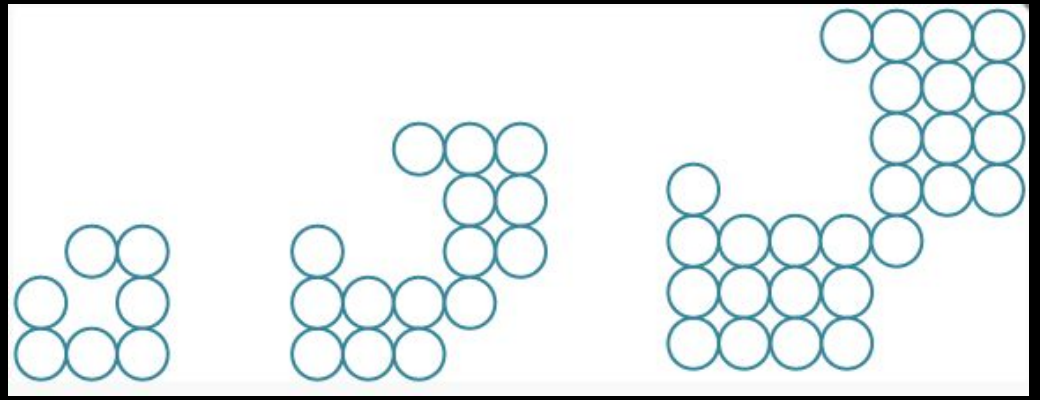
For each pattern:
What do you notice?
What's the next step?
Share with a neighbor.



From visualpatterns.org

Coaching Teachers to Coach Each Other

Matthew Blue Taylor

Twitter: @BlueMathEd

www.BlueEngine.org

Agenda

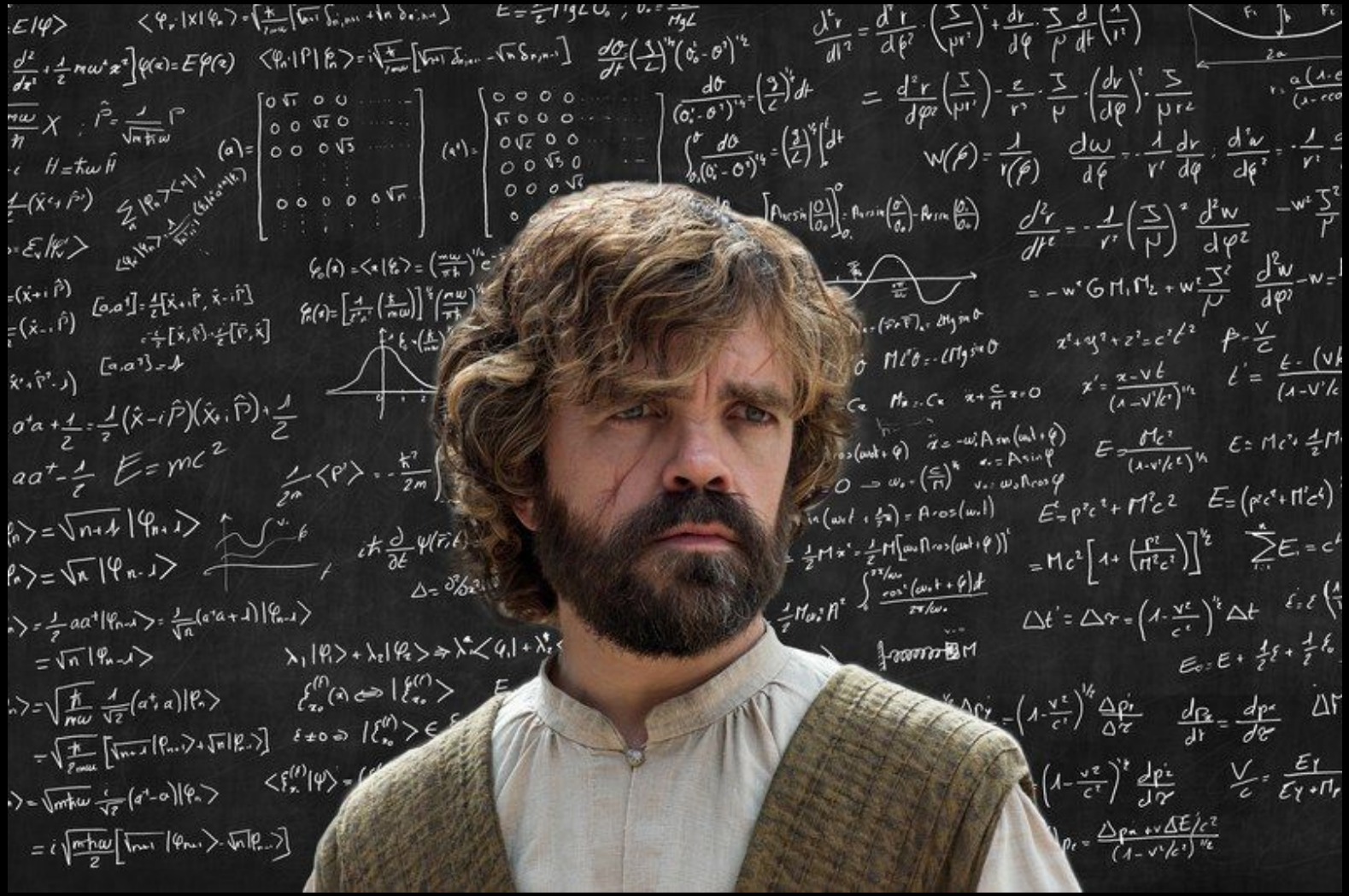
- Introduction
- Goals for workshop
- Experience Routine - Student Hat
- Reflect - Teacher Hat
- Experience Routine - Student Hat
- Compare & Contrast - Teacher Hat
- Improving Practice Together
- Rehearsals & Videos
- Cycle of Inquiry
- Resources

Goals of Instructional Routines

1. Create Common Language and Repertoire of Teaching Practices Shared by Group of Teachers

2. Lower cognitive load so teachers can focus on understanding what the students are thinking mathematically

3. Lower cognitive load for students so they can focus more on the math



Favorite Quote:

Mistakes are Expected, Respected, and Inspected

@BlueMathEd

Contemplate then Calculate

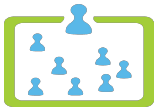
WHAT: Practice looking for *shortcuts* using what you know about the way numbers and operations work.

WHY: to “think like mathematicians”, to find shortcuts using mathematical *structure*.

Contemplate then Calculate

Notice

Find Calculation Shortcut



Share and Study Shortcuts

Reflect on Learning

What do you notice?

What do you notice?

$$3x = 60 + 27$$

What do you notice?

Share

I noticed…

What did you notice?

Find Calculation Shortcut

"In your head"

find the value quickly with the fewest calculations

Explain *why* your shortcut works.

Find Calculation Shortcut

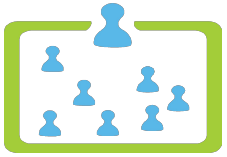
$$3x = 60 + 27$$

Find the value of x.

"In your head"

find the value quickly with the fewest calculations

Explain *why* your shortcut works.



Share and Study Shortcuts

$$3x = 60 + 27$$

Find the value of x.

<u>Presenter</u>

We noticed… so we…

We knew… so we…

Our shortcut works because…

<u>Audience</u>

They noticed… so they…

They knew… so they…

Their shortcut works because…

Reflect on Learning

A. **Paying attention to …**
is helpful because …

B. **You can use the structure of an equation to … by …**

Quick debrief - Teacher Hats

1. Turn to a partner
   a. What did you notice?
   b. What did you wonder?

2. Share out to room.

New Visions for Public Schools

Contemplate then Calculate

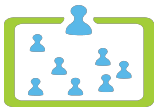
WHAT: Practice looking for *shortcuts* using what you know about the way numbers and operations work.

WHY: to “think like mathematicians”, to use mathematical *structure* to find shortcuts.

Contemplate then Calculate

Notice

Find Calculation Shortcut



Share and Study Shortcuts

Reflect on Learning

What do you notice?

What do you think is mathematically important?

What do you notice?

What do you notice?

$$81 - 72 + 63 - 54 + 45 - 36 + 27 - 18 + 9$$

What do you notice?

Share

I noticed…

What did you notice?

Find a shortcut

Find the **value** quickly, “in your head.”

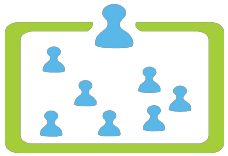
Explain *why* your shortcut works.

Find a shortcut

$$81 - 72 + 63 - 54 + 45 - 36 + 27 - 18 + 9$$

Find the **value** quickly, “in your head.”

Explain *why* your shortcut works.



Share and Study Shortcuts

81 - 72 + 63 - 54 + 45 - 36 + 27 - 18 + 9

<u>Presenter</u>

We noticed… so we…

We knew… so we…

Our shortcut works because…

<u>Audience</u>

They noticed… so they…

They knew… so they…

Their shortcut works because…

Reflect on Learning

A. Paying attention to _____ in a calculation is helpful because ____.

B. You can find calculation shortcuts by____.

Compare and Contrast - Teacher Hats

Discuss with a partner:

- What was the same for both Contemplate then Calculates?
- What was different between them?

Teachers Improving Practice Together

Discuss with your table:

- How can teachers use a routine like this to help each other improve their teaching practice?

Rehearse with Colleagues

Practice *Contemplate then Calculate* together in department meetings before doing them in class.

Protocol:

1. Noticings
2. Wonders
3. Suggestions
4. Presenter Reflects & Responds

Report how it went at beginning of next meeting.

Videos

Take turns recording your *Contemplate then Calculates* in your classes and then watch them together.

Can use Noticings, Wonderings, Suggestions protocol as before.

Helpful to focus on a specific aspect.

With a Cycle of Inquiry

- Analyze student work
- Identify a need
- Select or create a math problem that relates to that need (can even be a problem they already did)
- Do Contemplate then Calculate with the problem
- Pay attention to what students say and write
- See if it affects their other work

Online Resources

- Free Online Archive of Contemplate then Calculates:
  http://math.newvisions.org/instructional-activities
- Video Contemplate then Calculate in classrooms:
  http://tedd.org/
- Community on Twitter using hashtag:
  #CthenC

Offline Resources

- Routines for Reasoning by Grace Kelemanik, Amy Lucenta, and Susan Janssen Creighton

- Session tomorrow: Supporting Meaningful Mathematical Student Discourse and Student Voice