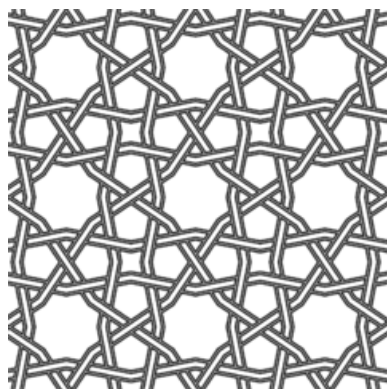


Guidelines for Math Club Facilitators

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The goal of math clubs is to foster a passion for mathematics in our children. The math clubs aim to do this by providing a choice of engaging, hands-on, and interactive workshops led by a team of volunteers or teachers.

Below are some guidelines for math club volunteers. Please aspire to these guidelines, but don't worry if you aren't able to live up to all of them.

1. Enthusiasm is contagious. Before you arrive at your math club, you should take time to become familiar enough with the planned activity, game, puzzle, or problem so that you have in mind several possible ways kids might respond, and you might respond to them! If you don't understand it or think it isn't interesting, find something else that you do enjoy.
2. Set the stage for a positive supportive challenging environment: establish ground rules for respecting the participants and their work. Let children know they may work individually or in small groups.
3. Strive to ask more questions than you answer and do more listening than talking (this is hard!). Start by finding out what a child has done and knows already. Ask questions such as, "What have you tried so far?", "Why must that be so?", "Can you show me an example?", "Help me understand what you've found that has worked so far", or "What might you do next?"
4. Often it helps to model question-posing or make invitations to switch gears: "I wonder if drawing a picture would be helpful - or maybe you have another idea.", or "Maybe there's a way to think of this in simpler numbers - or maybe you've done a problem like this before?", "Are there manipulatives, e.g., tiles, blocks, rods, dice, you can use to help solve your problem?" For a child near a solution, you may point her to what is requested: "Tell me again - what you are supposed to find out?" Or, maybe a child will solve the problem by himself and you can guide him towards a different way of looking at the problem or solution: "Will that always work?" "What if the constraint was..." For some, you'll be helping them read and understand the instructions.
5. Let the children experiment, compute values, make their own mathematical discoveries. Your role as a facilitator is to get each student to become engaged and to answer questions about the problems not to give the solutions. Avoid trying to teach students new concepts or shortcuts; allow their natural processes to guide them once they understand the goals of the problem, game, puzzle, or activity; give specific feedback on progress and struggle (i.e., Instead of "You are so smart! Nice job!" try "You figured out how to multiply those numbers! Nice job!") Discovering one or more methods to solve a problem is more important than just getting an answer.

6. Generally limit yourself to 2 or 3 minutes' talking to any one child or a group of children, then move on. Meet each child at his or her level. Feel free to return to a child or group if you sense a need or desire for more interaction.

7. Encourage the children to **WRITE DOWN** what they're doing so you can make more effective use of your time when you work with them. Writing is a great skill for young kids to learn. You may need to model this for some kids, offering to play scribe as they describe what they did in their heads.

8. Keep the focus on the math. Keep abreast of what each child is doing and figure out where the child wants to go next. If you see a kid's attention wandering, point her back to the problems, and try to figure out what may be of more interest to that student and direct the student accordingly. Some kids may get more interested when they see fellow classmates working on the problem. Other kids may need some support in working on harder problems: they may not have experience in what to do when it takes more than a few minutes to figure something out. You might suggest an easier, related problem to help get them started, and reassure them that they are doing well. Encourage them to challenge themselves!

9. Give kids positive feedback for discovering something that excites them, for writing things down clearly, and especially for battling a challenging problem. Praise effort rather than ability.

Here's a summary of tips for facilitating:

- **Be prepared.** It is important that you understand the activities at your table. Work them out yourself before you arrive at the math club meeting.
- **Show your enthusiasm.** Enthusiasm is contagious. If you don't like your activity, switch to one that you enjoy, preferably before the math club meeting starts.
- **Listen.** Ask questions such as "What have you tried so far? What have you found that has worked? Where did you get stuck? What might you do next? Can you use a manipulative to simplify this problem?"
- **Observe.** Watch what each student at your table is doing.
- **Meet each student at his or her level.** Refrain from teaching. Avoid trying to teach students new concepts or shortcuts; allow their natural processes to guide them.
- **Encourage students to document what they do.**
- **Encourage all students to participate.** Invite those that are not working on an activity to participate. If a student is not interested in any of the activities, find out what may be of more interest to the student and direct the student accordingly. Don't allow one or two students to dominate a discussion or activity.
- **Don't make assumptions.** Don't assume students will find all problems equally easy or difficult. Avoid language like, "Oh, you solved a problem a lot harder than that." Or, "that problem should be so easy for you!"
- **Give children specific positive feedback.** Praise children's effort by naming whatever you notice them doing that's noteworthy.

Please let us know if you have suggestions or questions about math clubs or these guidelines.

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