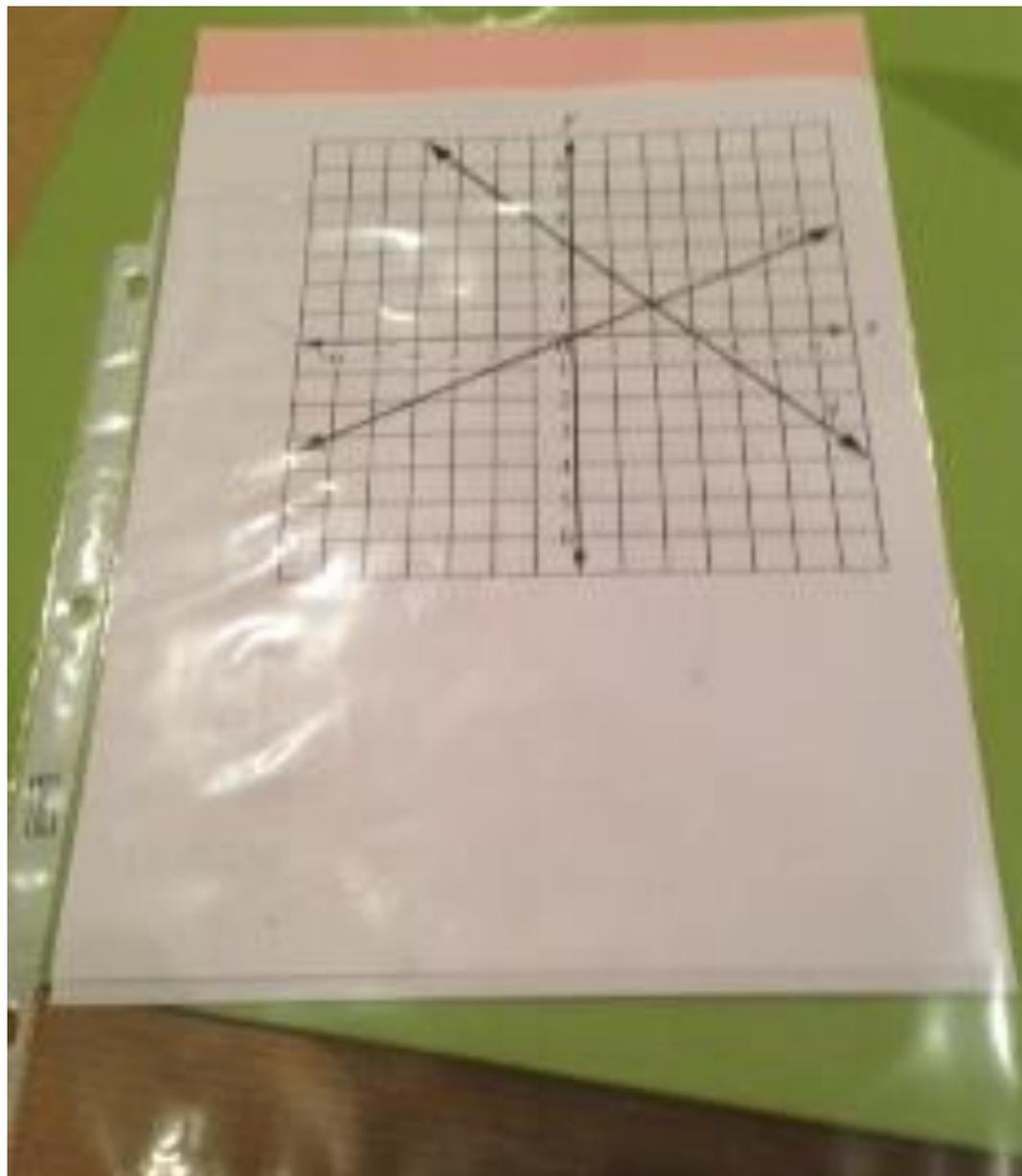
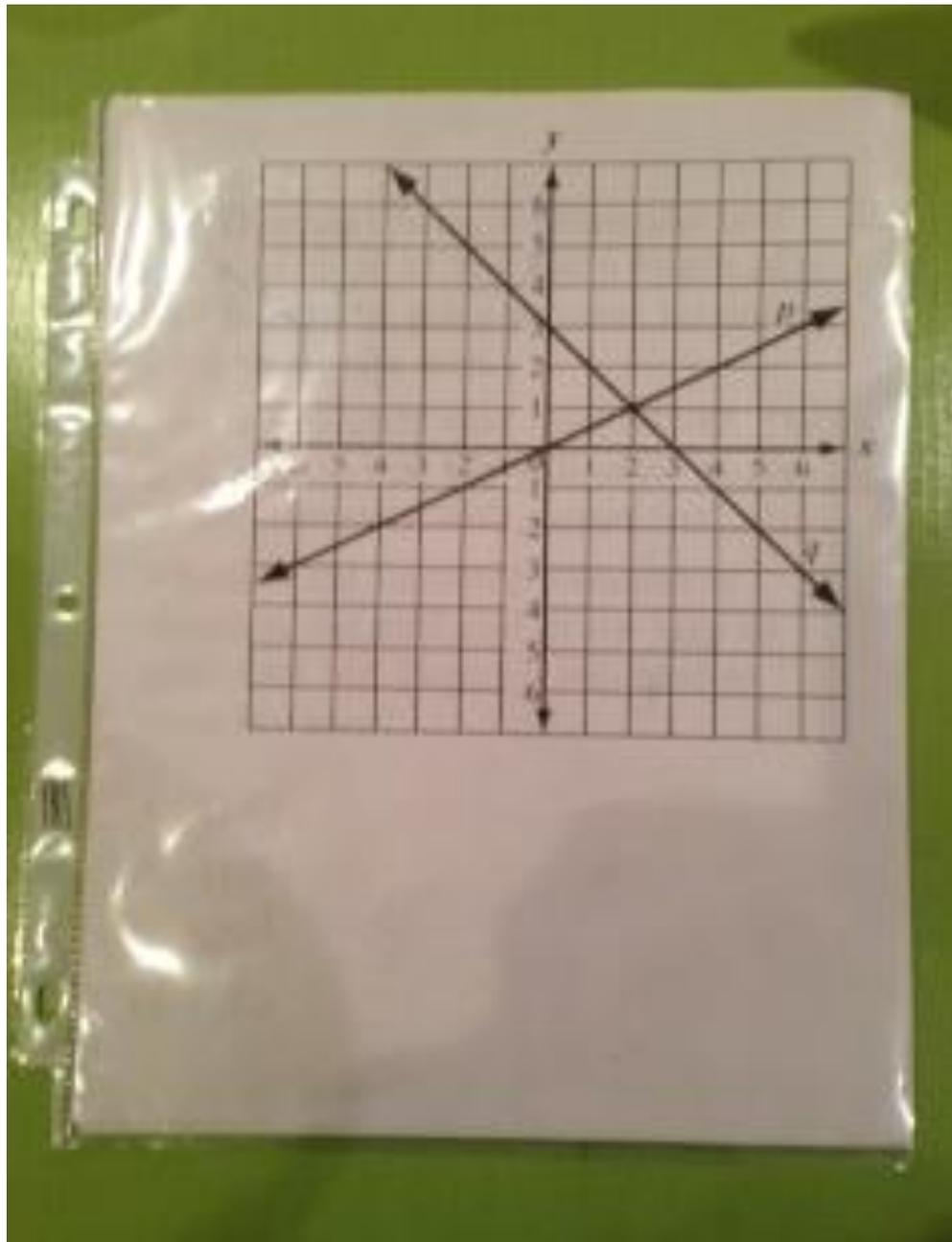


The Mini Board

Ongoing, “in the moment” assessments may be the most powerful tool teachers have for improving student performance. For students to get better at anything, they need lots of quick rigorous practice, spaced over time, with immediate feedback. The Mini Boards can do just that.

To add the Mini Board to your teaching repertoire, just purchase some sheet protectors and white board markers (black works best...see the following slides). Next, find something that will erase the Mini Boards (tissues, napkins, socks, or felt). Finally, fill each sheet protector (or have students do it) with 1 or 2 sheets of card stock paper to give it more weight and stability.





Expo Low Odor Chisel Tip Dry Erase Markers, 12 Black Markers (80001) by Expo

~~\$24.99~~ **\$8.39** ✓ Prime

In Stock

More Buying Choices

\$8.29 new (55 offers)

\$8.58 used (1 offer)

★★★★☆ (120)

FREE Shipping on orders over \$35

Product Features

Pack of 12 Markers

Office Products: See all 63 items

Expo Low Odor Fine Tip Dry Erase Markers, 12 Black Markers (86001) by Expo

~~\$16.99~~ **\$7.61** ✓ Prime

Order in the next **22 hours** and get it by Thursday, Jan 9.

More Buying Choices

\$7.61 new (38 offers)

★★★★☆ (54)

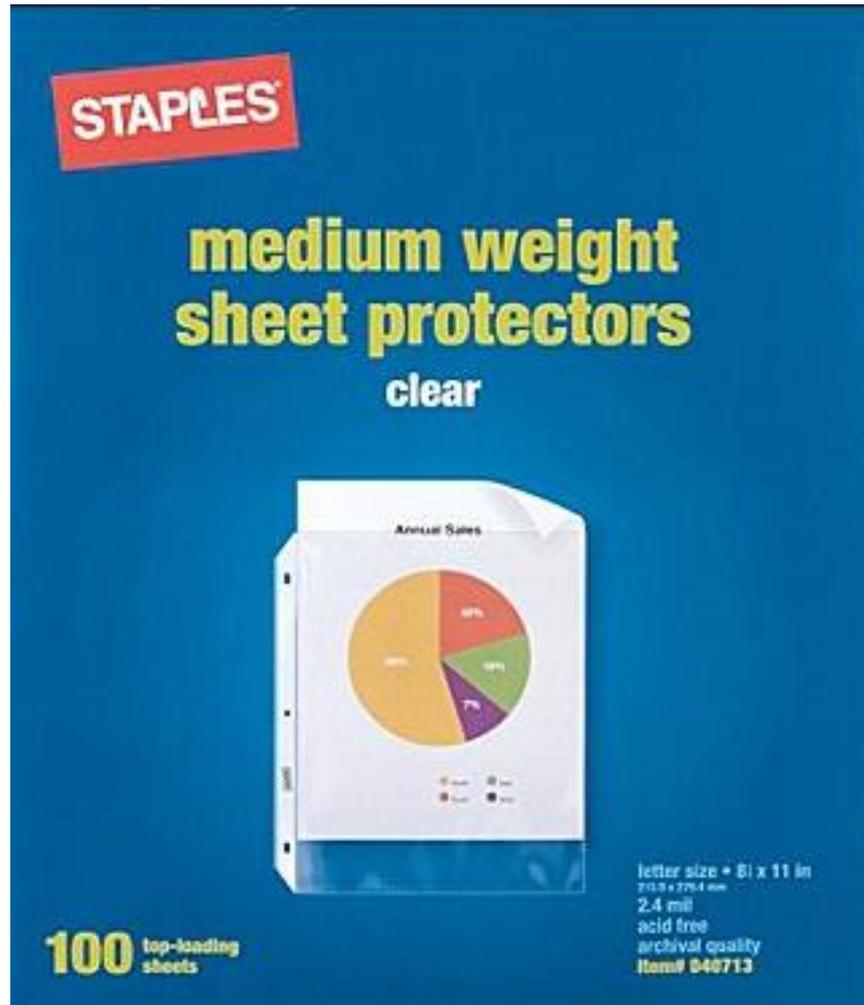
FREE Shipping on orders over \$35

Product Features

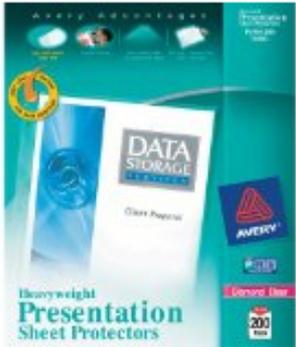
... Low odor *dry erase marker* with great erasability. Nontoxic ink works ...

Office Products: See all 63 items

On Amazon, markers can be found as low as \$0.63 each. (That's not even a bulk discount. Consider "low odor" for students who are sensitive to smells.)



I like the heavy-weight model.



Avery Diamond Clear Heavyweight Sheet Protector 200 Pack (74400) by Avery (Jan 21, 2009)

~~\$42.99~~ **\$18.99** ✓ Prime

Order in the next **20 hours** and get it by Thursday, Jan 9.

More Buying Choices

\$16.95 new (37 offers)

\$17.00 used (1 offer)

★★★★★ (138)

FREE Shipping on orders over \$35

Product Features

Includes 200 *sheet protectors*

Office Products: See all 10,978 items



Avery Top Loading Clear Sheet Protectors, Heavyweight, 250 per Box #76006 by Avery

~~\$21.39~~ **\$21.39** ✓ Prime

In Stock

More Buying Choices

\$17.71 new (16 offers)

\$19.16 used (5 offers)

★★★★★ (47)

FREE Shipping on orders over \$35

Product Features

Includes 250 *sheet protectors*

Office Products: See all 10,978 items

On Amazon, Avery protectors can be found as low as \$0.09 each.

ITEM	QTY	PRICE	TOTAL
 	3	\$13.99	\$41.97

Primary Side-Loading Dry Erase Sleeves

13655799
Per Dozen

Est Delivery: Feb 13, 2018

Mini Boards and The Templates

The Mini Board has advantages over traditional whiteboards because they are light, portable, and able to contain a template. (A template is any paper you slide into the sheet protector). Students find templates helpful because they can work on top of the image (e.g., number line, graph paper, hundreds chart) without having to draw it first. For more templates go to Math Resources on collinsed.com/billatwood.htm.

When to Use The Mini Boards

First, consider having students keep the Mini Board in their notebook. Then it can be used for 5-10 minutes almost everyday.

Typically, the boards are used for whole group or small group practice after some direct teaching.

Later, students can create their own series of questions and they can run the presentation for the group.

Using the Mini Board for Group Practice

With groups, it can be beneficial to create a series of questions in advance. The questions usually build from less rigorous to more rigorous. When ready, pose or show the questions, let the students work on them for a few moments, then say, “Even if you are not finished, check your neighbor’s answer, fix if necessary, then hold them up.” This gets more students involved and allows for more eyes and feedback on the work.

Keep the Pace Brisk

While it is important to give students enough time to respond to your questions, it is equally important to keep it moving! You don't have to wait for everyone to complete a perfect answer. Have students work with the problem a bit, check what they have so far, show the answer and then repeat. Students will work more quickly with a second chance. Anytime there is an issue, clarify and then pose another similar problem. You can also repeat the same question if many students struggled with it.

Celebrate Mistakes

When using the Mini Boards it is important to celebrate mistakes. Without them, there is no learning. Hold up common mistakes and say, “Now, here is an excellent mistake—one we can all learn from. What mistake is this? Why is this tricky? How do we fix it?”

Normalize errors and use them as valuable opportunities. Make the error the basis of your next question.

The Questions Are Everything!

The questions you ask are critical. Without rigorous questions, there will be no rigorous practice or thinking. On the other hand, if the questions are too hard, students will be frustrated. The key is to jump back and forth from less rigor to more rigor. Also, use the models written by students who have the correct answer to show others. Once one person gets it, they all can get it.

Questions

When posing questions for the Mini Boards, keep several things in mind:

1. Mix low and high level questions (go from less to more complex)
2. Mix the strands (it may be possible to ask about fractions, geometry, and measurement on the same template)
3. Mix in math and academic vocabulary (*Calculate* the **area**... use an **expression**... *determine* the *approximate* **difference**)
4. Mix verbal and written questions (project the written questions onto a screen to build reading skills)
5. Consider how much ink the answer will require and how much time it will take a student to answer (You don't want to waste valuable ink and you want to keep things moving. Ask students to "turn and talk.")
6. To increase rigor you can: work backwards, use variables, ask "what if", make multi-step problems, analyze a mistake, ask for another method, or ask students to briefly show why it works

Making the Answers Appear on Screen

While it takes extra effort, making answers appear on screen is extremely useful. First, students can clearly see the correct model. Second, you can flip forward on your slide to show students who are confused and then flip right back so they can try it alone.

Often I will use my answer to ask, “Would you give this full credit? Why or why not?”

Also, having the answers appear makes the session much more efficient and you can achieve more practice.

Motivating Students with a Group Game

One way to use the Mini Boards is to pose a challenge and make the session into a kind of game with a scoring system. For example, make each question worth 5 possible points.

Everyone gets it right: 5 points

Most everyone (4 fifths): 4 points

More than half (3 fifths): 3 points

Slightly less than half (2 fifths): 2 points

A small number of students (1 fifth): 1 point

Challenge your class to get to 50 points. Remember students should check their neighbor's work before holding up the Mini Board. This way it is cooperative and competitive.

Rewarding Effort

When I use the Mini Boards, I like to reward focus, effort, cooperation, learning from mistakes, perseverance, and avoidance of careless errors. I often award points based on the classes' effort on each question or each group of questions. I might say, "Wow, I love how people are helping each other. I'm going for a bonus of 3 points!" I will not punish mistakes and, in fact, I often say, "That was a great mistake. We can all learn from that. I'm offering 4 points if anyone can explain why that is such a great mistake. What does it teach us?" Or "I love how everyone learned from that mistake. 5 points!"

If you decide to keep score with a goal in mind, it can be useful to keep score in a variety of ways which involve other mathematical models. This way you can reinforce a new concept related to measurement, data, fractions, decimals, area, or angles all while you play. On the next slides are some ways to keep score.

Ways of Keeping Score For K-2

1. Try to fill a double ten frame crossing off boxes as you go. Ask, “How much more to reach 10? 20?”
2. Use a Judy Clock. Add time to try and get to a particular hour of the day. “We’re almost to 5:00!”
3. Use a hundreds chart. Pick a starting spot and move downwards toward some goal.
4. Use tally marks or a pictograph. “I’m going to add five tallies. Since we have 5 points, I’ll use a heart on the chart to mean 5 points!”
5. Use a calendar and move along the month to get to a certain day. “How many days till we get to the 31st?”
6. Use money. Add coins to get to a particular value. “I’ll give you a quarter for that. How much more do we need to reach \$1.50?”
7. Use a thermometer. When the whole class does a great job, add 5 or 10 degrees. “How warm is it now? What does our temperature round to?”

Keeping Score Grades 3-10

1. Use a number line: Move a point across a number line in intervals of whole numbers, fractions, decimals, or integers to try to get to the end. “We’re at $3\frac{1}{2}$ now, how much more to reach 5? How many turns will it take if we score $\frac{1}{2}$ point on each question?”
2. Make a line plot that goes by $\frac{1}{2}$ between 0 and 2. Add x’s over the location that matches the point value they received. “I’ll give you $1\frac{1}{2}$ on that one. Let me put an “x” over $1\frac{1}{2}$. Hmm, we need to get a total of 12 points. How much do we have now? What is the number sentence that will give us a total? What’s our most common score? Mean? Median? Range?”
3. Fill the area of a shape. Create a giant rectangle(s) and fill in different fractional parts. “For that answer, I’ll fill in $\frac{1}{2}$ of the whole.” Or, “I will shade another 4 square units. What fraction is shaded now?” Or, “For that great effort, we can shade half of what is left unshaded! How much is that?” Consider using rectilinear shapes (composite shapes with right angles).

4. Trace the perimeter of a shape. This can work well especially if the shape is drawn on a coordinate plane. “We’ve got to build a fence around this shape. I’ll give you 3 fencing feet for that one. Where should I draw the fence?”
5. Use a protractor and add degrees to try and get to 180° . “Wow! Great effort! I’ll add another 25 degrees! How much more to get to 180?”
6. Use a model for liquids or weights and keep adding to fill the gallon or pound. “I’ll add 1,000 ml or 1 l to our bottle. How much do we have now?” Or, “I’ll add 8 oz. to the balance. Is it equal to 1 pound?”
7. Use a coordinate grid and pick a starting spot (i.e., the origin). Tell students the goal is to move over and up to get to a certain position (e.g., 8,8). “You got 4 points on that one, how do you want to move? Up 2 and over 2? Okay. Remember you are trying to get to 8,8!”
8. Use transformations. Draw triangle ABC (or other shape) and translate, reflect, or rotate it in order to match up with triangle A’B’C’ that is in a different quadrant. Tell students after some good practice, “Well done. You can have a 45 degree rotation, 4 unit translation, or a y axis reflection. What do you want to do?”
9. Use a unit circle. Try to make a complete revolution moving along by degree or radian.