Extending Schema.org to Improve Education Resource Discovery & Accessibility



schema.org





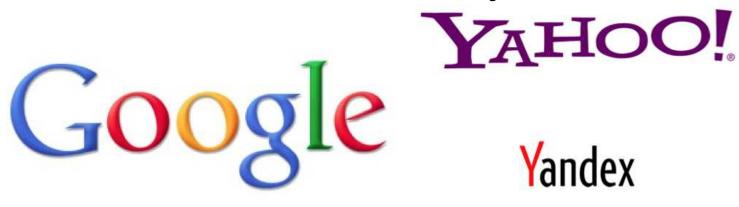




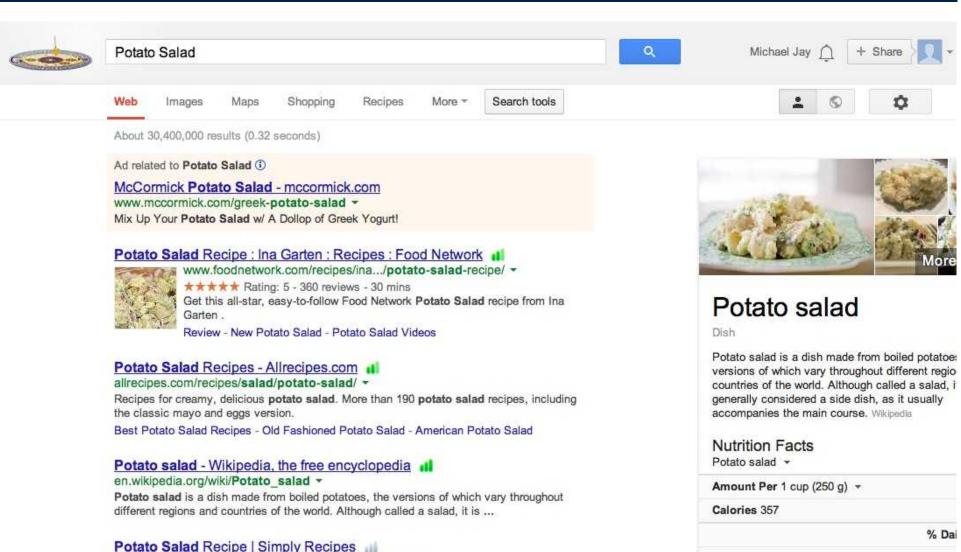
What is Schema.org?



A data structure to describe 'things' on the web agreed upon by the major search engines to improve search & discoverability

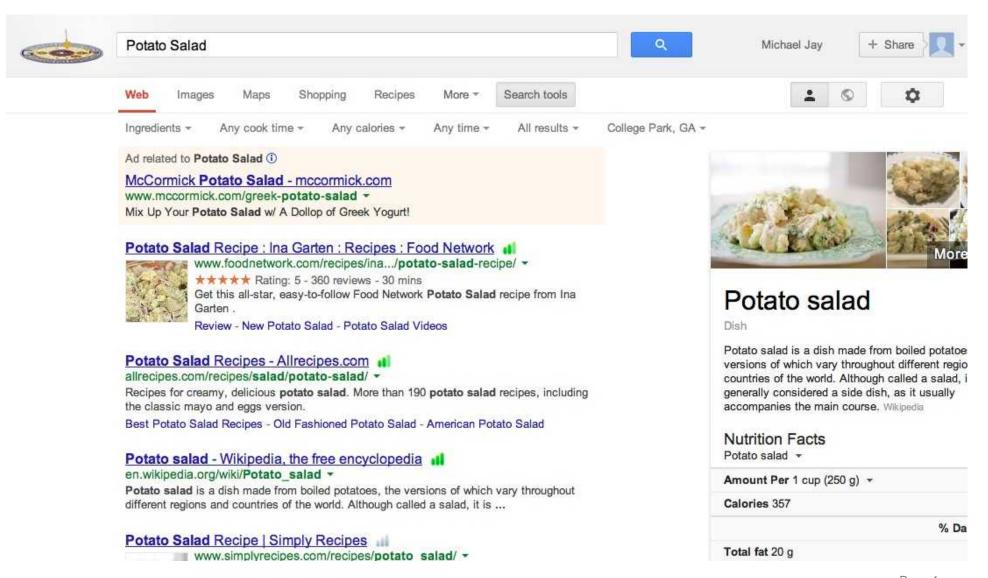


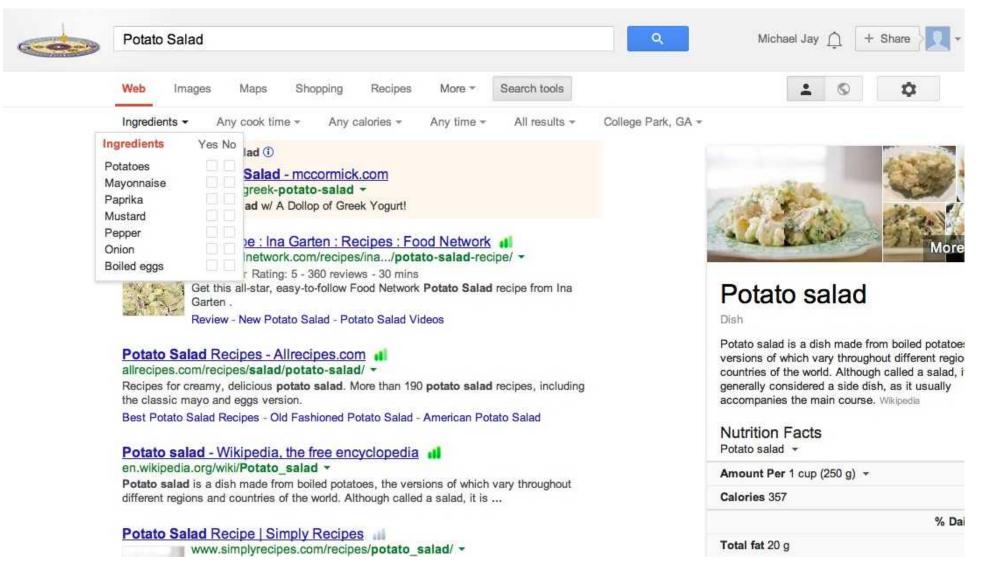


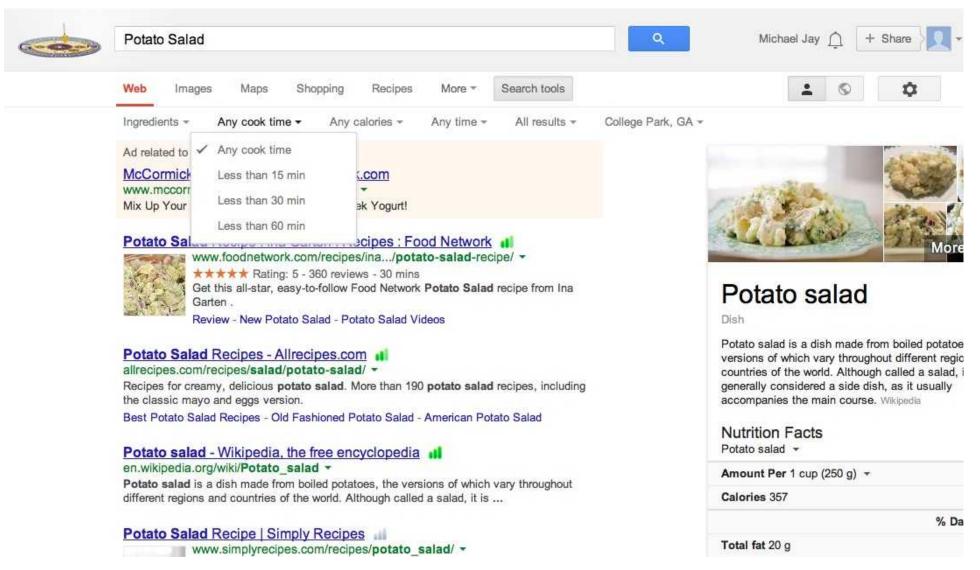


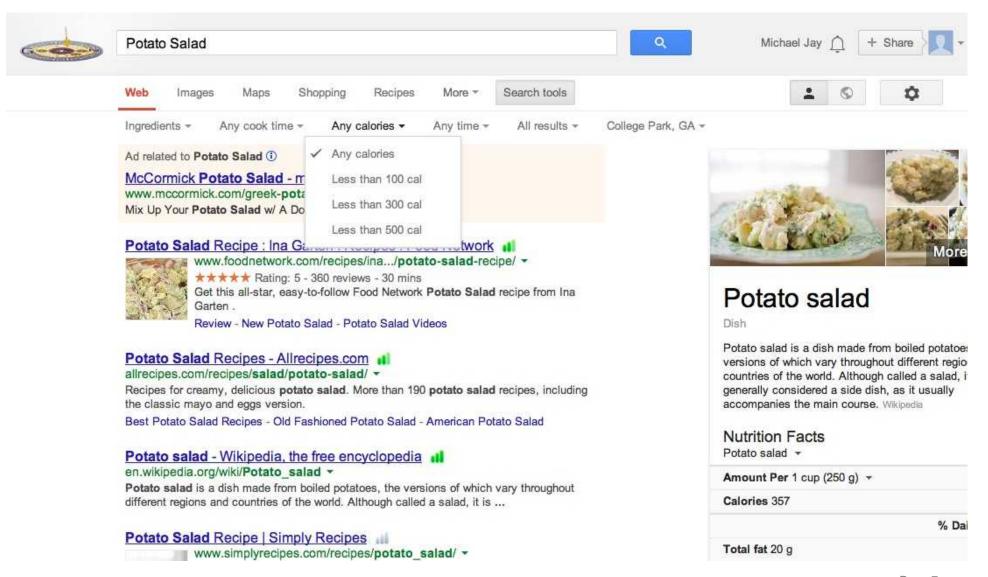
www.simplyrecipes.com/recipes/potato salad/ -

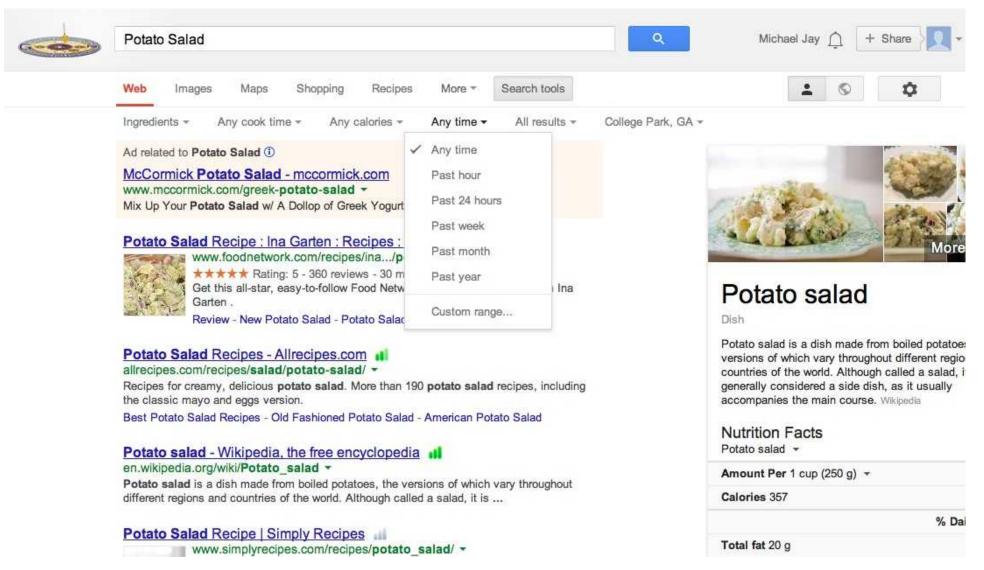
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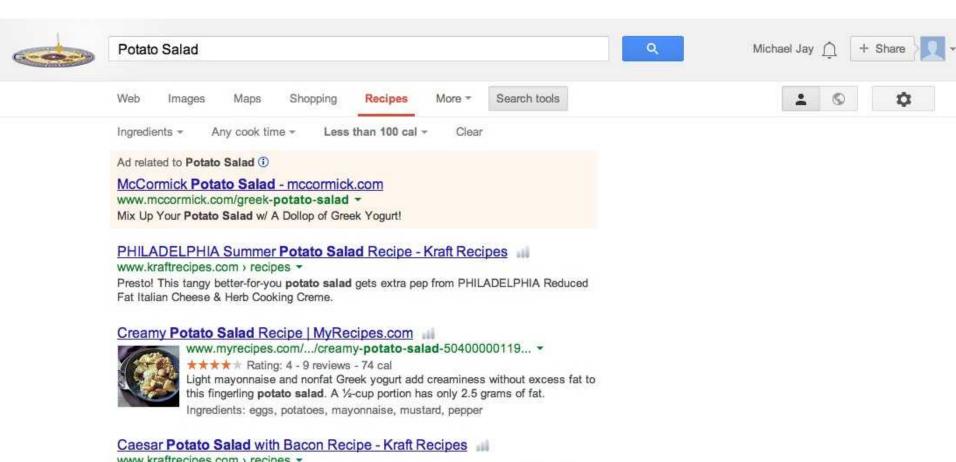










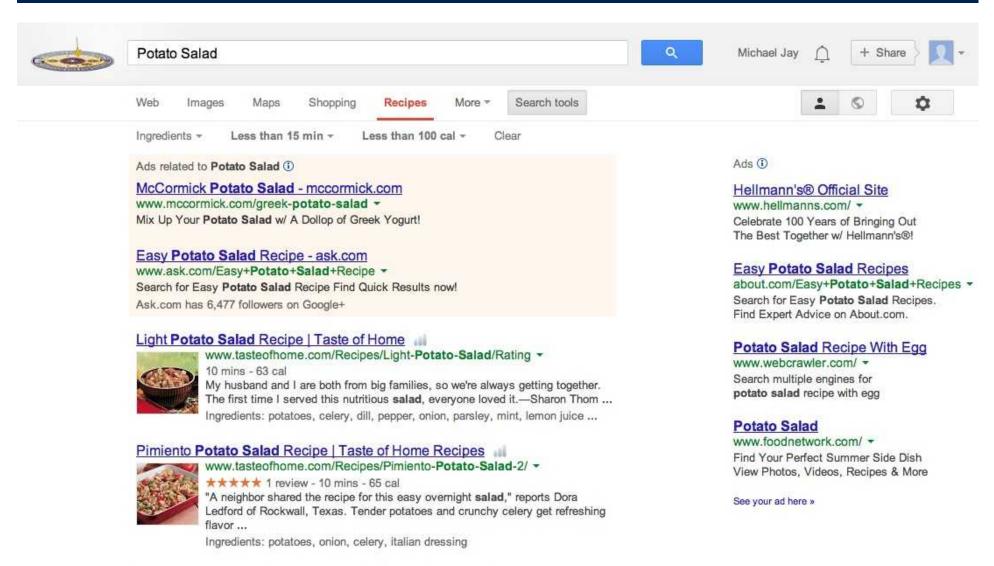


www.kraftrecipes.com > recipes -

All will certainly hail this great Caesar Potato Salad with Bacon as one of the best —and also one of the easiest to prepare.

Potato Salad Bites Recipe - Tablespoon







Recipe Tagging Example

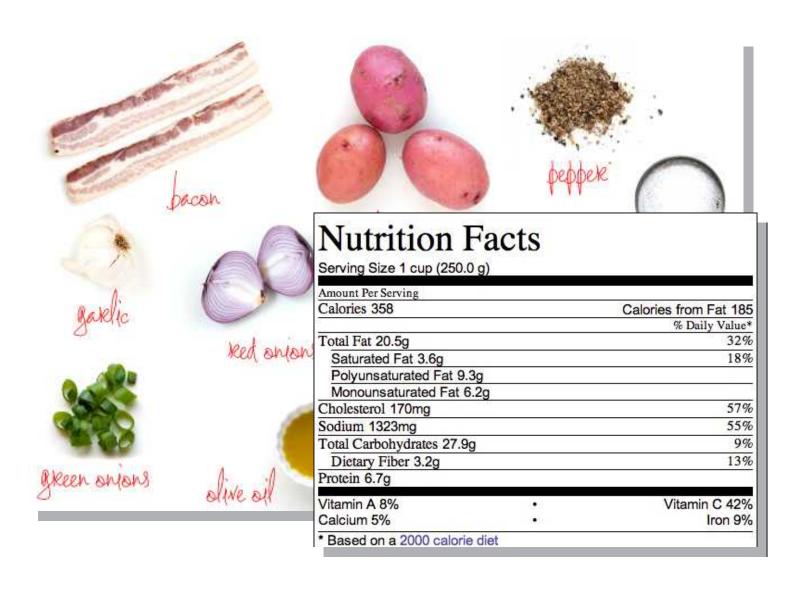
Learning Resources Metadata







So, why do we need a standard?



Why Now? Kinda' Perfect Storm

Goal: Make it easier and more convenient to find learning resources that meet specific student and class needs.

Curriculum Standards

Intersection of three opportunities

LRMI

Schema.org

Resource Registries (Learning Registry)

The LRMI Properties v1 (Irmi.net/the-specification)



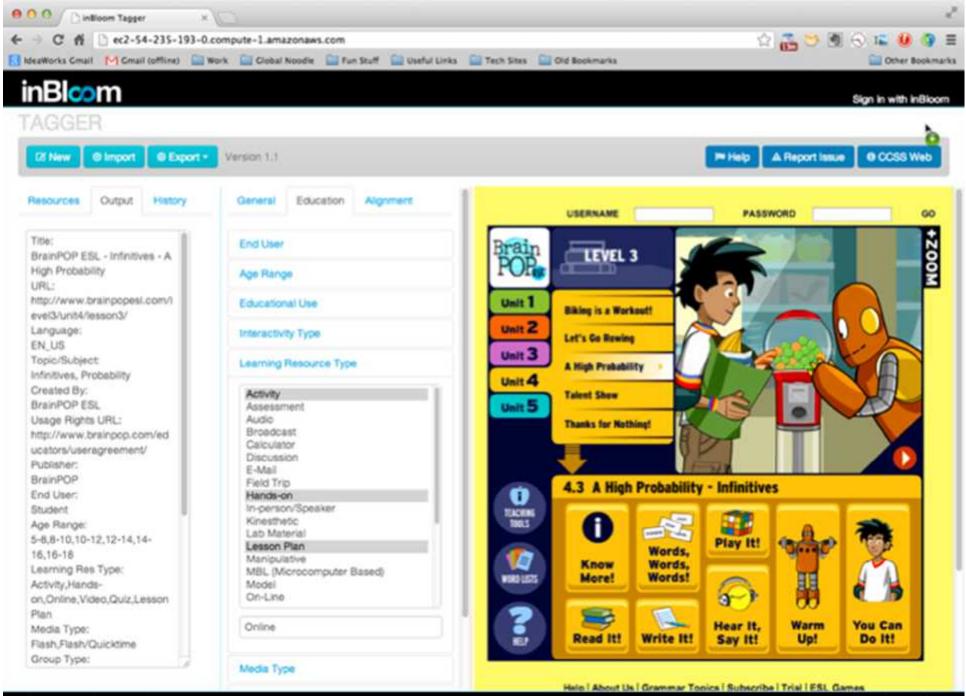
General Terms (Schema.org): Educational Terms:

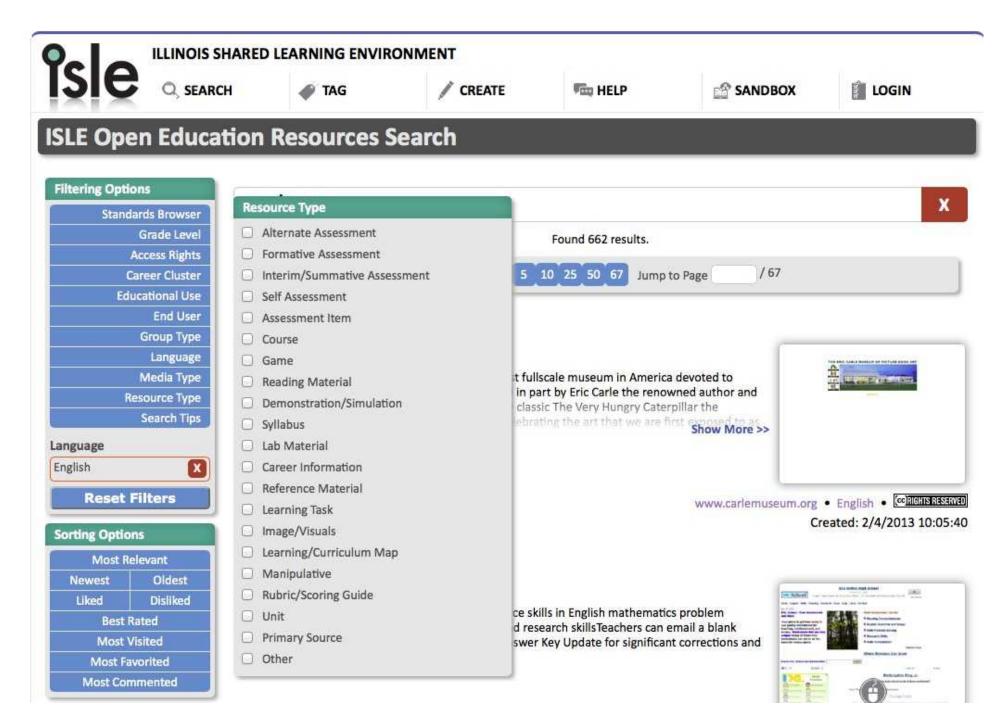
- •title/name
- •URL
- Description
- Image
- Topic
- created (date)
- Creator
- Publisher
- inLanguage
- Mediatype
- technologiesRequired
- technologiesRecommended
- Use RightsURL
- •is based on

- intendedEndUserRole
- educationalUse
- timeRequired
- typicalAgeRange
- interactivityType
- learningResourceType

Competency related:

- educational Alignment
- Description
- •URL
- Alignment Type
- educationalFramework
- targetDescription
- targetName
- targetURL







Take me back to the old version of FREE >

Search the Registry

Search

Federal Resources Only

Browse By Subject

- ► Arts & Music (2,028)
- ► Health & Phys Ed (138)
- Language Arts (896)
- Math (4,298)

- ► Science (62,262)
- U.S. History Topics (11,587)
- ► U.S. Time Periods (988)
- ► World Studies (981)

Browse By Standard

Multistate

- Common Core Mathematics (2,694)
- Council of Teachers of Mathematics (1,214)
- Geography Education Standards (1,797)
- Science Education Standards (25,555)

FEATURED RESOURCE

Ratios

Source: SRI International on behalf of The National Science Digital Library



TWITTER



running)







Sandbox Server

Welcome to your sandbox server. If you can read this, it means the server is up and running properly.

This sandbox expires in 3 days.

For more information about how to use your sandbox server, visit these links:

LRMI

- The 1.1 Specification
- LRMI Publisher FAQ
- Creative Commons FAQ about LRMI
- LRMI Google Group (and discussion list)

Learning Registry

- Learning Registry for Publishers
- Learning Registry for Developers
- Learning Registry Getting Started Wiki
- LR Technical Specification Document

Learning Resource Metadata Initiative » Blog

- Save the Date: Free LRMI Webinar Set for November 20
- Looking Back, Looking Forward
- States, Districts See Value of LRMI Tagging

From Initiative to Consortium



Gates Foundation funded to International Consortium

DRAFT BYLAWS

OF THE

LEARNING RESOURCE METADATA INITIATIVE CONSORTIUM

OCTOBER 2013

DRAFT 1 FOR REVIEW



All about Shifting



Move from...

Resource to Learning
Institution to Learner
Media to Engagement
Adopted to Discovered



What About Accessibility?

Addressing the needs of ALL Students

Discover Learning Resources based on disability needs and learner preferences

- Compatible with AT, WCAG guidelines
- Leverage MathML, tactile graphics and image descriptions
- Have closed-captioned video

Leveraging Access For All



- Gates Foundation funded Benetech to develop a Schema.org proposal for Accessibility Metadata that would be complementary to LRMI
- Benetech assembled a broad Working Group of experts
 - AEP (LRMI), APH, Dublin Core, EDItEUR (ONIX),
 Gooru Learning, IMS Global, IDRC, NCAM, SRI
 (Learning Registry)
- Proposal submitted to Schema.org in April 2013
 - Influenced heavily by IMS Global Access for All
 - Released under a Creative Commons BY-SA License

Accessibility Properties



Access Mode

 auditory, textual, visual, colorDependent

Media Feature

 alternativeText, longdescription, MathML, caption, transcript

Alternatives

· hasAdaptation, isAdapatationOf

Access Hazard

flashing, motionSimulation, sound

Others

 displayTransformability, AccessAPI, controlFlexibility

http://a11ymetadata.org



Application to Books Part 1

```
<span itemscope="" itemtype="http://schema.org/Book">
<meta itemprop="accessMode" content="textual"/>
<meta itemprop="accessMode" content="visual"/>
<meta itemprop="mediaFeature"</pre>
content="longDescription"/>
<meta itemprop="mediaFeature"</pre>
content="structuralNavigation"/>
<meta itemprop="mediaFeature" content="MathML"/>
```



Application to Books Part 2

```
<meta itemprop="hasAdaptation"
content="https://www.bookshare.org/...&downloadFormat=DA
ISY_TEXT_ONLY"/>
<meta itemprop="hasAdaptation"
content="https://www.bookshare.org/...&downloadFormat=BR
F"/>
...
```



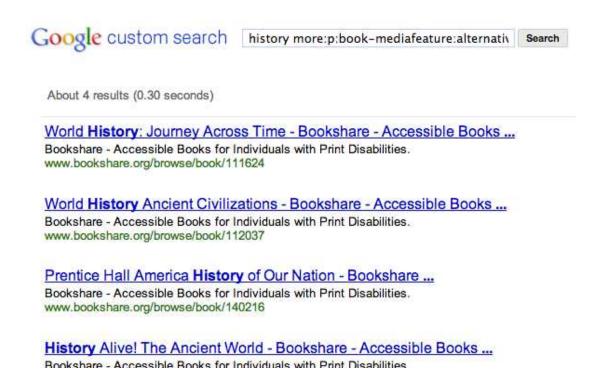
Application to Books Part 3

```
<div class="adaptationLinks">
<span itemscope itemtype="http://schema.org/Book">
<meta itemprop="isAdaptationOf"</pre>
content="https://www.bookshare.org/browse/book/679044"
/>
<meta itemprop="bookFormat" content="EBook"/>
<meta itemprop="accessMode" content="auditory"/>
<meta itemprop="mediaFeature"</pre>
content="structuralNavigation"/>
<meta itemprop="encodingFormat" content="MP3"/>
<meta itemprop="encodingFormat" content="Audio"/>
<a itemprop="url" href="https://someurl">Audio</a>
</span>
```

The End Result



Search for "history" titles on Bookshare and filter by presence of image descriptions:



http://www.a11ymetadata.org/bookshare-tags-over-195000-titles-with-accessibility-metadata/





```
<div itemscope="" itemtype="http://schema.org/Movie">
<meta itemprop="accessMode" content="visual"/>
<meta itemprop="accessMode" content="auditory"/>
<meta itemprop="mediaFeature"</pre>
content="audioDescription"/>
<meta itemprop="mediaFeature" content="captions"/>
YOUR VIDEO HTML CODE HERE
</div>
```



Application to Images

```
<span itemscope=""</pre>
itemtype="http://schema.org/ImageObject">
<meta itemprop="accessMode" content="visual"/>
<meta itemprop="accessMode" content="tactile"/>
<meta itemprop="accessMode" content="auditory"/>
<meta itemprop="mediafeature"</pre>
content="tactileGraphic"/>
<meta itemprop="mediafeature" content="braille"/>
<meta itemprop="learningResourceType"</pre>
content="illustration" />
<meta itemprop="typicalAgeRange" content="15-16" />
TMAGE HTML MARKUP HERE
</span>
```

Free.Ed.Gov



Filter

Active Filters:

Primary Doc X
By content type:

Video	Primary Doc
Animation	Photo
By accessibility features:	
Description	BRF
MP3	DAISY
EPUB 3	

Adoption Status



- In active discussion with Schema.org reps
- Bookshare book detail pages are tagged
- Learning Registry integration with <u>Free.Ed.gov</u>
 - Bookshare and Khan Academy videos
- EPUB 3.0.1 support Schema.org metadata
 - which includes LRMI and soon accessibility properties
- In discussions with eBook publishers and distributors
- Exploring use for accessible image registry

Resources and Contact Info



- http://schema.org
- http://lrmi.net
- http://a11ymetadata.org
- http://bornaccessible.org

#a11ymetadata

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Project Twitter Hashtags:
#LRMI