General Thoughts about Group Work

- Group work is the *heart and soul* of the Math Academy. Why? Because this is where students engage in problem-solving, work together on puzzles, and discover the laws of mathematics. That's real math! It's much more than just blindly following the instructions from the teacher. Group work is where the students really develop mathematical thinking capacities.
- With group assignments, I usually haven't told them how to solve the problem, which is contrary to how most of us were taught in school. This is a key feature to my work as a math teacher! I want the students to contemplate something for a while – perhaps even struggle, and maybe they won't even solve it. But this is a valuable experience for the children. In life, sometimes all the answers aren't handed to us!
- Sometimes, I ask the students to contemplate a question and then I address it in the next lecture. It's valuable for students to live with a question for a while before they see the solution.
- Additionally, students are learning more than just math in their group meetings; they are also learning important social skills and developing their ability to articulate their thoughts. I have seen many good friendships blossom from the group work!
- Important: Usually, students shouldn't look at the group assignment until their group meeting begins. I don't want anyone to arrive at the group meeting with a solution, or ideas of how to solve it. I want the students to contemplate this together in their groups. For grades 5-7, once the group meeting begins, a parent should read the group assignment to the group.

Tips for Successful Group Work (Share this with the students!)

- **Show Up!** By joining a group, you are making a commitment to attend the meetings and to show up on time. Do your best to support one another and be a good group member. This is a good habit to develop for life!
- **Collaborate!** Rather than having everyone work on a problem on their own, and then share their answers, it is generally best to work on the problem together. Strive for a collaborative experience!
- **Be Inclusive!** One student shouldn't be doing most of the talking. Also, it's awkward when one student never contributes. It is best when everyone participates fairly equally.
- **On Task!** It's great to have fun, but the group needs to be primarily focused on the math problems at hand.
- **Be Courageous!** Many adolescents today feel more comfortable being invisible and silent. As Waldorf educators, we encourage students to get out of their comfort zone and find the courage to speak up and be seen! This leads us to an important request…
- **My suggestion for how to work with a new problem:**
  1) One person reads the problem, and then make sure that everyone understands the question.
  2) Ask everyone to think (for about 1 minute) about how we should approach the problem, but (if possible) do not actually solve the problem yet.
  3) Share different ideas on how to solve the problem. It's wonderful when we can see different methods for approaching a problem.
  4) Together, work on using one of the approaches to solve the problem.
- **It is essential for students to have their video cameras turned on.** We realize that many students today feel shy, or that turning on their camera may cause anxiety. These students may wish to be invisible and silent. As educators, we believe it is important to support students in finding the courage to face situations that make them feel uncomfortable, thereby helping them to find their voice and be seen in the world. Furthermore, we build a stronger sense of community when we can see each other and communicate both verbally and non-verbally. If a student is hesitant to turn their camera on, it may be helpful to use Zoom's "Hide Self View" setting.
- **Don't Mute Yourself!** Make sure that you are in a very quiet room free from other noise and distractions. In small group meetings, it's best for everyone to be unmuted in order to encourage more natural conversation.
- **Use a computer** rather than a cell phone, primarily for two reasons: it allows for better eye contact, and when people show things on the screen, you can read it more clearly.
- **Turn off the chat** feature during group meetings. Chatting can be a distraction from the main purpose.

Parent Role for Group Work

- *Fulfilling your Commitment*. When your child joins a student work group, they are making a commitment to the others in the group. This commitment includes showing up to the meetings (on time!), making an effort to participate (even if you are shy!), turning your camera on (even if you don't want to!), and just being the best group member you can be. If your child can't make this commitment, then it may be best to not join a group.
- *Scheduling and Monitoring the Meetings.* It is up to the parents to schedule the group meetings and make sure that they take place twice per week. The parents also need to ensure that the meetings go well.
- *Getting used to Zoom*. Working with others through Zoom (or another platform) takes getting used to. Parents will likely have to coach the children (especially in grades 5 and 6) on how to interact and help each other out. These issues should improve with time.
- *Supervision, not "Teaching"*. In grades 5 and 6, parents should closely supervise the group work to ensure that it is productive, but should not "teach" or tell the students how to do the problems. Remember: the students should be the ones doing most of the talking! For grades 8 and above, the students should be able to meet in groups without much parent supervision. After the group meeting, the parent should ask the child how the group meeting went, and maybe offer some advice, if needed.
- *Intruders*. In the first two years of the Math Academy, there has been only one instance of an unwelcome guest joining a meeting for the purpose of causing disruptions. Here is some word of advice on this topic:
    - Have your Zoom meeting settings include a passcode and a "waiting room".
    - Everyone should have their video camera turned on. That way you can see who is there, and it will be suspicious if someone is suddenly in the meeting with their camera off.
    - If anyone suspicious is in the meeting, the host should immediately put them into the waiting room, and then send them a chat to identify themselves.
    - For the older grades, parents should talk to the students about what to do if an intruder ends up in their meeting.
- *Getting through the Assignments*. It's not about getting through all the problems. Essentially, you can view my group assignments as "suggestions" for what to do during group work. The most important thing is that they have a good mathematical (and social) experience. Parents in grades 5 and 6, who have some amount of oversight of the group meetings, should feel free to alter the assignment and create their own problems.
- *Following Up*. Again, for parents in grades 5 and 6, after the group has been working with a particular problem, the parent may decide that they should keep working on that problem in the next group meeting.
- *Enough!* We need to help our children learn when it's time to say "enough!" and put something aside for a period of time. Don't allow them to "bang their head against the wall" for too long! I never want it to get to a point where group work (or anything else) starts to make them hate math. This can be a fine line to walk!