

# Unit 6: Website Production

Resource Pack for BTEC Level 1 / Level 2 in  
Creative Digital Media Production



POD 6776

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# Teacher's Introduction

This resource has been designed to cover the content in Pearson BTEC Level 1 / Level 2 (First) in Creative Digital Media Production specification for *Unit 6: Website Production*.

It contains information sheets containing all of the key theory for each Learning Aim, in the same order as the Unit 6 specification. Interspersed throughout the theory are objectives, key terms, questions and tasks.

In addition to the information sheets are the following:

- *Practical Task* – a scenario-based task requiring learners to demonstrate the skills, knowledge and understanding of the unit to research, plan, produce, and test a website.
- *Learner Checklist* – encourages learners to take control of their progress by helping them identify where they can improve. Can be used for both peer and self-assessment.
- *Crossword* – a fun activity to reinforce the unit's key terminology.
- *Worksheets and Templates* – included to help with practical work that learners will complete during the unit.

Suggested answers to each question in the information sheets, as well as the crossword solution, can be found on pages 43–44. *Please note that these are not exhaustive and there may be alternative acceptable answers.*

**Important:** All tasks in this resource are designed to provide **practice only**, and are **not** designed or intended as a way for learners to provide evidence for the unit.

November 2016

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\* resulting from minor specification changes, suggestions from teachers and peer reviews, or occasional errors reported by customers

# Aim A: Know the context and purpose

## Objectives:

- ✓ To understand the basic framework and functioning of the Internet, World Wide Web and how they are connected
- ✓ To be able to identify the range of different website types and their purpose

## WEBSITES IN CONTEXT

There is a common misconception that the Internet and the World Wide Web are the same, however, they are not! The Internet was actually created before the World Wide Web. The difference between them is simple.

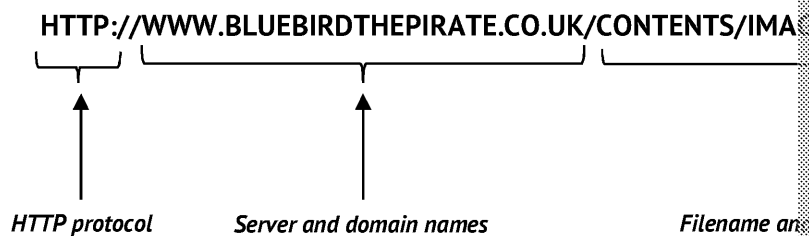
### Internet

The Internet can best be described as a global network of interconnected devices that can send and receive information or data and converse with each other using a common protocol called TCP/IP (Transmission Control Protocol / Internet Protocol).

When you use a device connected to the Internet you are first connected to local devices that share your connection (such as those within the same building or office), then to your Internet Service Provider (ISP), and then the global network of devices.

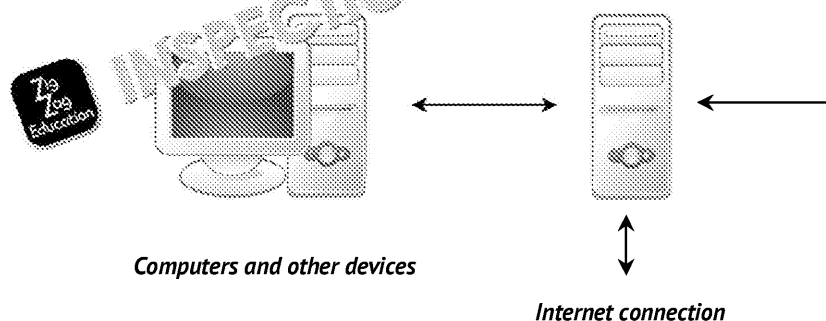
Devices use **URLs** (Uniform Resource Locators) to specify web pages on the Internet. However, it's not only the web page that can be defined by the URL, but also other things like a file, image or application.

URLs are used on the web and utilise HTTP. A breakdown of URL construction is shown below:



A server is a device that manages and controls the access and connection to a network. It is used to store data that can be accessed by permitted users who are connected to the network. When a network-connected device requests access to a specific file or directory, the server checks back over the network or approved.

The example below shows the use of a server on a local network:



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## World Wide Web

The World Wide Web (WWW) is a library of websites and the servers that hold the information displayed on these sites. This information is displayed with the use of a web browser which can display the content contained within a web page.

Web pages can display content such as:

- Text
- Images and graphics
- Audio
- Video and animation
- Interactive application content such as games and slideshows

A web page is recognised by the identifier 'www', and the domain (e.g. '.co.uk' endings as most companies have their own individual domain names in addition to commercial websites (.com), non-profit organisations (.org) and other domain names (.net).

A **hyperlink** is a method of embedding a URL within a html page that allows the user to navigate to the specified site by selecting it. There are two types of hyperlink: internal and external.

*Internal* hyperlinks are used to direct users to another web page or file within the website. Large websites can contain hundreds if not thousands of internal hyperlinks.

*External* hyperlinks direct users to web pages or files on a different website which includes links to the various news articles and other sources that are available.

The main feature of hyperlinks is that they appear similar to standard text and coloured (typically blue).

### Key terms

- ✓ **Hyperlink** - a method of embedding a URL within a html page that allows the user to navigate to the specified site by selecting it.

### Are you up for the challenge?

If this job seems like something you would like to do then you can contact us via [email](#), [Facebook](#), or alternatively [visit our website](#) where you can find more information and contact our employment advisors.

*Example showing how clickable hyperlinks appear when embedded in a document.*

Information retrieval on the web refers to the process of acquiring information from the web. Search engines are web programs displayed on a web page that use key words to search for relevant information within other websites.

A list of results that most match the search criteria is then indexed and displayed. As mentioned, you could think of the WWW as a library; a search engine acts as a librarian, finding websites and list the results depending on the query. Google is an example of a search engine.

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## Web browsers

A web browser is a piece of application software that interprets and displays the **HTML** and **CSS** code that constitute a web page, such as layout, images and text.



### Key terms

- ✓ **CSS** – Cascading Style Sheets
- ✓ **HTML** – Hypertext Markup Language

They act as a graphical interface for users to *browse* the web, and although there are many different web browsers available (such as Mozilla Firefox and Google Chrome), there are subtle differences in the way that each interprets the code.

For this reason it is important that developers test the sites that they build across a range of different browsers.

It should be noted that there are different web browsers used across different mobile devices and that these may aim to display web pages in ways that are more intuitive to ease navigation for the user.



### Questions:

1. What is the name of the protocol that computers use to communicate?
2. What's the difference between the Internet and the World Wide Web?
3. Suggest the purpose of a hyperlink. (1 mark)
4. Name three pieces of media content that can be included on a web page.
5. What does a web browser do? (1 mark)

## WHY DO WE USE WEBSITES?

Websites are used for a variety of purposes depending on the content included and the **audience**. These purposes are:

- **To entertain** the users through the content displayed. This is best demonstrated by interactive content for the user; for example, gaming sites.
- **To inform** – through sites such as those operated by the government.
- **To educate**, not only students but also those who desire to learn new things. For example, DIY community forums, tutorials and e-learning websites.
- **To persuade** users to adopt a certain view or opinion such as those of a marketing company. This purpose also covers advertising as a method of persuasion.
- **For e-commerce**, where products and services can be advertised and sold. Examples include traditional retailers while others are online sellers who operate purely online, for example, Internet banking.
- **For storage** – this includes sites that allow users to store, share and access data. Examples include online libraries and storage containers. Examples include cloud-based storage services.
- **For social media** – sites that primarily perform a social function of sharing views. For example, YouTube and SoundCloud.
- **For social interaction** – websites that aim to promote discussion, communication and networking. Examples range from Facebook to Internet forums.

The vast majority of websites usually perform a combination of purposes and cater to a wide ranging user base, such as YouTube that also provides social interaction, entertainment and educational resources.

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## Existing websites

### Corporate websites

Corporate websites are used by businesses and individuals to promote the potential customers. There is a common range of features and customer requirements presented on such sites:

- A clear summary of the service being offered.
- The unique qualities of the company that make it successful.
- Easily navigable site.
- Clear and precise contact information that tells the audience the physical location and communication.
- External validation such as client testimonials, awards and case studies from other users and help to build trust. This is also commonly done through



1. **Header** – contact details
2. **Validation and credentials**
3. **Slideshow** – brief description of identity and services
4. **Navigational bar** – additional services offered



Element	Use
<i>Navigational bar</i>	With the example shown above the navigation is clear, and easy to use. The inclusion of a navigational bar at the top of the page ensures that when a category the user is directed towards additional information is displayed.
<i>Page layout</i>	The layout is mostly weighted towards the top within this page. The rest of the page employs a simple design with text that aids the simple navigational properties of the site.
<i>Content</i>	The content included is all relevant to the subject, while being concise. Due to the nature of the service provided, any additional content is provided on a personal basis through the communication channels.
<i>Presentation</i>	The overall presentation of the website comes across as professional and polished, partially achieved through the choice of images and a simple, clean design.

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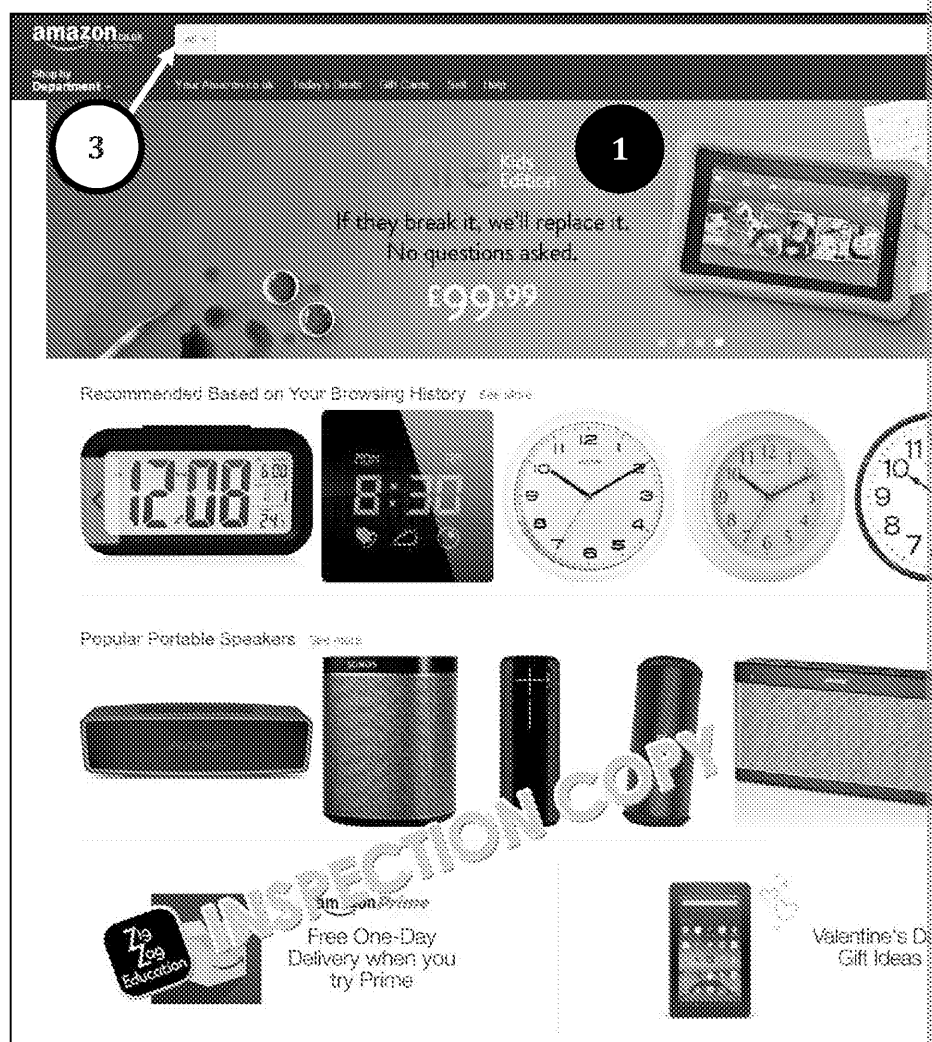


## E-commerce websites

E-commerce websites refer to shopping websites where a product, or number of products, are advertised and sold to customers.

These websites also feature a number of elements similar to those of corporate websites.

- Clear and representative sample images of the products that are being advertised.
- News, offers and featured products.
- Easily navigable site that allows users to find the products they want to purchase.
- The ability to have a shopping cart where products can be added and removed.
- Payment options that allow the user to easily pay for the products they have selected.
- Clear and precise contact information that tells the user the physical address of the website. Websites that have a physical address provide methods of communication. Websites that have a physical address also provide a location that shows the nearest store to the user.
- Trustmarks – these are small logos from a third party that function as a seal of approval that the private and confidential information of the user is safe.
- Click and drag in the form of feedback – this reassures the user that the website is as those described.



Analysis of Amazon UK website (<http://www.amazon.co.uk>)

1. **Slideshow** – displays details of offers and featured products.
2. **Sample range** of different types of products that are available.
3. **Search field** that allows the user to easily specify the product they want to purchase.
4. **Shopping basket** that updates with the number of products added.

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Element	Use
Navigation	The large search bar is easily identifiable for the user, providing navigation throughout the site. Additionally, the rows of information are simplified and easier than rows of descriptive text.
Page layout	The layout is mostly weighted towards the top within this page. The rest of the page employs a simple design with text that aids the simple navigational properties of the site.
Content	The prominence of images on this page leaves no room for text. However, there is a 'quick view' lightbox that provides the user with additional information without navigating away from the page.
Presentation	The overall presentation of the homepage is streamlined. The prominence of photographs and the reduced amount of text with

## News websites

News sites aim to educate and inform the audience about current popular events. Information is categorised by genre (music news, for example), location (national and international news), among a range of other factors.

These information-providing sites usually feature:

- Eye-catching images and headlines that work in conjunction to draw the user's attention.
- Excerpts from the most important or popular articles.
- A number of categories which users can use to narrow the field of news.
- Additional digital content such as videos and audio.
- Hyperlinks that provide access to similar and past articles about the same topic.
- The ability to share content through email and social media platforms.
- Opportunity for social integration, usually through the incorporation of social media feeds.
- Communication channels where users can report news to the editors.

The screenshot shows the BBC News homepage. The layout includes a top navigation bar with links like 'Home', 'UK', 'World', 'Business', 'Politics', 'Tech', 'Science', 'Health', 'Education', 'Entertainment & Arts', and 'Video & Audio'. Below this is a 'NEWS' section with a grid of articles. The first article is 'Syria aid conference raises \$10bn', which is highlighted by a red circle with the number 1. A red circle with the number 2 points to a 'BREAKING NEWS' banner. A red circle with the number 3 points to a video player for 'How did Syria's conflict start?'. A red circle with the number 4 points to a 'Watch/Listen' section with links to BBC News Channel and BBC Radio 4. A red circle with the number 5 points to a 'Markets' section with a table of stock indices. A red circle with the number 6 points to a 'Share with BBC' section with links to 'Send an SMS or MMS', 'Email us at haveyoursay@bbc.co.uk', and 'Follow BBC News on Twitter'. A red circle with the number 7 points to a 'Feedback' link.

1. Article headline that provides user with key subject.

2. Accompanying image used to emphasise the importance of the story.

3. Integration of digital assets and the convergence of different media platforms.

4. Differing categories of content.

5. Methods of communicating with editors of the site.

6. Excerpt from article.

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Element	Use
Navigation	The main navigational bar is clear, allowing the user to look for information. The inclusion of a search field increases the accessibility of the site, allowing information to be found quickly.
Page layout	The page makes use of a sidebar to display the secondary content, making it easily accessible. The main content is organised to display the most important information at the top of the page with additional text and links to related content below.
Content	The display of content on the home page provides the user with a clear understanding of the basis of the articles. Images are placed on the page to illustrate the content.
Presentation	The presentation of content and allocation of individual content items to specific titles aids the navigation of the site, while also appearing professional.

**Task:**

Using websites that you find on the Internet, identify and analyse two websites, highlighting the genre and the use of elements (navigation, page layout, content and presentation).

**Choose from the following genres:** social, entertainment, personal or educational.

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## Aim B: Know the technical requirements for websites

### Objectives:

- ✓ To understand the two different types of websites and how their construction differs
- ✓ To be able to understand and identify the components used to create a website

## WHAT IS A WEBSITE AND HOW DOES IT WORK?

In short terms, a website is a collection of interconnected web pages that allow users to interact with the content contained within. A website is used to access a specific website by entering a domain (or URL) and displays a range of content such as images and graphics, text and other interactive content such as flash animations.

### Static websites

A static website is one in which the content remains stagnant and unresponsive – in other words, it will always remain the same. This could be advantageous for websites where changes in content aren't needed; for example, a business website providing information about the services provided.

Although the vast majority of users won't be able to easily identify the difference between a static and a dynamic website, there are a number of differences within their construction that are encoded using HTML and CSS.

**HTML** is used to define the content and layout of the web page. It consists of code or words that are inserted between two angle brackets, one of which is the beginning of a tag (e.g. <p>) and another which is 'closed' (e.g. </p>) to signify the end of the tag. These tags are not displayed to the end user, they are interpreted by the browser to determine how they're displayed.

```
This text is normal
<strong>This text is bold</strong>
<em>This text is italic</em>
```



This  
**This**  
*This*

Example showing the use of HTML tags and the display within a web browser.

**CSS** is used to define how content within the various HTML tags is displayed. It is a style sheet language, consists of the (1) the HTML entity and (2) all of the style's properties contained within curly two brackets.

For example, the default formatting style for paragraphs could be set as follows:

```
html entity → p { text-align:center }
               ↑      ↑
             css property  value
```

Note that each CSS property can be assigned a value within a style sheet. It is important to use semicolons (;) to separate each pair of properties. Below, three different CSS properties are assigned values – can you tell what they are?

```
p { text-align:center; font-style:italic;
```

**Important:** note the American English spellings of 'center', 'color' and 'gray' although in the UK we use 'centre', 'colour' and 'grey'.

It should be noted that CSS styles are usually all contained within one separate HTML file. Although it's perfectly possible to put two conflicting statements in the same file, the cascading nature of the language means that only the last statement will be applied.

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There are a number of advantages and limitations of creating a static web

Advantages	Disadvantages
✓ Easy to initially create.	✗ Requires web expertise to create.
✓ Cheaper to develop.	✗ Content can become stagnant.
✓ Can be relatively cheap to host.	✗ User navigation and usability can be limited by technical limitations arising from the technology used.
	✗ Increased possibility of mistakes.

## Dynamic websites

A dynamic website is where the information can change depending on a number of types of user interaction, time and location. These sites can appear to change through the use of additional scripting such as JavaScript and PHP (Hypertext Pre-processor).

Dynamic websites are often used in situations where the content needs to be updated frequently. For example, a news site where new content would be added and immediately reflected on the site or a forum.

These websites function through the use of a database that stores the data. When there is a need for this data to be changed it is simple and quick for the webmaster to update.

There are a number of advantages and limitations of creating a dynamic website.

Advantages	Disadvantages
✓ Easy to update content.	✗ Requires web expertise to create.
✓ Increased functionality and usability.	✗ Content can become stagnant.
✓ The ability to add new content helps with search engine optimisation and the number of visitors.	✗ User navigation and usability can be limited by technical limitations arising from the technology used.
	✗ Increased possibility of mistakes.

## Responsive websites

Although not specifically a type of site, responsive website layouts should be a core principle of modern website production. A responsive site is one where the layout changes depending on the size of the display – in this instance a site will reorganise its content to fit a mobile phone, tablet or other device, thus eliminating the need to zoom in or out.



Example showing the transition of a responsive website when viewed on a desktop.

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Web developers are increasingly producing websites that are responsive in response to the increasing number of people who consume and interact with media content on devices such as smartphones and tablets.

### Questions:

6. State the purpose of HTML. (1 mark)
7. What is the primary use of CSS? (1 mark)
8. a) What's the difference between a static and a dynamic website? (1 mark)  
b) Provide an example of use for static and dynamic websites. (2 marks)  
c) Suggest the possible benefits of developing a responsive website. (1 mark)

## DESIGNING A WEBSITE: TECHNICAL AND CREATIVE CONSIDERATIONS

When designing a website there are various considerations that must be taken into account. These can be categorised into technical, functional and creative considerations and must be answered that could impact on the site's design:

- Who will be using the site? What computer expertise do they have?
- What will the site be used for? What purpose does it provide to the user?
- Will the page design be related to the content?
- On what platform will the site mostly be used?
- Will the design and functionality be impacted by the target audience?

### File management

It is important to maintain file management and folder structure while developing a website for a number of reasons. Firstly, it ensures that the website functions as intended. If files are not named correctly and files are embedded within the code, meaning that changing the name of a file will lead to errors and disruptions as the files can't be found.

Additionally, good organisation means that files and folders are less likely to be lost or deleted. This is essential when working as part of a team within a commercial environment as it could save time and money.

When developing a website, there are a number of file types that are used:

- The web pages, in a HTML format.
- A CSS file.
- Images that appear on the website.
- Any other documents or media files, such as audio, video/animations.

As previously mentioned, file structure is important for the continued function of a site. The image to the right shows an example of file hierarchy that encourages organisation and structure.

- A master folder where all the files are stored.
- The CSS file and the HTML files of the individual web pages.
- Subfolders containing media files and documentation.

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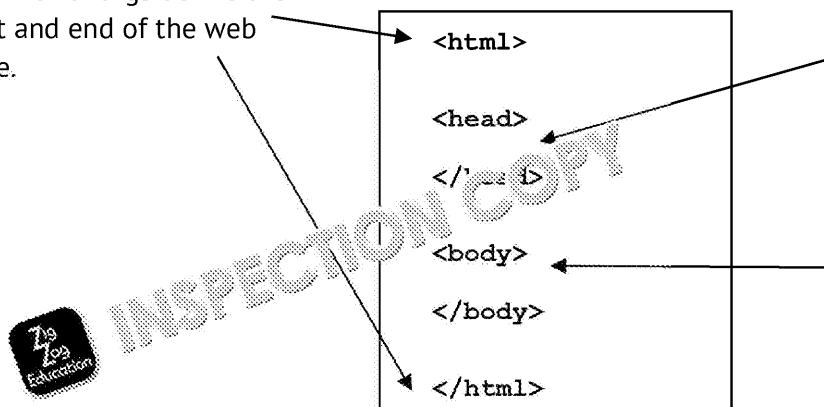


## Web page structure

As previously discussed, HTML elements are defined by an opening tag (e.g. `<html>`) and a closing tag (e.g. `</html>`).

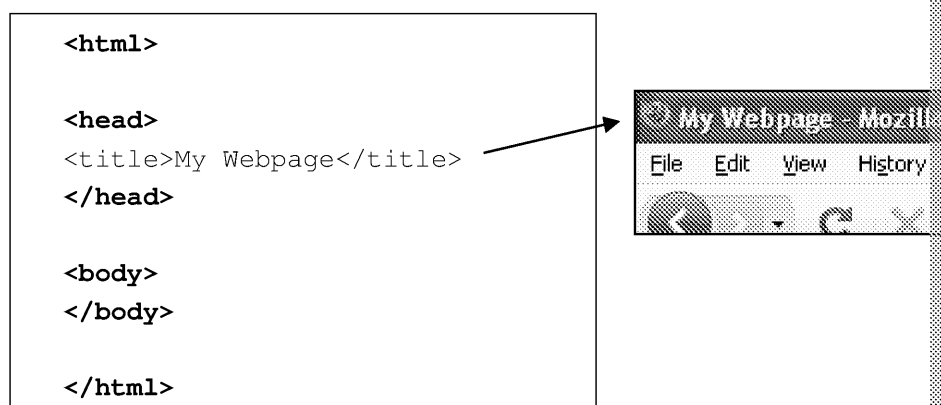
However, there are a number of basic tags that must be assigned to all web pages.

The `<html>` tags define the start and end of the web page.

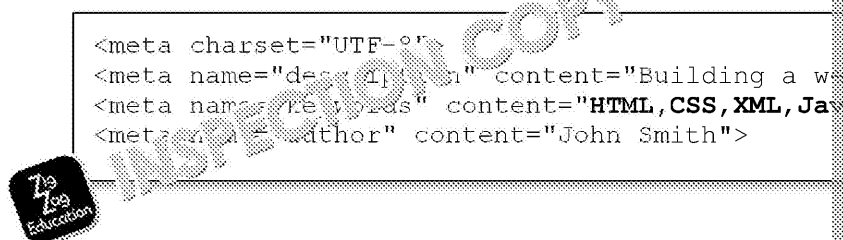


### `<head>`

The head tag contains the metadata for the web page, including the page information visible to the end user within the title bar of the web browser below.



The head tag also contains information that describes the web page, helps search engines find the site and direct users to their search criteria:



The head tag also provides a link to the external CSS file:

```

<head>
<link rel="stylesheet" type="text/css" href="style.css">
</head>

```

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## <meta>

The meta tag contains the metadata of the web page, that is information search engine to find it. Although this information isn't displayed on the web user if required.

```
<meta name="keywords" content="Photos, Graphics, Video">
<meta name="description" content="Creative Portfolio">
<meta name="author" content="John Smith">
```

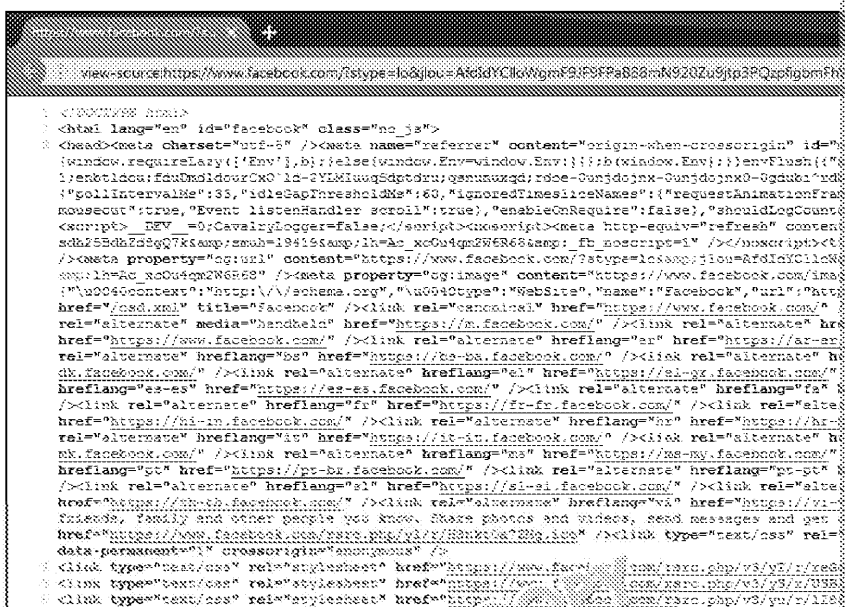
Defines keywords for a search engine.

Provides the name of the web page author.



## View web page code

It's also possible to view the source code of any website, which technically shows how the individual elements and properties are used to construct a site. This is available on all web browsers, just requiring the user to right-click and select 'View Source' from the context menu (the keyboard shortcut CTRL + U also works on many browsers).



Example of source code (facebook.com) displayed within a web browser

## Design control of the visual content of web pages

'Page production' describes the tags and the associated attributes that control the visual content of a web page.

### <body>

All other content, such as text and images are added between the two <body> tags.

Although any text written between the tags will display on the page, there are specific tags used in order to define the purpose and type of text; for example, a paragraph tag.

Using these correctly will help build a logical structure to your web page.

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## <p> and <h1>

The p tag defines a paragraph:

```
<p>This is a paragraph</p>
```

This is a paragraph

Headings are defined at different numbers which allows for individual styling:

```
<h1>This is a Level 1 Heading</h1>
<h2>This is a Level 2 Heading</h2>
<h3>This is a Level 3 Heading</h3>
```

This is a Level 1 Heading  
This is a Level 2 Heading  
This is a Level 3 Heading

## Tables

Tables are extremely useful as they are used to display data and create a structure where elements can be organised into sections.

The tag to create a table is <table>:

The start and end of the table are defined by <table> tags

```
<table>
<tr>
<td>Row 1 col 1</td>
<td>Row 1 col 2</td>
</tr>
<tr>
<td>Row 2 col 1</td>
<td>Row 2 col 2</td>
</tr>
</table>
```

Table data are defined by <tr>

Table rows are defined by <td> tags

You can also add table headings using the <th> tag.

### Task:

Using the code learnt above, create the following table in a simple HTML document using appropriate tags. Save the resultant file as 'Table.html'.

	Student exam results	
	Exam 1	Exam 2
John	80%	30%
Mustafa	12%	91%
Samantha	78%	54%

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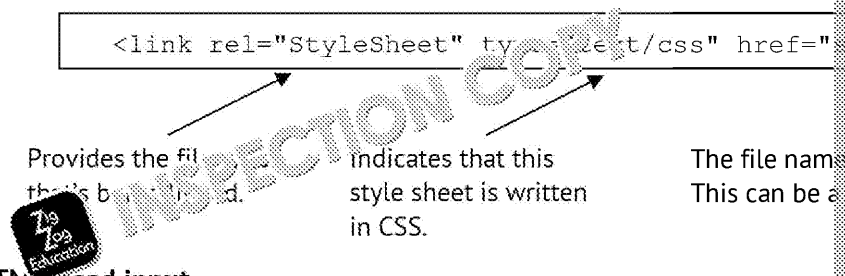


## CSS – Cascading Style Sheets

CSS is used in order to style HTML tags and define the way that they are presented. If a page is usually linked to an external CSS style sheet, there are three additional methods outlined below:

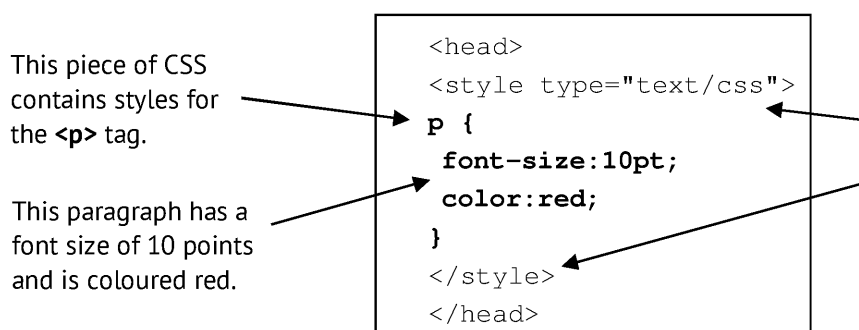
### 1. Link to an external style sheet

This is the most common method – writing the CSS on an external document and linking to it from the website as a whole. This method requires the producer to insert the link into the <head> tag of each page, and holds the advantage that global website styles can be changed in one place.



### 2. HTML head input

This method is to directly input the CSS into the <head> tag of the HTML document.



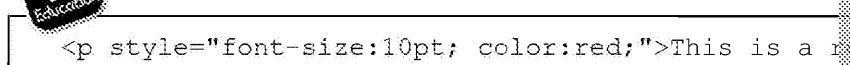
The advantage of this method is that it allows different styles to be applied to different parts of the page. Due to the cascading nature of CSS, you can specify more than one rule for a single element. The rules are applied chronologically, meaning that the last specified rule is the one that is applied – effectively overriding any previous conflicting rules.

This method is useful if there are a small number of distinctive styling requirements for a page, although another method would be to create a secondary style sheet.

The disadvantage of this method is that it requires the opening and closing tags for the CSS code, increasing the likelihood of making mistakes when making changes to the content.

### 3. HTML tag input

With this method the CSS is inserted directly into the HTML tags as an attribute.



This method is most useful when styling is required on a single element.

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CSS styles are first defined by the HTML tag followed by an open curly bracket. In-between the brackets the style attribute is specified first, followed by the value and a semicolon.

```
p {
    padding: 50px 30px 50px
    80px;
}
```

*Example of a CSS padding style applied to a <p> tag.*

### Task:

Using the file 'Table.html' from the previous task, create <body> and <head> tags. Next, create a CSS file and link it to the HTML file and colour elements of the table. Save the CSS file within the same location as the HTML.



### Alignment

There are various methods that can be used to align elements using HTML and CSS.

The CSS align syntax is used to align elements such as divs, images and text. The CSS align syntax can be used to align elements to the left, centre or right.

```
<p> This text is aligned to
the centre.</p>
```

```
p {
    text-align: center;
}
```



This

T

*A HTML tag and the related CSS alignment syntax.*

### Colours

Colour is usually applied to content using CSS and can be specified in three ways:

- A valid colour name – There are 140 colour names supported by modern browsers.
- Hexadecimal (hex) values #ff0000 – A hex value represents the amount of each of the three primary components of a colour: the first two digits representing red, the following two digits representing green, and the last two digits representing blue.
- RGB – RGB stands for red, green and blue, and the values represent the amount of each colour, that constitutes the overall colour.

Using colour names or their corresponding hexadecimal values are the most common ways to specify colours when designing web pages. A useful page which maps the names of the colours to their hexadecimal values can be seen at [http://www.w3schools.com/colors/colors\\_names.asp](http://www.w3schools.com/colors/colors_names.asp)

Colour picker tools and swatches are also great for choosing colour schemes.

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## Hyperlinks

A hyperlink is a form of clickable text that links the user to another web page and underlined. An `<a>` tag is used to denote a hyperlink and first contains the text that the URL is 'hidden' behind.

```
<a href="http://www.google.com">Search on
```



Search on Google!

Example showing a code tag and its display as a hyperlink

## Forms

The `<form>` tag is used to create a form – an area that's used by users to input information that's then submitted using a **form-handler** and stored within a database. There are a variety of input elements that form areas for user input:

### Key tags

- ✓ **Form** tags are used to create the form area and its elements.

- **`<input type="text">`** defines the field for the user to input text and the name of the table within the database.

```
<form>
  Email:<br>
  <input type="text" name="email"><br>
</form>
```



Email:

- **`<input type="radio">`** defines a radio button for the user to select a single option.

```
<form>
  <input type="radio" name="choice" value="yes">
  <input type="radio" name="choice" value="no">
</form>
```



Yes  
No

- **`<select>`** creates a drop-down list.

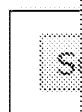
```
<select name="cheeses">
  <option value="cheddar">Cheddar</option>
  <option value="brie">Brie</option>
  <option value="edam">Edam</option>
</select>
```

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- `<input type="submit">` creates a button to send the data to the form.

```
<input type="submit" value="Submit"
```



### Task:

Using all of the information covering forms, create a form that requires the date of birth, age (from a selection of different ranges) and another variable.

**Ensure that you use all of the elements covered.**

Additional task:

Research additional elements that could be added to a form, and add them.

### Web standards

'Web standards' refers to a set of guidelines and rules used to establish a design and coding. These standards are defined by the W3C (World Wide Web Consortium) and were first set up by the web inventor Tim Berners-Lee in order to help develop rich and consistent web pages.

Although HTML5 is considered to be the basis for web standards, these guidelines also cover other markup languages:

- HTML5 – the fifth revision of the language standard.
- CSS – Cascading Style Sheets used to style HTML tags.
- SVG – scalable vector graphics, an open XML-based vector image format for two-dimensional graphics with interactivity and animation.
- WOFF – Web Open Font Format, a font format that compresses the data.
- XML – Extensible Markup Language, a language used to store and transport data in a format that is easily readable by both humans and machines.

### Preparation

Web preparation involves the optimisation of files to ensure that the web pages load quickly and effectively as possible. There are a number of factors that are involved with this:

- File size – ensuring that file sizes are as small as possible without any reduction in quality.
- File compression – only using file types that are web suitable.
- File optimisation – ordering files in a manner that allows them to be loaded in the correct order.

### Content / media file types

A file type or format is a method by which image information is stored (or compressed) in a file.

**Compression** describes the process of gaining an accurate representation of data at a reduced file size, without degrading the quality of the file to an unacceptable level.

The reduction in file size allows more files to be stored and reduces the time required for images to be sent or transferred over a network connection.

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There are a number of different file formats used for storing image data depending on its use, and the types supported by a computer can vary depending upon the software installed on it. Below are some of the most common image file formats used over the web:

- **GIF** – Graphics Interchange Format (GIF) is widely supported online and commonly used for simple animations. However, GIF only supports up to 256 distinct colours and uses a technique to replace colours outside of this palette.
- **JPEG** – Joint Photographic Experts Group (JPEG) is a file type that was specifically developed for photographic images and uses a **lossy** compression technique. It is commonly used for storing images in digital cameras and displaying images on the Internet.
- **PNG** – Portable Network Graphics (PNG) was originally developed to support colour channels, full transparency and **lossless** compression. However, standard PNG doesn't support animation – a PNG format that does is called Animated Portable Network Graphics (APNG).
- **SWF** – Small Web Format (SWF) is a file type used to display video and audio on the Internet. It also supports sound and a degree of user interactivity through which allows it to be used for applications such as Internet browser games.

A number of different video formats are used across the Internet to allow users to view video content. The format used usually depends upon a range of factors such as the type of content, the expectation of quality.

- **AVI** – Audio Video Interleave (AVI) is a container format developed by Intel and Microsoft for storing and playing back audio and video. Advantages include its compatibility across a wide range of operating systems, eliminating the need for additional software. Additionally it produces high quality video and supports audio and video streaming.
- **MPEG4** – Moving Images Picture Experts Group (MPEG4) is a widely used video format that's designed to transmit audio-visual data, and can also combine text and animation layers. One of the main advantages of using MPEG4 is that it produces small file-size videos. It is also widely supported across websites and Internet applications, and is held as one of the main formats used for sharing and uploading videos.
- **MOV** – Apple QuickTime Movie (MOV) is a high-quality video format that is supported on both Windows and Apple platforms. It can be used to store audio, video, effects and text. It is commonly used for storing and playing back high-quality video.
- **WMV** – Windows Media Video (WMV) is a compressed video format often used for streaming over the Internet. Its main advantages are that it supports high-quality video without a considerable loss of quality, and also results in small file sizes. However, it does have compatibility issues with other computer platforms.
- **RealVideo** – This format was mainly developed for streaming over the Internet. It supports high-quality sound and video over a bandwidth connection. However it's not supported on all operating systems and applications and usually requires additional software.
- **FLV** – Flash Video (FLV) is a container format that is used to display video content on the Internet. Depending on the user's bandwidth, the image quality can be adjusted. It was once considered to be the de facto default for all embedded video content, but it's no longer supported on Apple devices such as the iPhone.

### Key terms

- ✓ **Lossy** – A compression technique that discards some data to reduce file size.
- ✓ **Lossless** – A compression technique that preserves all data, allowing the original file to be reconstructed exactly.

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Below are listed a number of audio file formats that are used across the Internet.

- **MIDI** – Musical Instrument Digital Interface (MIDI) is a protocol used by instruments and computer devices to communicate with one another. In the traditional sense, it records the series of musical notes that have then be used to construct the same melody on another device or instrument.
- **RealAudio** – RealAudio is an audio format, which, like RealVideo, was developed for streaming while boasting high-fidelity audio.
- **WAV** – Waveform Audio File Format (WAV) is an audio format that is the standard format on the Windows operating system; however, it's supported across many systems and software applications.

As it employs a lossless compression method there is no loss in audio quality.

- **WMA** – Windows Media Audio (WMA) was originally developed by Microsoft as an alternative to MP3. It offers high-quality audio and good compression, resulting in a smaller file size. Aside from the advantages there are a number of disadvantages associated with it, its limited support over other platforms and operating systems.
- **MP3** – Moving Picture Experts Group-2 audio layer 3 (MP3) is a popular audio format. Its small file size that makes it ideal for use across the Internet and portable devices. However, its speeds and storage space can be an issue.

As MP3 is a lossy format it results in a loss of audio quality.

An FLA file is another type of file format that is used as a master format for authoring software such as Adobe Flash. It consists of all of the elements of a movie clip; however, an FLA file cannot be opened or played, it must first be exported to a SWF file.

### Task:

Research and compare the common uses, advantages and disadvantages of the following file formats. Worksheet A has been provided for you.

### Questions:

9. What is compression? (2 marks)
10. What are JPEG images? (2 marks)
11. Give a use, advantage and limitation of the FLV video format. (3 marks)

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## Preparing images

Within certain circumstances an image might need to be adjusted before it's uploaded onto a specific website or Internet application. This could be due to requirements such as file size or format.

### Key to

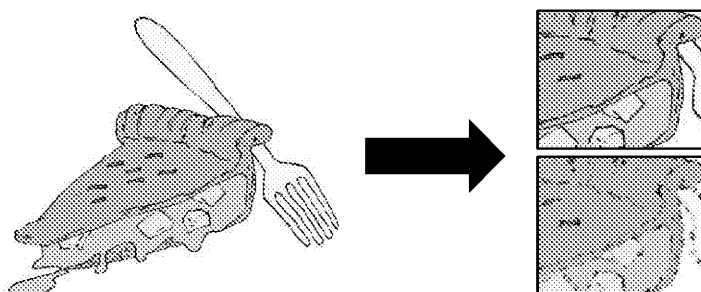
✓ P  
th  
up

The type of image should also be noted; a digital graphic can be represented in two ways: bitmap, also known as 'raster', and vector graphics.

Bitmap images are created by a series of tiny squares called **pixels**; each pixel is then arranged in a pattern to form the desired image. When you zoom into the image to see the individually coloured pixels, and editing the colour or deleting pixels, the perception of the overall image is lost.

When a bitmap image is enlarged it becomes distorted, as each individual pixel also enlarges and becomes clearly visible. This process is called pixelation and is said to be 'pixelated'.

Vector describes an image that is arranged by using a mathematical formula. Geometric objects such as circles and polygons to create the complete image. The difference between vector and bitmap images is that vector images can be edited by lines that make up the image. When it is resized, the resultant image is identical.

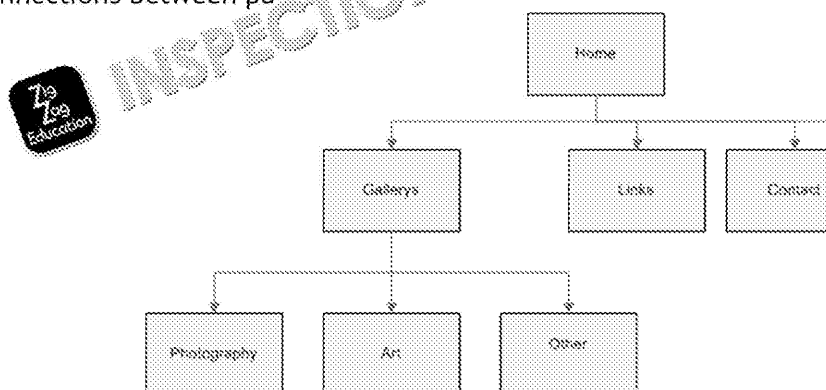


Example showing the enlargement of a vector and bitmap image.

## Navigation

Navigation is a vital part of any website as it allows the user to explore the desired content. There is a range of features usually included on websites to enhance the navigational experience and simplify movement.

- **Sitemap:** This is an interconnected list of all the available pages within a website, similar to the index of a book. It can also be displayed as a diagram to show the connections between pages.



Example of a simple sitemap showing the different pages and their connections.

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- **Buttons:** A button is a type of hyperlink hidden within an image that updates depending upon the mouse action; for example, changing colour when clicked. Usually displayed as a simple geometric shape, it's commonly a clickable element that performs a specific function within a web page.

A rollover is another type of button that changes in colour when the mouse is over it.



Example of a range of web buttons.

- **Image hyperlinks:** These are similar to normal hyperlinks in that they specify a URL; however, they primarily appear as a clickable image rather than text.

An image hyperlink is created by specifying an image tag within a hyperlink.

```
<a href="http://www.smiley.com">
  
</a>
```



## Accessibility

Within website production 'accessibility' refers to the process of ensuring the site is made available to disabled people who require assistance to browse. Visually impaired.

The Web Content Accessibility Guidelines (WCAG) are a series of guidelines created by web developers that govern how web content should be made accessible. While they cover accessibility for the disabled, they also cover code that defines structure and content. The natural information such as text, images and audio.

WCAG are organised into four principles:

- **Perceivable** – users must be able to perceive the information presented.
- **Operable** – users must be able to operate the interface effectively.
- **Understandable** – the user must be able to easily understand the information and the operation of the user interface.
- **Robust** – users must be able to access the content even when technologies used have changed or it is required that assistive technologies can perceive the content.

Text size is also important as an appropriate text size will reduce the number of times a user has to zoom in to the content in order to see the text. This is of particular importance for users who may have a degree of low vision but not enough for them to consider the use of other tools available.

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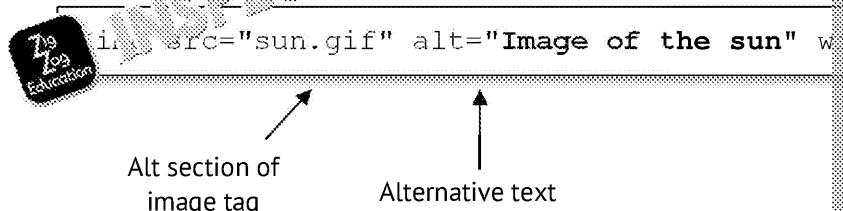
W3C recommends that text is styled using CSS as it's easier to maintain and font size to at least 1em or 100%.

There are also guidelines covering the use of colours to ensure that for people who are colour blind, the legibility of text is still of high quality. The main users can still read text presented over the background, especially if the colour contrast is high.

There are a number of recommended factors to ensure that text can still be read and has a contrast ratio of at least 4.5:1, with the exception of large-scale text.

With images there are two factors to be discussed:

- *Alternative text (alt) tags* – These are short descriptions that accompany images and assistive technology (such as a text-to-speech), and, therefore, the user, can understand the image.



- *Blinking or flashing animations* – These should be avoided, as content that is distracting for those with cognitive disabilities and flashing animations have the potential to cause issues for those with epilepsy.

For these reasons it's recommended that developers provide tools that allow users to control animated content displayed within web pages.

### Questions:

12. Explain the differences between vector and bitmap image types? (4 marks)
13. State four features that encourage navigation around a website. (4 marks)
14. What is the purpose of WCAG? (1 mark)
15. Why is text size important when referring to website accessibility? (1 mark)
16. What is the purpose of including the alt tag when defining images within a website? (1 mark)

### Key creative considerations

When designing a website there are a number of creative considerations, some that aim to make a website distinctive in its own right and others that aim to make use of creativity to aid navigation and user experience.

Aesthetics, meaning beauty and artistic taste, covers a range of factors within web production.

Colour is a simple factor that has an immediate impact upon a user's opinion. Colours can be used together for a variety of reasons; for example, to complement a brand, increase visibility of text and induce a reaction or emotional response.

Colour psychology refers to the common emotional response or association with colours. When choosing colours for a website, it's important to consider the **target audience** of the site, as factors such as age can influence the design.

### Key to

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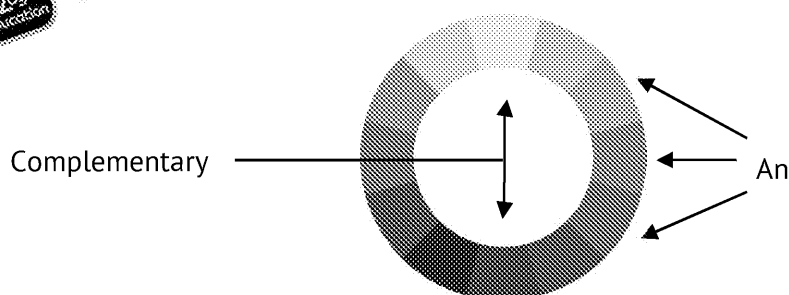
Common examples include:

- Pink as a traditionally feminine colour, used to symbolise love and romance.
- Blue, as the colour of the ocean and the sky, is seen as constant in human sensation of trust and security. It's commonly used in communication.
- Red to signify energy, warning and urgency. In the UK red road signs give orders.
- Green, as the omnipresent colour in the natural world, often symbolises nature.
- Orange can represent warmth, energy and friendliness.

Colour harmony is the arrangement of colours in a way that's pleasing to the eye and of visual balance and harmonious order.

There are a number of basic theories for colour harmony:

Analogous colours are typically adjacent colours on a 12-part colour wheel where colours of one colour family complement the others.



Complementary colours are two colours that are directly opposite each other on the color wheel. As the name suggests, they are said to complement each other.

Lastly, a colour scheme can be set by nature – presenting a naturally occurring colour palette, such as white and blue from the sky and clouds.

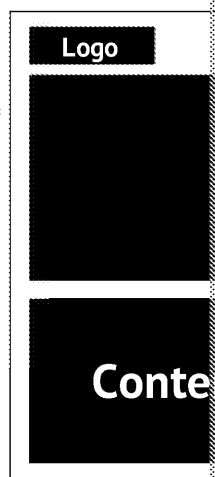
The layout of a site is also an integral part of the design process as it allows the designer to determine the order of how the user will consume the content displayed, and also helps to ensure the site is easy to navigate.

Listed below are a number of example site layouts:

The three-box layout displays three main features: the main central graphic followed by two smaller boxes of text, video or any other content designed to support the main feature. Space at the top of the page allows for the placement of a navigation bar, social media icons or other navigational elements such as a search box.



This layout is ideal for a site that needs limited navigation or one that needs to showcase a range of graphics, such as an online portfolio.



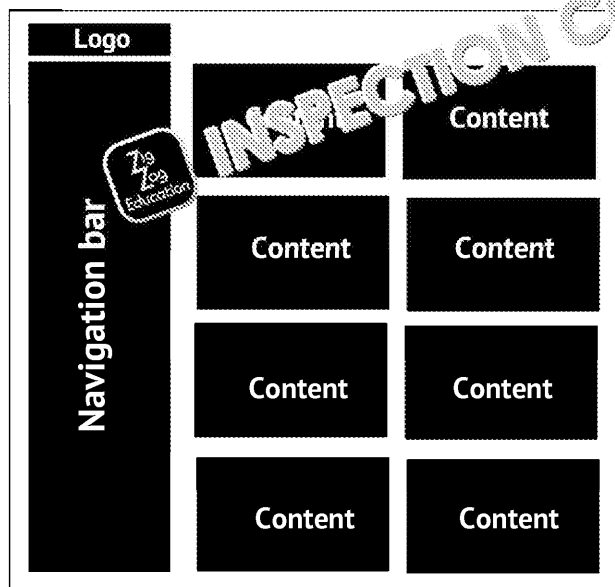
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The grid layout divides the page into a number of equal segments where a range of context can be displayed.

Within the example shown there is a full-length navigational bar to help the user navigate easily around the site.

This type of layout is good for a site that has more content than the user can navigate through; for example, a news site or a blog where each grid could be an individual post.



This layout has a fixed navigational element contained within, to remain visible when the user scrolls down the page.

### Key terms:

- ✓ **Composition:** The way elements are arranged to constitute the overall image. Used to create a certain visual effect.

Another important aspect is **composition**. Within website production 'composition' refers to the overall image, the balance of content, and how it's used to influence the state of the audience.

Depending on the use of the site it can be useful to think about the range of content on each page, too much text content can 'crowd' a page and create an overwhelming sense for the audience. This is particularly relevant for portfolios and e-commerce. The previous example of Amazon UK.

This also covers content with aural elements such as videos, features such as audio. Loud sound can immediately repel users, especially if there are no pause or stop controls.

### Questions:

17. What is the purpose of identifying a target audience? (1 mark)
18. Suggest one reason why aesthetics are important to web production. (1 mark)
19. What are complementary colours? (1 mark)

### Task:

Using the Internet, find three more website layout examples. Sketch them and compare them to the samples shown above, identify the elements of the site and possible uses.

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## Aim C: Produce and review a function

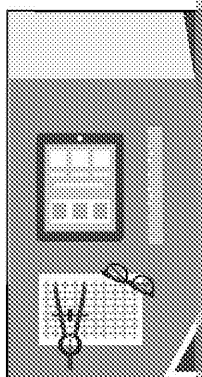
### Objectives:

- ✓ To explore different methods of writing web code.
- ✓ To understand the preparation process of building a website.
- ✓ To produce and test a functioning website.

## WEB AUTHORIZING

Web authoring refers to the methods used to write website code, for which there are two different ways – manually coding within text editors, software or using automatic HTML authoring software.

Automatic authoring software aids the user in writing the HTML and CSS code by creating code through the selection of buttons and paths rather than using a keyboard. Some examples of authoring software are HTML Kit and Adobe Dreamweaver.



Using automatic authoring software	
Advantages	Disadvantages
<ul style="list-style-type: none"> <li>✓ Allows the user to create real websites with effective management and administration.</li> <li>✓ Built-in file transfer protocol (FTP) allowing files to be quickly and easily sent to the server hosting the website.</li> <li>✓ Easy to use and features a range of templates that can be used as a base for projects – therefore saving time.</li> <li>✓ Simple and easy creation of a range of interactive features such as buttons, forms and menus.</li> <li>✓ Code validation and accessibility checks – the software can quickly identify errors and conflicts within the code as it's written.</li> <li>✓ It suggests code as it's being typed which can save time. Some features can also be added through the use of interface buttons.</li> </ul>	<ul style="list-style-type: none"> <li>✗ It can be a steep learning curve, usually a large number of clicks within the interface without any experience.</li> <li>✗ It can produce over complicated code, it is more difficult to edit.</li> <li>✗ It can produce unnecessary code tags, where they are not needed, resultant problems associated styling.</li> <li>✗ Can be problematic if you have no knowledge of code, you can't edit the code without actually knowing what it does. Any arising problems are exacerbated due to this.</li> <li>✗ The software is usually expensive, although there are some free versions.</li> <li>✗ Preview modes can be slow, especially if a lot of common Internet features are used.</li> </ul>

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## Using manual coding

### Advantages

- ✓ Better search optimisation results as the search engine can more easily identify relevant features within the code.
- ✓ More consistency if coded by one person, it may be easier to identify pieces of code – especially if notes are added.
- ✓ Knowledge – as the developer has to understand the code when implementing it. This is probably the most important advantage.
- ✓ Can be done on a simple text editor and doesn't require any additional software. This can be a cost benefit.
- ✓ The lack of unnecessary code can result in a faster-loading site.

Overall, the method used is either a matter of personal choice, or a matter of budget.

A common approach is to use a combination of both methods. It's recommended that beginners first use authoring software, although it's recommended that beginners first move onto automatic software, as it provides them with essential back-up to add code.

## PREPARING TO BUILD A WEBSITE

As with any project, building a website must be well planned, with several factors that can deem the site a success in relation to the original brief.

### Brief

When producing a website for a **client**, it's important that the pre-production stage is completed properly to ensure that the client's wishes have been fulfilled.

Therefore, it's useful to create a brief after first discussing the project with the client; this is a short but descriptive account of the task ahead.

The brief clearly defines the requirements and purpose of the website, and lists the ideas the client has that can help during the production process.

- **Purpose** – What type of website is being produced? What function does it need to perform?
- **User** – Who is the target audience for the site?
- **Features** – Are there any required elements for the site, e.g. a contact form?
- **Scope** – This describes the size of a project and any previously set constraints, e.g. the need to publish a site in time for a product release.
- **Budget** – This is directly linked to the scope of a project as it defines the tasks. Are there any additional costs such as outsourcing tasks?
- **Tone and style** – How does the client want the site to look and what scheme to include or avoid?

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Overall, it's essential that those working on the project understand what's being asked of them and what the client wants. This will help them to prepare for the task ahead and avoid **scope creep**.

## Key terms

✓ **Scope**  
in a project  
to prevent

An example of a brief is shown below:

<b>Client Information</b>	ZZ Bikes is a small team of cycling enthusiasts who want to improve cycling infrastructure and organise local events.
<b>Contact</b>	ZZ Bikes 3 Cheese and Bacon Lane Bristol BS1 0GH
<b>Project</b>	Create a website where text and images can be added.
<b>Project Information</b>	The website aims to inform the general public about cycling and also advertise cycling events.
<b>Requirements and Restrictions</b>	Neutral and natural colour scheme. Simple to navigate for computer users of all ages.
<b>Objective</b>	To persuade users to support cycling initiative.
<b>Key Dates</b>	Final deadline: 26 <sup>th</sup> February 2018
<b>Budget</b>	£300
<b>Content</b>	Images taken from Facebook group to be used on website.

## Questions:

20. Why is it important to create a brief? (1 mark)
21. Suggest an additional scenario that could lead to scope creep. (1 mark)



## Task:

You have been asked to create a website for a cycling band. There will be images, a small amount of descriptive text and a music player which should be clearly visible.

Write a brief using worksheet 28.1 and the set of requirements to follow.

## Target audience

Websites, as with other media content, can be aimed towards a specific type of user. This is referred to as the 'target audience'.

The objective characteristics of a person such as lifestyle, education, age, gender, socio-economic background, can all be used to determine a target audience.

This choice of audience can influence the content and navigational properties of a website. You should think about computer competence of certain age and social groups.

The purpose of the site should also be identified and a measurable factor for the success of its purpose.

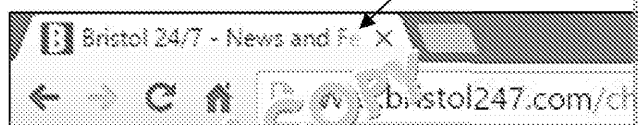
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## Name

The name of the website, if not the name of a pre-existing brand or organisation, describes the nature of the site; for example, an e-commerce site could insert 'company' similar into the name.

This helps to increase identification among the audience and search engines. Another option is to describe the purpose of the site in the tagline, which is the title in the Internet browser.



*showing a website's tagline within a browser.*

## Folder structure and content preparation

As previously mentioned, it's important that files and folders are stored in a logical way. File paths are kept updated and correct in order to ensure that the site displays correctly.

It's also good practice to prepare multimedia content so that it's utilised for the most efficient file formats that are suitable for web use, but also file size. This acts as a good load for users with slower Internet connections and that space is used in the most efficient way.

Sourcing content such as videos and photos from the Internet will likely be necessary for many websites, and to aid organisation, it may be useful to note assets within and their location, provided as the supporting document 1C.

When referring to image files, some formats (such as PNG) have differing options, in particular the 'interlace' option. This setting changes the way that the image is loaded.

**Interlaced** quickly loads a low-quality version of the image and then progressively loads the full resolution, and also results in a slightly larger file size.

**Non-interlaced**, on the other hand, loads the image in tiles, showing a clear image from the start, but takes a little time before it develops into the entire image.

## Planning portfolio

A planning portfolio relates to the preparation of the project to make sure that the website is created and functions as planned.

Font size and type tests refer to ensuring that text is displayed correctly when the font and size have been specified by the developer. With font types there are sometimes compatibility issues when custom fonts have been used – an issue that also arises when one system platform uses a font that isn't installed on another.

There are two ways to rectify this problem: one is to use a standard font type such as Arial. The other is to embed fonts within the CSS file. Using this method the font is stored on the web server of the site and is automatically downloaded when a user who

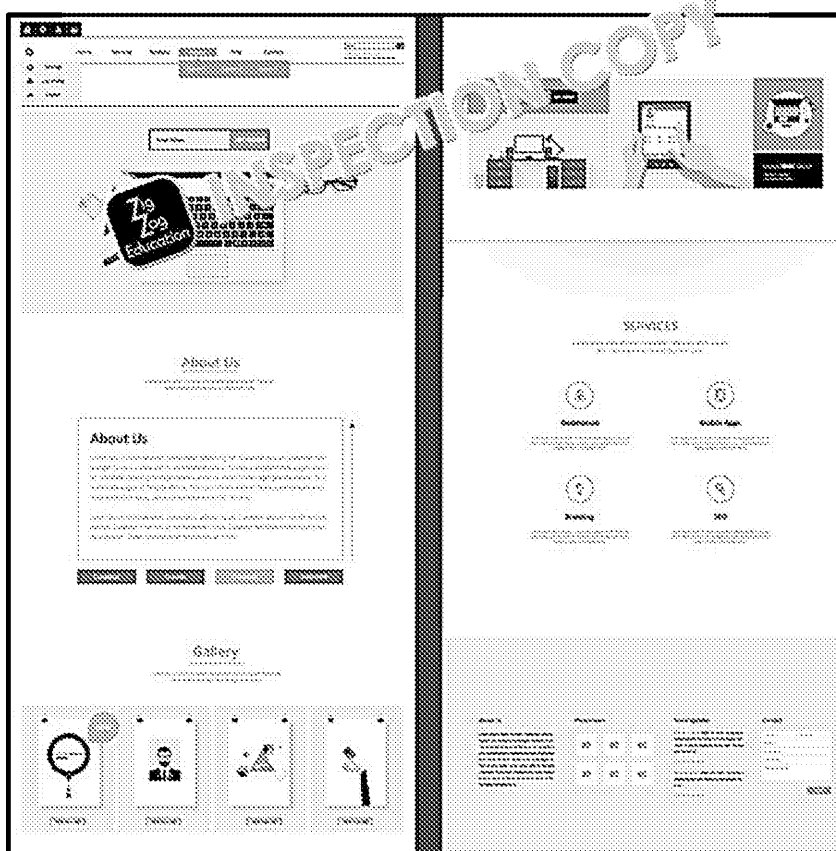
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Prior to finalising a design for a website, a visualisation diagram is usually of the design.

A sketch of the layout and design is one method usually done before moving on to development. A website designer will benefit from a sketch on paper as it can be used to give others an opportunity to discuss the design and gain feedback, although changes can still be implemented at a later time.

A mock-up is a full-size model of a design used to provide a realistic representation of the final design. This provides the opportunity to gain further feedback and show the design to stakeholders that are representative to the brief.



### Questions:

22. Suggest two ways in which search engine optimisation can be improved? (2 marks)
23. What's the difference between interlaced and non-interlaced? (2 marks)
24. What's the purpose of a visualisation diagram? (1 mark)

### House of design

To ensure continuity across the site the number of fonts used should be limited. Using too many fonts is possible, or it can confuse users and decrease the aesthetic appeal of the website.

A similar rule also applies to the range of colours used across the site in terms of contrast with each other in a way that's aesthetically pleasing. In this context, it's back to colour harmony – using the colour wheel to assist the choice.

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## BUILD A WEBSITE

The knowledge required to produce a two-page website with working hyperlinks is included within this resource.

A series of tips and checks has been created to help create an organised and professional website. This can be copied and used as a checklist during the production process:

Tip	Explanation
<b>Web authoring</b> 	<p>The selected method of web authoring can impact on a number of factors taken to complete the project. However, its use should depend on the knowledge of the developer.</p> <p>It's recommended that if using automatic authoring software is used, the user should have a basic knowledge of not only the features and interface of the software, but also HTML and CSS – this is vital knowledge for debugging and customisations within the code.</p>
<b>Organisation of root folder</b> 	<p>The root folder should be organised and file paths should be consistent for content or assets that are included within the site.</p> <p>Folders are useful to store and sort media content; however, it's important that any changes in location are also changed within the code.</p>
<b>'index.html'</b>	The home page of the site should be named 'index' – this is what the web server will look for when someone specifies the URL.
<b>Page titles</b>	Not only should the file names of each HTML file be appropriate, but the titles of pages should also reflect the content. The use of page titles has been previously covered within this resource. It's recommended that a suffix could be added to denote a sub-menu page or category.
<b>Page layout</b>	CSS can be used to specify a wide range of element customisations, including specific positioning. Tables or CSS can be used to help with the layout of previous plans and diagrams.
<b>Masthead/ Header</b>	<p>A masthead or header is a graphical image or text title displayed at the top of the page. It could contain an image, text hyperlinks, black space or a search bar (look at the examples of websites previously listed to identify their headers).</p> <p>As the name suggests this should be inserted within the &lt;head&gt; section of the HTML file.</p>
<b>Navigation hyperlinks</b>	Hyperlinks should be added between pages using buttons or text links that are appropriate. These will hopefully encourage page user interaction and increase the appeal of the site.
<b>Addition of content to pages</b>	Remember that HTML is used to add content to pages. A list of tags and their associated content can be found on the W3Schools website: <a href="https://www.w3schools.com/tags/ref_byfunc.asp">www.w3schools.com/tags/ref_byfunc.asp</a>
<b>Web page preview</b> 	<p>When testing HTML files it's essential that it's done within a web browser to ensure the compatibility for a wide range of users.</p> <p>Opening a HTML file is easy as it will be set to open automatically with the default browser of the operating system; in this circumstance the user can see the website as the website is hosted locally with the file explorer active.</p>
<b>Hyperlink checks</b>	<p>Obviously it's important that any links inserted into the site are correct and also direct the user to the specified site.</p> <p>One testing method would be to manually examine the code, but a number of more effective methods are explored within the resource.</p>

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## TEST THE FUNCTION OF THE COMPLETED WEBSITE

It is important to test a website to make sure that everything works correctly and is positioned correctly. Users will notice minor errors and this can have a big impact on the appeal and viewership of the site.

Testing is imperative when producing a website for a client as it can affect the project in addition to personal factors such as reputation.

Listed below are some basic guidelines and questions for testing the functionality of a website.

### Basic functionality

- Look at each page. Is the content positioned correctly? Does resizing the browser window affect content placement?
- Are the structure and components of the website clear?
- Check the content of each page against the brief – is anything missing?
- Are the image and file sizes appropriate? Does all content load in a sensible time?

### Navigation

- Check that every link on every page of your website directs to the correct page or problem within the code if any links don't work as intended.
- Check that the navigation/side bar appears on every page, and that it is consistent. Consistent navigation is important to user experience.

### Browser and platform compatibility

- Code should be checked within the main browsers (Chrome, Microsoft Edge, Firefox) to ensure that the site is accessible for all users.
- The site should also be opened and tested on other platforms such as mobile devices.

### Display

- Has all content displayed correctly? Are all photos and videos displaying properly?
- Do the alt tags display properly on all of the images?
- Are the chosen font, size and colours clear and easily readable?
- Is the colour scheme visually acceptable? Is the structure clear?
- Can the content be seen on a range of screen types (LCD, CRT, 16:9, 4:3)?

### Accessibility

- Has everything been done to ensure the site is accessible to all, e.g. alt tags, colour scheme and screen reader compatibility?

A helpful source for checking that links and code have been implemented correctly is the W3C validation service. This is a free online portal where HTML and CSS files can be checked for errors and corrected.

Another tool is to use a browser plugin, for which there is a range available. Any mistakes found will be highlighted and explained, which allows the developer to correct them.

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## Unit 6: Website production – practice

For this task you must research, plan, produce and test a website. This sheet shows the outcomes and main tasks included within this guide.

### Scenario – Local Ruins

A local archaeology society has uncovered some ruins of a Roman settlement on the outskirts of your town; the only problem is that the site has been earmarked for development. The local council plans to remove the ruins and permanently transfer them to an exhibition in London, 200 miles away!

The chairwoman of the society is unfamiliar with technology and wants you to create a website that can be viewed across a wide range of devices. She wants to include images, videos, text and audio about the ruins on the site with the aim of persuading local residents of the importance of the site and also sign a petition resisting the development of the site and the transfer of the ruins to London.

### Task 1 – Research

→ This task covers **Learning Aim A**

Within this task you are required to produce a poster detailing the purpose and infrastructure behind the Web.

You need to explore:

- The Internet
- The World Wide Web
- How people view websites
- The different purposes of websites

### Task 2 – Plan

→ This task covers **Learning Aims B and C**

This task entails the planning and design of the website, which will be shown to the archaeology society in the form of a presentation.

To complete this task, you should do the following:

- Identify the content that will be used within the site.
- Prepare the content for implementation within a website.
- List the HTML and CSS elements that you plan to use.
- Produce a mock-up of the website's home page.

### Task 3 – Produce and present

→ This task covers **Learning Aim C**

Having researched and presented your design ideas, you will now produce the website for the archaeology society.

Remember:

- The purpose of the website
- Design and composition
- Folder set-up and file management
- House style design
- Functionality testing

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## Unit 6: Website production – student

### Learning Aim A: Know the context and purposes of websites

Mark band	What is needed
Level 2 Distinction	Have you provided an <b>analysis</b> of the context in which different websites exist?
Level 2 Merit	Have you <b>explained</b> with examples the context in which different websites exist?
Level 2 Pass	Have you <b>described</b> the context in which different websites exist?
Level 1	Have you <b>outlined</b> the context in which different websites exist?

Mark band	What is needed
Level 2 Distinction	Have you <b>compared</b> the purposes and uses of websites?
	Have you provided reference to <b>specific</b> and <b>detailed</b> examples?
Level 2 Merit	Have you given a clear and thorough <b>explanation</b> of the purpose of websites?
	Have you provided reference to <b>specific</b> examples?
Level 2 Pass	Have you <b>described</b> the purposes and uses of websites?
	Have you provided reference to <b>common</b> examples?
Level 1	Have you provided a brief <b>summary</b> of the purposes and uses of websites?

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## Learning Aim B: Know the technical requirements for website production

Mark band	What is needed
Level 2 Distinction	Have you <b>compared</b> the differences between dynamic and static websites?
	Have you provided <b>detailed</b> and <b>illustrated</b> examples of each?
Level 2 Merit	Have you clearly <b>explained</b> how dynamic and static websites work?
Level 2 Pass	Have you <b>described</b> the features of dynamic and static websites?
Level 1	Have you <b>outlined</b> the features of a static website?

Mark band	What is needed
Level 2 Distinction	Have you provided an <b>analysis</b> of the key technical and creative considerations when designing a website?
Level 2 Merit	Have you <b>explained</b> the key technical and creative considerations when designing a website?
	Have you provided <b>relevant</b> examples?
Level 2 Pass	Have you <b>described</b> the key technical concerns when designing a website?
Level 1	Have you <b>outlined</b> the key technical concerns when designing a website?

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## Learning Aim C: Produce and review a functioning website

Mark band	What is needed
Level 2 Distinction	Have you <b>compared</b> two methods for authoring websites?
	Have you provided <b>detailed</b> examples of each?
Level 2 Merit	Have you clearly <b>explained</b> two methods for authoring websites?
	Have you provided <b>excellent</b> examples of each?
Level 2 Pass	Have you <b>described</b> two methods for authoring websites?
Level 1	Have you <b>outlined</b> one method for authoring websites?

Mark band	What is needed
Level 2 Distinction	Have you produced a <b>comprehensive</b> plan for a website which clearly interprets the brief and purpose?
Level 2 Merit	Have you produced a <b>detailed</b> plan for a website which effectively interprets the brief and purpose?
Level 2 Pass	Have you produced an <b>appropriate</b> plan for a website which adequately interprets the brief and purpose?
Level 1	Have you produced a <b>basic</b> plan for a website with minimal interpretation of the brief and purpose?

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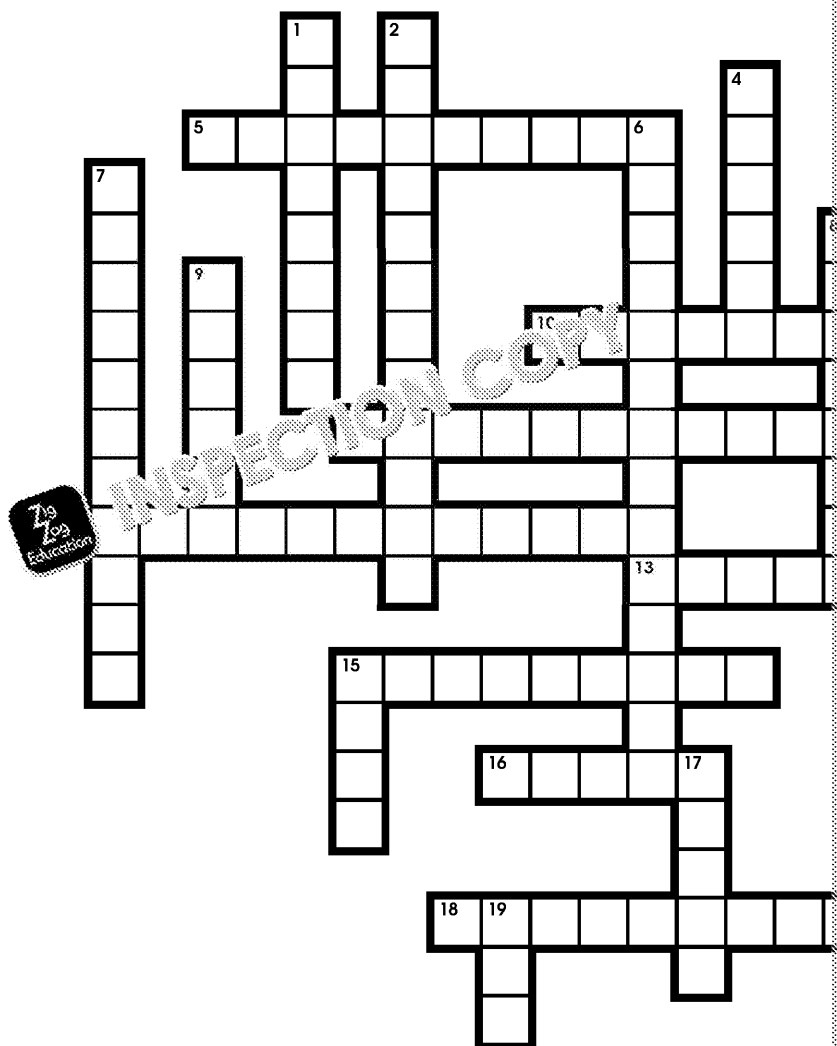
Mark band	What is needed
Level 2 Distinction	Have you created an <b>imaginative</b> website of two pages with working hyperlinks and multimedia content?
Level 2 Merit	Have you created an <b>effective</b> and <b>functional</b> website of two pages with working hyperlinks?
Level 2 Pass	Have you created an <b>effective</b> web page with working hyperlinks?
Level 1	Have you created a <b>limited</b> web page with <b>basic</b> functionality?

Mark band	What is needed
Level 2 Distinction	Have you <b>evaluated</b> the completed website for functionality, quality and usability across different web browsers?
Level 2 Merit	Have you <b>assessed</b> the completed website for functionality and usability across different web browsers?
Level 2 Pass	Have you <b>summarised</b> test results for functionality of the completed website on a web browser?
Level 1	Have you <b>outlined</b> the required test cases and checks for assessing the functionality of a website?

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## Unit 6: Website production – cross



### Across

- 5 The loading of a low-quality version of an image which then progressively loads to its full resolution, resulting in a slightly larger file size. (10)
- 10 The process of gaining an accurate representation of data without degrading the quality to an unacceptable level. (11)
- 11 A hex value representing the number of red, green and blue components of colour. (11)
- 12 A type of website in which the content remains the same but is responsive to various screen inputs. (6,7)
- 13 A web application used to display the code that makes up a web page. (7)
- 15 A URL embedded within a clickable text field. (9)
- 16 A singular square, it is the smallest unit that makes up an image. (5)
- 18 The process of ensuring that all content displayed on a site is made available for those who need it. (13)

### Down

- 1 The global network of interconnected devices. (10)
- 2 The library of websites and the data they contain. (10)
- 3 A program that takes the input from a database to be recorded. (4-7)
- 4 A device that manages and controls a network. (6)
- 6 A type of website where the information is stored in variables such as the user's name. (7,7)
- 7 The layout of assets that constitute a website. (11)
- 8 A compression technique where there is a loss in quality. (8)
- 9 A file type in which information is stored. (6)
- 14 A website layout which responds to the user's screen. (10)
- 15 A markup language used to specify the layout of web pages. (4)
- 17 A compression technique which removes data from the image. (5)
- 19 A styling language that is used to control the styling of a web page. (3)

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# Answers to questions

## QUESTIONS

1. TCP/IP (1 mark)
2. One mark for each of the following points: (2 marks)
  - The Internet is a network of interconnected computers.
  - The WWW is a library of websites and the servers that hold the information.
3. The purpose of a hyperlink is to provide a quick and easy method of direct access to a website or web page. (1 mark)
4. One mark each for any three of the following: (3 marks)  
Text, Images, Audio, Video, Animations, Interactive content
5. A web browser interprets and displays the code that constitutes a website.
6. HTML is used to insert content into a web page and define its structure.
7. CSS is used to define how HTML tags are displayed and styled. (1 mark)
8. a) Within static websites the content remains stagnant and unresponsive. On the other hand, in dynamic websites the information can change depending on user interaction, time and location. (2 marks)  
b) 1 mark given for a type of static website that won't need to change.  
1 mark given for a dynamic website that changes with user and device.  
c) One mark given for each of the following: (3 marks)
  - Flexibility of browsing on different platforms.
  - Cost-effective as one website can be produced.
  - Increased user experience.
9. Compression is the process of acquiring an accurate representation of data without degrading the quality to an unacceptable level. (2 marks)
10. JPEG images are commonly used for digital photographs and images on the Internet.
11. One mark given for a use, another each for an advantage and limitation.
  - Format is used to display video content on the Internet.
  - Advantage is that it can produce high-quality videos depending on the compression level.
  - Disadvantage is that it's no longer supported across a range of Apple devices.
12. Two marks awarded for each answer: (4 marks)
  - A vector image is redrawn using a mathematical formula, and, therefore, it can be scaled without loss of quality.
  - In a bitmap image only the colour information of each pixel is saved. When the image is enlarged, the quality is lost.
13. One mark given for each answer: (4 marks)  
Hyperlinks, Navigation bar, Buttons, Sitemap
14. The purpose of Web Content Accessibility Guidelines is to ensure that websites are accessible to the disabled and those who require additional assistance to use the web. (1 mark)
15. Text size is important because some people may have low vision, and may not have the technology or the knowledge to zoom in to content. (1 mark)
16. The alt tag is used within images so that assistive technology can interpret the content of the image. (1 mark)

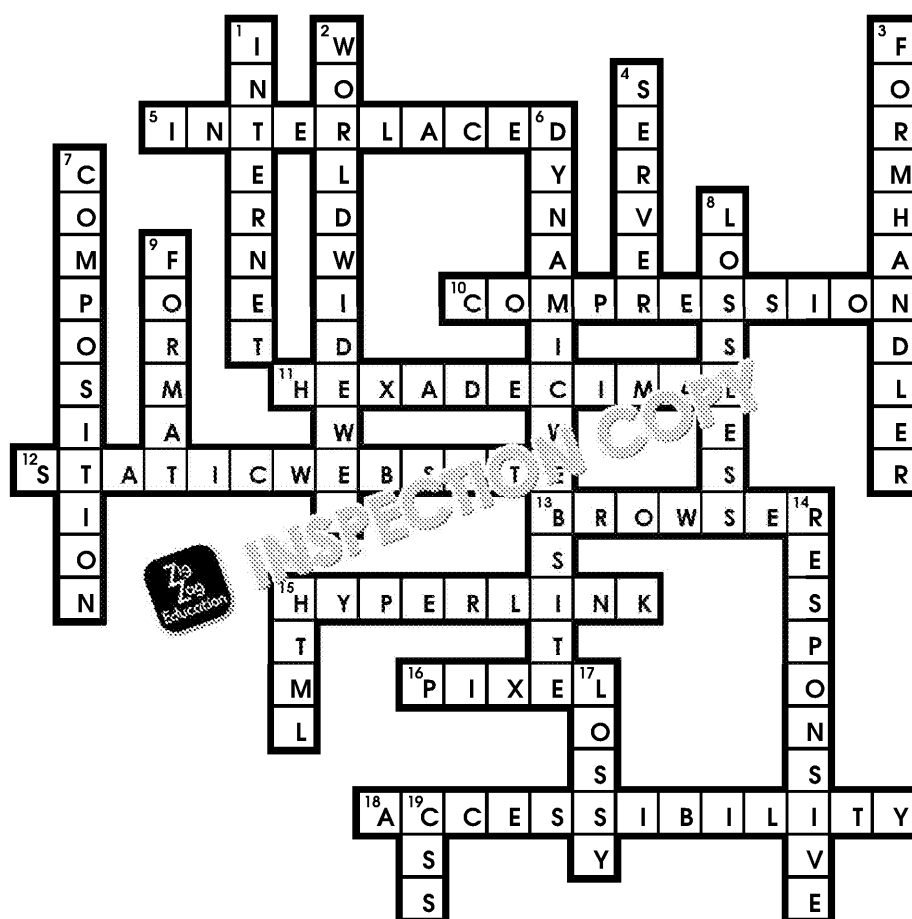
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17. The purpose of identifying the target audience is so that it allows the designer to consider the aspects of the content and site design to best suit the user demographic.
18. Aesthetics are important as they can influence the attention of the user and have a significant impact on the popularity of a site. (1 mark)
19. Complementary colours refers to two colours that are opposite each other on the colour wheel and are used together as they complement one another.
20. A brief is important as it allows you to clearly document the wants and needs of the client, ensuring that the project moves in the right direction and helping to avoid scope creep.
21. One of the following answers: (1 mark)
  - Any scenario in which an element of the design is fundamentally changed.
  - The delay of a task.
22. One mark for each of the following answers: (2 marks)
  - Adding a name and a line to the site.
  - Content tags.
  - Text tags.
23. One mark for each of any two of the following answers: (2 marks)
  - Interlaced quickly loads a low-quality version of the image and then gradually increases to its full resolution, and also results in a slightly larger file size.
  - Non-interlaced loads the image in tiles, showing a clear image with some missing parts that develops into the entire image.
24. A visualisation diagram aims to show how the final product will look before development, allowing the developer to gain feedback and make changes. (1 mark)



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**A Audio Formats Table**

File Format	Common Uses	As
Moving Picture Experts Group-2 audio layer 3 (MP3)		
 Windows Media Audio (WMA)		
Waveform Audio File Format (WAV)		
RealAudio		
 Musical Instrument Digital Interface (MIDI)		

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**B Client Brief**

<b>Client Information</b>	
<b>Contact</b>	
<b>Project</b>	
<b>Project Information</b>	
<b>Requirements and Restrictions</b>	
<b>Objective</b>	
<b>Target Audience</b>	
<b>Design Problem</b>	
<b>Key Dates</b>	
<b>Budget</b>	
<b>Additional Information</b>	

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Asset	Filename	Date Acquired	Resources Required	Source

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D Website Analysis Table

Site URL and genre	Key features	Navigation	Page layout
			
			

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