

Warm-up: Go Play!

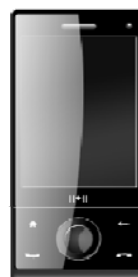
Download the Pick-a-Path app from iTunes or Google Play.



Were you engaged? Did you learn something?
How could you use this to teach? Will you?

Get Up! Get Movin! Get Started!

- Who are you? Where are you from?



New and Preservice Teacher Workshop

David Barnes
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NCTM Regional Meeting – Louisville, KY

3

Welcome!

- Info cards - Fill out Front & Back
- NCTM is interested in knowing what new teachers and those in training want.
- Prizes will be drawn using info cards!

Power Hour: A Familiar Concept?!

- It's 5 o'clock somewhere!
- Meet & Greet.
- Share & Learn.
- Ready, Set, Go!



Share and Learn

- Share: Offer an idea that has worked well for you with a colleague.
- If you feel comfortable share your contact information too!
- Learn: Get an idea from a new friend.

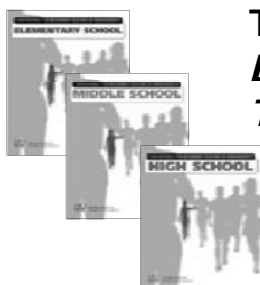
Want Free Money?

- No, seriously.
- Learn more at www.nctm.org/met



7

Resources



Tips from NCTM's *Empowering the Beginning Teacher of Mathematics Series*

*Success from the START:
The Essential Guide to
Navigating Your First Years
of Teaching Secondary
Mathematics*



8

Like what?!

- What do I do when students don't "get" the lesson?
- How can I help students who struggle with math that they supposedly learned in elementary school?
- How do I arrange for students who are absent to make up the work?
- Do I assign seating or let students choose their seats?
- Should I have students work in groups?
- How much homework should I assign—and how much should I grade?



9

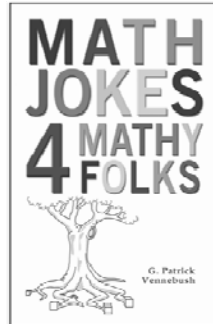
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10

Simple and Oh So Fun



- Write a positive integer on a piece of paper.
- Show it to your neighbor.
- The winner is...

Whoever wrote the smallest integer NOT written by anyone else.

What a constraint!



Keeping Your Sanity

- Do not work alone – communicate with colleagues, interact with others online, attend meetings
- Find a mentor
- Learn to say “No”
- Make a mistake?
 - Apologize if you need to. Move on.
 - Don’t beat yourself up.

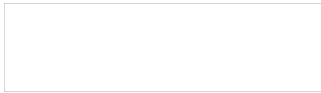
13

11Q – Q

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11Q – Q

- Thank you for attending the session and for all you'll do as a teacher.
- This is the best job on earth!
- Stand up straight!
Hold your head high!
Look people in the eye and announce proudly,
“I am a teacher!”



Discussion Topics

- Planning
- Instruction
- Assessment
- Classroom Organization
- Classroom Management
- Homework
- Questioning Techniques
- Using Technology
- Online Resources
- Motivating Students
- Problem Solving
- Group Work
- Parents and Family
- Keeping Your Sanity

Planning

- Questions to ask:
 - What do I want? – Be Specific!
 - Do you have a hook?
 - How do you engage?
 - Is there another way?

17

Planning

- Write it Down!
 - Jot down ideas/notes in your book
 - Recalling a good teaching suggestion from a previous year may be difficult
- Ask, Listen, Decide!

18



Instruction

- Door Problems!
 - Quick problem when they hit the door
 - Always have an assignment
- Know your content
- Know your audience
- Strategies for learning

19

Instruction

- If a lesson is going badly
 - **STOP**
 - Regroup with a new approach, or Do something else
 - Examine what went wrong
 - Make plans for the next day

20



Assessment

- Help students learn to explain their reasoning
- Ask “Why?” and questions such as:
 - What did you do first?
 - How could I show that?
 - Then what did you do? Why?
 - I don’t understand how you did that. Can you tell me more?

21

Assessment - Scoring

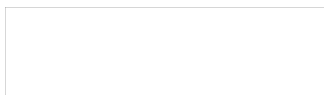
- Valuing the Process and the Answer
 - Avoid all-or-nothing grading schemes
 - Insist on detailed explanations
 - Reward reasonable efforts and different approaches
 - Use “+2 out of 4” instead of “-2 out of 4”

22



Classroom Organization

- Help students (and parents) to track their own progress
 - Create assignment sheet for students' notebooks
 - Make class folders where absent students find missed assignments/handouts.

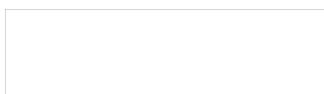


23



Classroom Management

- Have a seating chart – Day 1!
- Establish and enforce your classroom rules **consistently**
- Create engaging mathematics activities
- Create extensions of your activities to challenge your students



24



Homework

- How much homework to assign?
 - What do you expect from the assignment?
 - What information will it provide you?
 - How many problems to assign? Will 5 work?
 - How long did it take you?
- Homework quizzes

25



Questioning Techniques

- Use class-centered prompts
“Think about how you would ...?”
- No yes/no or single number questions.
- Students justify answers - “Explain to us how you found your solution”
- Ask “Why?” a lot!

26



Using Technology

- Technology is not **the** answer
- Use technology as a tool to make the learning of mathematics richer and better
- Scaffold an investigation with a handout of specific questions versus “Explore”
- Resist having students work individually

27

Which Gray Matter?

- Hexagonal Prism?
- Hard?
- Soft?

28

Which Gray Matter? Quiz

- $(14.26 * 2.7 * 4.5 * 0) + 27 = ?$
- $1/3 + 3/8 + 2/10 = ?$
- Square Root of 27 = ?

29



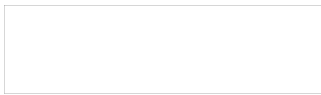
Online Resources

- The NCTM Web site—www.nctm.org
 - Organized by elementary, middle, and high school
- NCTM Member's Only—www.nctm.org/members
 - Access to current and archived journals, On-Math, Student Math Notes, and more
- NCTM Standards—standards.nctm.org
 - Full text of *Principles and Standards for School Mathematics*, electronic examples for each grade band

30

Online Resources

- Illuminations Web site—illuminations.nctm.org
 - Lesson plans for teachers, interactive applets for students, reviewed Web resources
- Reflections Web site—www.nctm.org/reflections
 - Reflect on instructional practices through video clips, lesson plans, and student work
- Figure This! Web site—www.figurethis.org
 - Math challenges for middle school students, information to help families get involved



31

Elementary School @ nctm.org

The screenshot shows the NCTM website navigation bar with the following menu items: About NCTM, Standards & Local Points, Membership, Conferences, Professional Development, Journals & Books, Lessons & Resources, Research, News, & Advocacy, Shop Online, and a JOIN NCTM button. A search bar is also present. Below the navigation bar, arrows point from the following text to the 'Lessons & Resources' menu item:

- ★ e-Examples
- TEACHING CHILDREN **Mathematics**
- ★ Article Downloads
- ★ Problem Database
- ★ Elementary School
➤ Investigations
- Student Explorations in Mathematics

32

Middle School @ nctm.org

The screenshot shows the NCTM website navigation bar with the following menu items: About NCTM, Standards & Focal Points, Membership, Conferences, Professional Development, Journals & Books, Lessons & Resources, Research, News & Advocacy, Shop Online, and a JOIN NCTM button. A search bar is located to the right of the navigation bar. Below the navigation bar, the main content area features the text "mathematics teaching in the MIDDLE SCHOOL" and a list of resources: ★ e-Examples, ★ Article Downloads, ★ Problem Database, ★ Figure This, ★ Math Here & Now, ★ Middle School, and a sub-item > Math Roots. A "Student Explorations in Mathematics" logo is also visible.

33

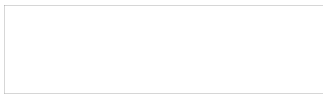
High School @ nctm.org

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34

Motivating Students

- If you want magic in your students... look for it and find it in them!
 - Include them
 - Ask them what they think
 - Ask them what they see
 - Ask them to share their ideas, opinions, and reactions



35



Problem Solving

- Don't make Problem Solving the first thing to go
- Give time to struggle
- Give specific hints
- Celebrate elegant and unique solutions
- Engage Parents! – Parent – Teacher Night – Weekly problems to work on

36

Problem Solving

Non-problem solving mode

1. $14 + 29$
2. $8 + 35$
3. $15 + 29$

Problem-solving mode

1. Find two consecutive numbers whose sum is 43.
2. Find two counting numbers whose sum is 43 and whose ones digit differs by 3.
3. Find two numbers whose sum is 44 and one of whose addends is 14 more than the other.

37



Group Work

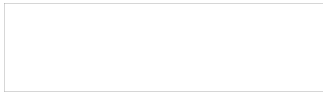
- Find the right task – Complex enough to need working together
- Identify and teach roles to students
- Hold all students accountable for the work of the group
- Watch, listen and then interact with groups as they work

38



Parents and Families

- Build Parents as Allies
 - Brag to parents within the first 4 weeks.
 - Ask them to work with you
 - Keep in touch



39

Parents and Families

- Parents can learn!
Don't just tell parents, show them!
 - Help students to engage their parents
 - Family math night where parents and students work on math together
 - Give parents ways to help their children



40



Keeping Your Sanity

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41

Keeping Your Sanity

Laugh
&
Enjoy

42