ELED 4255/6255

**Math CAMMP 2012**

**C**omputer **A**pplications and Manipulative Mathematics Program

Michael Green , Ed. D. John A. Piel, Ph. D.

COED 389 COED 390

(704) 687-8897 (704) 687-8731

mggreen@uncc.edu japiel@uncc.edu

 CAMMP Director: Dr. Cece Toole

**Course Requirements**

1. Attend class every day (Week 2 – no possible exceptions when the students come)

2. Conduct 1 week summer CAMMP with 2-5 elementary or middle school students

3 Demonstrate proficiency with concrete, representational, & symbolic manipulatives -- -- Friday, June 20

5. Demonstrate proficiency with software package - select appropriate software for your

 individual students by Friday, June 20

6. Prepare a module for an arithmetic operation to be used with your individual students - -- Due Monday, June 23

Turn in modules on 3 ½” HD IBM diskette

Modules should be based on a task analysis of the needed skills necessary for complete an operation (e.g., *NC-SCOS*).

7. Complete a 1 page evaluation of INDIVIDUAL student performance

 -- due on last day of CAMMP June 27

8. Very positive attitude -- **no whining** ! !

9. If you’re late from lunch or break, we’ll start without you

# Text: Piel & Green, *Constructing Number Sense in the Elementary & Middle Grades Classrooms*. Dubuque, IA: Kendall HuntCAMMP 2012 SCHEDULE

## Week One

**Monday June 18**

CAMMP mathematics process -- Constructivism

Prenumber ‑ ordinal & cardinal relations – classification & seriation

Properties of the Staircase model

Addition ‑ whole numbers

 Problem solving and action language

 Levels of manipulatives

Reasonableness & accuracy

Lunch Break

 Multiplication – whole numbers

Problem solving and action language

Levels of manipulatives

Reasonableness & accuracy

 Task analysis ‑ student behaviors ‑‑ Instructional Modules

Tuesday, June 19

Multiplication – whole numbers (cont.)

Subtraction ‑ whole numbers

Problem solving and action language

Levels of manipulatives

Reasonableness & accuracy

Lunch Break

Math software

Division ‑ whole numbers

Measurement & partition

Problem solving and action language

Levels of manipulatives

Reasonableness & accuracy

Wednesday, June 20

 *Grade teams and assignment of students to teachers: call tonight ! !*

 Fractions ‑ extending whole number operations

(same action on different content)

Rorange model

Comparisons

Common fractions (common denominators)

Renaming fractions (reducing to lowest terms)

Addition of fractions

Problem solving and action language

Levels of manipulatives

#### Module Development: Group (grade level) modules

Lunch Break

 Subtraction of fractions

Problem solving and action language

Levels of manipulatives

 Multiplication of fractions

 Problem solving and action language

 Levels of manipulatives

#### Module Development: Group (grade level) modules

Thursday, June 21

Division of fractions

Problem solving and action language

Levels of manipulatives

 Multiplying by the reciprocal

Relating fractions to decimals ‑‑ Base 10 blocks

 Operations on decimals

Geometry: area, perimeter, volume

 **Lunch Break**

Probability

Pre Algebra – Algebra: Hands-on-Equations

*Module development in the lab*

Friday, June 22

 **Walk through procedures & dorm rooms with CAMMP Director Dr. Toole**

**Manipulative proficiency check—Know your checker!**

#### Module development in the lab

**Lunch Break**

 Module development in the lab

 **Last one out LOCKS up the computer room**

**Week Two**

**CAMMP for Students**

**Daily Schedule of Events**

 **Group 1 Group 2 Group 3**

**Time Youngest 25 Middle 25 Oldest 25**

**All teachers must be ready at 8:40**

8:45 Arrival Arrival Arrival

9:00 Manips Computer Manips

10:15 Activity Snack Computer

10:30 Activity

10:45 Snack

11:00 Manips

11:15 Computer Snack

11:30 Activity

12:00 Dismissal Dismissal Dismissal

Summary of CAMMP Components

Action Language x Hierarchy Grid

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Action Language** | **Concrete** | **Representational** | **Transitional** | **Symbolic** |
| Joined with | Cuisenaire rods, counters, unifix cubes, number track,walk on number line | Chisanbop, base 10 blocks, abacus, place value chart, number line | expanded notation, partial sums, computer programs, calculators | low stress, scratch, casting out nines, reasonableness  |
| **Sets of** | Cuisenaire rods, number track, unifix cubes with number track | Chisanbop, base 10 blocks, abacus, place value chart, numberline | expanded notation, partial products, computer programs, calculators | lattice, casting out nines, reasonableness |
| **take away****compared to****joined with****no action** | Cuisenaire rods, number track, unifix cubes with number boats and track | Chisanbop, base 10, abacus, place value chart, numberline | expanded notation, partial differences, computer programs, calculator | equal addition, dribble down,casting out nines,reasonableness |
| **grouped into sets of****grouped into sets with how many in each set** | Cuisenaire rods, unifix cubes, walk-on numberline | Chisanbop, base 10 blocks, abacus, place value chart, numberline,  | expanded notation, partial quotients, computer programs calculator | scaffolding division with rounding up,casting out nines,reasonableness |

**Math CAMMP at UNC-Charlotte**

Student\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **Not Yet Some of the time Most of the time Proficient**

Understanding and usage of *action* 1 2 3 4

*language* representing an operation

Use of concrete manipulatives when 1 2 3 4

solving simple word problems

Use of representational manipulatives 1 2 3 4

when solving more advanced

word problems

Use of symbolic transition activities 1 2 3 4

to connect manipulative actions to

symbolic procedures

Use of standard or alternative algorithms 1 2 3 4

to solve sophisticated word problems

Ability to logically determine appropriate 1 2 3 4

operations or methods of operation in

problem solving activities

Comments and suggestions for home follow-up

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Teacher:

Mathematical Operation: