C²AM²P
Common Core for Achievement & Middle Grades Mathematical Proficiency

What's golden?

Year 3: Summer Day 4

C²AM²P Middle Grades is a grant program through Bowling Green State University and funded by the Ohio Department of Education through the Ohio Mathematics and Science Partnership (MSP) Program.

BGSU Bowling Green State University

Ohio Department of Education

Introductions

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- Jessica Belcher
- Sherry Lane
- Duane Bollenbacher

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Agenda

- Introductions and Norms
- Morning Jumpstart: Five Fives
- Activity: Duane Bollenbacher
- Lesson Reflection: Reflecting on SMCs and SMPs
- Lunch
- Launch after Lunch: Frog and Toad
- Activity: Duane Bollenbacher
- Lesson Reflection: Reflecting on SMCs and SMPs
- Lesson Planning
- Daily Evaluation

Evolving Norms for this PD

- We will be ready for class and use our class time effectively.
- We will keep our focus on learning and use technology for personal reasons during breaks.
- We will be respectful of each other's time and space and work efficiently.
- We will actively participate by (a) listening to each other, (b) giving others our attention, (c) not speaking when someone else is talking, and (d) regularly sharing our ideas in class.
- If we disagree with someone or are unclear, we will ask a question about his or her idea and describe why we disagree or are confused.
- We will ask questions when we do not understand something. We will comment on others' ideas rather than the person.

Evolving Norms for this PD

- We will take advantage of opportunities to share ideas and gather feedback through presentations.
- We will encourage one another to share ideas.
- We will show our appreciation to one another for their ideas.
- If we disagree with someone or are unclear about their ideas related to mathematics content and pedagogy, we will ask a question about his or her idea and describe why we disagree or are confused.
- We will ask questions when we do not understand something about mathematics content and pedagogy.
- We will comment on others' ideas about mathematics content and pedagogy rather than the person.

Evolving Norms for this PD

- We will always look for another approach to solve problems.
- We will use pictures, graphs, tables, symbols, numbers, manipulatives, and/or words to assist us while doing mathematics.
- We will persist with every problem and examine it from multiple perspectives.
- We will be mathematically precise whenever possible.
- We will explain and justify our ideas in a way that everyone can understand.
- <u>We will engage in rough-draft talk and encourage others to do so as well.</u>

Morning Jumpstart:
Frog and Toad Trade Places

Toads and Frogs On a one-dimensional board with 2n + 1 cells, there are n counters in the first n cells representing Toads and n counters in the last n cells representing Frogs. Toad and Frogs take turns moving. Moves consist of sliding a Toad or Frog into the empty cell or jumping over one opposing creature to the empty cell. (Toads cannot jump over themselves and neither can Frogs.) Toads can only move rightward; Frogs can only move leftward. The object is to make them switch their positions.

Activity – Duane

12 Days of Christmas

During the 12 days of Christmas, how many total gifts did my true love give me?

Basic and SPECIAL Patterns

Continue these patterns:

1,2,3,4,____, _____, _____, …

1,2,3,4,____, ____, _____, _____, …

1,2,3,4,____, _____, _____, …

1,4,9,16, _____, _____, _____, …

1,3,6,10,15, _____, _____, _____, …

Reflecting on SMCs and SMPs

- Share across your table with different SMPs and SMCs addressed by today's activities.
  - Be purposeful indicating what specific behaviors or habits led you to conclude that you engaged in a specific SMP.
  - Similarly, what did the instructor(s) do to encourage/ foster/facilitate that SMP?
  - In what ways could we UDL this lesson?
    - UDL = Universal Design for Learning. We will explore this more deeply later today.

Lesson Reflection

Lesson Reflections

Date:	Lesson:

Personal Notes		Group Discussion		Notes
Content	Practice	Content	Practice	

LUNCH

Launch after Lunch: Five Fives

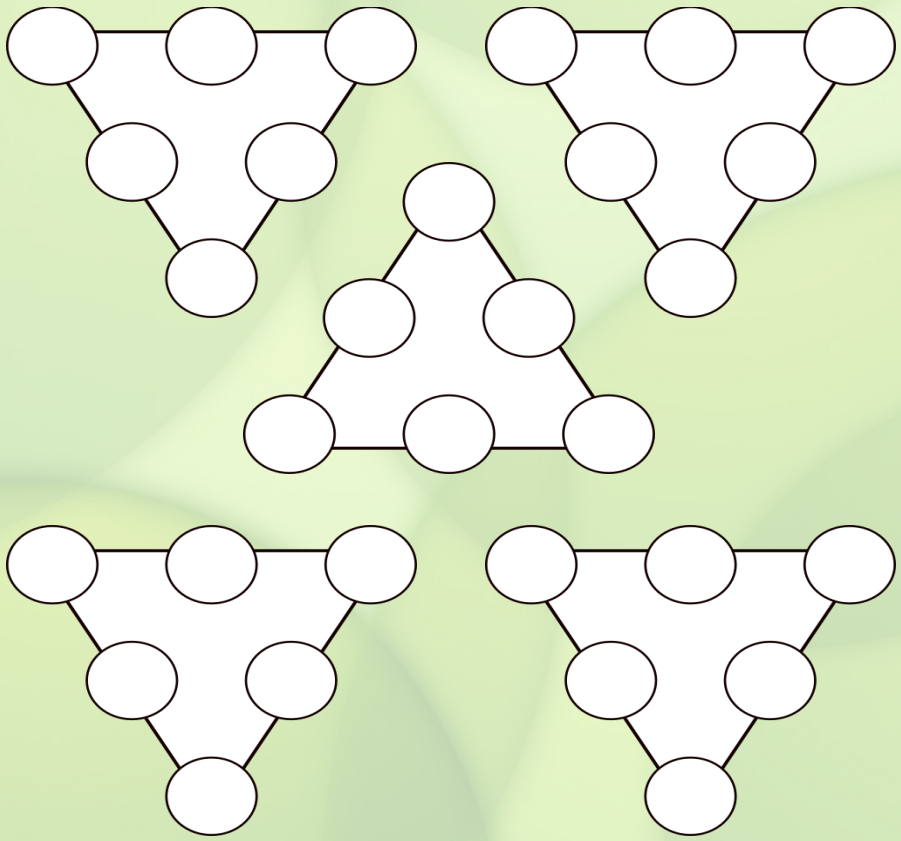
The ***Five Fives*** problem is a variant of the classical math puzzle ***Four Fours***, in which you must use the number 4 exactly four times to produce every integer from 0 to 100 (or 200) without using any other digits. You are allowed to use the basic mathematical operations of $\times$ (written here as *), $\div$ (written here as /), +, -, along with exponentiation ^, square root, and factorial n! You can also concatenate numbers (e.g., 44 and 444), use decimal points (.4), and use the over line to represent a repeating decimal (.4).

The goal is to make as many whole numbers (in order!) as you can in five minutes. Here is one to get your started.

0 can be made by: $\sqrt{5\times5}+5-5-5$

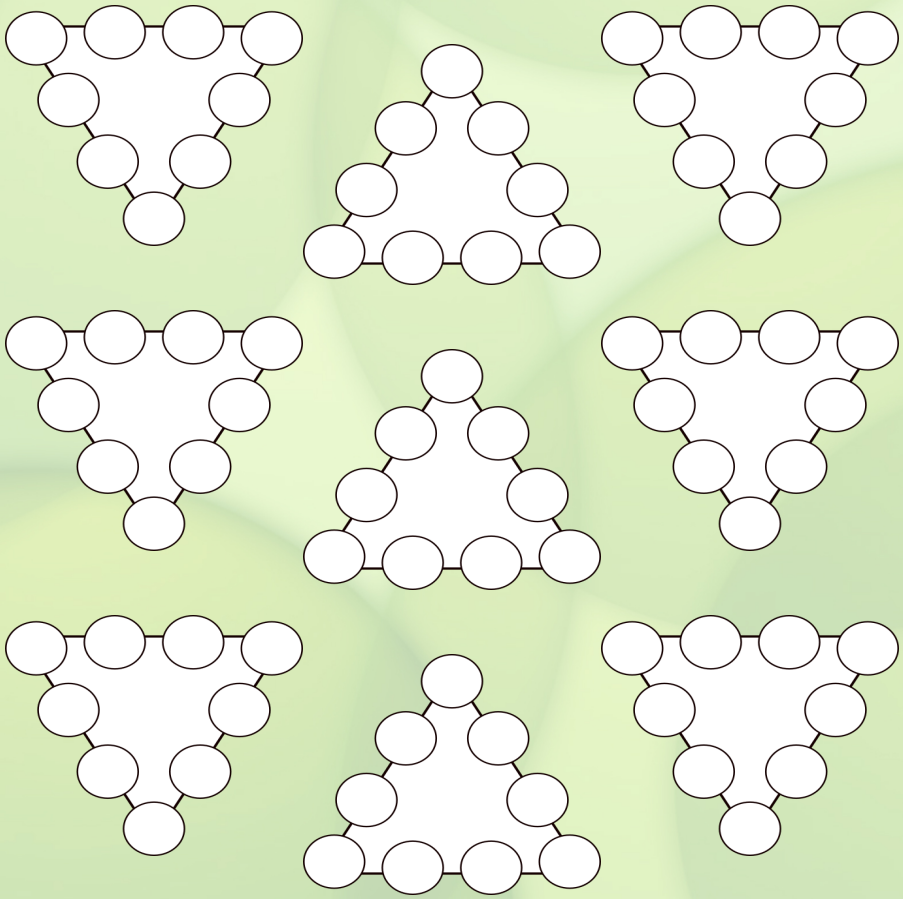
Activity - Duane

Place the digits 1,2,3,4,5,6 (once each) in a triangle below so that the sum of the digits along each side is the same.



Activity - Duane

Place the digits 1,2,3,4,5,6,7,8,9 (once each) in a triangle below so that the sum of the digits along each side is the same.



Activity - Duane

CONTEST PROBLEMS

USING EQUATIONS, INEQUALITIES, AND GOOD PROBLEM- SOLVING SKILLS

Reflecting on SMCs and SMPs

- Share across your table with different SMPs and SMCs addressed by today's activities.
  - Be purposeful indicating what specific behaviors or habits led you to conclude that you engaged in a specific SMP.
  - Similarly, what did the instructor(s) do to encourage/ foster/facilitate that SMP?

Lesson Reflection

Lesson Reflections

Date:	Lesson:

Personal Notes		Group Discussion		Notes
Content	Practice	Content	Practice	

Lessons

- You will design <u>one Expression and Equations (EE)</u> lesson to implement next academic year. Work on this lesson will be done in grade-level teams.
  - Special education teachers are encouraged to work with those they tend to collaborate with most often, students they tend to see more frequently, or content that seems most unclear. You are still expected to author one EE lesson.
  - Each teacher is responsible for one lesson; however, the team's lessons should be organized as part of a series of lessons that the grade-level teams could pick up and use in its entirety.

Lessons

- Lessons may use tasks from online/NCTM/books but they must be different in some way.
- TTLP questions must be clearly addressed. Copy and paste the question from the TTLP into your lesson so the reader knows its focus.
- You must address at least one bullet from each section within Parts 1 and 2.
- You must address two bullets from Part 3.
- You may use the provided BGSU lesson plan template or another lesson plan template as a way to frame your lesson.

Lessons

- Technology and other resources are encouraged.
- SMPs and SMCs must be indicated in the lesson.
- Assessment of some kind (questions, worksheet, brief quiz, etc.) must be provided.
- As a group, you must have a grade-level academic language support document. This should include words, definitions, examples, and if possible, ways to contextualize the word in a math task other than the one in the lesson. Hyperlinks to resources are encouraged.

Take Care

- Please complete the exit ticket and place it on the parking lot.
- Please help us keep the room in order by throwing away any trash and tidying your area.
- Bring snacks, drinks, and/or other food to share for Lesson study!
- See you tomorrow. Travel safely!