

schema.org

implementation introduction

Kavi Goel, Google
Sept 21, 2011

Outline

- Schema.org basics
- Types of web page content supported
- Lists, dates, and implicit information
- Common challenges

Google



banana bread recipes



Advanced search

Search

About 5,210,000 results (0.40 seconds)

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San Francisco, CA

Change location

Ingredients

bananas
baking soda
walnuts
pecans
vanilla extract
baking powder
cinnamon
sour cream

Yes No

[Banana Banana Bread Recipe - Allrecipes.com](#)

[allrecipes.com/recipe/banana-banana-bread/](#) - Cached



★★★★★ 6501 reviews - 1 hr 20 mins - 229 cal

Why compromise the banana flavor? This **banana bread** is moist and delicious with loads of banana flavor! Friends and family love my **recipe** and say it's by far ...

[Banana Bread I Recipe](#) - [Brown Sugar Banana Nut Bread I](#) - [Nutty Banana Bread](#)



[Banana Bread Recipes - Allrecipes.com](#)

[allrecipes.com > Recipes > Bread](#) - Cached

Looking for the perfect **banana bread recipe**? Allrecipes has more than 120 ...

[Janet's Rich Banana Bread Recipe - Allrecipes.com](#)

[allrecipes.com/recipe/janets-rich-banana-bread/](#) - Cached



★★★★★ 1327 reviews - 1 hr 10 mins - 218 cal

Sour cream guarantees a moist and tender **loaf**. And **bananas** are sliced ...



[Show more results from allrecipes.com](#)

[Banana Bread Recipe | Simply Recipes](#)

[simplyrecipes.com/recipes/banana_bread/](#) - Cached



1 hr 5 mins

Jun 15, 2006 – Moist and delicious classic **banana bread recipe**. Easy to make, no need for a mixer. Ripe bananas, butter, sugar, egg, vanilla, baking soda, ...

[Banana Nut Muffins](#) - [Orange Bread](#) - [Glazed Lemon Bread](#)



[Banana Bread Recipe :: Food Network](#)

[www.foodnetwork.com > Recipes > Baking > Bread](#) - Cached



★★★★★ 487 reviews - 3 hrs 10 mins

3 days ago – Food Network invites you to try this **Banana Bread recipe**.



Yahoo

YAHOO!

cascal mountain view

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18,600 results

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Cascal

cascalrestaurant.com

(650) 940-9500

400 Castro St, Mountain View, CA ▾

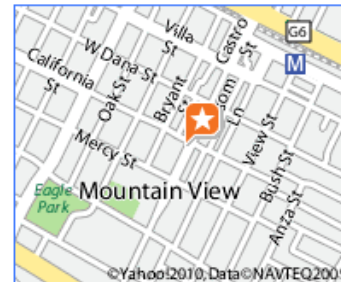
[Menu](#) | [More Info](#) »

★★★★★ (65)

[65 Reviews](#) - I am so sick of people suggesting Cascal who have never been there. Don't let the decor fool you - that was done by someone with taste... [more](#)

[Make Reservation](#)

[Compare Similar](#)



[Cascal - Welcome to the Journey](#)

www.cascalrestaurant.com

[Tapas](#)

[Special](#)

[Lunch](#)

[Contact](#)

[Music And](#)

[More results from cascalrestaurant.com](#) »

[Cascal - Mountain View, CA](#)

★★★★★ (1237 Reviews) - (650) 940-9500 - Mountain View, CA

(650) 940-9500 · 400 Castro St · "The prosciutto wrapped dates and mushroom empanadas are amazing."

www.yelp.com/biz/cascal-mountain-view - [Cached](#)

[More results from yelp.com](#) »

[Cascal Restaurant - Contact - Cascal - Welcome to the Journey](#)

Cascal is centrally located at the corner of California and Castro streets in the heart of downtown Mountain View, California.

www.cascalrestaurant.com/about_contact.asp - [Cached](#)



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avatar reviews

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Avatar - Rotten Tomatoes

It might be more impressive on a technical level than as a piece of storytelling, but **Avatar** reaffirms James Cameron's singular gift for imaginative, absorbing ...

www.rottentomatoes.com/m/avatar

Rotten Tomatoes
83%
279 reviews

Avatar :: rogerebert.com :: Reviews

Jake Sully Sam Worthington Neytiri Zoe Saldana Grace Sigourney Weaver Col. Miles Quaritch Stephen Lang Trudy Chacon Michelle Rodriguez

rogerebert.suntimes.com/apps/pbcs.dll/article?AID=/20091211/REVIEWS/912119998

Avatar Review

Avatar Review Poetry :: Prose :: **Reviews** :: Interviews :: Art. Home; About; Submissions; Index of Contributors; Current Issue. AV13: Summer 2011; Past Issues. AV12: Summer 2010

www.avatarreview.net

Avatar Review :: Movies :: Reviews :: Paste

Never before have so many cynics wanted to hate a movie, and never have they been so thoroughly thwarted, as with James Cameron's **Avatar**. I had more than my share of ...

www.pastemagazine.com/articles/2009/12/avatar-review.html

Avatar Reviews, Ratings, Credits, and More at Metacritic

Expert score: 83/100 · PG-13 · 162 min · 35 reviews

Jake Sully is a former Marine confined to a wheelchair. But despite his broken body, Jake is still a warrior at heart. He is recruited to travel light years to the ...

www.metacritic.com/redirectcritic?m=avatar


By understanding the structured data on a web page, search engines can better present that web page to users.


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Schema.org markup allows you to describe the content on your site in a machine-understandable way using HTML5/microdata.

Schema.org enables you to describe the **type** of item(s) on your pages and **properties** of those items.

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REI Traverse 30 Pack

Product Rating  [Read 79 Reviews](#) [Write a Review](#)


\$79.50 This item ships for free! [Learn more](#)

Item # 778465


Choose your Color/Size

1 Quantity

[add to cart](#) [add to wish list](#)

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CAYENNE PEPPER



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ONLY AT REI

REI Traverse 30 Pack [Name and brand](#)

Product Rating [Read 79 Reviews](#) [User review info](#)

\$79.50 [This item ships for free! Learn more](#) **Price**

Item # 778465

Choose your Color/Size

1 Quantity

[add to cart](#) [add to wish list](#)

This item may be available in your local REI store. [find in store](#)

CAYENNE PEPPER

[ZOOM](#)

Breadcrumbs

Product image

Name and brand
User review info
Price

This page is about a movie.



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The Internet Movie Database

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Avatar (2009) Top 500

PG-13 162 min - [Action](#) | [Adventure](#) | [Fantasy](#)
- [18 December 2009 \(USA\)](#)

★★★★★ **8.1/10**

Users: (354,477 votes) [2,834 reviews](#) | Critics: [535 reviews](#)
Metascore: [83/100](#) (based on [35 reviews](#) from Metacritic.com)

A paraplegic marine dispatched to the moon Pandora on a unique mission becomes torn between following his orders and protecting the world he feels is his home.

Director: [James Cameron](#)
Writer: [James Cameron](#)
Stars: [Sam Worthington](#), [Zoe Saldana](#) and [Sigourney Weaver](#)

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This page is about a movie.

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PG-13 162 min - [Action](#) | [Adventure](#) | [Fantasy](#)
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Name
Movie rating
Genres
Release date

User ratings

Description

Director and cast

Movie trailer link

Movie image

Basic HTML for Avatar page

```
<div>
  

  <h1>Avatar</h1> (2009)

  <div>
    Rated 8/10
    Users: 354,477 votes
  </div>

  <span>A paraplegic marine dispatched to the moon
  Pandora on a unique mission becomes torn...</span>

  Director:
  <a href="james-cameron.html">James Cameron</a>

  Stars:
  <a href="sam-worthington.html">Sam Worthington</a>,
  <a href="zoe-saldana.html">Zoe Saldana</a> and
  <a href="sigourney-weaver.html">Sigourney Weaver</a>

  <a href="avatar-trailer.html">Watch Trailer</a>

</div>
```

itemscope and itemtype

```
<div itemscope itemtype="http://schema.org/Movie">
  

  <h1>Avatar</h1> (2009)

  <div>
    Rated 8/10
    Users: 354,477 votes
  </div>

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  Stars:
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  <a href="zoe-saldana.html">Zoe Saldana</a> and
  <a href="sigourney-weaver.html">Sigourney Weaver</a>

  <a href="avatar-trailer.html">Watch Trailer</a>

</div>
```

Adding itemprop

```
<div itemscope itemtype="http://schema.org/Movie">
  

  <h1 itemprop="name">Avatar</h1> (2009)

  <div itemprop="aggregateRating">
    Rated 8/10
    Users: 354,477 votes
  </div>

  <span itemprop="description">A paraplegic marine dispatched to
  the moon Pandora on a unique mission becomes torn...</span>

  Director:
  <a href="james-cameron.html" itemprop="director">James Cameron</a>

  Stars:
  <a href="sam-worthington.html" itemprop="actors">Sam Worthington</a>,
  <a href="zoe-saldana.html" itemprop="actors">Zoe Saldana</a> and
  <a href="sigourney-weaver.html" itemprop="actors">Sigourney Weaver</a>

  <a href="avatar-trailer.html" itemprop="trailer">Watch Trailer</a>

</div>
```

Adding itemprop

```
<div itemscope itemtype="http://schema.org/Movie">  
  
```

```
<h1 itemprop="name">Avatar</h1> (2009)
```

```
<div itemprop="aggregateRating">
```

```
  Rated 8/10
```

```
  Users: 354,477 votes
```

```
</div>
```

```
<span itemprop="description">A paraplegic marine dispatched to  
the moon Pandora on a unique mission becomes torn...</span>
```

```
Director:
```

```
<a href="james-cameron.html" itemprop="director">James Cameron</a>
```

```
Stars:
```

```
<a href="sam-worthington.html" itemprop="actors">Sam Worthington</a>,&br/><a href="zoe-saldana.html" itemprop="actors">Zoe Saldana</a> and
```

```
<a href="sigourney-weaver.html" itemprop="actors">Sigourney Weaver</a>
```

```
<a href="sigourney-weaver.html" itemprop="actors">Sigourney Weaver</a>
```

```
<a href="avatar-trailer.html" itemprop="trailer">Watch Trailer</a>
```

```
</div>
```


In schema.org, properties can themselves be items

```
<div itemscope itemtype="http://schema.org/Movie">
  

  <h1 itemprop="name">Avatar</h1> (2009)

  <div itemprop="aggregateRating"
    itemscope itemtype="http://schema.org/AggregateRating">
    Rated 8/10
    Users: 354,477 votes
  </div>

  <span itemprop="description">A paraplegic marine dispatched to
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</div>
```

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```
<div itemscope itemtype="http://schema.org/Movie">
  

  <h1 itemprop="name">Avatar</h1> (2009)

  <div itemprop="aggregateRating"
    itemscope itemtype="http://schema.org/AggregateRating">
    Rated <span itemprop="ratingValue">8</span> / <span itemprop="bestRating">10</span>
    Users: <span itemprop="ratingCount">354,477</span> votes
  </div>

  <span itemprop="description">A paraplegic marine dispatched to
  the moon Pandora on a unique mission becomes torn...</span>

  Director:
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  <a href="sigourney-weaver.html" itemprop="actors">Sigourney Weaver</a>

  <a href="avatar-trailer.html" itemprop="trailer">Watch Trailer</a>

</div>
```

The full markup

```
<div itemscope itemtype="http://schema.org/Movie">
  

  <h1 itemprop="name">Avatar</h1> (2009)

  <div itemprop="aggregateRating"
    itemscope itemtype="http://schema.org/AggregateRating">
    Rated <span itemprop="ratingValue">8</span> / <span itemprop="bestRating">10</span>
    Users: <span itemprop="ratingCount">354,477</span> votes | 2,834 reviews
  </div>

  <span itemprop="description">A paraplegic marine dispatched to
  the moon Pandora on a unique mission becomes torn...</span>

  Director:
  <a href="james-cameron.html" itemprop="director">James Cameron</a>

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  <a href="sigourney-weaver.html" itemprop="actors">Sigourney Weaver</a>

  <a href="avatar-trailer.html" itemprop="trailer">Watch Trailer</a>

</div>
```

schema.org item types

Organization of <http://schema.org>:

- One page per item type. Page lists item properties and example markup.
- Item types are arranged in a hierarchy. You can also find a list of [common item types](#) and a [full list](#) of supported types.

schema.org item types

Item types of broad interest on many websites:

- [AggregateRating](#) and [Review](#)
- [Offer](#), [AggregateOffer](#), and [Product](#)
- [VideoObject](#)
- [WebPage](#)



schema.org item types

- Schema.org already covers a lot of types and properties, but more can be added using the [extension mechanism](#)

Special cases

- Lists of items: use the *url* property
- Dates, times, and implicit information

List of items

Google   [Advanced search](#)

Search About 1,910,000 results (0.11 seconds)

Everything Ad

Images

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▶ [Oracle Arena Tickets | Oracle.ArenaOakland.com](http://Oracle.ArenaOakland.com) 
oracle.arenaoakland.com
Official **Ticket** Source Online For **Oracle Arena Tickets** in Oakland, CA

[ORACLE Arena & Oakland-Alameda County Coliseum](http://www.coliseum.com/) 
www.coliseum.com/ - Cached
The Oakland Alameda County **Arena** & Oakland-Alameda County Coliseum are home to the Oakland ... **Tickets** for this event are \$25.00 and on sale now. ...
[Events](#) - [Seating Map](#) - [Contact](#) - [Parking Fees](#)

[Box Office - ORACLE Arena & Oakland-Alameda County Coliseum](http://www.coliseum.com/info/boxoffice.php) 
www.coliseum.com/info/boxoffice.php - Cached
Monday - Friday: 10:00 a.m. - 5:00 p.m. (**Arena** Box Office will be closed ...

[Events - ORACLE Arena & Oakland-Alameda County Coliseum](http://www.coliseum.com/events/list.php) 
www.coliseum.com/events/list.php - Cached
The Oakland Alameda County **Arena** & Oakland-Alameda County Coliseum are ...
[+](#) [Show more results from coliseum.com](#)

[Oracle Arena Oakland, CA tickets. Directions, seating chart, events ...](http://www.ticketmaster.com/Oracle-Arena-tickets-Oakland/venue/229399) 
www.ticketmaster.com/Oracle-Arena-tickets-Oakland/venue/229399 - Cached
Results 1 - 15 of 23 – Find and buy **Oracle Arena** Oakland, CA **tickets** at Ticketmaster.com.
Fri, Sep 23 [Marc Anthony](#)
Sat, Sep 24 [Lovevolution After Party](#)
Sat, Oct 1 [Golden State Warriors](#)

[Oracle Arena Tickets - Oracle Arena Schedule at StubHub!](http://www.stubhub.com/oracle-arena-tickets/) 
www.stubhub.com/oracle-arena-tickets/ - Cached
Oracle Arena Tickets - Buy and sell Oracle Arena event tickets and check out the Oracle Arena schedule in Oakland, CA at StubHub!
Fri, Sep 23 [Marc Anthony Tickets](#)
Tue, Oct 4 [How Sweet the Sound Tickets](#)
Tue, Oct 18 [Phoenix Suns at Golden State Warriors Tickets \(Preseason\)](#)

List of items

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When

[All available dates](#)

Events

- [Golden State Warriors](#) (43 events)
- [Lord of The Rings Symp...](#) (2 events)
- [Michael Jackson THE IM...](#) (2 events)
- [Foo Fighters](#) (1 event)
- [How Sweet the Sound](#) (1 event)
- [All matching events](#) >

Oracle Arena

Event	Date and time	Location		
Marc Anthony Tickets	Fri, 09/23/11 8:00 p.m.	Oracle Arena Oakland, CA	Sell	See tickets Priced from: \$70 117 tickets left
How Sweet the Sound Tickets	Tue, 10/04/11 7:30 p.m.	Oracle Arena Oakland, CA	Sell	See tickets Priced from: \$35 93 tickets left
Phoenix Suns at Golden State Warriors Tickets (Preseason)	Tue, 10/18/11 7:30 p.m.	Oracle Arena Oakland, CA	Sell	See tickets Priced from: \$24 162 tickets left
Foo Fighters Tickets	Wed, 10/19/11 7:00 p.m.	Oracle Arena Oakland, CA	Sell	See tickets Priced from: \$76 254 tickets left
The Lord of the Rings In Concert: The Fellowship of the Ring Tickets	Sat, 10/22/11 2:00 p.m.	Oracle Arena Oakland, CA	Sell	See tickets Priced from: \$92 24 tickets left
Lord of the Rings In Concert: The Fellowship of the Rings Tickets	Sat, 10/22/11 8:00 p.m.	Oracle Arena Oakland, CA	Sell	See tickets Priced from: \$67 40 tickets left
Portland Trail Blazers at Golden State Warriors Tickets (Preseason)	Thu, 10/27/11 7:30 p.m.	Oracle Arena Oakland, CA	Sell	See tickets Priced from: \$24

Stubhub HTML

```
<tr>
  <td><a href="marc-anthony.html">Marc Anthony</a></td>
  <td>Fri, 9/23/11, 8:00pm</td>
  <td>Oracle Arena, Oakland CA</td>
</tr>
```

```
<tr>
  <td><a href="how-sweet.html">Phoenix Suns</a></td>
  <td>Tue, 10/18/11, 7:30pm</td>
  <td>Oracle Arena, Oakland CA</td>
</tr>
```

```
<tr>
  <td><a href="foo-fighters.html">Foo Fighters</a></td>
  <td>Wed, 10/19/11, 7:00</td>
  <td>Oracle Arena, Oakland CA</td>
</tr>
```

...

Stubhub HTML with markup

```
<tr itemscope itemtype="http://schema.org/Event">  
  <td><a href="marc-anthony.html">Marc Anthony</a></td>  
  <td>Fri, 9/23/11, 8:00pm</td>  
  <td>Oracle Arena, Oakland CA</td>  
</tr>
```

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<tr itemscope itemtype="http://schema.org/Event">  
  <td><a href="how-sweet.html">Phoenix Suns</a></td>  
  <td>Tue, 10/18/11, 7:30pm</td>  
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<tr itemscope itemtype="http://schema.org/Event">  
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  <td>Wed, 10/19/11, 7:00</td>  
  <td>Oracle Arena, Oakland CA</td>  
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```

...

Stubhub HTML with markup

```
<tr itemscope itemtype="http://schema.org/Event">
  <td itemprop="name">
    <a href="marc-anthony.html">Marc Anthony</a></td>
  <td>Fri, 9/23/11, 8:00pm</td>
  <td itemprop="location">Oracle Arena, Oakland CA</td>
</tr>
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  <td itemprop="location">Oracle Arena, Oakland CA</td>
</tr>
```

...

The *url* property

```
<tr itemscope itemtype="http://schema.org/Event">
  <td itemprop="name">
    <a href="marc-anthony.html" itemprop="url">Marc Anthony</a></td>
  <td>Fri, 9/23/11, 8:00pm</td>
  <td itemprop="location">Oracle Arena, Oakland CA</td>
</tr>
```

```
<tr itemscope itemtype="http://schema.org/Event">
  <td itemprop="name">
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  <td>Tue, 10/18/11, 7:30pm</td>
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  <td>Wed, 10/19/11, 7:00</td>
  <td itemprop="location">Oracle Arena, Oakland CA</td>
</tr>
```

...

Dates and times

```
<tr itemscope itemtype="http://schema.org/Event">
  <td itemprop="name">
    <a href="marc-anthony.html" itemprop="url">Marc Anthony</a></td>
    <td>Fri, 9/23/11, 8:00pm</td>
    <td itemprop="location">Oracle Arena, Oakland CA</td>
</tr>
```

```
<tr itemscope itemtype="http://schema.org/Event">
  <td itemprop="name">
    <a href="how-sweet.html" itemprop="url">Phoenix Suns</a></td>
    <td>Tue, 10/18/11, 7:30pm</td>
    <td itemprop="location">Oracle Arena, Oakland CA</td>
</tr>
```

```
<tr itemscope itemtype="http://schema.org/Event">
  <td itemprop="name">
    <a href="foo-fighters.html" itemprop="url">Foo Fighters</a></td>
    <td>Wed, 10/19/11, 7:00</td>
    <td itemprop="location">Oracle Arena, Oakland CA</td>
</tr>
```

...

Dates and times

Consider this date: 11/6/10

Is it...

- November 6, 2010?
- June 11, 2010?
- June 10, 2011?

Dates and times

Dates can be represented in a normalized way:
YYYY-MM-DD

2010-06-11 maps unambiguously to:

– June 11, 2010

Dates and times

Dates can be represented in a normalized way:
YYYY-MM-DD

2010-06-11 maps unambiguously to:

– June 11, 2010

The `time` HTML element is used for dates and times:

```
<time datetime="2010-06-11">June 11</time>
```

Dates and times

Times can also be unambiguously represented using the ISO date/time standard:

- add a “T” (for “time”)
- Use 24:00 time with *hh:mm*

June 11, 2010 8:30pm becomes:

2010-06-11T20:30


Back to Stubhub


```
<tr itemscope itemtype="http://schema.org/Event">
  <td itemprop="name">
    <a href="marc-anthony.html" itemprop="url">Marc Anthony</a></td>
  <td><time itemprop="startDate" datetime="2011-09-23T20:00">
    Fri, 9/23/11, 8:00pm</time></td>
  <td itemprop="location">Oracle Arena, Oakland CA</td>
</tr>
```

```
<tr itemscope itemtype="http://schema.org/Event">
  <td itemprop="name">
    <a href="how-sweet.html" itemprop="url">Phoenix Suns</a></td>
  <td><time itemprop="startDate" datetime="2011-10-18T19:30">
    Tue, 10/18/11, 7:30pm</time></td>
  <td itemprop="location">Oracle Arena, Oakland CA</td>
</tr>
```

```
<tr itemscope itemtype="http://schema.org/Event">
  <td itemprop="name">
    <a href="foo-fighters.html" itemprop="url">Foo Fighters</a></td>
  <td><time itemprop="startDate" datetime="2011-10-19T19:00">
    Wed, 10/19/11, 7:00</time></td>
  <td itemprop="location">Oracle Arena, Oakland CA</td>
</tr>
```

The meta tag

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The meta and link tags

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Breadcrumbs

Product image

Name and brand
User review info
Price

The meta and link tags

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Product Rating ★ ★ ★ ★ ★ [Read 79 Reviews](#) [Write Review](#)

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Item # 778465

Choose your Color/Size

1 Quantity

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This item may be available in your local REI store. [find in store](#)

Breadcrumbs

Product image

Name and brand
User review info
Price

Implicit properties: Product rating = 4.5 / 5
price currency = dollars

The meta tag

Implicit properties using meta

```
<meta itemprop="ratingValue" content="4.5" />
```

```
<meta itemprop="priceCurrency" content="USD" />
```

Schema.org allows the meta tag to be used not just in the HTML <head> section but in the <body> as well.

REI

```
<div>  
    
  
  <h1>REI Traverse 30 Pack</h1>  
  
  <div>  
    Product rating:  
      
    <span>79</span> reviews  
  </div>  
  
  <span>$79.50</div>  
  
</div>
```

...

REI

```
<div itemscope itemtype="http://schema.org/Offer">  
    
  
  <h1 itemprop="name">REI Traverse 30 Pack</h1>  
  
  <div itemprop="aggregateRating"  
    itemscope itemtype="http://schema.org/AggregateRating">  
    Product rating:  
      
    <span itemprop="reviewCount">79</span> reviews  
  </div>  
  
  <span itemprop="price">$79.50</div>  
  
</div>
```

...

REI

```
<div itemscope itemprop="http://schema.org/Offer">
  

  <h1 itemprop="name">REI Traverse 30 Pack</h1>

  <div itemprop="aggregateRating"
    itemscope itemtype="http://schema.org/AggregateRating">
    Product rating:
    
    <meta itemprop="ratingValue" content="4.5" />
    <span itemprop="reviewCount">79</span> reviews
  </div>

  <span itemprop="price">$79.50</div>
  <meta itemprop="priceCurrency" content="USD" />

</div>
```

...

The link tag

Implicit properties using link

```
<div>
```

```
  You can specify dates in an unambiguous way using  
  the ISO 8601 standard.
```

```
  <link itemprop="url"  
    href="http://wikipedia.org/wiki/ISO_8601" />
```

```
</div>
```

Common questions

- How much should I mark up?
- How do I minimize page load times given the additional markup on my page?

Common questions

- How much should I mark up?

No hard and fast rules, so use judgment. Choose the information that is most important in describing the items on your pages.

- How do I minimize page load times given the additional markup on my page?

Page load time generally hasn't been an issue for sites who have implemented markup. Markup tends to compress well using tools like Gzip.

Gotchas

- Nested items
- Inline markup vs hidden text
- Corner cases – linebreaks, missing data, ...

Tip: use the [rich snippets testing tool](#) to test your markup

Applications of this data

- Search engine improvements:
 - Bing Tiles, Yahoo enhanced results, Google rich snippets
 - Many potential applications of the data, i.e. Google Recipe View
- Sharing data across an industry

Thank you!