# Accessible PDFs with LaTeX for ~~DUMMIES~~ Teachers

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# Why LaTeX?

- LaTeX is the de facto standard for the communication and publication of math and science. Chances are you *will* encounter LaTeXin STEM!
- LaTeX is widely used in publishing because it clearly separates presentation from content.
- LaTeXtypesets technical symbols and mathematics beautifully.

# Why Accessibility?

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# Accessible PDF Output is (Recently) Possible!

- Thanks to *years* of dilligent work by the LaTeXproject developers:

  `https://www.latex-project.org`
- See this presentation at PDF Days 2025 Berlin:

  `https://www.latex-project.org/news/2025/10/30/pdfadays`
- Also check out the many solution posters from the conference:

  `https://pdfa.org/the-winning-technical-poster-at-pdf-days-europe-2025`

- Our slides walk you through a few basic steps to get things working.

# Step 1: Use `lualatex`

- LaTeXcan be processed by many different rendering engines (`pdflatex`, `lualatex`, ...)
- `lualatex` is currently the best engine to use for accessibility.
- On many GNU/Linux systems simply install with:

  ```
  sudo apt install texlive-luatex
  ```

## Using `lualatex` with MiKTeX on Macs and Windows Systems

1. Install MiKTeX (`https://miktex.org/download`)

# Using `lualatex` with Overleaf

# Step 2: Metadata in your documents

Add the following to the very top of your document (adjusting `lang` as needed):

```
\DocumentMetadata{
  tagging=on,
  tagging-setup={math/setup={mathml-SE,mathml-AF}},
  pdfstandard=ua-2,
  pdfstandard=a-4f,
  lang=en-US
}
```

This turns on tagging and embeds *two* kinds of mathematical notation markup for widest compatibility with reader software.

## PDF document metadata

Add the following above `\begin{document}` (adjusting entries as needed):

```
\usepackage{hyperref}
\hypersetup{
  pdftitle={Accessible PDF with LaTeX},
  pdfauthor={Bryan W. Lewis},
  pdfsubject={Accessibility},
  pdfkeywords={Accessibility, LaTeX, PDF},
}
```

## Use the `unicode-math` math symbol package

Include the following package in your document preamble:

```
\usepackage{unicode-math}
```

*Avoid* use of the following package if possible (`unicode-math` may work in its place):

~~`\usepackage{amssymb}`~~

## Be sure to add text descriptions to every included image

Whenever you include an image in your document, be sure to include a text description defined with `alt`. For example:

```
\includegraphics[alt=Accessible PDFs with LaTeX for Teachers]{filename}
```

Congratulations! Your LaTeX-generated PDF documents are now accessible!

# Setting up NVDA reader software with MathCAT

- These techniques are all *very* new and not yet uniformly supported, but that's changing quickly.
- The reader software with the most complete support is NVDA (NV Access) equipped with the MathCAT add-on. It's free, supports audible and braille in more than 50 languages, and works very well!

  https://www.nvaccess.org/download/