

# PRIME2

## Models for Teaching Mathematics in Small Groups

Presentations by PRIME2 Teachers

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Bilingual, 4<sup>th</sup> grade~ 17 students

### Preparing Students for Independence

- Math challenge activities in the first weeks of school focus on team work and independence
  - Lainie Schuster A Month to Month Guide to 4<sup>th</sup> Grade
  - Example: Observing patterns in the 100s grid, Martha Bla Bla- which letters would you advise the company to remove from their soup?
- During these “challenge” days, T chart for social skills on “Math Problem Solving”  
Give students team points for strong cooperation, resourcefulness, etc.

### Organization of Math Period

- I use one math period per ~6 days as an introduction to a math project
- This project becomes large component of **Math Menu** which lasts for 5-6 days more
- My Math Menu days look like this:
  - \*\*Transition from silent reading with a musical alarm\*\*
  - Math Do Now (15 min)
    - I pull one small group
  - Math Meeting: Introduce new concept/(15 to 20 min)
  - Math Menu
    - I pull groups flexibly based on recent quick checks, exit slips, or observational check lists
  - Math Writing/Exit Slips
- The **Math Menu** allows teams to choose which task to complete first
  - The Math Menu board is color coded when certain tasks must be done first
  - All team members must stay on the same task until everyone has finished

### Student Groupings

- Students are grouped into heterogeneous math teams based on CST and/or CLA data
  - Teams are updated ~every 8 weeks, when new student data is available
  - Homogeneous group of highest-need students is pulled during Do Now
    - Support with review skills
    - Preview of math meeting skills
  - Other homogeneous groups are pulled primarily during Menu time
    - Usually “cusp” students first—identified as benchmark or strategic bands on CLA
    - Follow with higher groups, and return back to highest-need students
- Homogeneous groups are determined by recent CLA data, recent exit slip, or observational check-list during math meeting

### Types of Activities

- Math Menu items usually include:
  - Conceptual project  
(Marilyn Burns or Lainie Schuster)
  - Math games (EM and others)
  - EM Math Journal pages
  - Supplemental worksheets
- The menu is usually the higher-level conceptual work and thinking, the pulled groups address the essential skills
- Homogeneous groups use white boards, math journal pages, and/or math games

## PRIME2 Workshop: Small Group Math Instruction

Liana Koehler, Gordon J. Lau Elementary

**Classroom and Math Period Background:** I teach 4<sup>th</sup> grade at Gordon J. Lau Elementary School. My class consists of 31 students of varied English Language and academic levels. I teach math in “small group” form 2-3 times a week, from 11:00 – 12:15. On those days, the basic template is as follows:

Time	Activity	Notes
11:00 – 11:05	Correcting Homework	Whole Class
11:05 – 11:10	Mental Math Math Message	Powerpoint, whole class. Mental math is usually done orally, whole class; math message is usually done in students’ math notebooks.
11:10 – 11:30	Whole Class Lesson	Powerpoint/chalkboard. This block utilizes teacher-directed instruction, whole-class participation, think/pair/shares, partner talk, and the ELMO.
11:30 – 12:15	Independent/Small Group Time 11:30 – 11:45 1 <sup>st</sup> Group 11:45 – 12:00 2 <sup>nd</sup> Group 12:00 – 12:15 3 <sup>rd</sup> Group	Independent work is done at student’s heterogeneously-grouped tables; group work is done in homogeneous groups on the rug. Rug groups are run by the teacher, with students stepping up to be “professor” for their classmates.  A quick whole-class wrap-up is always done right before the math block ends.

**Grouping Students:** I have my class broken into 3 homogeneous groups for group time. The groups change throughout the year, based on formal/informal assessments.

**During Group Time:** When I see small groups, the low group is first, the middle group second, and the high group last. I start with the low group so that they can get support right away. This gives them a chance to process the new materials as a group before working on their own. I try to tailor each group’s activity to their level, getting less scaffolded and more challenging by the time I get to the 3<sup>rd</sup> group.

When students are *not* with me during group time, they are doing what we call “independent work.” Independent work always begins with a specific “must do,” such as certain Student Math Journal pages, with a short menu of work following for the students who finish early and/or need different challenges. Since it is most frequently the high group students who finish early, I try to provide challenging work, such as a Problem of the Week, above-grade level work, or other extension activities. I also leave flash cards and other facts practice activities easily accessible for students who need them.

Before lining up for lunch, students leave their work clearly on their desk so I can do a quick “sweep” of the room. In this way, I can check to see if anyone did not do their work. During lunch, I am able to check in on their work and see which students need more support to succeed with the lesson of the day.

**On Non-Small Group Days:** On the days when we are not in small groups, the lessons vary. Some days, we do whole-class lessons that conclude with time for an Everyday Math game. We play “Jeopardy” about once every two weeks. This is my (and the students’!) favorite way to review both recent lessons and older topics that I know need review.

Kristi Luo  
Fourth Grade  
Gordon J Lau Elementary

- 11:00-11:10 - Whole class mental Math activity, then go over their tasks for each of the stations
- Each group rotates to another station together throughout the Math period

<b>Independent/ Math Journal Station</b>	<b>My Station</b>	<b>Game Station</b>
<ul style="list-style-type: none"> <li>1. Math Boxes</li> <li>2. Practice Times Table</li> <li>3. Work on Math Packet</li> </ul> <p style="text-align: center;"><b>Group 2</b> 11:10-11:30</p> <p style="text-align: center;"><b>Group 3</b> 11:30-11:55</p> <p style="text-align: center;"><b>Group 1</b> 11:55-12:20</p>	<p style="text-align: center;">Lesson of the day 20 minutes with each group</p> <p style="text-align: center;"><b>Group 1 (H)</b> 11:10-11:30</p> <p style="text-align: center;"><b>Group 2 (M)</b> 11:30-11:55</p> <p style="text-align: center;"><b>Group 3 (L)</b> 11:55-12:20</p> <ul style="list-style-type: none"> <li>▪ H = High, M = Medium, L = Low ability groups</li> <li>▪ Start with high group to determine students' receptiveness to concept. Lesson can then be tailored to meet the needs of the next groups.</li> </ul>	<p style="text-align: center;">Students will play a Math game that I assigned for that day</p> <p style="text-align: center;"><b>Group 3</b> 11:10-11:30</p> <p style="text-align: center;"><b>Group 1</b> 11:30-11:55</p> <p style="text-align: center;"><b>Group 2</b> 11:55-12:20</p> <ul style="list-style-type: none"> <li>▪ Games come from EM</li> <li>▪ Instruction is given whole class before stations begin</li> </ul>
<ul style="list-style-type: none"> <li>▪ Journal pages support the lesson or a previous lesson</li> <li>▪ Math packet worksheets come from the internet or other resources to give extra practice in areas of need</li> </ul>		

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## **Math Centers as Differentiated Learning in a 5<sup>th</sup> Grade Math Class**

One way I differentiate learning for math is to do math centers. I have found math centers to be a good way for me to teach and reteach skills and concepts in small groups, and for students to practice new and review skills and concepts while having fun doing a variety of activities, writings, and games.

### **The outline & logistics:**

- I do them once or twice a week
- We do all 5 rotations in one day
- It takes 10 – 20 minutes to explain what will be done in each center, review any games, and show students the materials for each center
- They spend 10 – 13 minutes in each center
- This is generally a 90-minute math block
- I group the students homogeneously
- There are 5 groups of 5 – 6 students

### **The activities:**

- There are 5 centers
- Most of the centers have work you can review later; I have students place this in the center's "Completed Work" file folder.
- There is always a teacher-led center where I generally review skills and concepts from the current unit; for the challenge groups, I often do extension teaching since they are above grade level.
- There is always a Student Math Journals center where they do the pages that go along with where we are in the unit and they can do Math Boxes when they are finished with the pages I require; I check their work later. My challenge students begin with this center as they don't need the review before doing the work, whereas most of the other groups need review or a skills check from me before they can tackle it.
- There is always at least one game center. Everyday Math has super games to practice new skills and review previous ones. Many game boards and score cards are available to be played on laminated, colorful boards that are part of the curriculum's materials.
- Some other centers we do are: class or group number lines; skill cards with written answers; solving number stories; writing and diagraming steps to an algorithm; math art; making physical models.
- So, the centers are generally like this:
  - 1) Teacher center
  - 2) Math Journals center
  - 3) Game center
  - 4) Skill review
  - 5) Open

## **Preparing the students:**

- All of the teambuilding and independent work practice we do helps strengthen the process and learning environment during centers.
- I begin preparing the students the second week of school and it takes as long as needed before I begin to do centers:
  - 1) We discuss the purpose and benefits of math centers and students share any experiences they have had with them.
  - 2) We create a poster that outlines how to work with a group without the teacher's help and one about how to work independently with only the aid of your group.
  - 3) We practice some of the activities after I've taught them and the skills that go with them. They are encouraged to do the activities with only the help of tablemates. We debrief after.
  - 4) I explain the math centers map and audio cues: first bell means stop what you are doing, then add scores or place papers in folders if you need to, then everyone quietly cleans up and stays at the center; second bell means move to the next center. We first practice moving center to center without doing work, then we move on to doing the center activities while following the routine. This takes as many sessions as needed until the students have it down and are ready to officially start math centers.

Mai-Tien Nguyen  
Fourth Grade, Redding Elementary School  
32 Students 75 minute math period

**Small Group Instructional Frequency:** 2-3 days per week

**Grouping:** 3 leveled groups, based on formal & informal assessments and observation

**Format:**

- Called “Workshops”
- All 3 groups rotate through an “appointment with the teacher” for about 15-25 minutes depending on math skill level. The lesson includes direct instruction and practice time with assigned Math Journal pages. This takes place in the center of the room, the “community center.”
- All students have a packet with needed papers and an “Exit Slip” on which to record their work
- Students who are not with the teacher visit 3-5 stations. They may choose the station themselves and are encouraged although not required to visit all 5 stations. Visits are recorded on the “Exit Slip” and work completed at the station is included in the packet. Specific stations are suggested based on student need. Students may move between stations if they have completed the work at the station. Students must move to another station when the signal is given for the students in the next teacher group to come to the center.
- A student may choose or be invited back into the center to engage in further practice with another group (lower skill group) if either the student or the teacher sees the need
- All students come to the center at the end of the math period to share accomplishments and reflect on their productivity during the workshop
- During library/computer/down time throughout the week, students are engaged in mini conferences to check in with the workshop packet, creating goals, clarifying questions, and hold the students accountable for their independent work. This is also a time where appropriate suggestions for future workshop visits are made, students who need extra support are identified, and workshops are tweaked if necessary.
- Classroom layout helps support the workshop model
- Workshop Agenda is displayed in front of the room and reviewed before each math block. It includes name of workshop, location, maximum participants, independent and/or partnership activity, and the product to be produced.

**Planning:**

- Whole unit is reviewed to identify the concepts or lessons the students will struggle with the most. These are taught to the 3 groups on workshop days. Other concepts can be taught whole class or with  $\frac{1}{2}$  the class at a time. Whole class time is also used to introduce the games and activities in the stations.
- Once those concepts & lessons are identified, the 5 stations are created to support them.
- One station is always basic facts, especially multiplication
- One station is always the EM game that provides the best practice for the concept
- One station is always Math Boxes or “fun” worksheets. This is considered the independent work station.
- One station is a scaffolded activity that requires the students to use the language of the concept with sentence frames provided
- One station is a scaffolded activity that parallels and supports the lesson

**Differentiation:**

- 3 leveled groups
- Worksheets are adjusted per student need
- Games are adjusted per student need
- Sentence frames are provided for support if needed

**Training:**

- Explicit instruction and practice given at the beginning of the year
- Gave rules during the first semester, created agreements for the second semester
- Review agreements before every workshop
- Frequently ask students to model behavior
- Consequences for improper behavior; warning, working at the independent station, an invitation to join the teacher group

**Workshop classroom layout:**

