

# CENTER FOR INNOVATION IN EDUCATION, INC.

PO Box 2070 • Saratoga, CA 95070-0070  
Phone: (800) 395-6088 • Fax: (408) 725-8146  
www.center.edu

## Mathematics Their Way Course Philosophy and Goals

The Mathematics Their Way workshop assists teachers in bringing the *Mathematics Their Way* book's philosophy and activities alive for practical classroom use. The workshop has become the forum in which the ever-growing, ever-changing curriculum of *Mathematics Their Way* could evolve. The course philosophy and goals are reflected in the following excerpts from the *California Mathematics Framework* over the years. The workshop introduces topics through practical and meaningful activities which inspire thinking and curiosity in the learner. The emphasis of the workshop is to help the learner understand interrelated mathematical processes within the context of rich experiences rather mastery of isolated skills. The Mathematics Their Way course provides teachers with a variety of classroom methods and materials which allow children to develop and use mathematical concepts *their way*. The summer of 2003 marks the 27th year of Mathematics Their Way (grades K-2) and Mathematics a Way of Thinking (grades 3-6) workshops presented by the Center for Innovation in Education.

"Mathematics offers a way of organizing and understanding most observations of the world about us, both in and out of school. One justification for including mathematics in the school curriculum seems to reside in the exploration of the notion of patterns and relationships. This approach to mathematics enables a child to discover and describe something of the shape and pattern of the universe. From the day children enter school, teachers should organize experiences that will encourage the children to think, seek, and discover ideas for themselves, to look for patterns and relationships, and to form generalizations. As these relationships are seen and discussed, concepts become clearer, and fundamental principles emerge that have value in unifying the study of mathematics to follow."

– 1982 *California Mathematics Framework*, p. 24

\* \* \*

"Mathematics programs should progress from concrete experiences to abstract experiences for all learners with substantial emphasis on those elements of the environment which are familiar and likely to kindle interest... Most learners need to relate the symbols of mathematics to objects and to images of events from their own experiences in order for the symbols to become meaningful."

– 1982 *California Mathematics Framework*, pp. 8, 12

\* \* \*

"Mathematical concepts and skills must be learned as part of a dynamic process, with active engagement on the part of the students... Too many students have

come to view mathematics as a series of recipes to be memorized, with the goal of calculating the one right answer to each problem... Teaching for understanding emphasizes the relationships among mathematical skills and concepts and leads students to approach mathematics with a common sense attitude, understanding not only how but also why skills are applied."

– 1985 *California Mathematics Framework*, p. 12

\* \* \*

"Being mathematically literate includes having an appreciation of the value and beauty of mathematics as well as being able and inclined to appraise and use quantitative information. Mathematical power encompasses the ability to *explore, conjecture, and reason logically, as well as the ability to use a variety of mathematical methods effectively to solve non-routine problems* and the self-confidence and disposition to do so. It also includes being able to formulate and solve problems, to judge the role of mathematical reasoning in a real-life situation, and to communicate mathematically.

The vision of the *Curriculum and Evaluation Standards* is that mathematical reasoning, problem solving, communication and connections must be central. Computational algorithms, the manipulation of expressions, and paper-and-pencil drill must no longer dominate school mathematics."

– 1991 *Professional Standards for Teaching Mathematics*, p. 19  
prepared by Commission on Teaching Standards of School Mathematics

National Council of Teachers of Mathematics

## Course Title & Number

*First time (Level I) participants:*

EDM 201A — Mathematics Their Way, Part 1

*Second time (Level II) participants:*

EDM 203A — Piaget in the Classroom, Part 1

(A project is required. See below.)

## Class Time Schedule

Each session is carefully planned and interrelated. You will need to be present for the entire time on each day. For the days that have scheduled lunch breaks, you will need to bring a bag lunch unless places to eat are very close to the site. There will be a half-hour lunch break. (See Registration Acceptance information for details.) There will be homework each day.

## Attendance

Participants are expected to attend all class sessions. Should a participant miss a class, he/she must make arrangements with the instructor to make up for the missed class. At the discretion of the instructor, a project may be required to make up for missed time. Extended absence may result in an incomplete for the course.

## Project for Level II Participants

If you have previously taken this workshop through Center Graduate College, you are registered as a Level II student. To receive credit, you will be expected to complete a special project. Guidelines are as follows:

Pick one idea, area, or activity from Mathematics Their Way that you have experienced with children. Examples include: an activity in which students generated the data, organized it, and looked for patterns in a table or matrix, a graphing activity, etc. Describe in writing:

- its purpose (e.g., math concepts used)
- how you introduced the idea or activity
- how the children responded
- anything you might do differently next time.

Label the project with your name, course number, course title, and date completed. You may include pictures of the children during the activity and samples of their work.

Give the project to the instructor during the workshop. Verify with the instructor that your name is checked off the official class list as having turned in a project. Projects will not be returned. Do not mail your project to the Center before the workshop.

Participants who do not submit their projects before the end of the workshop will receive an “incomplete” on their transcript. The incomplete grade remains on the transcript until the Center receives the required project. Projects completed after the last day of the class must be mailed to:

Center for Innovation in Education  
c/o Level II Projects  
P.O. Box 2070  
Saratoga, California 95070-0070

## Materials to Bring

Below is a list of items recommended for the workshop. Label any books or materials with your name. Bring your own pencil, pen, and paper for taking notes.

### Bring for the first day:

- 1 set crayons (basic 8 colors)
- 1 pair scissors
- 1 glue stick or equivalent
- 1 2" three-ring binder (for Summary Newsletter)
- 2 sets binder dividers (approximately 12-15)
- 1 1-1/2" x 2" picture of yourself
- 1 mug and spoon (optional for tea or coffee)

Additional materials will be needed as the workshop progresses. The instructor will announce when these materials are needed. If you are from out of town, you need not be concerned. Teachers who live locally will be happy to share with you.

- 5 yds. heavy cotton string wrapped around a pencil
- 1 hole punch (single hole)
- 10 paper clips (small or large)
- 2 rubber bands (1 thick one for junk boxes and 1 thin and stretchy one for making scales)
- 1 wooden ruler for milk carton scales
- 1 uncut half gallon milk or juice carton for Magic Box
- 1 half gallon milk or juice carton for milk carton scale (cut the carton bottom 1-1/2" deep)
- 1 tall straight-sided clear jar (e.g., a peanut butter, jam or pickle jar; a tennis ball container...)
- TBA assorted containers and scoops for measurement activities

# Math Their Way Homework

Below is a chart for you to record your homework assignments and a list of things to bring. Your instructor will post a list each day.

## Day 2

**Items to bring:**

**Things to do:**

**Read:**

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

## Day 3

**Items to bring:**

**Things to do:**

**Read:**

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

## Day 4

**Items to bring:**

**Things to do:**

**Read:**

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

## Day 5

**Items to bring:**

**Things to do:**

**Read:**

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____