

Advanced Visual Basic Curriculum Design

Power Standards:

1. Acquire knowledge and effectively demonstrate technology skills by thinking creatively, solving problems, and communicating.
2. Understand ethical and legal uses of technology.
3. Apply technology skills across the curriculum.
4. Aware of career and post-secondary opportunities involving computers and technology.

Power Benchmarks:

1. Student will be able to design an application using looping structures
2. Student will be able to create a MenuStrip into an application.
3. Student will be able to design an application that utilizes counters and accumulators.
4. Student will be able to design an application that utilizes compound operators.
5. Student will be able to create a dynamic Web application using Visual Basic.
6. Student will be able to design a Web application utilizing validation controls.
7. Student will be able to design an application using procedures and functions.
8. Student will be able to create a Splash Screen using an ActiveX ComboBox control.
9. Student will be able to create and code a Smartphone application.
10. Student will be able to design a Smartphone application that displays MessageBoxes.

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Students will be able to:

1. Acquire knowledge and effectively demonstrate technology skills by thinking creatively, solving problems, and communicating.
 - Student will be able to design an application using looping structures. (1)
 - Student will be able to design an application using procedures and functions. (7)
 - Student will be able to design a Smartphone application that displays MessageBoxes. (10)
2. Understand ethical and legal uses of technology.
 - Student will be able to create a Splash Screen using an ActiveX ComboBox control. (8)
 - Student will be able to design a Web application utilizing validation controls. (6)
3. Apply technology skills across the curriculum.
 - Student will be able to create a MenuStrip in an application. (2)
 - Students will be able to create a dynamic Web application using Visual Basic (3)
 - Student will be able to design an application that utilizes compound operators. (4)
4. Aware of career and post-secondary opportunities involving computers and technology.
 - Student will be able to create and code a Smartphone application. (9)
 - Student will be able to create a dynamic Web application using Visual Basic. (5)

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Stage 1 – Desired Results:

Power Standard
 ➤ Acquire knowledge and effectively demonstrate technology skills by thinking creatively, solving problems, and communicating.

Power Benchmark/Competency: #1
 ➤ Student will be able to design an application using looping structure.

Estimated Timeline: 7 days + on-going.

Place 'X' in square if goal addresses Essential/Content Standard(s).

Career	Technology	Critical Thinking	Global & Cultural	Personal Responsibility
	X	X		
			Social Responsibility	
Math	Science	Reading		Communication
X	X	X		

Understandings (Standards & Benchmarks):
Students will have mastered the material when they can:
 ➤ Code the Do...Loop structure.
 ➤ Understand the use of counters and accumulators.
 ➤ Code the For...Next loop.
 ➤ Code a Do loop.

Essential Questions:
 ➤ Explain the *Do...Loop* structure in code.
 ➤ Explain the *For...Next* loop structure in code.
 ➤ Is the *For...Next* loop top-controlled or bottom-controlled?
 ➤ Which loop should be used if you know the required number of times the loop will be executed?

Students will know...(Include vocabulary)
 ➤ how to determine which looping structure is appropriate for any given program.
 ➤ how to debug an infinite loop.

Students will be able to: (i.e. do)...(Include vocabulary)
 ➤ Analyze the given information and write programs utilizing looping structures.

Stage 2 – Assessment Evidence

Performance Tasks: (i.e. Assessment used to determine proficiency on competency)
 ➤ Chapter #6, Program #1
Average Temperature in Paradise

Key Criteria: (Rubric)
 ➤ Student must design a form with appropriate controls.
 ➤ Students must use correct naming format.
 ➤ Students must use internal documentation.
 ➤ Program must include correct and efficient coding.
 ➤ Program must produce accurate results.

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Stage 3 – Learning Plan:

Student will be able to design an application using looping structure.

Power Benchmark/Competency: #1

Learning Activities:	Resources:
Demonstration: Highway Radar Checkpoint	Visual Basic book
Program #1: Average Temperature in Paradise	Visual Basic book
Program #2: Average Commission	Visual Basic book
Program #4: Double Your Pay	Visual Basic book
Chapter #2 Quiz	Teacher generated
Chapter #2 Test	Teacher generated

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Stage 1 – Desired Results:

Power Standard
 ➤ Apply technology skills across the curriculum.

Power Benchmark/Competency: #2
 ➤ Student will be able to create a MenuStrip in an application.

Estimated Timeline: 7 days + on-going.

Place 'X' in square if goal addresses Essential/Content Standard(s).

Career	Technology	Critical Thinking	Global & Cultural	Personal Responsibility
		X		
Math	Science	Reading	Social Responsibility	Communication
X		X		

Understandings (Standards & Benchmarks):
Students will have mastered the material when they can:

- Add a MenuStrip object to a program.
- Code MenuStrip commands.
- Add code to the menu item event handlers.

Essential Questions:

- When you insert standard items in a MenuStrip object, what File menu items are automatically created by default?
- Explain the purpose of placing an ampersand before or within a MenuStrip item.

Students will know...(Include vocabulary)

- how to describe the process of creating a Menu on a Windows form object.
- how to incorporate hot keys on a Menu item.
- how to examine menus in Visual Studio to identify key characteristics of menus, such as separator bars, etc.

Students will be able to: (i.e. do)...(Include vocabulary)

- Analyze the given information and include a MenuStrip object into a program.

Stage 2 – Assessment Evidence

Performance Tasks: (i.e. Assessment used to determine proficiency on competency)

- Chapter 6, Program #2
Average Commission

Key Criteria: (Rubric)

- Student must design a form with appropriate controls.
- Students must use correct naming format.
- Students must use internal documentation.
- Program must include correct and efficient coding.
- Program must produce accurate results.

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Stage 3 – Learning Plan:

Student will be able to create a MenuStrip in an application.

Power Benchmark/Competency: #2

Learning Activities:	Resources:
Demonstration: Highway Radar Checkpoint	Visual Basic book
Program #1: Average Temperature in Paradise	Visual Basic book
Program #2: Average Commission	Visual Basic book
Program #3: Football Fever Scoreboard	Visual Basic book
Program #4: Double Your Pay	Visual Basic book
Program #5: Distance Traveled Calculator	Visual Basic book
Program #6: Pay Calculator	Visual Basic book
Chapter #2 Quiz	Teacher generated
Chapter #2 Test	Teacher generated

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Stage 1 – Desired Results:

Power Standard
 ➤ Apply technology skills across the curriculum.

Power Benchmark/Competency: #3
 ➤ Student will be able to design an application that utilizes counters and accumulators.

Estimated Timeline: 7 days + on-going.

Place 'X' in square if goal addresses Essential/Content Standard(s).

Career	Technology	Critical Thinking	Global & Cultural	Personal Responsibility
		X		
Math	Science	Reading	Social Responsibility	Communication
X		X		

Understandings (Standards & Benchmarks):
Students will have mastered the material when they can:

- Code a counter with a constant value.
- Code an accumulator using variables.
- Understand the use of counters and accumulators.

Essential Questions:

- What is a variable called that contains an accumulated value?
- What type of integers can a counter incorporate?
- What data type can a counter hold?
- What type of algebraic formula is used when incorporating a counter or accumulator?

Students will know...(Include vocabulary)

- how to write a formula incorporating a counter.
- how to increase a counter using a constant value.
- how to calculate an average using a counter and accumulator value.

Students will be able to: (i.e. do)...(Include vocabulary)

- Analyze the given information and write programs that incorporates counters and accumulators..

Stage 2 – Assessment Evidence

Performance Tasks: (i.e. Assessment used to determine proficiency on competency)

- Chapter #6, Program #3
Football Fever Scoreboard

Key Criteria: (Rubric)

- Student must design a form with appropriate controls.
- Students must use correct naming format.
- Students must use internal documentation.
- Program must include correct and efficient coding.
- Program must produce accurate results.

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Stage 1 – Desired Results:

Power Standard
 ➤ Apply technology skills across the curriculum.

Power Benchmark/Competency: #4
 ➤ Student will be able to design an application that utilizes compound operators.

Estimated Timeline: 7 days + on-going.

Place 'X' in square if goal addresses Essential/Content Standard(s).

Career	Technology	Critical Thinking	Global & Cultural	Personal Responsibility
		X		
Math	Science	Reading	Social Responsibility	Communication
X		X		

Understandings (Standards & Benchmarks):
Students will have mastered the material when they can:
 ➤ Write an assignment statement that incorporates compound operators.
 ➤ Analyze which type of compound operation is appropriate for a given mathematical formula.

Essential Questions:
 ➤ What type of mathematical operations can be used with a compound operator?
 ➤ What is the benefit to coding when using compound operators?
 ➤ When writing assignment statements that incorporate a compound operator, what elements are needed?

Students will know...(Include vocabulary)
 ➤ how to use a compound operator in mathematical formulas.
 ➤ that when using a compound operator, an arithmetic operator and an equal sign are needed.
 ➤ that the last element in the assignment statement is the variable or literal containing the value to be used in the calculation.

Students will be able to: (i.e. do)...(Include vocabulary)
 ➤ Analyze the given information and write programs that incorporate compound operators.

Stage 2 – Assessment Evidence

Performance Tasks: (i.e. Assessment used to determine proficiency on competency)
 ➤ Chapter #6, Program #5
Distance Traveled Calculator

Key Criteria: (Rubric)
 ➤ Student must design a form with appropriate controls.
 ➤ Students must use correct naming format.
 ➤ Students must use internal documentation.
 ➤ Program must include correct and efficient coding.
 ➤ Program must produce accurate results.

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Stage 3 – Learning Plan:

Student will be able to design an application that utilizes compound operators.

Power Benchmark/Competency: #4

Learning Activities:	Resources:
Demonstration: Highway Radar Checkpoint	Visual Basic book
Program #3: Football Fever Scoreboard	Visual Basic book
Program #5: Distance Traveled Calculator	Visual Basic book
Chapter #2 Quiz	Teacher generated
Chapter #2 Test	Teacher generated

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Stage 1 – Desired Results:

Power Standard

- Aware of career and post-secondary opportunities involving computers and technology.

Power Benchmark/Competency: #5

- Student will be able to create a dynamic Web application using Visual Basic.

Estimated Timeline: 7 days + on-going.

Place 'X' in square if goal addresses Essential/Content Standard(s).

Career	Technology	Critical Thinking	Global & Cultural	Personal Responsibility
		X		
Math	Science	Reading	Social Responsibility	Communication
X	X	X		

Understandings (Standards & Benchmarks):

Students will have mastered the material when they can:

- Create a Web application.
- Build a Web form using ASP.NET.
- Set Web form properties
- Use the full screen view properties.

Essential Questions:

- What page opens when you test a Web application?
- In a Web application, what property is similar to the Name property in a Windows application?
- Explain the different between a dynamic and static Web page.
- Describe the steps involved in creating a dynamic Web site with Visual Basic.
- What three keys can you press simultaneously to open the full screen option?

Students will know...(Include vocabulary)

- the difference between active and static Web pages.
- how to set web form properties.
- how and when the server-side code is actually used.

Students will be able to: (i.e. do)...(Include vocabulary)

- Analyze the given information and write a Web application.

Stage 2 – Assessment Evidence

Performance Tasks: (i.e. Assessment used to determine proficiency on competency)

- Chapter #7, Program #1
Cruise Reservation Web Application

Key Criteria: (Rubric)

- Student must design a form with appropriate controls.
- Students must use correct naming format.
- Students must use internal documentation.
- Program must include correct and efficient coding.
- Program must produce accurate results.

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Stage 3 – Learning Plan:

Student will be able to create a dynamic Web application using Visual Basic.

Power Benchmark/Competency: #5

Learning Activities:	Resources:
Demonstration: Mystic Reservation	Visual Basic book
Program #1: Cruise Reservation Web application	Visual Basic book
Program #2: New Employee Email Application	Visual Basic book
Program #3: Online Services	Visual Basic book
Program #4: Help Desk	Visual Basic book
Program #5: Lil Cucci's Pizzeria Online	Visual Basic book
Chapter #7 Quiz	Teacher generated
Chapter #7 Test	Teacher generated

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Stage 1 – Desired Results:

Power Standard
 ➤ Understand ethical and legal uses of technology.

Power Benchmark/Competency: #6
 ➤ Student will be able to design a Web application utilizing validation controls.

Estimated Timeline: 7 days + on-going.

Place 'X' in square if goal addresses Essential/Content Standard(s).

Career	Technology	Critical Thinking	Global & Cultural	Personal Responsibility
		X		
Math	Science	Reading	Social Responsibility	Communication
X		X		

Understandings (Standards & Benchmarks):
Students will have mastered the material when they can:
 ➤ Analyze the program and determine which validation control should be used.
 ➤ Code an application that utilizes validation controls.
 ➤ Correctly ID a given validation control.

Essential Questions:
 ➤ Which control validator confirms that the user enters a constant value?
 ➤ Which control validator checks if a value is between two integers?
 ➤ Which control validator confirms that a TextBox object is not left blank?
 ➤ What is the benefit of using validation controls over If Statements

Students will know...(Include vocabulary)
 ➤ how to code a validation control.
 ➤ how to correctly ID a given validation control.
 ➤ how to set the properties for a RangeValidator control.
 ➤ how to use the CompareValidator and Regular Expression Validator controls.

Students will be able to: (i.e. do)...(Include vocabulary)
 ➤ Analyze the given information and write programs that utilize different validation controls.

Stage 2 – Assessment Evidence

Performance Tasks: (i.e. Assessment used to determine proficiency on competency)
 ➤ Chapter #7, Program #4
Help Desk

Key Criteria: (Rubric)
 ➤ Student must design a form with appropriate controls.
 ➤ Students must use correct naming format.
 ➤ Students must use internal documentation.
 ➤ Program must include correct and efficient coding.
 ➤ Program must produce accurate results.

Advanced Visual Basic Curriculum Design

Stage 3 – Learning Plan:

Student will be able to design a Web application utilizing validation controls

Power Benchmark/Competency: #6

Learning Activities:	Resources:
Demonstration: Mystic Reservation	Visual Basic book
Program #1: Cruise Reservation Web application	Visual Basic book
Program #2: New Employee Email Application	Visual Basic book
Program #3: Online Services	Visual Basic book
Program #4: Help Desk	Visual Basic book
Program #5: Lil Cucci's Pizzeria Online	Visual Basic book
Chapter #7 Quiz	Teacher generated
Chapter #7 Test	Teacher generated

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Stage 1 – Desired Results:

Power Standard
 ➤ Acquire knowledge and effectively demonstrate technology skills by thinking creatively, solving problems, and communicating.

Power Benchmark/Competency: #7
 ➤ Student will be able to design an application using procedures and functions.

Estimated Timeline: 7 days + on-going.

Place 'X' in square if goal addresses Essential/Content Standard(s).

Career	Technology	Critical Thinking	Global & Cultural	Personal Responsibility
		X		
Math	Science	Reading	Social Responsibility	Communication
X	X	X		

Understandings (Standards & Benchmarks):
Students will have mastered the material when they can:

- Code a Sub procedure.
- Pass an argument to a procedure by value.
- Pass an argument to a procedure by reference.
- Code a Function procedure to return a value

Essential Questions:

- What happens to the variables that were passed by value when you leave a Sub procedure.
- How many value(s) can a Function procedure return?
- What is the name of a variable that is passed to a procedure?
- If you want a copy of a variable passed to a procedure, which way should you pass it?
- When multiple arguments are passed to a procedure, the order is important, why?

Students will know...(Include vocabulary)

- how to write a procedure by reference.
- how to explain function procedure.
- how to define by reference and explain the effects of the ByRef keyword on a parameter declaration.

Students will be able to: (i.e. do)...(Include vocabulary)

- Analyze the given information and write programs using procedures and functions.

Stage 2 – Assessment Evidence

Performance Tasks: (i.e. Assessment used to determine proficiency on competency)

- Chapter #8, Program #1
Compare Fuel Cost

Key Criteria: (Rubric)

- Student must design a form with appropriate controls.
- Students must use correct naming format.
- Students must use internal documentation.
- Program must include correct and efficient coding.
- Program must produce accurate results.

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Stage 1 – Desired Results:

Power Standard
 ➤ Understand ethical and legal uses of technology.

Power Benchmark/Competency: #8
 ➤ Student will be to create a Splash Screen using an ActiveX ComboBox control.

Established Timeline: 7 days + on-going.

Place 'X' in square if goal addresses Essential/Content Standard(s).

Career	Technology	Critical Thinking	Global & Cultural	Personal Responsibility
		X		
Math	Science	Reading	Social Responsibility	Communication
X	X	X		

Understandings (Standards & Benchmarks):
Students will have mastered the material when they can:

- Create a Splash Screen.
- Create a Splash Screen with a ComboBox control.
- Properly code a ComboBox and set its properties.

Essential Questions:

- Define a Splash Screen and explain its purpose.
- What line of code is needed to hold a Splash Screen for any amount of seconds?
- What properties need to be set for a ComboBox control?

Students will be know...(Include vocabulary)

- how to code a Splash Screen.
- what property to set to code the Splash Screen as the StartUp Form.

Students will be able to: (i.e. do)...(Include vocabulary)

- Analyze the given information and write programs that incorporate a Splash Screen with a ComboBox control.

Stage 2 – Assessment Evidence

Performance Tasks: (i.e. Assessment used to determine proficiency on competency)

- Chapter #8, Program #3
Baseball Ticket Sales

Key Criteria: (Rubric)

- Student must design a form with appropriate controls.
- Students must use correct naming format.
- Students must use internal documentation.
- Program must include correct and efficient coding.
- Program must produce accurate results.

Advanced Visual Basic Curriculum Design

Stage 3 – Learning Plan:

Student will be to create a Splash Screen using an ActiveX ComboBox control.

Power Benchmark/Competency: #8

Learning Activities:	Resources:
Demonstration: Ocean Tours	Visual Basic book
Program #1: Compare Fuel Costs	Visual Basic book
Program #2: Aluminum Recycling Campaign	Visual Basic book
Program #3: Baseball Ticket Sales	Visual Basic book
Chapter #8 Quiz	Teacher generated
Chapter #8 Test	Teacher generated

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Stage 1 – Desired Results:

Power Standard
 ➤ Aware of career and post-secondary opportunities involving computers and technology.

Power Benchmark/Competency: #9
 ➤ Student will be able to create and code a Smartphone application.

Estimated Timeline: 7 days + on-going.

Place 'X' in square if goal addresses Essential/Content Standard(s).

Career	Technology	Critical Thinking	Global & Cultural	Personal Responsibility
		X		
Math	Science	Reading	Social Responsibility	Communication
X		X		

Understandings (Standards & Benchmarks):
Students will have mastered the material when they can:

- Create a Smartphone application.
- Use a cell phone keypad for input.
- Code the Smartphone application.
- Create a softkey menu.

Essential Questions:

- How does input differ between a Smartphone and a PDA?
- When you combine a cell phone and a PDA, what is the name of this device?
- What are the names of the keys on the top corners of the Smartphone?
- What is the name of the operating system on Smartphones?

Students will know...(Include vocabulary)

- how to describe the environment of a Smartphone application and point out its differences from the traditional Windows desktop environment.
- How to define the command control area and explain its relationship to softkeys.

Students will be able to: (i.e. do)...(Include vocabulary)

- Analyze the given information and write programs that incorporate a Smartphone.

Stage 2 – Assessment Evidence

Performance Tasks: (i.e. Assessment used to determine proficiency on competency)

- Chapter #12, Program #1
Temperature Conversion

Key Criteria: (Rubric)

- Student must design a form with appropriate controls.
- Students must use correct naming format.
- Students must use internal documentation.
- Program must include correct and efficient coding.
- Program must produce accurate results.

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Stage 1 – Desired Results:

Power Standard
 ➤ Acquire knowledge and effectively demonstrate technology skills by thinking creatively, solving problems, and communicating.

Power Benchmark/Competency: #10
 ➤ Student will be able to design a Smartphone application that displays MessageBoxes.

Established Timeline: 7 days + on-going.

Place 'X' in square if goal addresses Essential/Content Standard(s).

Career	Technology	Critical Thinking	Global & Cultural	Personal Responsibility
	X	X		X
Math	Science	Reading	Social Responsibility	Communication
X		X	X	X

Understandings (Standards & Benchmarks):
Students will have mastered the material when they can:

- Code a MessageBox object.
- Use the correct method in coding a MessageBox object.

Essential Questions:

- What are the major coding differences between a MessageBox used in a Smartphone application versus one that is used in an application?
- What essential arguments are needed in a MessageBox control?
- What method is used when coding a MessageBox control?

Students will know...(Include vocabulary)

- how to code a MessageBox object.
- how to use the Show method.
- how to use the left softkey when running a MessageBox object

Students will be able to: (i.e. do)...(Include vocabulary)

- Analyze the given information and write program using MessageBox objects.

Stage 2 – Assessment Evidence

Performance Tasks: (i.e. Assessment used to determine proficiency on competency)

- Chapter #12, Program #2
Multinational Currency Conversion

Key Criteria: (Rubric)

- Student must design a form with appropriate controls.
- Students must use correct naming format.
- Students must use internal documentation.
- Program must include correct and efficient coding.
- Program must produce accurate results.

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Stage 3 – Learning Plan:

Student will be able to design a Smartphone application that displays MessageBoxes.

Power Benchmark/Competency: #10

Learning Activities:	Resources:
Demonstration: Tip Convertor	Visual Basic book
Program #1: Temperature Conversion	Visual Basic book
Program #2: Multinational Currency Conversion	Visual Basic book
Program #8: Personal Pedometer	Visual Basic book
Chapter #12 Quiz	Teacher generated
Chapter #12 Test	Teacher generated