd; there is a missing **"the"** after the first **"of"**. Add it. Listen to it again, and now the sentence sounds right.

Even though the second sentence is longer and there are more errors, the same strategy applies for proofreading and correcting it. Get into read mode and listen to it. Use the RIGHT and LEFT arrow keys to find the individual mistakes. Sometimes, you may need to go back and forth between listening to two or more words to be sure. Correct them one-by-one and listen to the sentence again after each change.

- Change **"year"** to **"yearly"**
- Change **"bedding"** to **"budding"**
- Change **"provided"** to **"provides"**
- Change **"signal"** to **"signals"**
- Change **"marching"** to **"marches"** (backspace over "ing")
- Change **"in ability"** to **"inability"**
- Change **"note"** to **"notice"**
- Finally, add commas after **"budding"** and **"growth"**
- If you're not sure about punctuation, experiment. Put in a comma or a question mark where you think it might go. Listen to the sentence being read back. The speech will automatically pause at each punctuation mark and the intonation will change. Make changes until you are satisfied with how it sounds.

Hopefully, the proofreading strategy seems straightforward after this practice. Although the process may seem time consuming, it will eventually become second nature and the benefits of proofreading will shine through.

Tips

- When most people proofread, they typically read what they think they wrote, not necessarily what they wrote. A computer reading back aloud does not know what was intended, only what was written.
- Proofreading independently can reduce a student's frustration with the mechanics of writing so that they can complete a draft document and then seek feedback from a teacher or parent. This discussion can focus more on content, less on spelling and grammar.
- The structured proofreading strategy is a technique that might even be followed without technology support: reading your writing aloud (if possible) is a great way to catch mistakes that might otherwise be missed.

You've reached the end

This tutorial was designed to cover the most basic features of writing a document with the assistance of WordQ. Other features such as topics and PDF accessibility will be explored in future tutorials. We hope that the foundation provided by this first tutorial serve you well as you explore the use of WordQ with your students.