



LEARNING MODULES

GK-12 DISSECT at New Mexico State University

Title: Info Graphics

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Discipline or Area: The Internet: HTML code writing and blogging

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School: Arrowhead Park Early College High School

Subject of class: Chemistry

Grade: 9th

COVERAGE OF COMPUTATIONAL TOPICS

Students were introduced to the foundational ideas underlying the internet and the World Wide Web. This module began with a discussion of how the internet operates and how students can manipulate the resources found online to present scientific discoveries. Our focus on this subject allowed for an in-depth look at abstraction, algorithms, variables, and computational thinking. More concretely, students learn the basics to making their own personal websites, blogs, and the mechanism of relays.

OBJECTIVES

Students will learn the principles underlying the internet and how it operates. Through discussion and an in-class activity students will understand how messages are relayed between servers and personal computers relying upon simple restrictions and proscriptions provided by Internet Protocols. Naturally, instruction leads to development of HTML coding skill and personal blogs.

EQUIPMENT AND MATERIALS

Computers with internet access
Prepared messages
Instructions

BACKGROUND AND REFERENCES

The deployment of this module was a result of the requirements of the EcoTrends Data Desert Jam (<http://www.asombro.org/desertdatajam.htm>) which “challenges high school students to find interesting ways to present scientific data to nonscientist audiences.” Information technology offers many exciting resources for achieving this purpose. Possible solutions include dynamic media including (websites, music, interactive models, and videos). In order to facilitate familiarity with this resources, students were instructed on the basics of the internet including HTML coding, website building, and blogging. In order to appreciate the tools available to modern consumers, a foundational understanding of the internet is necessary. Through discussion of basic principles and an activity developed by Gregory Lee students were able to comprehend the ideas of information relays, internet protocols, hypertext transfer protocols, and the hypertext mark-up language. In order to achieve the goal of the Desert Data Jam, website development and personal blog construction were covered. Some useful sites for internet basics, HTML coding, and blog creation are presented below:

<https://ggisolutions.wordpress.com/2011/09/15/internet-basic-concepts/>
<http://www.w3schools.com/html/default.asp>
www.blogger.com

Sample HTML code can be found in addendum.

Blog creation instructions can be found in addendum

PROCEDURE

Provide detailed instructions on how this module is taught.

During the first lesson, an overview of the history and format of the internet is provided. A relational chart is shown that represents the connections between individual computers, servers, and networks. Students are randomly assigned to different groups to participate in a relay activity. This activity includes specific instructions for how preordained messages can be transferred in order to conglomerate an overall message. At the end of the class, students are asked how this relates to the internet, and to explain the strengths and weaknesses of the system.

During the second and third classes, students are initially shown popular websites. The HTML code that creates the websites are then shown. Generally, the students are overwhelmed by the technicality of the code, so a simple example is shown. Following, students are instructed on the primitive steps for building their own website including how to add images, body text, and design changes. Ideally, this instruction would last for several weeks to build strong competence in the subject with projects requesting different procedures to be completed. The end result would be a competent and attractive website.

However, due to time constraints, during the fourth class period, students are instructed on the design and development of blogs. This allows students to add material and within the advanced options section of the blog page, they are able to experiment with HTML coding.

What were the “learning goals?”

The purpose of this module is describe the infrastructure of the internet, explain how computers, networks, and servers communicate, and show applications that are applicable to a general audience. We wanted the audience to have a solid understanding of how computers are able to communicate with one another and how the students could hone into this communication stream.

How did you introduce CT?

Because the internet runs on a finite number of established languages, networks and individual computers are able to communicate across the world. Also, the branching nature of the internet allows for information transfer at maximum speeds by following simple algorithms. By explaining the processes by which these systems function, CT concepts were conveyed to the students.

How could you assess the understanding of CT in this module?

The list of instructions included with the relay activity were obvious examples of algorithms that the students. The students were asked to explain, using the CT terms discussed, how the system functioned. We discussed which other concepts applied to data transfer and emphasized the efficiency and clarity of the system. When developing code for the students’ blogs, we asked how efficient algorithms could be written and asked for examples.

NOTES AND OBSERVATIONS

What were challenges you encountered in the overall development of the module?

Initially, explaining the rules governing the relay game were confusing and they had to be explained and modeled several times. However, once the rules were understood the activity went flawlessly. However, because of the time taken with the explanation, the activity had to be abbreviated. Explaining HTML coding is an exercise best conveyed over many class periods. However, we only had two class periods to expand upon the concept before we moved on to blog development. Again, the classroom computers were at times difficult to use, were slow, or had to be restarted.

What was successful?

The relay activity was successful at conveying the requisites for data transfer. Also, the clarity, efficiency, and ease of the process was evident once the rules were established. The students enjoyed the opportunity to express their creativity during their website/blog building and it expanded upon their information technology knowledge.

How was the students' reception to the content of the module?

The students were familiar with websites and blogs. However, they lacked knowledge of how the internet functions and how to create websites or blogs. They were amazed at how simple the mechanism governing data transfer truly is and asked many questions regarding technical aspects affecting internet speed. For example, many students asked if the internet could ever “break” or what governed the speed of an internet connection. They enjoyed the activity created by Gregory Lee and the creation of their own avenue for personal expression. As a consequence of our conversations, I believe many of the students will continue to expand upon their websites.

<http://desertdatajamxd.blogspot.com/>

<http://matyd1120.blogspot.com/>

HTML Sample Code Specific for Desert Data Jam

```
<!doctype html>
<html>
  <head>
<style>
h1 {
  color: blue;
}
</style>
<style>
body {
  background-image:
url(http://creativechemistry.weebly.com/uploads/2/2/9/9/22997270/8035463_orig.jpg?217
);
  background-repeat: no-repeat;
  background-position: 55% 0%;
  color: red;
</style>
  <title> Computing is Fun!!! </title>
<h1> <b> Desert Data Jam </b> </h1>
<body>
<div style="position: absolute; left: 500px; top: 30px;">

```

```
<p>
The sun is the initial energy source for all processes on Earth.
```

```
</p>
</div>
```

```
<p>The Desert Data Jam challenges high school <br>
students to find interesting ways to present <br>
scientific data to nonscientist audiences.</p>
```

```
<p>Students use ecological and/or sociological <br>
data collected in or near Las Cruces and stored <br>
on the EcoTrends website (www.ecotrends.info) to <br>
create a project that presents at least one dataset <br>
in a non-traditional way. We encourage students to <br>
get creative. Last year's projects included children's <br>
books, raps, videos, models, presentations, and infographics.
```

```
</p>
</body>
```

```
<h2>
```

```
<script type="text/javascript" src="https://www.google.com/jsapi"></script>
```

```
<script type="text/javascript">
google.load("visualization", "1", {packages:["corechart"]});
google.setOnLoadCallback(drawChart);
```

```
function drawChart() {
```

```
var data = google.visualization.arrayToDataTable([
  ['Year', 'Temperature', 'Calcium Phosphate'],
  ['2004', 1000, 400],
  ['2005', 1170, 460],
  ['2006', 660, 1120],
  ['2007', 1030, 540]
```

```
]);
```

```
var options = {
  title: 'Calcium Phosphate'
};
```

```
var chart = new
```

```
google.visualization.LineChart(document.getElementById('chart_div'));
chart.draw(data, options);
```

```
}
```

```
</script>
```

```
</h2>
```

```
<body>
```

```
<div id="chart_div" style="width: 900px; height: 500px;"></div>
```

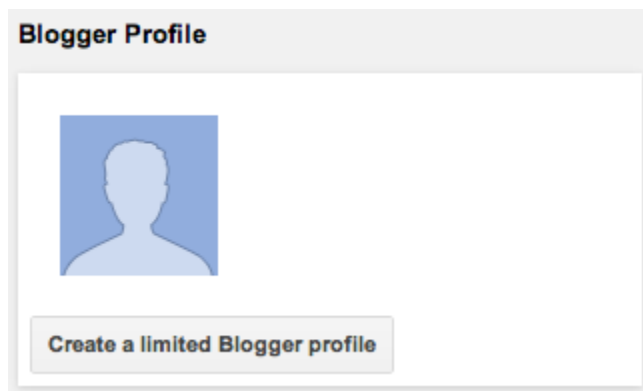
```
</html>
```

Blog Instructions

Assignment Description: Below you will find an algorithm that contains instructions on how to access Blogger, create a new blog, working with blog posts, customizing your blog, and sharing your blog. The goal is to successfully complete your Ecotrends project. Here are some links to the rubric and potential topics, but the overall idea is that you will be creating ONE blog that contains EIGHT posts (not eight blogs with one post).

Getting Set Up with Blogger

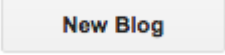
1. Open an Internet browser (Google Chrome, Mozilla Firefox)
2. In a new tab, navigate to www.blogger.com
3. Login with your school username and password.
4. To create your profile, click the “Create a limited Blogger profile” button on the right option.



5. Next, choose your Blogger name - since you used your lcps mail account, make sure your display name is appropriate. This is how you will show up.

6. Next, click  at the bottom.


Creating a New Blog

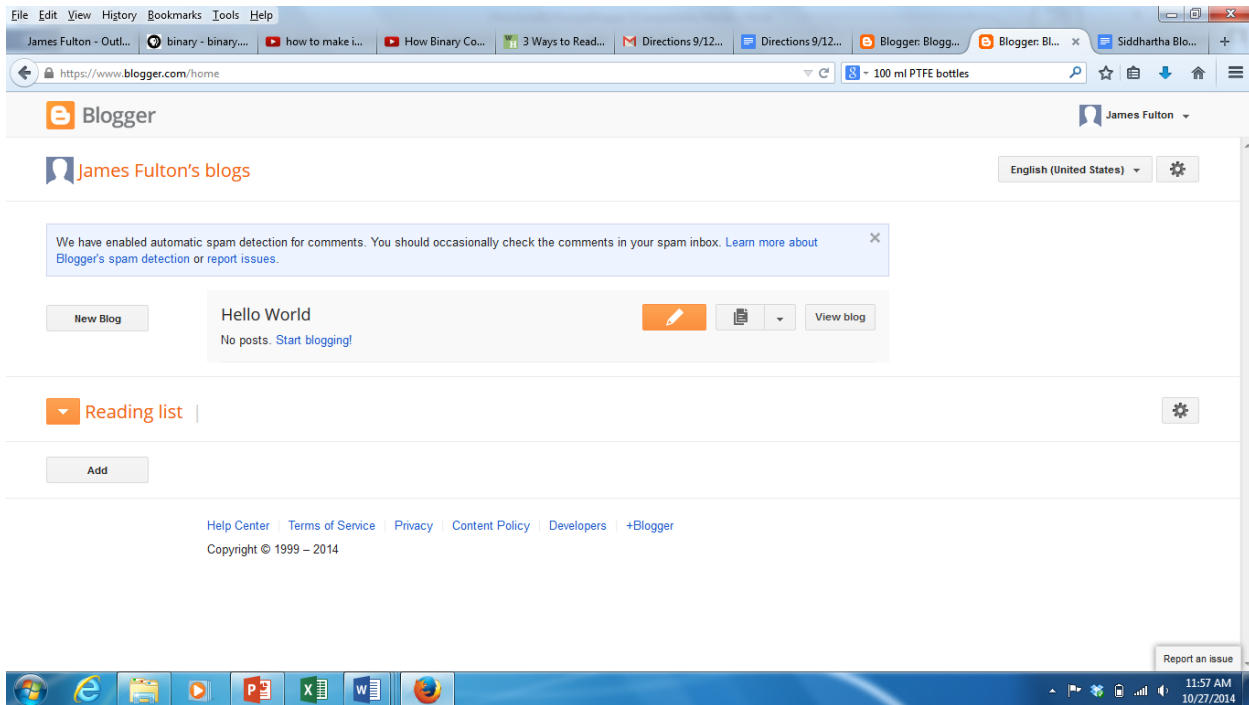
7. Click .

8. Give your blog a title. This will be shown at the top of every blog post and it is what your readers will see first. Your blog title should be unique, creative and something that is meaningful to you. The rubric contains this criteria, “You must give your blog site a unique thought-out title.” Don’t lose points for a boring blog title. A good method for unique titles could be the use of alliteration or oxymoron.

9. Choose an address for your blog. For example, “Miller Chemistry”. Then, you would be able to access your blog at <http://millerchemistry50000.blogspot.com/>.

10. Choose a template.


11. Click . This should take you to your dashboard / home screen in Blogger where you can find all of your Blogs.



Your Blog Dashboard

Working with Blog Posts


Creating a post

12. Any time you are on your dashboard in Blogger, you can create a new post by clicking  that is located to the right of your Blog name.

13. When you click the orange pencil, a blank document will open.

14. Give the post a title by clicking in the text box **Post** .

15. Most of your posts should regard your project, so add the project idea at the top of the page and then answer it. (This format is optional.)

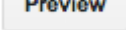
16. To insert an image, click  in the toolbar.

17. To insert a YouTube video, click  in the toolbar.

Saving and publishing a post

18. Blogger doesn't save automatically as often as Google Docs does, so you should click periodically.

 Save


19. Before you publish your post to the world, you should  the post to make sure that it's okay.

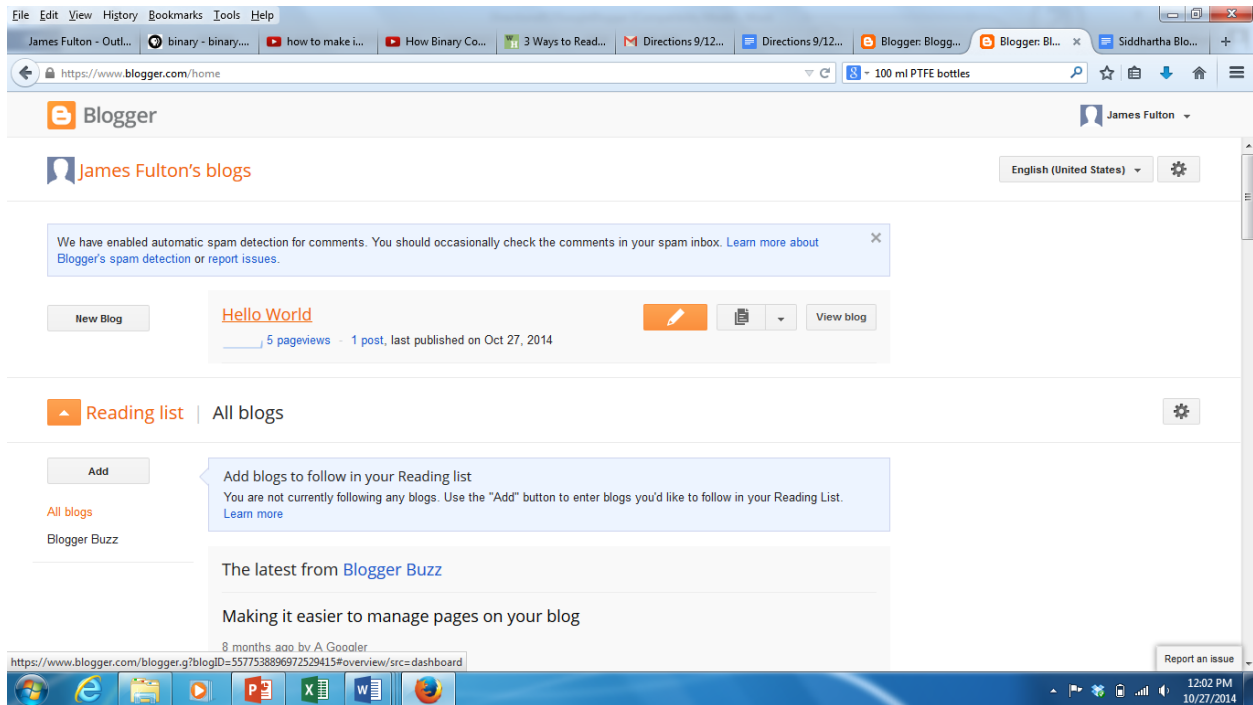
Preview

20. When you are ready to share your post with the world, hit  .

Publish


Editing a post

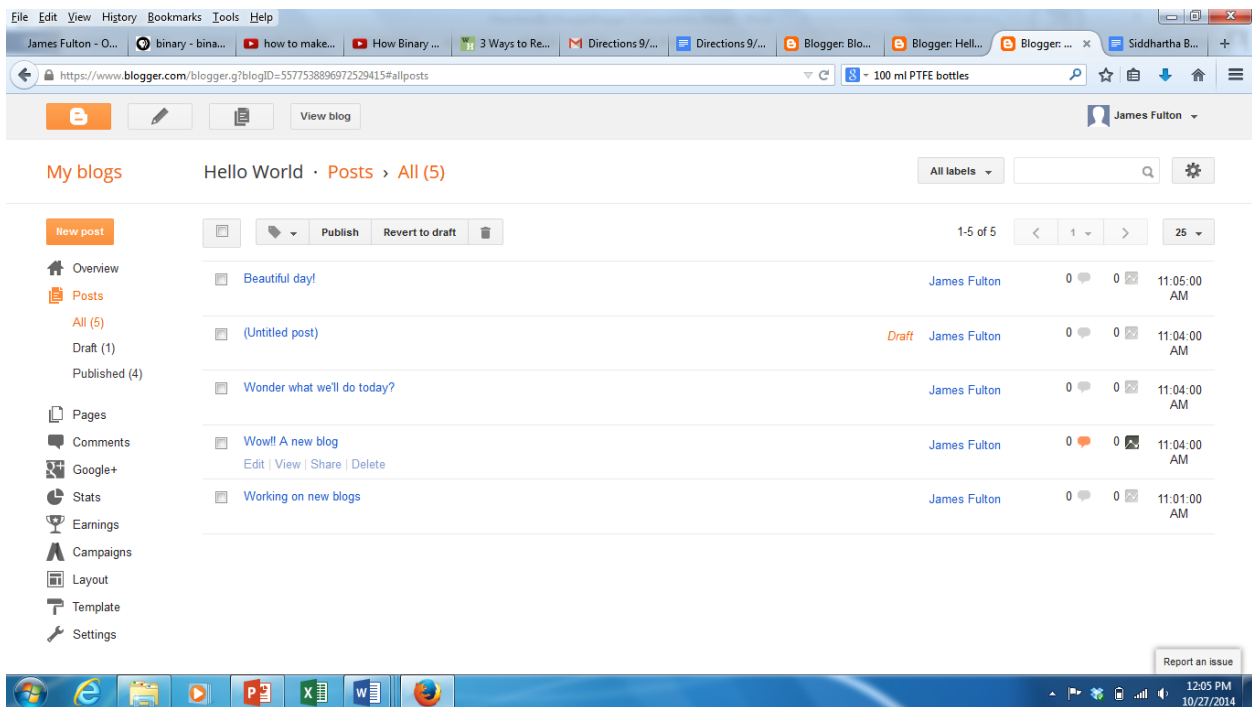
21. If you don't want to publish a post right away, you can save it and work on it later. You can also edit an already published post. To do so, navigate to your blog dashboard and click on the title of your blog (when you hover over the title, the text should turn orange and will be underlined), or you can skip steps 22 and 23 by clicking the  button.



22. Clicking the title will take you to the “Overview” page of your blog. You’ll see a menu on the left and other information about your blog on the right.




23. Choose the  **Posts** button from the menu. This will take you to the “Posts” page that has a list of all of the posts in your blog.




* NOTE: all posts that have not been published will contain the word *Draft*

24. Hovering over the title of a post will give you the option to Edit, View, Share, or Delete the post. Click the “Edit” option and your post will be opened for edit.

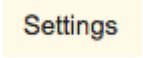



25. A couple of things to remember: don’t forget to save after you make the edits, and if you are editing a published post the new changes will not be shown until you  the post.

Customizing Your Blog

26. Navigate to your blog dashboard (the home screen that contains a list of your blogs) and open up the blog menu by click the down arrow on the  button.

Changing the title or address of your blog

27. Choose the  option from the menu. Depending on the menu, the settings option might look like  Settings .

28. Change the blog title by clicking “Edit” next to the old blog title.

Basic

Title

Hello World [Edit](#)

29. Change the blog address by clicking “Edit” next to the old blog address.

Publishing

Blog Address

millerchemistry50000.blogspot.com


[Edit](#)


[+ Setup a 3rd party URL for your blog](#) - Point your own registered URL to your blog.


Changing the template or layout of your blog

30. Choose the **Template** option from the menu. Depending on the menu it might look like  **Template** .


New post


 Overview


 Posts

 Pages


 Comments

 Google+

 Stats

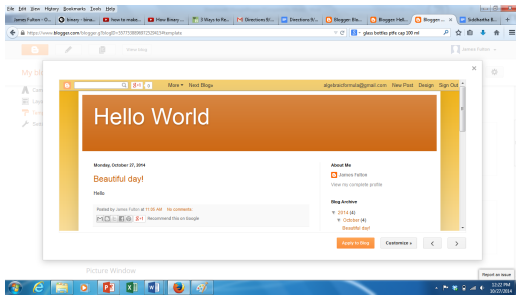
 Earnings

 Campaigns

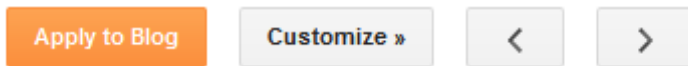
 Layout

 **Template**

31. You will see a list of template icons. To preview the template click the magnifying glass.



Then when you are ready, click:



Sharing Your Blog

21. Navigate to your blog dashboard (the home screen that contains a list of your blogs) and click the



button. This will open up a new tab in your Internet browser that contains your Blog.

22. Copy your blog address located in the browser address bar, and paste it into the [Student Blog Links](#) document next to your name.