

Mathematics Workshop Considerations

The following information provides insight regarding the differences between math workshop and math centers. Suggestions for workshop structure and implementation are provided.

From Fosnot, C. T., & Dolk, M. (2001). *Young mathematicians at work: Constructing number sense, addition, and subtraction*. Portsmouth, NH: Heinemann.

Hersch, S. B., Cameron, A., & Fosnot, C. T. (2005). *Young mathematicians at work: Professional development overview manual*. Portsmouth, NH: Heinemann.

- Workshops should promote inquiry, investigation, and construction of knowledge as students talk, question, collaborate, prove, and communicate their ideas with one another in a manner that makes sense to them
- The three components of a math workshop and a description of each are provided below.

Component of Math Workshop	Description
Mini-lesson	Ten to fifteen minutes in length. Several uses that include developing computation strategies, share problem-solving heuristics, or discussions. Each of these goals allow the student to use their thinking and work within their framework of individualized understanding to construct meaning
Inquiry and Investigation	Ongoing and multifaceted opportunities for students to explore, question, and interpret results using models, strategies and ideas that are their own. Length depends on time devoted to math, 15 to 50 minutes
Math congress	Students communicate and defend their solutions, strategies, reasoning and models with their peers. Feedback from the community allows individual students to refine their thoughts and provide scaffolding to increase mathematical understanding.

From Andreasen, J. B., & Hunt, J. H. (2012). Using math stations for commonsense inclusiveness. *Teaching children mathematics*, 19(4). 238-246.

- From p. 243: Math stations can allow for differentiation of the same concept.
- When planning math stations (workshop):
 - consider the content to be taught and where students' understanding currently stands
 - decide the types of differentiation needed
 - use indicator information to assign student groups
 - design the practice or assessment tasks
- Four math stations and their descriptions are provided below.

Station	Description
Teacher's station	This station is for small groups of students who need individualized help and enrichment on mathematical concepts.
Shop station	Students complete projects, identify errors, or write at this station.
Practice plaza station	Students practice the given concept through differentiation, a new representation, manipulative or tool.
Proof place station	Students model, solve, explain and justify using a variety of tools.

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From Diller, D. (2011). *Math work stations: Independent learning you can count on, K-2*. Portland, ME: Stenhouse Publishers.

- Math stations provide students opportunities to work with familiar materials from whole-group lessons to explore and expand their mathematical understanding through problem solving, reasoning, representing, communicating, and making connections with a peer.
- Store materials in clear, lidded, labeled containers in a central location within the room
- Provide enough materials that children can choose from to explore at math station, but not so many they become overwhelmed. This choice will eliminate issues with early finishers as there will be another activity/manipulative to work with.
- Predetermine where students will work during station time. Use a bulletin board with numbers and student photos to inform, and remind, students who they are working with and where during station time.
- Work station tasks replace worksheets and may include playing a game, making something, talking with a partner, acting something out, telling a story, solving a problem, recording ideas by writing or drawing, moving, and doing something new
- As a teacher, when working with small groups of students, be sure to position your station to see the entire class (if you are unable to get up and move).
- Use index cards on a clip board, chart with student names, or other evidence tracker to record brief notes or letters that indicate student understanding of core concepts they should be acquiring from working at the stations/workshop. What comments do students provide? What are they doing as they work?
- Ask yourself “How will I teach this math concept and what materials will I use?” to determine items to include at math stations.

Differences between math work stations and math learning centers (Diller, 2011, p. 16).

Math Work Stations	Traditional Math Learning Centers
Materials are used by the teacher and students during instruction first. Then they are placed in the work stations for independent use.	New materials were often placed in the center without first being used in teaching. The teacher may have shown how to use the materials once, but they were often introduced with all the other new center materials at one time.
Stations do not change weekly. Instead, materials are changed to reflect children’s levels of math understanding, strategies being taught, and topics being studied.	Centers were often changed weekly with units of study or even a theme.
Stations are used for students’ meaningful independent work and are an integral part of each child’s instruction. All students go to work stations daily.	Centers were often used by students when they “finished their work.” Centers were used for fun and motivation, for something extra.
Materials are differentiated for students with different needs and levels of math understanding.	All students did the same activities at centers. There was not usually much differentiation.
The teacher observes individuals at work or meets with differentiated small math groups during math work stations.	If the teacher met with small groups, each group often did the same task.