**Lesson 8: Images**

**The Learning:**

***Image Tags***

*Images are part of the reason why the web is such a popular medium for gathering info! In this lesson you will be learning about what the different types of web-friendly image files are, what resolution is, what the basic image tags are, how the browser finds files within your website’s folder, and image-related attributes.*

* Click the link below, then read through the **Chapter 8 & 9** only:
	+ [**http://www.goodellgroup.com/tutorial/chapter8.html**](http://www.goodellgroup.com/tutorial/chapter8.html)
	+ [**http://www.goodellgroup.com/tutorial/chapter9.html**](http://www.goodellgroup.com/tutorial/chapter9.html)

***Image Tags & Attributes***

* Basic Image Tag:
	+ <img> (open) BUT must also include 1 attribute: <img src=“filename.ext”>
* Main Image Attributes: There are **4 key types of attributes for images**:
	+ source (src=“filename.ext”)
	+ height (height=“numberofpixels”)
	+ width (width=“#ofpixels”)
	+ alt (alt=“descriptionofimage”)
* Other Image Attributes:
	+ Border (border=“#ofpixels”); adds border around image
	+ Align (align=“right/left/center”); automatically wraps text around the image, rather than displaying the text in line with the image (as is done by default)
	+ Use Map (usemap=“mapname”); creates clickable image that leads to different links depending on the coordinates of where the image was clicked
* Image Tag with Attributes:
	+ <img src=“filename.ext” width=“400” height=“300” alt=“descriptionofimage”>
* “Image hotspots” are clickable, hyperlinked images. This is the basic hotspot tag:
	+ <a href=“http://www.domainname.com”><img src=“filename.gif”></a>

***Image Measurements & Dimensions***

* Screen Resolution: Screen resolution refers to the clarity of the text and images displayed on your screen. Resolution is measured in ppi (pixels per inch), aka dpi (dots per inch). Images used for display on a screen (rather than for print) are typically between 72-96 ppi/dpi. The more pixels per inch, the greater the display quality (since, the smaller the pixels are) – however, the human eye cannot detect much of a difference in quality beyond 72 ppi/dpi when displayed on a screen.
* Size & Resolution: Another factor that affects resolution is display size. At a higher resolution, such as 1600 x 1200 pixels, items appear sharper. They also appear smaller so more items can fit on the screen. Check out the average screen resolution for computer monitors: [Ave. Screen Resolution Chart](http://www.w3schools.com/browsers/browsers_display.asp). To find the display resolution of your monitor navigate to the Start button > Control Panel > Display > Adjust Resolution. Changing this resolution changes the way graphics appear.
* Aspect Ratio: The aspect ratio of an image or screen describes the proportional relationship between its width and its height. It is commonly expressed as two numbers separated by a colon, as in 16:9. Follow this link to calculate your monitor/image’s aspect ratio: [Aspect Ratio Calculator](http://andrew.hedges.name/experiments/aspect_ratio/)
* Image Size & Dimensions:To view the file size, physical size, resolution, width/height of

an image on your computer, right-click its file icon and choose Properties > Details.It is important to keep your file sizes small when uploading images to your website because large images/file sizes result in slow webpage loading times. However, original images taken with a camera tend to be quite large by default - up to 5000 x 4000 px (this is so that images can be used for print @ 300 ppi, or made smaller for use on screens @ 72 ppi). In order to figure out how large an image you wish to put on your website needs to be, think about the amount of space you want it to take up on a computer monitor, according to what you know about common computer resolutions.

* + For example, if your website will be displayed on a computer with 1600 x 900 px resolution, and you want your image to take up half the screen, you would want your image to be 800 x 450 px.
* Image Types: There are 3 types of image files that are suitable for the web ­- .jpeg (smallest file size, lowest quality, most common), .png (largest file size, highest quality, transparent background), and .gif (supports animation)
* Image Editing: To reduce the size of your images (to a width of 100-800 px depending on the size and location of your desired image on the page) you must use image editing software. These types of programs are available on your computer (Paint and Photoshop) or online ([BeFunky](https://www.befunky.com/), [Pixlr Express](https://pixlr.com/express/), or [PicMonkey](https://www.picmonkey.com/photo-editor)).
* Copyright-Free Images: It is important that you use original (images photographed or created by you) or copyright-free (because using a copyrighted image taken by someone else is stealing) images for your website. Some great places where you can find copyright-free images are:
	+ [Creative Commons (](https://search.creativecommons.org/)copyright-free images, audio & video)
	+ [Morgue File](https://www.morguefile.com/archive) (use the free search option)
	+ [Pexels](https://www.pexels.com/) (high-quality stock images)
	+ [Albumarium](http://albumarium.com/) (high-quality stock images)
	+ [Free Pik](http://www.freepik.com/) (vector images, photographs, PSD files, and more)
	+ [Open ClipArt Gallery](https://openclipart.org/royalty-free-clipart) (free clipart graphics)
	+ [Clkr Clipart Gallery](http://www.clker.com/) (free clipart by the people for the people)
	+ [Classroom Clipart](http://classroomclipart.com/) (free clipart for school use)
	+ [The Noun Project](https://thenounproject.com/) (icons for just about anything)
	+ [Giphy](http://giphy.com/) (shareable memes and GIFs)

 ***Information about File Management:***

When working with images, we must create a folder for our webpage/site and ensure that all images are located within this folder alongside our actual .html document; moving, deleting, or renaming these images after they have been written into the html code will result in their not appearing in the webpage. The file name in your folder needs to match the file name in your website’s image tag.

***Information about File Management II:***

While it works just fine to keep your images scattered inside your main website folder, it is a little disorganized. To keep yourself better organized, it is a good idea to create a separate folder called “images” inside your main website folder, and save all your images inside. Since you are changing the location of your image files, you will need to tell your html that (so that it knows where to look for the images) by adding “images/” before the filename in your “src” attribute to tell. Example:<img src=images/filename.ext”>.

* Watch the HTML Essential Training video about Displaying Images:
	+ <https://www.youtube.com/watch?v=5K4BD6gXr0E>

**The Doing:**

***Activity (/15):***

Create a new folder inside your “html” folder (within your Notepad folder). Call this folder “basicorganization.” Drag your “basicorganization” .html document inside this folder.

* **(/3)** Use the copyright-free image websites, download, and relocate 3 pet-related images: 1 jpg, 1 png, 1 gif into your “basicorganization” folder.
* **(/3)** Rename each image so that it 1) properly labels your image based on its content, and 2) contains no capitals/spaces/symbols.
* **(/3)** Use Paint (Resize > Resize By: Pixels > Adjust the Horizontal size and the Vertical size will change to keep its aspect ratio) to resize your images so that all 3 fit comfortably across your browser window (hint: in order to do this, you need to know your monitor’s screen resolution). Be sure to replace them inside this folder so that their filename remains consistent with the one you typed into your .html document.
* **(/3)** Experiment with a couple image-editing programs to make changes to the images you’ve used for your “basicorganization.html” document. For example, try changing the color of each image in picmonkey.com or befunky.com.
* Use an online photo editor of your choice to make changes to your images. Again, replace them inside this folder.
* **(/3)** In your Notepad document, write in the elements for the images you’ve added to your folder. Check your results by opening your document inside a web browser. Create a new folder inside your “basicorganization” folder. Call this folder “images.” Move your three photos inside this folder. Try opening your website – what happens? (note: the photos should not appear – the description you wrote in your “alt” attribute should appear in their place). Add the folder name to your img tag and try opening your website again. Did this solve the problem?
* **(+1) Bonus:** Make one of your images a clickable link that leads to a pet-related website of your choice.

***Comprehension Questions (/15):***

1. (/1) Where is your favorite place to find copyright-free images?
2. (/4) What are the top 3 most common screen resolutions for computer monitors? What is the resolution of your school computer?
3. (/1) Why might we want to resize an image?
4. (/3) What are the 3 types of image files suitable for the web?
5. (/1) What characteristic makes an image suitable for the web?
6. (/1) What is screen resolution?
7. (/1) What is the 1 attribute that is REQUIRED for an image to work?
8. (/1) What are some other commonly used attributes for images?
9. (/1) What is an “image hotspot”?
10. (/1) Why is it so important to keep images in the same folder as the .html document they belong to?

**The Handing In:**

Hand your “basic\_organization” folder, as well as this lesson8 document (with your responses to the comprehension questions included) into the Shared > Hammond > Hand-In folder.