



CSS containers: making websites accessible to disabled users

https://johnrhudson.me.uk/HTML_CSS.html



Personal background

- Page design as a student journalist
- Using a microcomputer to save time
- Creating quality documents with vector graphics
- Supporting a blind student through using a computer

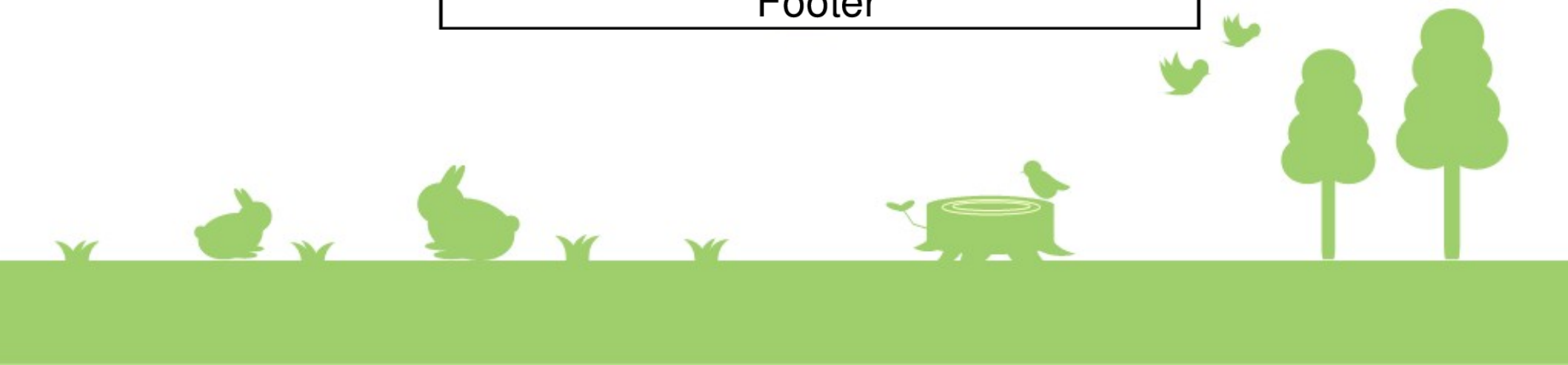
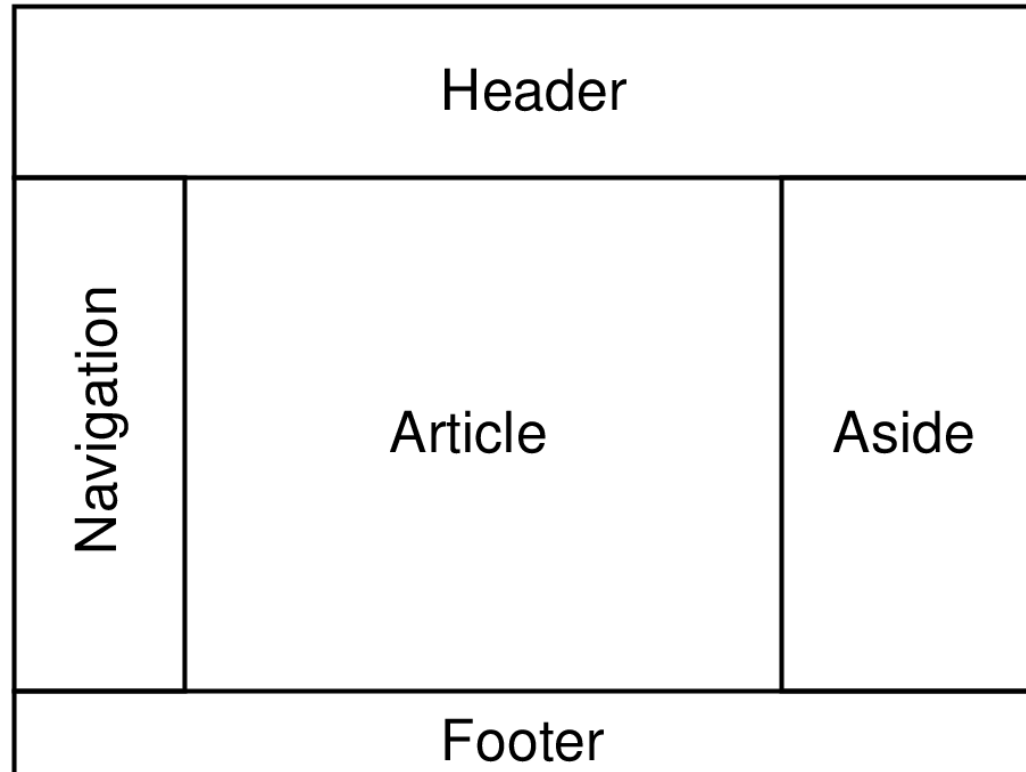


Wider context

- Cascading Style Sheets proposed in 1994
- Adopted by Microsoft, Netscape and Opera
- Fell out of favour in the first decade of the 21st century
- Re-adopted as part of the re-development of HTML in 2011



HTML Semantic elements



Why use the semantic elements?

- Screens became oblong rather than nearly square
- Putting `<nav>` and `<aside>` on either side of the `<article>` content reduces the distance the eye needs to jump back to the start of the next line
- HTML is more readable and easier to maintain



Web Content Accessibility

- Web Content Accessibility Guidelines published by W3C in 2008
- Development of WAI-ARIA attributes begins
- WAI-ARIA attributes accepted by W3C in 2014
- Some HTML elements redefined to contribute to accessibility



Users with visual disabilities

- Browsers place elements on the page in the order in which they appear in the HTML
- So users with visual disabilities normally hear the navigation menu before any content
- Workaround of adding a 1px link – invisible to sighted users – to jump to the main content



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Historian, Author, BBC New Generation Thinker 2015

(BUTTON) Menu

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 - + [India Gallery 2: Humayun's Tomb, Delhi](#)
 - + [India Gallery 3: Jantar Mantar, Delhi](#)
 - + [India Gallery 4: Qutb Minar complex, Delhi](#)
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HTML and CSS containers

- At first, relaunched HTML offered no way of securely placing elements within a web page
- Screenreaders still presented the items in the `<nav>` element before the `<article>` content
- `<main>` element added for CSS containers
- CSS flex and grid containers introduced



CSS Flexible Box Layout

```
<!DOCTYPE html>
<header>...</header>
<main>
  <article>...</article>
  <nav>...</nav>
  <aside>...</aside>
</main>
<footer>...</footer>
```



This layout can be easily achieved with flex layout:

```
main { display: flex; }
main > article { order: 2; min-width: 12em; flex: 1; }
main > nav     { order: 1; width: 200px; }
main > aside   { order: 3; width: 200px; }
```

A CSS File

```
body {font: normal 100% serif;}
header {border-top: medium solid #C71585; border-right: medium solid #C71585; border-left: medium solid #C71585;
background: transparent url("graphics/Topback_new.png") no-repeat; padding-right: 1em;}
h1 {font: bold 180% sans-serif; text-align: right; color: gold;}
h2 {font: bold 160% sans-serif; text-align: right; color: gold;}
h3 {font: bold 150% sans-serif; text-align: center; color: #C71585;}
h4 {font: bold 120% sans-serif; color: #C71585;}
h5 {font: bold 100% sans-serif; color: #C71585;}
main {display: flex;}
main>article {order: 2; width: 58%; padding-left: 3em; padding-right: 3em;}
main>nav {order: 1; width: 19%; padding: 1em;}
main>aside {order: 3; width: 19%; padding: 1em;}
section.grid {display: grid; grid-template-columns: auto auto; justify-content: space-around;}
*.footer {font: normal 80% sans-serif; text-align: center;}
p.first {font: normal 120% serif;}
p.right {font: italic 100% serif; text-align: right;}
li.nav {font: bold 120% cursive; list-style: none; line-height: 150%}
li.aside {font: bold 100% sans-serif; list-style: none; line-height: 150%}
li.alpha {list-style: lower-alpha;}
li.roman {list-style: lower-roman;}
td {padding-right: 1em; vertical-align: top;}
figure.left {float: left;}
figure.right {float: right;}
figcaption {text-align: center; font-style: italic;}
span {color: #C71585;}
sub, sup {font-size: 60%;}
```



Declaring a CSS flex container

```
main {display: flex;}
```

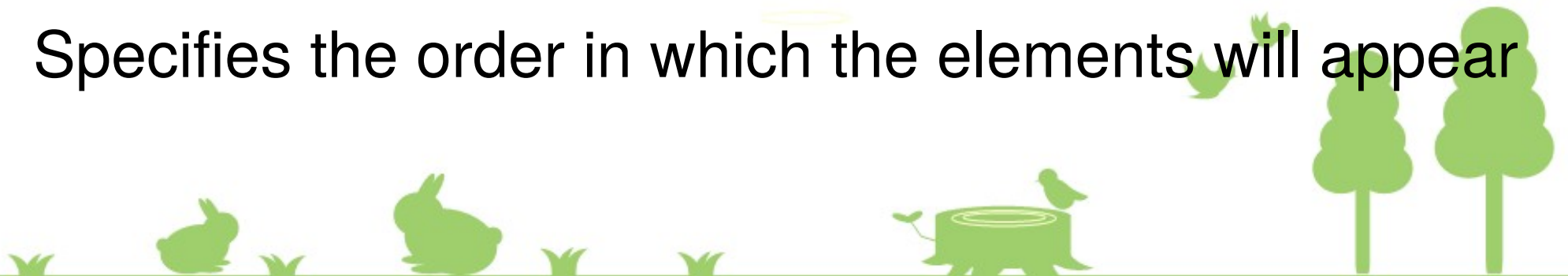
Declares that `<main>` holds a flex container

```
main>article {order: 2; width: 58%; padding-right: 3em; padding-left: 3em;}
```

```
main>nav {order: 1; width: 19%; padding: 1em;}
```

```
main>aside {order: 3; width: 19%; padding: 1em;}
```

Specifies the order in which the elements will appear



What the screenreader user hears

Heath Old Boys Association Welcome (p1

Heath Old Boys Association

Welcome

Welcome to the Heath Old Boys Association website

Heath Grammar School Crest

The Association exists to keep old boys of the former Heath Grammar School in touch with each other. Heath Grammar School ceased to exist as a separate entity in 1985 when it amalgamated with Crossley & Porter School to form Crossley Heath School. All three bodies have their separate associations for former pupils and it is therefore axiomatic that the Heath Old Boys Association will eventually come to an end when the last Old Heathen walks up that Free School Lane in the sky.

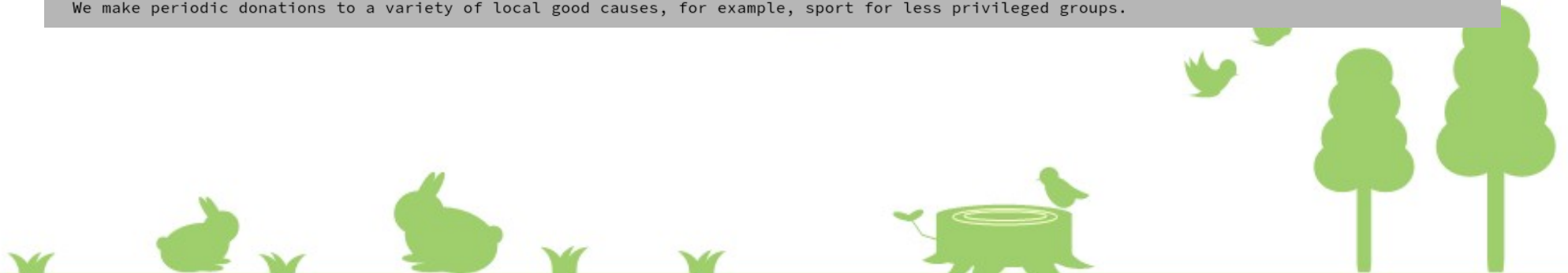
If you are a Heath Old Boy but not a member of the Association, please [join us](#) in order to support this website and the [charitable work](#) of the Association. If you are a member but have not yet updated your subscription, please go to the [Join us page](#) and find out what you need to do. Thank you.

When the site was originally set up in 2003 there were only 820 names on our newsletter database, which was probably out of date at the time, though it included some who lived abroad in countries as far apart as Argentina and South Korea. So it was hoped that a presence on the web would encourage more Old Boys to get in contact.

In the meantime the Association does all it can to help and support the new Crossley Heath School. We provide Prizes for Excellence in Sport for a girl and a boy each year and a Prize for A level Textiles and have made various donations to the school while a number of Heath Old Boys are on the board of governors but our true gift to them is over 400 years of history and tradition.

In 2014 it was agreed that Savile Park Primary School would begin to move into the old Heath Grammar School building in 2015 following refurbishment of the building.

We make periodic donations to a variety of local good causes, for example, sport for less privileged groups.



What the HTML code looks like

```
<!DOCTYPE html>
<html lang="en"/>
  <head>
    <meta charset="UTF-8"/>
    <title>Heath Old Boys Association Welcome</title>
    <base href="">
    <link rel="stylesheet" type="text/css" href="hoba.css"/>
    <meta name="author" content="John Robert Hudson" >
  </head>
  <body role="document">
    <header role="banner">
      <h1 role="heading">Heath Old Boys Association</h1>
      <br>
      <h2 role="heading">Welcome</h2>
      <br>
    </header>
    <main role="main">
      <article role="article">
        <h3 role="heading">Welcome to the Heath Old Boys Association website</h3>
        <figure class="left">
          
        </figure>
        <p class="first">The Association exists to keep old boys of the former Heath Grammar School in touch with each other. Heath Grammar School ceased to exist as a separate entity in 1985 when it amalgamated with Crossley Porter School to form Crossley Heath School. All three bodies have their separate associations for former pupils and it is therefore axiomatic that the Heath Old Boys Association will eventually come to an end when the last Old Heathe walks up that Free School Lane in the sky.</p>
        <p>If you are a Heath Old Boy but not a member of the Association, please <a href="content/Join.html" type="text/html" role="link">join us</a> in order to support this website and the <a href="content/Donations.html" type="text/html" role="link">charitable work</a> of the Association. If you are a member but have not yet updated your subscription, please go to the <a href="content/Join.html" type="text/html" role="link">Join us page</a> and find out what you need to do. Thank you.</p>
        <p>When the site was originally set up in 2003 there were only 820 names on our newsletter database, which was probably out of date at the time, though it included some who lived abroad in countries as far apart as Argen and South Korea. So it was hoped that a presence on the web would encourage more Old Boys to get in contact.</p>
        <p>In the meantime the Association does all it can to help and support the new Crossley Heath School. We provide Prizes for Excellence in Sport for a girl and a boy each year and a Prize for A level Textiles and have made various donations to the school while a number of Heath Old Boys are on the board of governors but our true gift to them is over 400 years of history and tradition.</p>
        <p>In 2014 it was agreed that Savile Park Primary School would begin to move into the old Heath Grammar School building in 2015 following refurbishment of the building.</p>
        <p>We make periodic donations to a variety of local good causes, for example, sport for less privileged groups.</p>
      </article>
    </main>
  </body>
</html>
```



What the webpage looks like



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[Heath History](#)

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Welcome to the Heath Old Boys Association website



The Association exists to keep old boys of the former Heath Grammar School in touch with each other. Heath Grammar School ceased to exist as a separate entity in 1985 when it amalgamated with Crossley & Porter School to form Crossley Heath School. All three bodies have their separate associations for former pupils and it is therefore axiomatic that the Heath Old Boys Association will eventually come to an end when the last Old Heathen walks up that Free School Lane in the sky.

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[Searching the website](#)

Recent additions

[Founder's Day Celebration:
Thursday, 18 June 2020 — NEW](#)
[HOBA Bowling Challenge:
Sunday, 10 May 2020](#)
[Illingworth, Kenneth 1920–2019](#)
[Christmas wishes 2019](#)
[Crossley Heath Prizewinners
2019](#)
[1950s Cricket Team](#)
[1958 Cricket Team](#)
[1956 Cricket Team](#)
[1955 School photo](#)
[1953 School photo](#)
[Wilson, Percy 1893–1977](#)
[1952/53 Rugby Team](#)



Declaring a CSS grid container

```
section.grid {display: grid; grid-template-columns: auto auto;  
justify-content: space-around;}
```

```
display: grid;
```

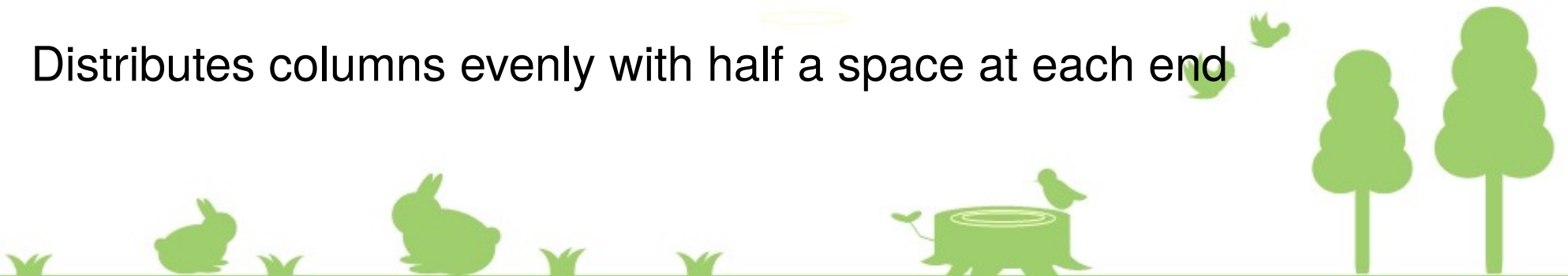
Declares that <section> holds a grid container

```
grid-template-columns: auto auto;
```

Declares that it is a column grid with two automatically sized columns

```
justify-content: space-around;
```

Distributes columns evenly with half a space at each end



CSS grid container columns



Heath Old Boys Association

Obituaries

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Obituaries

Old boys are invited to supplement the information in these obituaries with both facts about and memories of an Old Boy. Please send any such material to the [Editor](#).

- [Andrew, Charles Stuart 1927–2003](#)
- [Ashworth, Philip 1932–2012](#)
- [Atkinson, Russell 1948–2013](#)
- [Baigent, Peter Michael 1946–2017](#)
- [Bake, Malcolm 1936–2012](#)
- [Bamforth, Malcolm 1931–2003](#)
- [Barker, Eric Donald 1930–2012](#)
- [Barker, John 1932–2003](#)
- [Beveridge, Walter 1933–2018](#)
- [Birch, 'Bill' 1923–2003](#)
- [Blythe, JEM 1937–2017](#)
- [Brearley, Alan 1921–2016](#)
- [Brearley, James 1914–2011](#)
- [Bussey, William Malcolm 1941–2016](#)
- [Butler, Terence 1923–1999](#)

- [Johnson, Albert 1935–1999](#)
- [Johnston, George 1897–1917](#)
- [Kidd, Norman 1921–1997](#)
- [Kitchen, Leslie 1916–1998](#)
- [Knight, Lesley 1906–1990](#)
- [Knowles, Roger 1929–2009](#)
- [Lewin, Peter 1931–2015](#)
- [Littlefair, David 1946–2016](#)
- [Livermore, Margaret ?–2014](#)
- [Lumb, Richard 1945–2014](#)
- [Mais, S.P.B. 1885–1975](#)
- [Marsh, Bruce 1918–1998](#)
- [McDonald, Keith 1928–2012](#)
- [McGill, Kenneth 1927–2011](#)
- [Midgley, Philip 1926–2010](#)

[Crossley Heath School](#)

Savile Park
HALIFAX
HX3 0HG

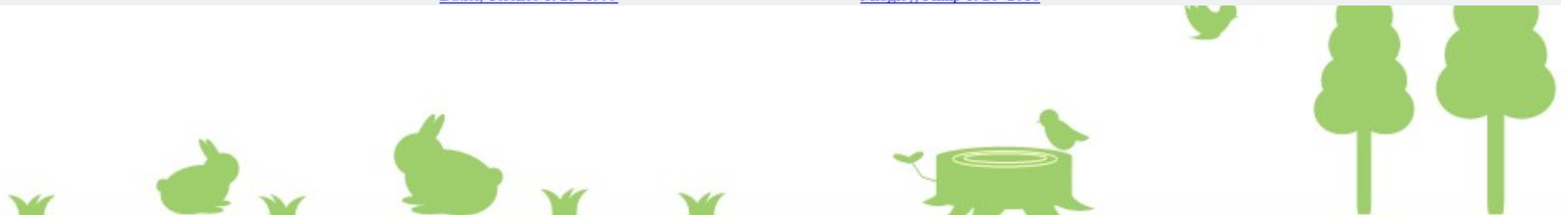
Tel: (01422) 360272
Fax: (01422) 349099

Email: admin@crossleyheath.org.uk

[Savile Park Primary School](#)

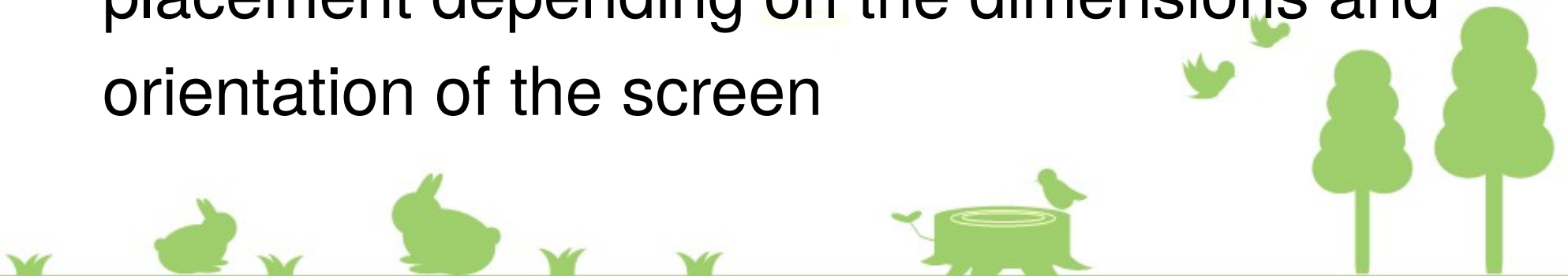
Free School Lane
HALIFAX
HX1 2PT

Tel: (01422) 352844
Fax: (01422) 893506



CSS containers

- Flex: change the dimensions of elements automatically in one direction – horizontal or vertical – to suit a device and its orientation
- Grid: allow items of different widths and heights to be placed asymmetrically and to change their placement depending on the dimensions and orientation of the screen



Conclusion

- CSS containers offer features not previously available in HTML, in particular for users with disabilities
- Many other features in HTML and CSS to aid users with disabilities, e.g. `<time>`, `<i lang="">`, voice- properties in CSS



If you have any questions,
my email address is in
almost every PDF on
johnrhudson.me.uk



Thank you



