

Course Title: Math: Classifying, Ordering and Exploring Real, Negative, and Whole Numbers
(Requires \$69 Math Kit Purchase)

Instructors: Paul Lawrence

Length: 15 hours

Dates: Rolling admissions

Prerequisites: Bachelor Degree

Number of credits: 1 semester hour

Course Overview:

Mathematics teaching and learning come to life in this highly innovative and engaging course. All of its strategies are hands-on and discovery-based. Participants will learn to use sequenced activities that promote conceptual understanding and relate concrete understanding to symbolic interpretation. They will learn to assess students' understanding of skills and concepts and adjust instruction accordingly. Activities designed to address pattern recognition and operational procedures, that provide creative practice with operational skills, and that promote number sense, estimation strategies, and foundational understanding will become essential components in participants' toolkits.

Objectives:

1. Knowledge –at the end of this course, participants will understand:

- a. And diagnose students' level of understanding through a diagnostic tool,
- b. How to use discovery based methods to help students understand the base ten number system, and
- c. How to help students order and compare sets of whole numbers.

2. Skills –after this course, participants will:

- a. Make informed decisions in regard to students' understanding,
- b. Identify and understand all the necessary components of developing number sense, and
- c. Utilize the Communicator™.

3. Dispositions – after this course, participants will appreciate:

- a. Learning discovery based methods that can substantially enrich math instruction,
- b. A way to use math manipulatives to teach essential math concepts, and
- c. Innovative strategies that can be used to help students grasp divisibility rules.

Units (9):

1. Classifying, Ordering and Exploring Real Numbers: Part 1
2. Classifying, Ordering and Exploring Real Numbers: Part 2
3. Classifying, Ordering and Exploring Real Numbers: Part 3
4. Exploring Negative Numbers, Scientific Notation and Order of Operations
5. Addition and Subtraction of Whole Numbers: Part 1
6. Addition and Subtraction of Whole Numbers: Part 2
7. Mastering Multiplication and Division Facts: Part 1
8. Mastering Multiplication and Division Facts: Part 2
9. Mastering Multiplication and Division Facts: Part 3

Instructor Overview:

Paul Lawrence, a retired administrator/teacher, has been in public education for over 34 years. He believes that every student has the potential to learn and can be successful. His passion is to share ideas he has learned about teaching and learning with other professionals throughout the United States. To help him meet this goal, he has published a book titled *Good Connections for Testing* and offers highly energized, professional, customized workshops for districts and schools throughout the United States. Paul is on the road approximately 200 days per year and is booked up to a year in advance.

Methods of Instruction:

- Video lectures and PowerPoint presentations
- Short answer quizzes
- Graded post assessments
- Final

All steps listed under each topic must be completed to receive credit for the course. No partial credit will be given. Students must earn a minimum of 60% to pass the course.

Percentage of Course Credit

- Graded post assessments and short answer quizzes 40%
- Final Project 60%

KDS Rubric for GA courses (passing requirements: 60 points):

A: 90 - 100 points

B: 80

C: 70 points

D: 60 points

F: Fewer than 60 points

Component	Unsatisfactory (10 points)	Basic (20 points)	Proficient (30 points)	Distinguished (40 points)
Critical thinking post-work And Short answer quizzes	<u>Critical thinking post-work:</u> 0-40% correct <u>Short answer quiz:</u> -Participant included no content from the course in his or her responses -Participant did not address the questions posed	<u>Critical thinking post-work:</u> 60% correct <u>Short answer quiz:</u> -Participant included some content from the course, usually appropriate, in his or her responses -Participant answered the questions directly, not always fully	<u>Critical thinking post-work:</u> 80% correct <u>Short answer quiz:</u> -Participant included appropriate content from the course in his or her responses -Participant made thoughtful comments in direct response to the questions	<u>Critical thinking post-work:</u> 100% correct <u>Short answer quiz:</u> -Participant provided rich detail from the content of the course in his or her responses -Participant made his or her responses to the questions personally meaningful
Final	Unsatisfactory (30 points) <u>Requirements of Assignment:</u> -The assignment is substantially incomplete <u>Form:</u>	Basic (40 points) <u>Requirements of Assignment :</u> -Many requirements met, but a few pieces are missing, while others are underdeveloped—e.g., missing reflection or rubric or scant reflection and vague rubric <u>Form:</u>	Proficient (50 points) <u>Requirements of Assignment:</u> -Participant has fulfilled all the requirements of the assignment. <u>Form:</u>	Distinguished (60 points) <u>Requirements of Assignment:</u> -All requirements gone beyond the requirements of the Assignment. e.g., inclusion of rubric, reflection, objective(s), etc.—whatever the directions indicate <u>Form:</u>

	<ul style="list-style-type: none"> - Plentiful grammatical mistakes -Confusing content -Missing documentation of sources <p><u>Content:</u></p> <ul style="list-style-type: none"> -No main idea and/or main idea is irrelevant to the assignment -No apparent paragraph organization -No supporting evidence for supporting ideas -No evidence in the lesson plan—in objectives, activities, or assessments—that the learner comprehends the course content 	<ul style="list-style-type: none"> -Distracting grammatical errors -Confusing content -Inconsistent or missing documentation of sources <p><u>Content:</u></p> <ul style="list-style-type: none"> -The main idea is not clear in the opening paragraph -Relevance to main idea of supporting paragraphs is not always clear -Supporting ideas are only minimally illustrated by examples or quotes -The lesson plan does not show enough evidence that the learner understands the course content. Objectives and/or activities and/or assessments only vaguely apply to the course content 	<ul style="list-style-type: none"> -Participant has written a solid essay or lesson plan, including appropriate detail and in an interesting style. <p><u>Content:</u></p> <ul style="list-style-type: none"> -Essay is organized around a thesis or main idea, -Paragraphs are organized around ideas relevant to the main idea -Supporting ideas are evident, and usually include illustrating examples and/or quotes -The lesson plan shows evidence of understanding of the course content in its objectives, activities, and/or assessments 	<ul style="list-style-type: none"> -No grammatical errors -Eloquent expression -Proper citation of sources <p><u>Content:</u></p> <ul style="list-style-type: none"> -Essay is organized around a thesis or main idea -Paragraphs are organized around ideas relevant to the main idea -Supporting points are illustrated with examples and/or quotes -Lesson plan shows evidence of a deep understanding of course content and participant uses that understanding to create opportunities for students to authentically show what they have learned.
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