Computer Programming In QBasic

Name: _____ Class ID. _____ Computer# _____

Introduction

You've probably used computers to play games, and to write reports for school. It's a lot more fun to create your own games to play on the computer. This book will help you get started by using QBASIC.
QBASIC is a programming language. With a programming language you can tell the computer what you want it to do. It's a lot like giving someone directions to your house. The computer follows each step and does exactly what you tell it. By programming the computer you can solve math problems, create art or music, and even make new games. It's all up to you.
The best way to start with this tutorial is to type in some of the small programs you'll find in each of the chapters. Then change the programs to do what you want them to do. Before long, you'll be writing your own programs.

Chapter 1 - Getting Started

Setting up your User Drive

Click on START (Located on the bottom left of your screen) – Click on MY COMPUTER – Double click on your user drive. (The drive that ends with: (U:).)
Create a new folder and name it: teched. (Note: all lower case letters and no spaces.)

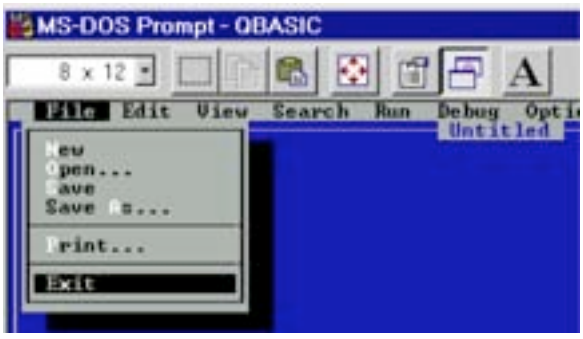
Getting to QBasic

To run QBASIC we need to get to the QBasic editor.
Click on START (Located on the bottom left of your screen) – Click on ALL PROGRAMS – click on: SHORTCUT TO MICROSOFT QUICK BASIC.

This will open the editor. Press on the ESC (escape) key to clear the screen and exit the Survival guide.

Getting Out

To exit the QBasic editor, Click on the FILE menu, scroll down and click on EXIT.



Note: Do NOT use the Close box to close the editor. You should always go to FILE then EXIT. If the editor is not closed correctly or if you have not saved your file, you could loose all your data.

QBasic Editor

Assuming you've used a computer before, the editing keys work in a similar way. The Left, Right, Up and Down arrows behave as one would expect – but, the Delete and Backspace keys are a little different. The Delete key deletes the character at the curser while the Backspace key deletes the character to the left.

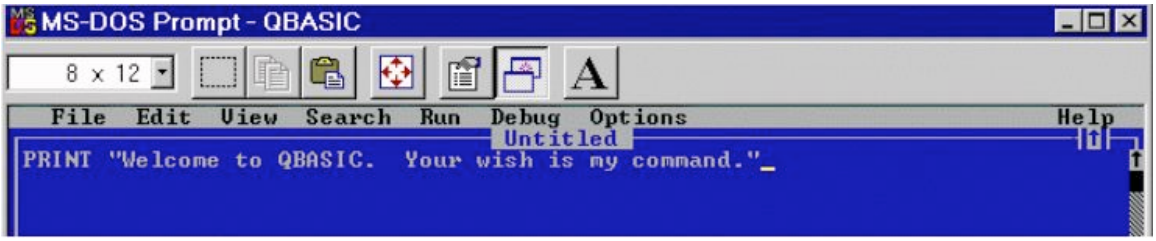
Chapter 2 – Print

Your First Program

With the blinking cursor (_) at the top-left corner of the screen, type this:

```
PRINT "Welcome to QBASIC. Your wish is my command."
```

Make sure it looks exactly like that. The quotation marks (") are very important. If you make any mistakes, use the Backspace or Delete key to correct them.



Running your Program

That's great, but what does it do? You have to run it to find out. Look for the word "Run" on QBasic's menu at the top of the screen. Click on it. Now you will see a menu with a list of selections (Start, Restart, and Continue). Click on Start to run your program.
On the QBasic output screen you should see:

```
Welcome to QBASIC. Your wish is my command.
```

Press any key to continue?

At the bottom of the screen you will see a message "Press any key to continue". Press <Enter> to get back to QBasic. This is QBasic's way of giving you enough time to see what your program did.

Key to Easy Running

Another way to run your program is to press the F5 key. Try running your program a second time, by pressing the F5 key.

```
Welcome to QBASIC. Your wish is my command.
Welcome to QBASIC. Your wish is my command.
```

What Just Happened?

The first word of your program (PRINT) is a command that instructs the computer to print to the QBasic editor's output screen whatever is inside the quotation marks.

Notice when you ran the program a second time, there was a second output line. This is because you never told the computer to erase the screen before printing the next line.

Learned

- Print command
- Running your program
- F5 Key

Chapter 3 – Save your Work

Location is everything!

We are going to save all the programs you create on your user drive. Prior to saving your programs, you must add a sub-directory (folder) on to the root directory (first page) of your user drive. Call the folder "teched". If you set-up your user drive in chapter 1, you should be all set. Now would be a good time to double check. Click on START, then MY COMPUTER, then double click on your user drive (U:). You should see your "teched" folder.

Note: the path to your teched folder is shown below:

U:\teched

Back Slash \ versus / Forward Slash

The \ is called a back slash – notice it leans back.
The / is called a forward slash – it leans forward.

Only use the back slash when defining a path.

Saving to your User Drive

Go to the FILE menu – then click on SAVE
Type the path and filename as displayed below:

U:\teched\c2print

Note: The "U:" is your user drive; the "\'s" are separators; "teched" is the name of the folder; and c2print1 is the filename. The file name means: Chapter 2, Print is the name of the chapter and the "1" designates the first program within the chapter.

Opening an Existing File

To open an existing file in QBasic, you cannot simply go to your user drive and double click on the saved file's icon. The computer will not know what application you used to create the file.

To open a QBasic program you must open the QBasic editor first and then open the file via the FILE menu and the OPEN command.

Learned

- Paths
- \ versus /
- Saving to your user drive
- File naming convention

Chapter 4 – CLS?

Wouldn't it be nice to be able to clear off the screen before printing a new line? "CLS", which stands for CLear Screen, is just the ticket. You will need to put CLS at the very top of your program to clear the screen before you print anything.

Inserting a new line at the top.

To make CLS the first line of your program, follow these steps:

Press the <Home> key to get to the beginning of the current line.
Press the <Up Arrow> key once or twice to get the cursor to the top of the program.
Press the <Enter> key to get a new line.
Press the <Up Arrow> key once to get the cursor on the new blank line.
Type CLS

Now your program should look like this:

```
CLS
PRINT "Welcome to QBASIC.  Your wish is my command."
```

Remember to always save your program before running it. Use the Save As command and use a different path to change the name.
The path for this program should be: u:\teched\C4CLS.

Now run it. Remember, click on Run and then Start in QBASIC's menu. You can also run the program by pressing <F5>

That's much better. Only one message is on the screen, which is the way it should be.

Shortcut ?

As a cool shortcut, use ? for PRINT. Try it. Press <Enter> to start typing on a new line. Now type this: `? "Programming is fun."`
and press <Enter> again. Now your program should look like this:

```
CLS
PRINT "Welcome to QBASIC.  Your wish is my command."
PRINT "Programming is fun."
```

Isn't that nice? The ? becomes the word PRINT. That should save us a lot of typing in the long run.

You can try running the program again. You should see something like this:

```
Welcome to QBASIC.  Your wish is my command.
Programming is fun.
```

!!! Always save your work !!!

Learned

- CLS
- ?

Chapter 5 – Do … Loop

Let's start a new program. To get rid of the old program, click on "File" on QBASIC's menu and you will see the File menu with New, Open..., Save, and others. Click on "New". QBASIC may tell you that your current program is not saved, and it will ask if you want to "Save it now?". Click on < OK > with the mouse.

Now you should have a clean blue screen. Type in this program:

```
DO
  PRINT "Ted was here ";
LOOP
```

Make sure you get the semi-colon (;) at the end of the PRINT line, and the space between the word "here" and the last quotation mark. You don't need to use my name, put yours in there instead ("Jack was here ", or whatever).

Always save your program before running it. Use the following path to save this program: **U:\teched\C5doloop**

Now run it.

DO...LOOP

DO and LOOP will do whatever is between the DO and the LOOP over and over again.

Give me a Break!

Ok, that's great. HOW DO I STOP IT!? Press the <Ctrl> (Control) key and hold it down while pressing the <Pause> key. The <Pause> key is usually at the top of the keyboard and all the way over to the right. This is called "pressing the <Break> key." Don't worry, it doesn't really break your program, it just stops it and takes you back to QBASIC. Maybe it should have been called the "brake" key.

Neatness Counts

Notice that PRINT has two spaces in front of it. This is called "indenting" and it makes the program easier to read. You can see the beginning and the end of the DO...LOOP more clearly. QBASIC doesn't care about indenting, only people do. It's important to make your programs look nice so other people can read them.

!!! Always save your work !!!

Learned

- File | New
- DO...LOOP
- <Break>

Chapter 6 - INPUT

So far our programs have only talked to us. Let's write one that will listen. Get rid of the previous program by clicking on File, then New on QBASIC's menu. Click on < Ok > when it asks if you want to save the old program now. Try this:

```
CLS
INPUT "Enter your name: ", Name$
PRINT "Hello, "; Name$; ".  How are you today?"
```

Don't forget the comma (,) between "Enter your name: " and Name$.
Remember to save your work. The path for this program is: u:\teched\C6INPUT
Run it. When it asks, type your name, then press the <Enter> key.

What's in a "Name$"?

"Name$" is called a "variable". To be variable means that things can change. Try running the program again, but this time type in a friend's name (don't forget the <Enter> key). Sure enough, the message changes.

INPUT

INPUT Name$ takes what you type at the keyboard and puts it into the Name$ variable. PRINT Name$ prints out what is in the Name$ variable.

Variables

Variables hold letters and numbers. The dollar sign ($) means this variable can hold letters. These are called "string variables". Variables without a dollar sign can only hold numbers. We'll be seeing them soon.
You can call your variables anything you want. Try going back through this program and changing every "Name$" to "Fred$". What happens when you run it?
Another way to think of a variable is to imagine a small bucket with a name on it. Put "Name$" on it. This is the bucket's (variable's) name. Now take a piece of paper and write your name on it and drop it into the imaginary bucket. Now the variable Name$ has your name in it. Computer variables can only hold one piece of paper (one value) at a time.

PRINT and Variables

When you want to PRINT what's in a variable, leave off the double-quotation marks ("). This program will show you how this works:

```
CLS
INPUT "Enter your name: ", Name$
PRINT "Name$"
PRINT Name$
```

The first PRINT statement prints Name$ on the screen. The second PRINT statement prints whatever name you entered.

Learned

INPUT Variables

Chapter 7 – If ... Then ... Else

Let's make that last program a little smarter. I want to be able to identify intruders playing with my programs. Wouldn't it be great if the computer could recognize someone's name and print a special message for them? How about this:

```
CLS
INPUT "Enter your name: ", Name$
IF Name$="Mike" THEN
  PRINT "Go Away!"
ELSE
  PRINT "Hello, "; Name$; ".  How are you today?"
END IF
```

Remember to save your work. The path for this program is: u:\teched\C7IFTHAN

"Mike" is not the same as "mike"

If it didn't tell the right person to go away, make sure you typed the name correctly. In QBASIC, "Mike" is not the same as "mike", so if you don't type the first letter in upper case, the program won't work. Make sure you enter the name exactly the way you put it in the program.

Conditions

The Name$="Mike" portion of the IF...THEN is called the "condition". With numbers you can also check for "greater than" and "less than":

```
CLS
INPUT "Enter a number: ", Number
IF Number < 100 THEN
  PRINT "Your number was less than 100"
ELSE
  PRINT "Your number was greater than or equal to 100"
END IF
```

Remember to save your work. The path for this program is: u:\teched\C7IFCOND

If you want to check for "greater than", use "Number > 100". Equals works just like before, "Number = 100". Another option is "not equal" which can be done like this: "Number <> 100".
IF...THEN is one of the most powerful features of QBASIC. Using IF...THEN can make your programs very interesting. It lets your program make decisions and do something appropriate.

Learned

IF...THEN...ELSE

Chapter 8 - The QBasic Challenge

Write your own program

You are a computer programmer hired by a movie theater. Your job is to create a QBasic program that will determine the price of a theatre ticket based on the customer's age.

The program must be able to input the customer's age then set the conditions so the price is determined as follows:

Age	0-4	(Child)	Price=$2
Age	5-18	(Student)	Price=$10
Age	19-64	(Adult)	Price=$15
Age	> 64	(Senior)	Price=$8

After the price is determined, the program must print the correct price of the ticket on the screen.

Remember to save your work. The path for this program is: u:\teched\C8CHAL1

Extra Credit

Modify the above program so it does not have to be re-run every time you enter an age in the program. (Hint: This would require looping the program.)

Remember to <save as> to change the name of the file to reflect the second challenge. The path for this new program is: u:\teched\C8CHAL2

Acknowledgement:

This tutorial is in part a modification of Ted Felix's "QBASIC Programming for Kids". The intent of this document is to meet the specific needs of the East Lyme Middle School's Technology Education curriculum activity. To view Mr. Felix's actual tutorial in its entirety visit: http://tedfelix.com/qbasic/.