

## Listen ... Your Math is Speaking – with MathPlayer!

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Speakers (both from Johnson County Community College):

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Specialized Software:

- MathPlayer, <http://www.dessci.com/en/products/mathplayer/>
- MathType, <http://www.dessci.com/en/products/mathtype/>
- MathJax, <http://www.mathjax.org/>
- LaTeX, <http://www.latex-project.org/>
- Dolphin Guide, <http://www.yourdolphin.com/productdetail.asp?id=30>

Initial Setup and Testing of MathPlayer

- Download from their web site.
- Check your installation on their web site. If the add-on was blocked, be sure to allow it to run. Then right-click on the equation, and choose “Speak Expression”.

Creating screen-readable MS Word documents

- Open MS Word, and create your document. Use MathType (not the MS Word equation editor) to create the math.
- Save the document.
- Then on MathType ribbon, choose “Publish to MathPage”, with “MathML Using” and “XHTML+MathML”. This will save as a .xht (extended HTML) file.
- To test, open MS Internet Explorer, and find your file. Allow any blocked content. Then right-click on an equation, and choose “Speak Expression”.

MathPlayer only integrates with the IE browser. Other browsers cannot translate the math. The combination we demonstrated is IE8, MathType 6.5, and MathPlayer 2.2.

Creating screen-readable web documents

- Create an HTML page for your web document.
- Put in the header the following tag:  

```
<script type="text/javascript"
src="http://cdn.mathjax.org/mathjax/latest/MathJax.js?config=TeX-AMS-
MML_HTMLorMML"></script>
```

- When typing math, use LaTeX. Use  $\left($  to begin and  $\right)$  to end each inline math expression. For display expressions, use 
$$...$$
 at beginning and end.
- To test, open MS Internet Explorer, and find your file. Right-click on an equation, choose “Math Settings”, “Math Player”, and then let MathPlayer handle “Mouse and Menu Events”. Then right-click on the equation again, and choose “Speak Expression”.
- To get back to the MathJax menu, you can use Alt-(left)click on the math expression.

Why should we make math accessible?

**Section 504 of the Rehabilitation Act of 1973.** Is a civil rights statute designed to prevent discrimination against individuals with disabilities. 504 applies to entities that receive federal financial assistance.

**ADA**, Americans with Disabilities Act, signed into law in 1990. Modeled after Section 504. Covers most establishments whether privately owned or assisted with state and/or federal funds. Colleges must comply with the ADA. Colleges must provide reasonable accommodations to a student who is qualified.

**Electronic and Information Technology Accessibility Standards** Section 508 requires that when Federal agencies develop, procure, maintain, or use electronic and information technology, Federal employees with disabilities have access to and use of information and data that is comparable to the access and use by Federal employees who are not individuals with disabilities, unless an undue burden would be imposed on the agency. Section 508 also requires that individuals with disabilities, who are members of the public seeking information or services from a Federal agency, have access to and use of information and data that is comparable to that provided to the public who are not individuals with disabilities, unless an undue burden would be imposed on the agency

Public Law 105-394

Assistive Technology Act of 1998. Every state and territory of the United States was awarded a Tech Act project.

### **State E & IT Accessibility Initiatives**

Summarized below are the accessibility-related laws, policies, standards or guidelines, and other resources that states have published on-line in support of website accessibility, application development, and IT procurement.

### **Kansas Web Accessibility Policies:**

#### **Information Technology Policy 1210, Revision 2 - State of Kansas Web Accessibility Requirements**

[http://icdri.org/legal/kansas\\_web\\_and\\_it\\_accessibility\\_p.htm](http://icdri.org/legal/kansas_web_and_it_accessibility_p.htm)

### **Missouri Application Development Accessibility Statutes:**

**Legislative Code:** V.A.M.S. 191.863 Accessibility of Information Technology for Individuals with Disabilities

<http://www.moga.mo.gov/statutes/C100-199/1910000863.HTM>

**Web Content Accessibility Guidelines (WCAG 2.0) Guidelines**, colleges follow the Section 508. Applies to applications used on the web. Learning management systems, software packages, etc.

<http://www.w3.org/TR/WCAG20/>

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**Resources:**

MathType, MathPlayer, MathDaisy

<http://www.dessci.com/en/>

Duxbury: Braille Graphics and Braille math

[www.duxburysystems.com](http://www.duxburysystems.com)

Reader tools

JAWS (Freedom Scientific)

<http://www.freedomscientific.com>

Kurzweil 3000 (Texthelp)

<http://www.kurzweilededu.com>

Dolphin

<http://www.enablemart.com> (search box dolphin)

Read and Write Gold

<http://www.texthelp.com>

NVDA

<http://www.nvda-project.org/>

Software to assist in teaching and learning Mathematics

Scientific Notebook

<http://www.sciword.demon.co.uk/scientificnotebook.htm>

Metroplex Voice Computing

<http://www.mathtalk.com>

This website provides an overview on **How to Create, View and Listen to Math Content on the Web.**

<http://www.csun.edu/accessibility/math/accessiblemathoverview.html>

**Alternatives:**

Math course substitutions

Live reader and scribe for testing

Live reader and scribe for homework

Tape recording class lectures

Making MP3s from class notes on Camtasia

Digital text (Readable PDFs, DAISY players [Digital Accessible Information System])

Talking Graphic calculators

Low Vision solutions:

Zoom text

CCTV

**Vendors require to use VPAT** Voluntary Product Accessibility Template

<http://www.itic.org>

(search VPAT)

“Buy Accessible” A guide to purchasing accessible software.

[Http://www.buyaccessible.gov/](http://www.buyaccessible.gov/)

**Transcribing agencies:**

[www.amacusg.org](http://www.amacusg.org)

<http://www.captionfirst.com>

<http://www.sensus.dk/sensus/frontpage39.aspx>