





These guided activities would be good preparation for learning free code: Free Code Gibbon – [Switching Background](#), [Genie](#), [Night & Day \(Gibbon\)](#), [Catherine Wheel](#). This lesson is planned as a 40 minute lesson with a 10 minute homework activity. Please adapt it to your school's requirements.

<b>School:</b>	<b>Class:</b> Year 6	<b>Lesson:</b> 3 of 5	<b>Subject:</b> Computing	<b>Date:</b>
<b>Lesson Overview</b>	<b>Objective, LOs &amp; SCs</b>			<b>Free Code Activity</b>
<p>In this lesson, the students will learn what VARIABLES are and how they can be used in the <a href="#">FREE CODE GIBBON</a> online program. To do this they will need to login to Purple Mash.</p> <p>They will be learning how to create 2 separate variables, 1 that works with numbers, and 1 that works with text.</p>	<p><b>NC Objective:</b> Work with VARIABLES.</p> <p><b>Learning Outcomes:</b></p> <ul style="list-style-type: none"> <li>• I can explain what a VARIABLE is when used in programming.</li> <li>• I can create a timer that prints a new number to the screen every second.</li> <li>• I can explain how I made my program change the number every second.</li> <li>• I can create a program that includes a VARIABLE that prints new text to the screen every second.</li> </ul> <p><b>Success Criteria:</b></p> <ul style="list-style-type: none"> <li>• I can explain the steps I followed when making a timer.</li> <li>• I can explain what a VARIABLE is in programming.</li> <li>• I can explain why VARIABLES need to be named.</li> <li>• I can explain the steps I followed when creating a program that includes text VARIABLES.</li> </ul>			<p>Free Code Gibbon (for simplicity when starting with variables). This is a better option than Gorilla for your first variable lesson.</p> <p><a href="http://www.purplemash.com/app/code/openended/fr/eecodegibbon">http://www.purplemash.com/app/code/openended/fr/eecodegibbon</a></p>

<b>New Vocabulary</b>	<b>Link/s to other subjects</b>	<b>Differentiation</b>	<b>Assessment Opportunities</b>	<b>Resources Needed</b>
Action Command Control Events Object Variable	Literacy – descriptive language when writing up what they did and how it worked.	Include students to be aware of and notes for support staff. <b>SEN:</b> with support from staff should work to create simple counters using number variables. <b>LA:</b> as SEN. <b>HA:</b> should try to create a more advanced version of the program. <b>Extension Activities:</b> could create a more developed program.	<ul style="list-style-type: none"> <li>• Programs</li> <li>• writing up of programs</li> <li>• Observing how ch work together</li> </ul>	<ul style="list-style-type: none"> <li>• Computer/iPad per child</li> <li>• IWB</li> <li>• Internet connection</li> <li>• Purple Mash login for all children</li> </ul>

Introduction (5-10mins)	Activities (25mins)	Plenary	Homework
<p>Today we will be working with VARIABLES. VARIABLES are an important part of computer programming.</p> <p>Open FREE CODE GIBBON on IWB and look at orange VARIABLE buttons in the LHS menu.</p> <p>To explain what VARIABLES are:  <i>“VARIABLES are used in programming to keep track of the things that can change while a program is running, for example, the on/off state of a switch (see <a href="#">SWITCHING BACKGROUND</a> lesson), the number of swipes before a lamp changes into a genie (see <a href="#">GENIE</a> lesson) or the numbers in a timer (see <a href="#">NIGHT &amp; DAY Gibbon</a> lesson).</i></p> <p><i>“VARIABLES are like boxes that the computer can use to store information. In order to find the information in the box, each box should be labelled. Therefore, each VARIABLE (each of our boxes) needs to have a name. The name should be something that helps you remember what it is. The information inside the box is called the VARIABLE VALUE. The user, the program or another VARIABLE can change this VARIABLE VALUE.</i></p> <p><i>“In 2Code, VARIABLES can be either numbers or text (words, phrases or even whole sentences).”</i></p>	<p>Drag CREATE VARIABLE into black code box. Show drop down menu only gives two options. Why is this? Remind ch that in 2Code only options for VARIABLES are numbers or text. Choose NUMBER. Give VARIABLE a name. Ask ch why we are naming the VARIABLE? What should we call it? What should the VARIABLE equal? We can either define the VARIABLE as a specific number or set it to RANDOM. For this example, we will set the VARIABLE to 0.</p>   <p>Drag in TIMER and change AFTER to EVERY. Drag in CHANGE VARIABLE and place it in the yellow box under TIMER. We are using the TIMER, as this is an easy way for us to get the variable to continue changing all the time. Select your VARIABLE from the drop down menu. Set it to add 1 EVERY second. Drag in PRINT TO SCREEN under your VARIABLE, in the yellow box, and select your VARIABLE. The reason that we put PRINT SCREEN in to the box is to show us on the screen what the variable is doing. Press PLAY and show children that it is printing every number that it changes.</p> <p><b>Send children to computers to make their own timers.</b> Ch can experiment with number variables and see what they can make their programs do using number variables, e.g. making a counter that counts up from 20, down from 25, that counts the 5x table etc.</p> <p>Get ch to stop and look at the screen. Introduce text VARIABLES. To start with, create the code in the screengrab to the right and ask the children to explain what each element is. There are two VARIABLES, a TIMER and a PRINT TO SCREEN command. We’ve also set the second VARIABLE to change every second. The OUTPUT should look like the screengrab to the right (<a href="#">example</a>). <b>Send ch to create their own text VARIABLES.</b> (Work with VARIABLES)</p>  	<p>Children should write an explanation in their workbooks explaining what VARIABLES are and how they work.</p> <p>Ch show their programs on the IWB.</p>	<p>Spend 10 minutes using the COUNTING MACHINES in CODING PRINCIPLES and practicing with NUMBER VARIABLES</p>

