

# Incorporating CT in Content Discussion

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**Keywords:** Computer Science, Math, Programming, Data

**Level:** 6-12

## **Purpose:**

This lesson will demonstrate using Google Forms, Spreadsheets and Google Sites to review content matter as well as show the students how to begin looking at data in a more usable way.

## **Overview:**

This lesson shows an alternate way of introducing content to the students. Instead of having a teacher centered discussion where students take notes, post your notes (book pages, PowerPoint slides, Smartboard notes, etc...) online where students can read them in advance. Then create a guided worksheet that ensures the students focus on the specific content.

Using Google Sites (all students must have a working Gmail address) have all students create a site with a blank template. Once this is complete, the students can create a Google Form in Google Drive and on this form ask the students to create a 10 question quiz based on their reading material/notes of specific content. Students must then copy the form web address to their Google Site. Require all students to share their Google Site web address and ask students to take other students' quizzes. During this process, teachers can begin to discuss data entry & user interfaces as well as the actual content for the course. Finally, the form creates a spreadsheet that the teacher can review (students need to share via email with teacher). Based on the quality of questions asked and the correct responses to those questions, the teacher can then decide how to pace the course. In addition, the teacher can begin discussing data collection, data formatting, and introduce basic spreadsheet functions like COUNT and COUNTIF.

## **Student Outcomes**

- Students will be able to use technology and specifically Google Sites, Google Forms & Google Spreadsheets.
- Students will be able to discuss content on any subject matter
- Students will be able to analyze data using functions in Google Spreadsheets



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- Standards addressed:
  - CT Stem Skills: Data & Information, Concepts from Computer Science
  - Next Generation Science Standards: Analyzing and Interpreting Data, Using Mathematics in Computational Thinking,
  - Common Core Math Standards

**Time:**

Pre-Assignment: Homework, Assign the guided review sheet  
 In class Day 1: Create Google account, site and form  
 Homework: Students take quizzes  
 In class Day 2: Class reviews results and discusses content

**Materials and Tools:**

Computers with working Internet  
 Working Gmail addresses for all students  
 Excel (optional) as opposed to Google Spreadsheets

**Preparation:**

Students should have a working Gmail address. This activity does work if they use Hotmail or Gmail accounts; however, it is much easier if everyone is using a Gmail account. Make sure you can access and create a Google Sites & Google Form (in Google Drive) in advance on your school network.

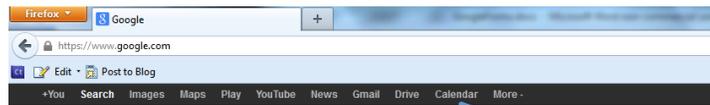
**Background**

Students should have a general knowledge of emailing and web browsing.

**Teaching Notes**

First I posted the PowerPoint slides on the school’s website and asked all students to complete a guided worksheet that I created to ensure that they had read all of the information on the slides. My class does not have books, and if we did, the guided worksheet would have simply helped them consolidate notes for a chapter in one.

Next, in class I asked all students to send me an email using their Gmail email account. They were now logged into their Google account on their web browser, so I asked them to locate the Google Sites.



This is located under the *more, even more* section in the browser



window. Have the students create a site using a generic name like schoolnameLastname or some standard format and make sure they use a **blank template**. The customized



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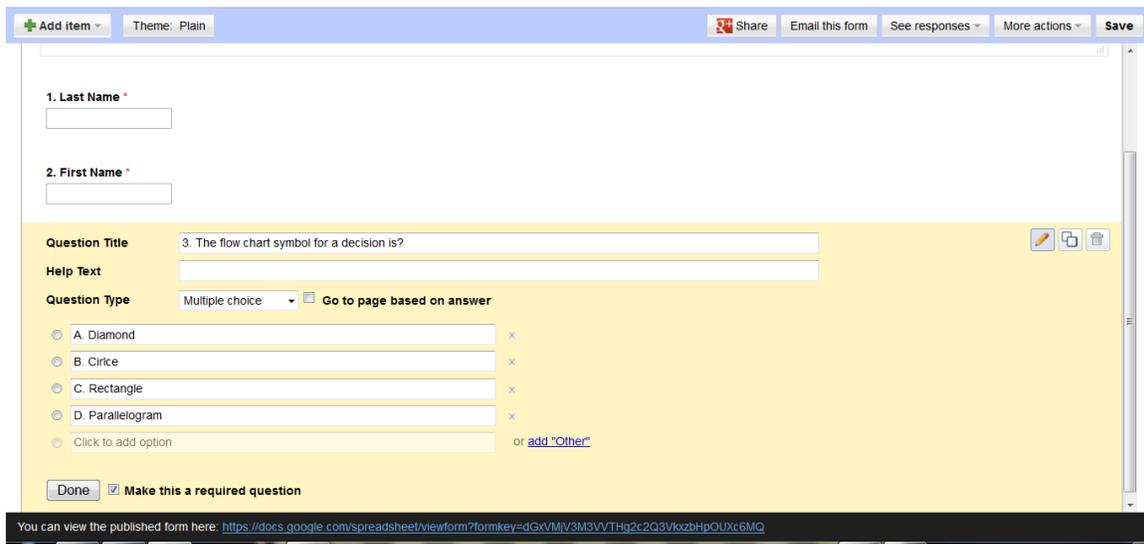
templates look pretty but are much too complicated and students will lose focus. Once they have created this site, have the students send another email to your address with the google site url or web address in it.

Next ask the students to return to the Google.com page and select **drive**. *Note: This may be named docs on your machines if they have not been upgraded (see below).* In the drive section, have the students select **Create, Form**



Within the Form, have the students name the form something close to the content matter and quiz 1. I required my students to name it LogicQuiz1 because we were working on programming logic.

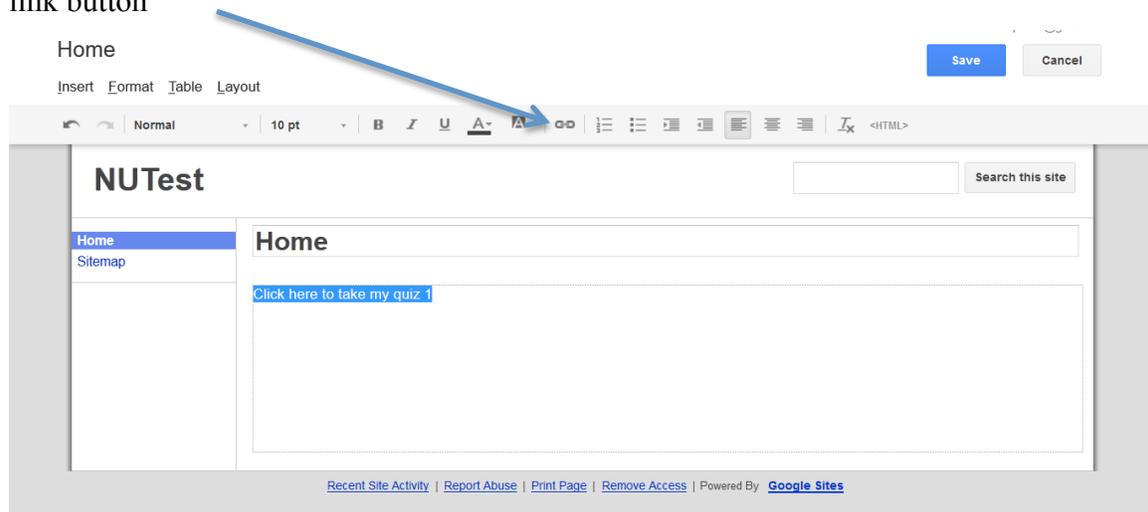
I asked the students to require 12 total questions. The first two initial questions were actually Last Name and First Name fields then the remaining questions that were created were required to be multiple choice. Note all questions must be numbered and the multiple choice answers must have letters (this helps when analyzing the data later).



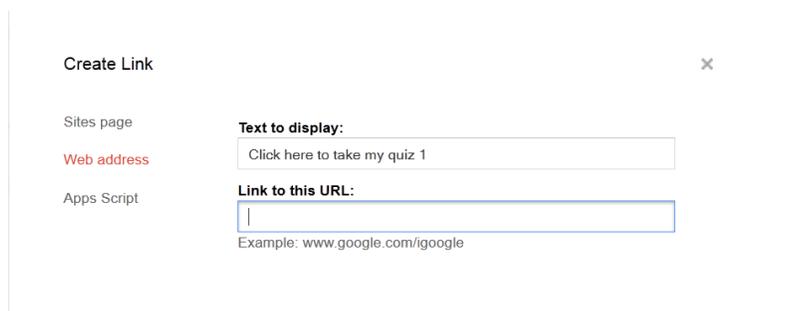
The URL or web address for the form is here. Once the students completed the form, they had to copy the URL and return to their Google Site.



This is how the students' Google site should look once you have selected the *pencil or edit* the page feature (upper right hand corner). Have the students' type in the body of the page, click here to take my quiz 1. Then they need to highlight those words and click the link button



On this window, students should select web address and copy the form URL to the Link to this URL box.



Once this has been saved, begin asking students to quizzes (possible homework assignment).

In day two, ask the students to login to their Gmail email account using a browser. In Google Drive, they should see their saved form with other students' responses in the spreadsheet format. Note if students need to edit the form while in the spreadsheet format, they can click *form, edit form*. Here the students need to work with the *countif* function and see how many correct responses occurred for each question. This is where data formatting discussions can happen. If the data is not clean or standardized, analyzing it will become quite a pain. While students are working on formatting and analyzing the data, ask them to share this spreadsheet with you. Also begin talking about the content during the formatting and analyzing the data portion of class. The students will have no idea that you are teaching them content while they are doing this! They need to select share in the upper right hand corner and type in your email address.

Finally, once all of the spreadsheets have been shared with your email, discuss the results of what the students analyzed. What was the most common question asked? Is this important to know? What is the most common question students got wrong? Does it need further explaining? What did the students learn from cleaning the data? What did the



students learn from analyzing the data? Do the students think this would be a good assessment? Why? Why not?

### **Assessment**

Once you have discussed as a class the content and the best way to collect data about this content. Ask the class which form/quiz was the best and then use this as a formal assessment for all students.

