# Daily Lesson Plan

**Week of:** March 12th

**Date:** 3/15

**Grade:** Alg II

**Subject:** Math

**General Topic:**
- Solving Systems of Linear Equations & Inequalities
- Solving Systems of Equations Graphically

**Today's Topic:**
- To solve linear systems by graphing.

**Expected Student Learning Outcomes:**

Which learning standard from the MA Frameworks or WPS curriculum does today's lesson address?

<table>
<thead>
<tr>
<th>1. Number Sense</th>
<th>3. Geometry &amp; Measurement</th>
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<tbody>
<tr>
<td>2. Patterns, Relations &amp; Functions</td>
<td>4. Statistics &amp; Probability</td>
</tr>
</tbody>
</table>

**Standards Addressed:**
- 10

**School Improvement Plan**

Which (if any) literacy strategy does today's lesson address?

- LEARN TO READ/READ TO LEARN
  - Pre-Reading
    - Preview Text
    - Ask Questions
    - Activate Prior Knowledge
  - Guided Reading
    - Make connections
    - Visualize
    - Think aloud strategy
  - Post Reading
    - Low Stakes Writing
    - Projects
    - Presentations

- LEARN TO WRITE/WRITE TO LEARN
  - "I wonder" log entries
  - Letters
  - Exit slips
  - 2 Column notes
  - Metacognitive Logs

**Outline of Lesson Activities:**

- Discuss HW: pg. 158 # 1-28
- Lecture/Notes: How to solve linear systems of Equations Graphically?
  - What is a consistent system of Equations?
  - What are dependent Equations?
  - What is an inconsistent system of Equations?

- "Try It" pg. 163 & #1 Exercises core
- Group Work, pg. 166 # 29-34 → Discuss

**Assessment:**

- How will you assess students' understanding of today's lesson?
  - Test
  - Quiz
  - Verbal Questioning
  - Group Work
  - Homework (written or reading)
  - Project Presentation
  - Portfolios
  - Other:

**HW:** pg. 164 # 2-13
Solving Systems of Equations Graphically

Ch. 3-1 Part A

Discuss HW pg.158 # 1-3

Done by 12:30

How to solve Linear Equations Graphically:
- A system of linear equations is a set of two or more linear equations with same variables.
- Graphing these equations is the easiest when put in point slope form.

What is a consistent system of equations? (Example in book)
When the graphs intersect at exactly one point, so there is one solution to the system.

What are dependent equations? (Example in book)
When the graphs coincide; and there is an infinite number of solutions.

What is an inconsistent system of equations? (Example in book)
When the graphs are parallel and there are no points in common.

Ex. \(y = 3x - 2\)  slope: 3  y-intercept = -2
\(y = -4x + 5\)  slope: -4  y-intercept = 5

What is the slope and y intercept of each equation?
Are they consistent, dependent, or inconsistent?

Try It pg. 163

a. \(4x - y = 5\)
\(-3x + 3y = 3\)

\(y = 4x - 5\)
\(y = x + 1\)

b. \(y = 2x + 5\)
\(y = 2x - 3\)

No solution inconsistent

ans (2, 3) consistent
Pg. 163 Exercises #1
3x+y=11 → y=-3x+11
6x-3y=9 → y=-2+2x
What is the slope and y intercept of each equation? Then graph.
Are they consistent, dependent, or inconsistent?

To solve on a calculator graphically: → after graph work
- Put both equations into slope intercept form and plug them into calculator.
- 2nd. Trace, intersect (5) enter

GROUP WORK: pg. 110 # 29-34 (Assign new graphs)

DISCUSS

HW: pg. 1104 # 2-13
## DAILY LESSON PLAN

**Week of:** March 19th  
**Date:** 3/19/07  
**Grade:** A1  
**Subject:** MATH

### General Topic:  
Systems of Linear Equations  
Solving Systems of Equations Symbolically

### Today's Topic:  
**Expected Student Learning Outcomes**  
What will students know and be able to do as a result of today's lesson?  
To solve systems of equations using the substitution method and linear combination method.

### Standards Addressed:  
Which learning standard from the MA Frameworks or WPS curriculum does today's lesson address?  
1. Number Sense  
2. Patterns, Relations & Functions  
3. Geometry & Measurement  
4. Statistics & Probability  
**AIII.P.10**

### School Improvement Plan  
**Which (if any) literacy strategy does today's lesson address?**  
LEARN TO READ/READ TO LEARN  
- Pre-Reading  
  - Preview Text  
  - Ask Questions  
  - Activate Prior Knowledge  
- Guided Reading  
  - Make connections  
  - Visualize  
  - Think aloud strategy  
- Post Reading  
  - Low Stakes Writing  
  - Projects  
  - Presentations

LEARN TO WRITE/WRITE TO LEARN  
- "I wonder" log entries  
- Letters  
- Metacognitive Logs  
- Exit slips  
- 2 Column notes

- Solve problems using linear equations/inequalities  
- Apply algebraic and graphical methods to solutions

### Outline of Lesson Activities:  
(to be posted on classroom agenda)  
- Discuss HW pg. 164 #2-13  
- Examples of solving systems of equations using graphing calculator  
- Substitution method for solving systems of eq.  
- Linear Combination Method  
- "Try It" pg. 172 a-c  
- Do pg. 173 #1,2 & pg. 174 #11  
- Group Work: Page 174 #6-10 & 12  
- Discuss HW pg. 177 #1-39 odd

### Assessment:  
**How will you assess students' understanding of today's lesson?**  
Test - Quiz - Verbal Questioning - Group Work - Homework (written or reading) - Project Presentation - Portfolios - Other:
March 19, 2007

Solving Systems of Equations Symbolically
Ch. 3-1 Part B

Discuss HW: Pg. 164 #2-13

Do examples of solving linear equations graphically using a graphing calculator
HW Problems or Pg. 166 # 43 & 44

How to Solve Systems of Equations Symbolically:

1. Substitution:
   - Get a variable from one equation on a side by itself.
   - Substitute the equation for the specified variable in the 2nd equation
   - Solve for specified variable
   - Plug in to either equation and solve for 2nd variable

   Ex.  \[ 6x + y = -2 \quad \rightarrow \quad y = -6x - 2 \quad \rightarrow \text{substitute} \]
   \[ 4x - 3y = 17 \quad \rightarrow \]
   \[ 4x - 3(-6x - 2) = 17 \]
   \[ 4x + 18x + 6 = 17 \]
   \[ 22x = 11 \]
   \[ x = \frac{1}{2} \rightarrow \text{substitute} \]

2. Linear Combination: Equations in the system are add to each other to eliminate all but one of the variables.
   - Put each equation in \( Ax + By = C \) format \( \rightarrow \text{line up variables} \)
   - Multiply a specified equation by a number that will allow one of the variables to cancel each other out
   - Add each column
   - Solve for the remaining variable
   - Plug in to either equation and solve for 2nd variable

Ex.  \( 4 \quad 3(5x - 3y = 14) = 15x - 9y = 42 \)
\(-5(3x - 2y = 6) = -15x + 10y = -30 \)
\[ \rightarrow y = 12 \rightarrow \text{substitute into easier equation} \]
\[ \rightarrow y = 12 \rightarrow \text{substitute into easier equation} \]

Ex.  \( 1 \quad x + y = 7 \quad \rightarrow \quad x - y = 3 \quad \rightarrow \quad x = 10 \quad (10, 3) \)
\( 2 \quad -1(x + y) = 12 \quad \rightarrow \quad 2x + y = 20 \quad \rightarrow \quad y = 4 \quad (8, 4) \)
Note:
- Not all systems of equations will have a unique solution.
- The method you choose depends on the equations of the system.
- One method will make the process of eliminating a variable easier.

Do Try It Pg. 172

\[ \begin{align*}
3x + 2y &= 5 \\
4x + 4y &= 10
\end{align*} \]

\[ \frac{4y}{4} = \frac{-4x + 10}{4} \]

\[ y = \frac{-x + \frac{5}{2}}{2} \rightarrow \text{substitute} \]

\[ 8x + 2(\frac{-x + \frac{5}{2}}{2}) = 5 \]

\[ x + \frac{5}{2} = \frac{5}{2} \]

\[ x = 0 \rightarrow \text{substitute} \]

\[ y = \frac{5}{2} \quad \begin{pmatrix} 0, \frac{5}{2} \end{pmatrix} \text{ consistent} \]

Do Pg. 173 #1&2

\[ \begin{align*}
2x + 4y &= -14 \\
3y + 3 &= 3y + 3
\end{align*} \]

\[ x = 3(2) + 3 \]

\[ x = 9 \]

\[ (3y + 3) + 4y = -14 \]

\[ 10y + 10 = -14 \]

\[ 10y = -24 \]

\[ y = -\frac{6}{5} \]

\[ (3, -2) \]

Do Pg. 174 #11

\[ \begin{align*}
L &= 4 + W \\
10 &= 2L + 2W
\end{align*} \]

\[ 10 = 2(4 + W) + 2W \]

\[ 10 = 8 + 2W + 2W \]

\[ 10 = 8 + 4W \]

\[ \frac{2W}{4} = \frac{10 - 8}{4} \]

\[ 2 = \frac{W}{2} \]

Group Work: 174 #6-10 & 12

Discuss

176 # 30-34

HW: Pg. 177 #31-39 odd
7. \(3x + 4y = 10\)
   \(2(5x - 2y = 8)\)
   \(10x - 4y = 16\)
   \[\frac{13x}{13} = \frac{24}{13}\]
   \(x = 2\)
   \((2, 1)\)

8. \(x + y = 4\)
   \(y = 2x + 1\)
   \(x + 2x + 1 = 4\)
   \[\frac{3x + 1}{1} = 4\]
   \(\frac{3x}{3} = \frac{3}{3}\)
   \(x = 1\)
   \(1 + y = 4\)
   \(y = 3\)
   \((1, 3)\)
Solve each system of equations by graphing if possible.

1. \[ y = 2x + 1 \]
   \[ y = -x + 4 \]

2. \[ y = \frac{1}{2}x + 1 \]
   \[ y = \frac{3}{2}x - 3 \]

3. \[ 2x + 3y = 3 \]
   \[ x + y = 0 \]

4. \[ y = 4x \]
   \[ 2x - y = -1 \]

5. \[ x + 2y = 2 \]
   \[ 3x + y = -4 \]

6. \[ y = 3x - 4 \]
   \[ y = -2x + 1 \]

7. George needs to send a package to Maryland. Federal Package charges a base fee of $8 plus an additional $2 per pound. United Shipping charges a base fee of $13 plus an additional $1 per pound.
   
   a. For what weight of package would the charges for the two companies be equal?
   
   b. George's package weighs 7 pounds. Which service will be cheaper for him to use?