

# Java Curriculum Design

## **Power Standards:**

1. Solve science and business oriented programs that are identifiable with ethical, cultural, economic and legal issues in their lives.
2. Utilize higher-order thinking skills by applying algebraic related formulas, variables, and structures to science and business oriented programs.
3. Cooperatively solve science and business related programs to develop valuable communication and learning skills.
4. Apply technology skills across the curriculum.

## **Power Benchmarks:**

1. Student will be able to write, compile and run a simple Java application.
2. Student will be able to create a Java application utilizing escape characters and a system date.
3. Student will be able to write, compile, and run an applet from Java source code.
4. Student will be able to create an application that identifies, declares, and uses primitive data types.
5. Student will be able to design an application using Java methods.
6. Student will be able to write, compile, and run an applet utilizing images and sound.
7. Students will be able to create an application using if.....else decision making statement.
8. Student will be able to design an application using AND, OR, and NOT logical operators.
9. Student will be able to create an application using decision making while statements.
10. Student will be able to create an application using try and catch statements to handle exceptions.

# Java Curriculum Design

Students will be able to:

1. Solve science and business oriented programs that are identifiable with ethical, cultural, economic and legal issues in their lives.
  - Student will be able to write, compile, and run an applet from Java source code. (3)
2. Utilize higher-order thinking skills by applying algebraic related formulas, variables, and structures to science and business oriented programs.
  - Student will be able to create an application that identifies, declares, and uses primitive data types. (4)
  - Student will be able to design an application using Java methods. (5)
  - Students will be able to create an application using if.....else decision making statement. (7)
  - Student will be able to create an application using decision making while statements. (9)
3. Cooperatively solve science and business related programs to develop valuable communication and learning skills.
  - Student will be able to write, compile and run a simple Java application. (1)
  - Student will be able to create a Java application utilizing escape characters and a system date. (2)
  - Student will be able to design an application using AND, OR, and NOT logical operators. (8)
  - Student will be able to create an application using try and catch statements to handle exceptions. (10)
4. Apply technology skills across the curriculum.
  - Student will be able to write, compile, and run an applet utilizing images and sound. (6)

# Java Curriculum Design

## Stage 1 – Desired Results:

**Power Standard:**

- Cooperatively solve science and business related programs to develop valuable communication and learning skills.

**Power Benchmark/Competency: #1**

- Student will be able to write, compile, and run a simple Java application.

**Estimated Timeline:**

- 5 days + on-going.

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

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

**Understandings (Standards & Benchmarks):**  
*Students will understand that (sentence):*

- There are different parts to a class header and method header.
- Understand common types of programming errors.
- Write and edit Java source code to insert escape characters and a system date.
- Print Java source code

**Essential Questions:**

- Explain the purpose of a method header.
- List the three-step process to save, compile, and execute a program.
- How does code differ between applications and applets?
- What symbol must every line of code, other than headers and braces, end with?

**Students will: (know how to)...** (Include vocabulary)

- Use the Println() method.
- Debug Java source code.
- Differentiate between an application and an applet.

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

- Analyze a problem and write simple Java programs.

## Stage 2 – Assessment Evidence

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

- Chapter #2, Program #7  
*Rick's Riding Rodeo*

**Key Criteria: (Rubric)**

- Students must use internal documentation.
- Program must include correct and efficient coding.
- Program must produce accurate results.
- Program must include correct libraries.

# Java Curriculum Design

## Stage 3 – Learning Plan:

Student will be able to write, compile, and run a simple Java application.

### Power Benchmark/Competency: #1

Learning Activities:	Resources:
End of Chapter Programming Assignments	Java Programming/Shelly Cashman
Chapter Questions	Java Programming/Shelly Cashman
Chapter Test	Java Programming/Shelly Cashman
Teacher generated handouts	

# Java Curriculum Design

## Stage 1 – Desired Results:

**Power Standard:**

- Cooperatively solve science and business related programs to develop valuable communication and learning skills.

**Power Benchmark/Competency: #2**

- Student will be able to create a Java application utilizing escape characters and a system date.

**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 understand that (sentence):*

- Entering code to call a system Date constructor.
- Escape Characters are needed to position strings away from the left side of the output screen.

**Essential Questions:**

- What are escape characters?
- What class is needed to keep track of the current date and time?
- What is a constructor?
- What method controls text output to the right?

**Students will: (know how to)...** (Include vocabulary)

- how to construct the storage location to hold the system date data.
- how to declare the type of data or object to be stored and assign it a variable name.
- how to use escape characters to position and indent the output away from the left side of the screen.

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

- Analyze the given information and write programs that incorporate escape characters and a system date.

## Stage 2 – Assessment Evidence

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

- Chapter #2, Program #5  
*Formatting Output Using Escape Characters*

**Key Criteria: (Rubric)**

- Students must use internal documentation.
- Program must include correct and efficient coding.
- Program must produce accurate results.
- Program must include correct libraries.

# Java Curriculum Design

## Stage 3 – Learning Plan:

Student will be able to create a Java application utilizing escape characters and a system date.

### Power Benchmark/Competency: #2

Learning Activities:	Resources:
End of Chapter Programming Assignments	Java Programming/Shelly Cashman
Chapter Questions	Java Programming/Shelly Cashman
Chapter Test	Java Programming/Shelly Cashman
Teacher generated handouts	

# Java Curriculum Design

## Stage 1 – Desired Results:

**Power Standard:**  
 ➤ Solve science and business oriented programs that are identifiable with ethical, cultural, economic and legal issues in their lives.

**Power Benchmark/Competency: #3**  
 ➤ Student will be able to write, compile, and run an applet from Java source code.

**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 understand that (sentence):*

- The applet program differs from a Java or Swing application.
- The applet program requires an HTML host document.
- A graphic in the applet program requires specific x and y coordinate placement.

**Essential Questions:**

- List the three-step process to save, compile, and execute an applet program.
- How does code differ between applications and applets?
- What symbol must every line of code, other than headers and braces, end with?

**Students will: (know how to)...** (Include vocabulary)

- Write and execute an applet.
- Write code to display a graphic, text, color, and the date in an applet.
- Code an applet from Java source code.
- Create an HTML host document.

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

- Analyze a problem and write simple Java applet.

## Stage 2 – Assessment Evidence

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

- Chapter #2, Program #10  
*Your School Logo*

**Key Criteria: (Rubric)**

- Students must use internal documentation.
- Program must include correct and efficient coding.
- Program must produce accurate results.
- Program must include correct libraries.

# Java Curriculum Design

## Stage 3 – Learning Plan:

Student will be able to write, compile, and run an applet from Java source code.

### Power Benchmark/Competency: #3

Learning Activities:	Resources:
End of Chapter Programming Assignments	Java Programming/Shelly Cashman
Chapter Questions	Java Programming/Shelly Cashman
Chapter Test	Java Programming/Shelly Cashman
Teacher generated handouts	

# Java Curriculum Design

## Stage 1 – Desired Results:

**Power Standard:**  
 ➤ Utilize higher-order thinking skills by applying algebraic related formulas, variables, and structures to science and business oriented programs.

**Power Benchmark/Competency: #4**  
 ➤ Student will be able to create an application that identifies, declares and uses primitive data types

**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 understand that (sentence):*  
 ➤ Use the system class to create data streams.  
 ➤ Use assignment statements to store data with proper identifiers.  
 ➤ Understand the difference between Integer and Modulus division.  
 ➤ Demonstrate how to use an accumulator or counter to manipulate data.  
 ➤ Demonstrate the use of integer and modulus division with a Java program.

**Essential Questions:**  
 ➤ What type of data would be stored in Java using a primitive data type?  
 ➤ What type of data would be stored in Java using a reference data type?  
 ➤ What is the purpose of a declaration statement?  
 ➤ What is the symbol used in a Java program statement to perform Modulus Division?  
 ➤ What is the symbol used in a Java program to perform concatenation of two strings.  
 ➤ Identify the common streams used in a Java program.

**Students will: (know how to)...** (Include vocabulary)  
 ➤ Write a valid declaration statement  
 ➤ Declare and assign data type within a Java Program.  
 ➤ Use operator symbols correctly in making calculations with a Java program.

**Students will be able to: (i.e. do)...**(Include vocabulary)  
 ➤ Analyze the given information and write programs that utilize primitive data types.

## Stage 2 – Assessment Evidence

**Performance Tasks: (i.e. Assessment used to determine proficiency on competency)**  
 ➤ Chapter 3, Program #11,  
*Currency Conversion*

**Key Criteria: (Rubric)**  
 ➤ Students must use internal documentation.  
 ➤ Program must include correct and efficient coding.  
 ➤ Program must produce accurate results.  
 ➤ Program must include correct libraries.

# Java Curriculum Design

## Stage 3 – Learning Plan:

Student will be able to create an application that identifies, declared and used primitive data types

### Power Benchmark/Competency: #4

<b>Learning Activities:</b>	<b>Resources:</b>
End of Chapter Programming Assignments	Java Programming/Shelly Cashman
Chapter Questions	Java Programming/Shelly Cashman
Chapter Test	Java Programming/Shelly Cashman
Teacher generated handouts	

# Java Curriculum Design

## Stage 1 – Desired Results:

**Power Standard:**  
 ➤ Utilize higher-order thinking skills by applying algebraic related formulas, variables, and structures to science and business oriented programs.

**Power Benchmark/Competency: #5**  
 ➤ Student will be able design an application using Java Methods

**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 understand that (sentence):*  
 ➤ How to receive and handle user input in an interactive Java program.  
 ➤ Use the readLine() method to handle user input  
 ➤ Convert strings to numbers using the parse() method.  
 ➤ Round an answer using the round() method of the Math Class.

**Essential Questions:**  
 ➤ What Java method is used to convert strings to numbers?  
 ➤ What is the end result or purpose of a statement using a Parse() method?  
 ➤ What is the end result or purpose of a statement using a Round() method?

**Students will: (know how to)...** (Include vocabulary)  
 ➤ Use the exit() method to close a Swing program.  
 ➤ Use the readLine() method to handle user input.  
 ➤ Define the parse() method and explain the different, unique versions of the parse() method for each class

**Students will be able to: (i.e. do)...**(Include vocabulary)  
 ➤ Analyze the given information and write programs that use interactive Java and use of concatenation using the Round() Method.

## Stage 2 – Assessment Evidence

**Performance Tasks: (i.e. Assessment used to determine proficiency on competency)**  
 ➤ Chapter #3, Program #6, *Creating An Applet*

**Key Criteria: (Rubric)**  
 ➤ Students must use internal documentation.  
 ➤ Program must include correct and efficient coding.  
 ➤ Program must produce accurate results.  
 ➤ Program must include correct libraries.

# Java Curriculum Design

## Stage 3 – Learning Plan:

Student will be able design an application using Java Methods

### Power Benchmark/Competency: #5

<b>Learning Activities:</b>	<b>Resources:</b>
End of Chapter Programming Assignments	Java Programming/Shelly Cashman
Chapter Questions	Java Programming/Shelly Cashman
Chapter Test	Java Programming/Shelly Cashman
Teacher generated handouts	

# Java Curriculum Design

## Stage 1 – Desired Results:

**Power Standard:**  
 ➤ Apply technology skills across the curriculum.

**Power Benchmark/Competency: #6**  
 ➤ Student will be able to write, compile, and run an applet utilizing images and sound.

**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 understand that (sentence):*  
 ➤ media can enhance a Java applet.  
 ➤ multiple AudioClip items can play at the same time and the resulting sound is mixed together to produce a composite.  
 ➤ the loop( ) method will play the sound repeatedly.  
 ➤ the stop( ) method is used to halt the playback.

**Essential Questions:**

- How is a JApplet different from an application?
- What music files can be utilized when writing a Java applet?
- What method is used to incorporate sound into an applet?
- How many arguments can be passed to the play( ) method?

**Students will: (know how to)...** (Include vocabulary)  
 ➤ how to incorporate more than one argument into the play ( ) method.  
 ➤ how to use the new AudioClip( ) method to play the sound more than once.  
 ➤ how to write the applet code to incorporate the stop( ) and loop( ) methods.

**Students will be able to: (i.e. do)...**(Include vocabulary)  
 ➤ Analyze a problem and write simple Java applet that incorporates media (sound and images).

## Stage 2 – Assessment Evidence

**Performance Tasks: (i.e. Assessment used to determine proficiency on competency)**  
 ➤ Revise, Chapter #2, Program #10  
*Your School Logo*

**Key Criteria: (Rubric)**

- Students must use internal documentation.
- Program must include correct and efficient coding.
- Program must produce accurate results.
- Program must include correct libraries.

# Java Curriculum Design

## Stage 3 – Learning Plan:

Student will be able to write, compile, and run an applet utilizing images and sound.

### Power Benchmark/Competency: #6

Learning Activities:	Resources:
End of Chapter Programming Assignments	Java Programming/Shelly Cashman
Chapter Questions	Java Programming/Shelly Cashman
Chapter Test	Java Programming/Shelly Cashman
Teacher generated handouts	

# Java Curriculum Design

## Stage 1 – Desired Results:

**Power Standard:**  
 ➤ Utilize higher-order thinking skills by applying algebraic related formulas, variables, and structures to science and business oriented programs.

**Power Benchmark/Competency: #7**  
 ➤ Students will be able to create an application using if.....else decision making statement.

**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 understand that (sentence):*  
 ➤ Parenthesis are needed when using multiple statements.  
 ➤ The condition used in an if...else structure must evaluate to a Boolean expression.

**Essential Questions:**  
 ➤ What is the difference between an if...else decision structure and a while decision structure?  
 ➤ What is the difference between a single life if statement, block if statement, and a nested if statement?

**Students will: (know how to)...** (Include vocabulary)  
 ➤ Code decision structure using the if...else statement to perform selection or make a decision on whether to execute a particular piece of code based on the evaluation of a condition.  
 ➤ Code a decision structure using the relational operators.

**Students will be able to: (i.e. do)...** (Include vocabulary)  
 ➤ Analyze the given information and create, code, and run a program that uses an if...else decision structure.

## Stage 2 – Assessment Evidence

**Performance Tasks: (i.e. Assessment used to determine proficiency on competency)**  
 ➤ Chapter #4, Handout: Movie Tickets

**Key Criteria: (Rubric)**  
 ➤ Students must use internal documentation.  
 ➤ Program must include correct and efficient coding.  
 ➤ Program must produce accurate results.  
 ➤ Program must include correct libraries.

# Java Curriculum Design

## Stage 3 – Learning Plan:

Students will be able to create an application using if.....else decision making statement.

### Power Benchmark/Competency: #7

<b>Learning Activities:</b>	<b>Resources:</b>
End of Chapter Programming Assignments	Java Programming/Shelly Cashman
Chapter Questions	Java Programming/Shelly Cashman
Chapter Test	Java Programming/Shelly Cashman
Teacher generated handouts	

# Java Curriculum Design

## Stage 1 – Desired Results:

**Power Standard:**  
 ➤ Cooperatively solve science and business related programs to develop valuable communication and learning skills.

**Power Benchmark/Competency: #8**  
 ➤ Students will be able to design an application using logical AND, OR, and NOT 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	X		

**Understandings (Standards & Benchmarks):**  
*Students will understand that (sentence):*  
 ➤ The logical AND, OR, and NOT operators provide a different selection process.  
 ➤ The logical operator is used to connect two conditional expressions.  
 ➤ The AND operator must evaluate both expressions to be true.  
 ➤ The OR operator must evaluate either expression to true.

**Essential Questions:**  
 ➤ What are three situations that match the logical operators?  
 ➤ Explain the difference between a AND and OR operators.  
 ➤ What is the difference between relational and equity operators?  
 ➤ What symbols are used for coding using the AND, OR, and NOT operators?

**Students will: (know how to)...** (Include vocabulary)  
 ➤ how to write a program using logical operators.  
 ➤ how to execute one set of code over another.  
 ➤ how to use the NOT operator connecting two expressions.

**Students will be able to: (i.e. do)...** (Include vocabulary)  
 ➤ Write a program utilizing logical operators.

## Stage 2 – Assessment Evidence

**Performance Tasks: (i.e. Assessment used to determine proficiency on competency)**  
 ➤ Chapter #4, Program #9  
*Wright's Garage*

**Key Criteria: (Rubric)**  
 ➤ Students must use internal documentation.  
 ➤ Program must include correct and efficient coding.  
 ➤ Program must produce accurate results.  
 ➤ Program must include correct libraries.

# Java Curriculum Design

## Stage 3 – Learning Plan:

Students will be able to design an application using logical operators, try and catch statements to handle exceptions.

### Power Benchmark/Competency: #8

<b>Learning Activities:</b>	<b>Resources:</b>
End of Chapter Programming Assignments	Java Programming/Shelly Cashman
Chapter Questions	Java Programming/Shelly Cashman
Chapter Test	Java Programming/Shelly Cashman
Teacher generated handouts	

# Java Curriculum Design

## Stage 1 – Desired Results:

**Power Standard:**  
 ➤ Utilize higher-order thinking skills by applying algebraic related formulas, variables, and structures to science and business oriented programs.

**Power Benchmark/Competency: #9**  
 ➤ Students will be able to create an application using decision making while statement

**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 understand that (sentence):*  
 ➤ Code a repetition structure using the while statements  
 ➤ Code a repetition structure using the do while statements

**Essential Questions:**  
 ➤ Explain the difference between while, do while and for repetition structure.  
 ➤ Explain the difference between while and do while repetitive structure.  
 ➤ Give details the details of coding need to for repetition structure.

**Students will: (know how to)...** (Include vocabulary)  
 ➤ Explain the difference between while, while loop, and while statement.  
 ➤ Define a while loop and while statement and use examples of uses.  
 ➤ Use the while loop and while statements.  
 ➤ Limit the number of times the user can enter data.

**Students will be able to: (i.e. do)...**(Include vocabulary)  
 ➤ Analyze the given information and create, code, and run a program that uses a while statement.

## Stage 2 – Assessment Evidence

**Performance Tasks: (i.e. Assessment used to determine proficiency on competency)**  
 ➤ Chapter #4, Program #7  
*We Love Pets*

**Key Criteria: (Rubric)**  
 ➤ Students must use internal documentation.  
 ➤ Program must include correct and efficient coding.  
 ➤ Program must produce accurate results.  
 ➤ Program must include correct libraries.

# Java Curriculum Design

## Stage 3 – Learning Plan:

Students will be able to creation an application using decision making while statement.

### Power Benchmark/Competency: #9

Learning Activities:	Resources:
End of Chapter Programming Assignments	Java Programming/Shelly Cashman
Chapter Questions	Java Programming/Shelly Cashman
Chapter Test	Java Programming/Shelly Cashman
Teacher generated handouts	

# Java Curriculum Design

## Stage 1 – Desired Results:

**Power Standard:**  
 ➤ Cooperatively solve science and business related programs to develop valuable communication and learning skills.

**Power Benchmark/Competency: #10**  
 ➤ Student will be able to create an application using try and catch statements to handle exceptions.

**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 understand that (sentence):*  
 ➤ Switch statements are used to test correct use of values.

**Essential Questions:**  
 ➤ What are key points of a switch statement? Why is the point important?

**Students will: (know how to)...** (Include vocabulary)  
 ➤ write a program using switch statement

**Students will be able to: (i.e. do)...** (Include vocabulary)  
 ➤ Analyze the given information and write a Java application incorporating try and catch statements.

## Stage 2 – Assessment Evidence

**Performance Tasks: (i.e. Assessment used to determine proficiency on competency)**  
 ➤ Chapter #4, Handout: *Candles*

**Key Criteria: (Rubric)**  
 ➤ Students must use internal documentation.  
 ➤ Program must include correct and efficient coding.  
 ➤ Program must produce accurate results.  
 ➤ Program must include correct libraries.

