AVID Interactive Notebooks & Mathematics

Kent Wedemeyer
Cardinal Heights Upper Middle School
Sun Prairie, Wisconsin

Would you like to view the presentation on your device?
http://tinyurl.com/WMC16wedemeyer
What is AVID? Why did we start interactive notebooks?

AVID, Advancement Via Individual Determination, is a global nonprofit organization dedicated to closing the achievement gap by preparing all students for college and other postsecondary opportunities.

What AVID Does?
Simply, AVID trains educators to use proven practices in order to prepare students for success in high school, college, and a career, especially students traditionally underrepresented in higher education.
How AVID Works?
AVID brings research-based strategies and curriculum to educational institutions in elementary, secondary, and higher education. The AVID System annually provides more than 30,000 educators with training and methodologies that develop students’ critical thinking, literacy, and math skills across all content areas throughout the entire campus, in what we call Schoolwide AVID.

Cardinal Heights became an AVID school three years ago, we started with interactive notebooks mid-year after our 8th grade colleague came back from an AVID conference.
What is an interactive notebook?

  - Right side is Teacher’s side
  - Left side is Student’s side
- INTERACTIVE between student, math & teacher
- ORGANIZES all work for class
- WRITING is automatically incorporated
- A personalized textbook for each student
- Incorporates AVID’s WICOR strategies
Interactive Notebook Set-up

- Students # the pages of their notebook immediately (5-subject works best).
- Student work on left side (even pages/output).
- Teacher directed work on right side (odd pages/input).
- Extra pages, graphs, tables, and other resources can be taped in.
- Beginning section can include TOC, syllabus, shorthand notes, vocab, formula sheets, tracking sheets, math practices, etc...
Think

Ink

Pair/Share

How might your students benefit from interactive notebooks?

Write down a quick note to yourself

Share with person next to you
Why I like the INB?

• Proof at parent teacher conferences
• Everything in ONE PLACE & everyone on same page
• Allows for spiral studying
• “I was absent, what did I miss?”
• Creates space for tracking accommodations, RIT, standards, etc...
• Focuses lessons
• Helps students to sort & remember information
• Guides students on how to interact with information
Interactive Notebook in the Math Classroom

What is interactive notebook?

HW: 4-25 to 4-30 due Monday
## Interactive Notebook in the Math Classroom

### What is interactive notebook?

<table>
<thead>
<tr>
<th>24-48 Hours:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Steps</td>
</tr>
<tr>
<td>• Connections</td>
</tr>
<tr>
<td>• Questions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teacher-Directed information, based on Cornell Notes Style of recording</th>
</tr>
</thead>
<tbody>
<tr>
<td>◆ lecture</td>
</tr>
<tr>
<td>◆ discussion</td>
</tr>
<tr>
<td>◆ collaborative group understandings</td>
</tr>
<tr>
<td>◆ reading activity/notes</td>
</tr>
<tr>
<td>◆ worksheets with guided instruction</td>
</tr>
<tr>
<td>◆ reflection, learning log</td>
</tr>
</tbody>
</table>

#### Examples

- Notes
- Graphic Organizer
- Foldable

### 7-10 Days: Summary to Address Essential Question
Homework: 4-25 to 4-30 due Monday

Student interacts with mathematics through
➤ practice problems, resource pages, worksheets
➤ inquiry/group work
➤ a drawing or picture that illustrates a new concept or idea
➤ questions, opinions, and personal reflections about the new information
➤ predictions, connections, reflections to already learned mathematics
➤ math practice reflections, connections
➤ homework or inquiry activities
➤ metaphors, analogies, acronyms, poems, songs, or cartoons that capture the new information or issue
➤ connections between the information and the student’s life, another course, or the world
Homework: 9-94 to 9-100

***Left Side***

9-102
Red Seat - Read the Intro to 9-102
Blue Seat - Read the Basic Facts
Orange Seat - Read the Pilot's Report
Green Seat - Read the phone call

9.4.2 More Systems of Inequalities

EQ:
How can I use Systems of Inequalities to help solve real world problems? Book Pg. 452

9-101
\[ y \leq |x| + 4 \]
\[ -x + 4y \geq 4 \]
Homework: 9-70 to 9-76

9-64 to 9-67
then notes

Teacher 2nd

9.3.1 Graphing Two-Variable Inequalities
What if the inequality has two variables?

Notes for today are on a video on google classroom. You need to watch it and take notes.

Then before you leave hand me a exit graph with the inequalities

a.) \( y > -\frac{1}{3}x - 1 \)  
   b.) \( y \leq 4x + 2 \)
Homework: 8-106 to 8-111

8.2.5 Completing the Square
How can I rewrite an equation from standard form to graphing (vertex) form?

Describe how you use the algebra tiles to write an equation in vertex form.

\[ y = x^2 + 4x + 9 \]

\[ x^2 + 8x + 10 \rightarrow (x\_\_\_)^2 \_\_\_ \]
\[ x^2 + 10x + 13 \rightarrow (x\_\_\_)^2 \_\_\_ \]
Homework: 9-38 to 9-43

Warm-Up
Solve $9x^2 - 8 = -34x$ using the Quadratic Formula

Dyad:
Person closest to the board:
What are the methods we have to solve quadratics?
Person farther from board:
What is your preferred method to solve quadratics?

9-34 Teammates consult - what method?

9.1.4 Choosing a Strategy
What method is most efficient to solve the quadratic equation?

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Product Property</td>
<td></td>
</tr>
<tr>
<td>Quadratic Formula</td>
<td></td>
</tr>
<tr>
<td>Completing the Square</td>
<td></td>
</tr>
</tbody>
</table>
Math Notes (pg. 73)

METHODS AND MEANINGS

**x- and y-Intercepts**

Recall that the **x-intercept** of a line is the point where the graph crosses the x-axis (where \( y = 0 \)). To find the x-intercept, substitute 0 for \( y \) and solve for \( x \). The coordinates of the x-intercept are \((x, 0)\).

Similarly, the **y-intercept** of a line is the point where the graph crosses the y-axis, which happens when \( x = 0 \). To find the y-intercept, substitute 0 for \( x \) and solve for \( y \). The coordinates of the y-intercept are \((0, y)\).

**Example:** The graph of \( 2x + 3y = 6 \) is a line, as shown above right.

To calculate the x-intercept,
- let \( y = 0 \):
  \[ 2x + 3(0) = 6 \]
  \[ 2x = 6 \]
  \[ x = 3 \]
- x-intercept: \((3, 0)\)

To calculate the y-intercept,
- let \( x = 0 \):
  \[ 2(0) + 3y = 6 \]
  \[ 3y = 6 \]
  \[ y = 2 \]
- y-intercept: \((0, 2)\)

Highlight in **one color**

- The x-intercept on the graph,
- What it looks like as an ordered pair

Highlight in **a different color**

- The y-intercept on the graph,
- What it looks like as an ordered pair

What is the definition of the y-intercept on a graph?

What is the definition of the y-intercept algebraically (without looking at a graph)?

How can I find the y-intercept from the equation \( 3x + 4y = 24 \)?
Question Carousel

Take a marker and respond to the questions on the posters.

https://www.youtube.com/watch?v=KCS4Uw5OdU0
I love the organization and routine notebooks have brought to my class, but interactive notebooks have moved my mathematical lesson design practice to a new level.
Interactive Notebook Lesson Design

- Identify the essential question
- Choose a problem (key concept) or strategy for the right/teacher side
- Choose problems or activities students can work on in pairs or cooperative learning teams for the left side
- Decide how to structure lesson, teacher 1st, student 1st, back & forth, student sum up?
Title: We usually get the title from the textbook.

Essential Question: This is a how, why, explain type of question that captures the main student learning objective of the lesson.

We’ve had trouble with this column b/c math homework

We typically select a key problem or two from the lesson to go here.

We’ve also used this side to organize vocabulary, demonstrate formulas, connect to prior knowledge, compare and contrast,

We use this on chapter closure days for summary statements and to incorporate more writing and cross chapter connections.
CCSS Chapter 8 Assessments
CCSS Chapter 8 Resource Pages
8.1-8.5 [8.1.1].interactive
8.1-8.5 [8.1.1].interactive.hahn
8.1-8.5 [8.1.1].interactive.schroeder
8.1-8.5 [8.1.1].interactive.w
8.13-8.16 [8.1.2].interactive
8.13-8.16 [8.1.2].interactive.f
8.13-8.16 [8.1.2].interactive.hahn
8.13-8.16 [8.1.2].interactive.schroeder
Questions?

- You can email me with any questions at kdwedem@sunprairieschools.org

- The presentation should be submitted to WMC but feel free to email me and I can share it with you
Changes for next year

Not as hard core about page numbers since my students get this in every class. we’re going to worry more about section numbers to organize work also gets to leave space when we skip pages for practice sections and allows for different sized handwriting. might try to organize by big math idea then have a couple pages of notes that we constantly revisit after doing practice. more videos for right side notes to flip classroom, we’re one to one