

Guided Math in the Real World

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What is Guided Math?

According to most definitions, "guided math is when teachers organize and facilitate flexible and fluid small-group learning opportunities, for 3-6 students, to support and scaffold various levels of understanding while using new strategies, models, and materials." In a nutshell, it's like guided reading - working with differentiated small groups during math time.

How am I supposed to do that? I don't have enough time to teach what I'm required to teach!

In the real world where most people teach (including me!), there are things like teacher's manuals and pacing guides that are designed to fill an entire one-hour time slot every day. Teachers feel that if they follow the manual, they don't have time for small groups and centers, not to mention the extra planning it takes. But it can be done! A teacher can follow the manual, keep up with the pacing guide, provide centers and small group lessons, and still remain sane. Here's how I do it - every day, about 175 days a year:

Hook (Stumper of the Day) - 10 minutes

Whole Group Lesson - 15-20 minutes

Independent Practice/Small Groups/Centers - 25-30 minutes

Wrap Up - 5 minutes

That sounds like a lot of work planning for groups and preparing all those centers. How is that possible without going crazy?

If you break it down into smaller categories, it isn't that much more work. And between the extras in the math series, games and materials picked up at workshops, and online activities, I find I have too many choices rather than not enough. Student engagement and learning go way up, so class time is more fun and more productive. My kids are very upset if we have to miss math.

Here's a breakdown of each element:

Hook (Stumper of the Day) - 10 minutes

This is a problem-solving warm-up that gets the math juices flowing and provides a challenge for the class. It follows the "You/Ya'll/We" structure.

- Choose a word problem that is slightly above what you're doing in class. I've found that this short, daily exposure to higher-level work makes the regular curriculum seem easier to kids and they pick up concepts more quickly. The problem should be something using skills they have previously learned, but at a higher level either in terms of number size or problem complexity. Non-routine problems are great for this. Look in "enrichment" books, problem-solving books for the next grade up, and daily word problem books for ideas. Or make one up using familiar names or situations.

- **(You) You Try It:** Project or write the problem on the board and have students attempt to solve it independently (no talking!) in their notebooks. I teach students to make small "burrito books" out of

two sheets of copy paper. They keep these in a math folder. When they fill one up, they just make another. These notebooks are not turned in. They're essentially scratch paper and students should feel able to write things down, cross them out, and try something else without fear that they're doing it wrong. This is not an evaluative time. It's a time to play around with math. Circulate and note how students are solving the problem.

- **(Ya'll) Talk to your Peeps:** After most students have figured out the answer, have them discuss their problem-solving strategies in small groups. Note: not everyone may get it - the goal is for all kids to at least get started solving the problem instead of thinking "I don't get it" and shutting down. This is the "persevere in problem solving" mathematical practice in action and it carries over to the "regular" curriculum. All students should feel that they can at least share how they thought about what to do and started solving the problem, even if they've just taken notes or sketched it out on their paper. Everyone **MUST** write something. Staring into space because you're "thinking" doesn't cut it. The focus is talking about different ways to solve a problem, not who got the right answer fastest. This is a culture shift that the teacher will need to work on initially, but you and your students will be surprised by the thinking of some of the kids who aren't typically considered your top math students. Or even your average math students.

- **(We) Whole Group Share:** Ask for the answer and write it on the board right away. If students got different answers, this ends the debate on who was right and focuses the attention on how to correctly solve the problem and troubleshoot where things went wrong. The answer, while always important, is less important in this activity than highlighting the various ways to get it. Call on students based on your observations while you were circulating. It's best to call on those with the most concrete methods and move to the more abstract. Write their solutions on the board in whatever format you want them to use in the future. This is a great time to build up those lower students by highlighting their thinking whenever possible. Eventually, students will feel comfortable enough to share their mistakes. Examining where things went wrong is a powerful teaching tool. Keep this relatively short - there's no need to let everyone share. Tomorrow is another day.

Whole Group Lesson -15-20 minutes:

This is whatever the lesson for the day is in the teacher's manual. Teach it however you would normally teach it. Just don't let it go on too long. You're going to hit the concepts again in other ways.

Independent Practice/Centers/Small Groups - 25-30 minutes:

This is where structure, planning, carefully taught classroom expectations, and keeping track of time are essential.

Independent Practice: This is usually the worksheet(s) from the lesson. Choose the most useful problems or pages that most students can complete within about 10 minutes. Circulate to make sure everyone has started, then go to the small group table. The lowest kids start this work at the table, so they move there automatically as soon as the directions have been given. This way there's no delay in getting started with groups. They also help each other while the teacher is circulating. When students finish the independent practice, they turn it in and either go to a center or work on their small group assignment if they have one. They should be able to do this

independently, so clear training in what to do next is essential. I always write a TO DO list on the board for those who will question even though it's the same routine every day.

Small Groups: There will typically be three levels of groups: high, middle, and low. You will meet with high and middle groups 1 to 2 times per week. You will meet with the low group 4-5 times per week. Place kids in groups based on pretests, formative assessments, or observation. Keep the groups fluid. There will be some kids who stay in the same group all year, but kids should move from group to group based on immediate needs.

Low Group - 15 minutes, tops: They should already be working when you get to the table. If they get it, act all excited, then PUT IT ASIDE. If they're confused, go over the first problem or two, having them work through it as a group. Let them try one or two on their own if they're ready, then PUT IT ASIDE. If they can't yet do it independently, PUT IT ASIDE. If they still don't get it, you're just going to waste time and confuse them more by going through the whole thing and if they do get it, they can finish it independently later. If you're ever going to fill the holes in their math knowledge, you have to do that now. Introduce an activity or game (preferably hands-on) that addresses a weak area. Basic facts, for example, or the intervention activities in your math textbook. Show them how to do it, let them practice a bit, and send them off to work on it for the rest of the class. Examples are matching puzzles, coins to count, card games, wrap-ups, counting activities, etc. Look through all that fun stuff you never have time for, or ask the teachers a year below you to borrow activities. The goal is to give them time to do math in a fun way that offers repetition to solidify basic skills and overcomes their typical hatred of math.

Middle Group(s) - 10 minutes: This will be the bulk of your kids. Try to keep the groups to 6 or fewer. It's typical to have two middle groups. You will do the same thing with both groups and you will meet with them about every other day. Small group time is usually used for more in-depth problem solving, although it can also be used to assign additional review and practice of skills that might need "touching up" based on their independent practice work. This allows you to revisit skills while still maintaining the pacing guide in whole group lessons. This is a time you can use those "fun" practice sheets, like puzzles that require computation. First, go over the problem they got during the last session if applicable and discuss how they solved it. Then, give them another multi-step problem or math mystery that requires grade level skills to solve. Make sure they understand what they are to do, and send them off. They can start working on the problem immediately if there's time, or they can work on it the next day. Students can work independently, in pairs, or as a whole group. It's up to them.

High Group - 10 minutes: These are the kids that already know the skills you're teaching in whole group and who can work the most independently. Plan to meet with them less frequently than your other groups. The goal is to give them work that challenges them to think more deeply rather than simply making the numbers bigger. Meeting on Monday to give them an in-depth problem that may take them some time to solve works well. Enrichment math books are a good resource for this, as are enrichment activities in your math series. Then you can meet on Friday to go over the problem if you have time, or simply do it the following Monday. It's a good idea to make this problem a "challenge of the week" and have it available to the middle groups if they finish their work and want to try it. Some of those kids may be ready for a challenge but haven't shown it yet. Other possibilities for this group are assigning them to create games to practice skills like math facts or solving a real world problem from the classroom or school. If they're creating games, make

sure they trouble-shoot the game and write up the instructions. Then if it's a good game, let them present it to the class and add it to the list of centers.

Here's a typical small group schedule for a week:

Group	Monday	Tuesday	Wednesday	Thursday	Friday
Low	15 min	15 min	15 min	15 min	15 min
Middle #1		10 min		10 min	
Middle #2			10 min		10 min
High	5-10 min				5 min

It's a good idea to circulate between group sessions to be sure everyone is on task, either working on the independent practice, small group work, or a center.

Centers: Students work on centers when they are finished with both the independent practice work and their small group assignment. Centers are typically games or self-checking activities that correspond with the current unit's learning and any skills from previous units that could use more practice. Be sure to teach each game either in whole group or small group and make your expectations for where to play and appropriate noise level very clear. You do not want to interrupt your small group work to monitor centers.

This is a good time to break out that fun stuff you keep seeing at workshops and online. There are typically 6-8 centers available at any time and centers are usually in place for 4-6 WEEKS. Kids don't get to centers every day, and some centers, like War, are timeless. If a center is worthwhile, it's worth doing several times. Give kids time to play the games over and over. You'll know when it's time to change out a center - when interest in playing it has faded or it is no longer a skill the class needs to practice.

Once you have a list of centers going, just change out 1 or 2 at a time. If nobody is using a center, you can either retire it or, if you feel it's a useful practice tool, you can assign it to a small group. Many centers become activities for the low group later on when their skills have caught up to it. If a center is causing problems, put it on hiatus and discuss the reasons with the class. Then bring it back in a week or so.

Centers are a choice activity, meaning students choose what to do and with whom to do it. Make sure to have some centers that can be played with a partner or alone. If a student prefers to play alone, or if it's better for them to not have a human partner for some reason, have them play with an imaginary superhero. This is usually Superman in my classroom, as he is my opponent whenever I introduce games, but feel free to let the child pick his own imaginary opponent.

One of the most time-consuming and least effective things I've ever done is try to change the centers weekly, assign children to centers, and keep track of what they're doing. Centers are a time to keep kids engaged in meaningful math activities while the teacher is working with small groups. For the most part, kids tend to choose appropriate activities. If they don't, have a talk with the child(ren) and perhaps assign them to specific tasks. If you need certain kids to do a particular center to practice identified skills, assign it as a small group activity.

A note on technology: If you have computers or iPads available in your classroom, various apps and websites can be used either as centers or small group assignments. Be sure to structure it so all kids have a chance to use the technology in some way. Beware of the kids who will rush through their work to grab a computer every day. Technology use should be fair for everyone.

Wrap Up - 5 minutes:

Turn out the lights and have everybody clean up and go back to their seats. Do a quick 1-2 minute review of the main objective of the day. Mention the exciting new thing you're going to do tomorrow. That's it!

Questions? Problems? Feel free to contact me at mpruneau@ladueschools.net.

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