

# Embedding Formative Assessment Within an Instructional Routine

# AGENDA

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Welcome

What are Dylan Wiliam's 5 Formative Assessment Strategies?

Experience an Instructional Routine #1

Experience an Instructional Routine #2

Connect the Instructional Routine to the 5 Formative Assessment Strategies

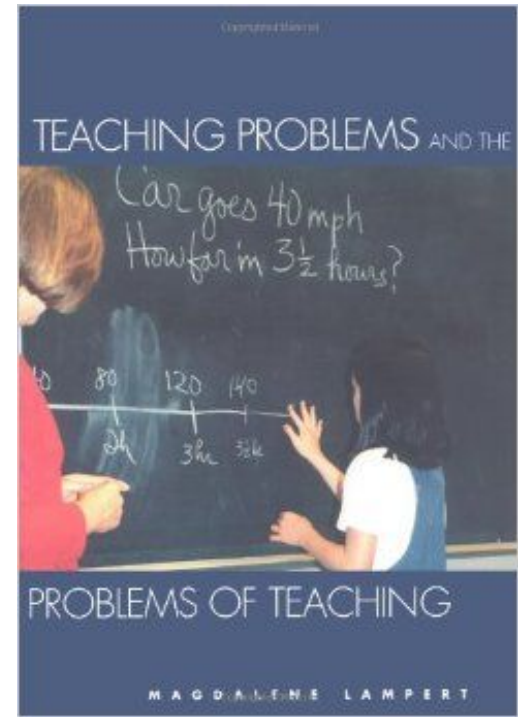
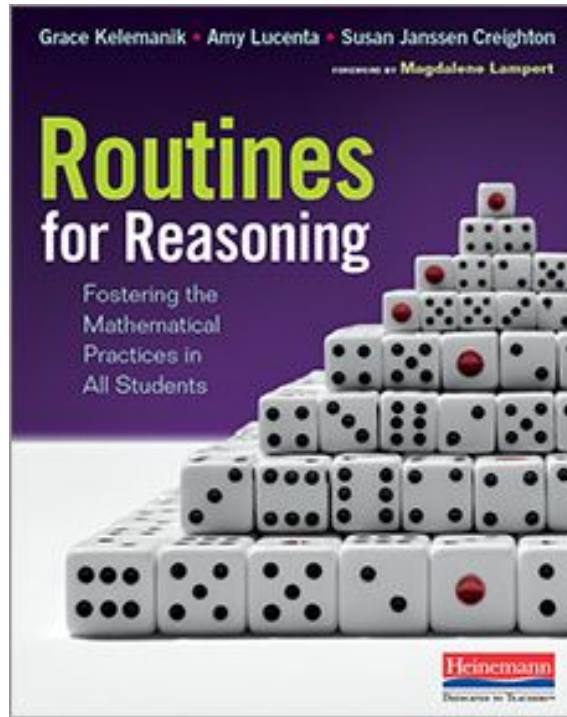
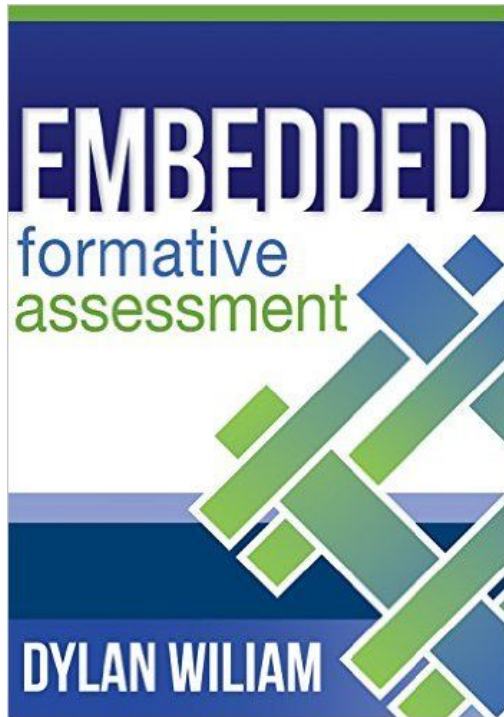
Closing and Next Steps



# OBJECTIVES

1. Participants will experience an instructional routine as learners.
2. Participants will look for connections between formative assessment strategies and an instructional routine.

# Credits and thank yous



# 5 formative assessment strategies

1. Clarifying, sharing, and understanding goals for learning and criteria for success with learners.
2. Engineering effective classroom discussions, questions, and tasks that elicit evidence of students' learning.
3. Provide feedback that moves learning forward.
4. Activating students as owners of their own learning.
5. Activating students as learning resources for one another.

Five “Key Strategies” for Effective Formative Assessment, Dylan Wiliam, 2009

Full article here: <https://goo.gl/lZpft4>

# Contemplate then Calculate Roles

## Contemplate then Calculate

An Instructional Routine  
Prompting Structural Thinking



**THINK like a student**



**SPEAK like a student**



# Contemplate then Calculate



**WHAT:** Practice looking for *calculation shortcuts* using what you know about the way ***sequences*** work.

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



# Contemplate then Calculate



**Notice**



**Find a calculation shortcut**



**Share and study strategies**



**Reflect on learning**





# What do you notice?



What do you think might be mathematically important?

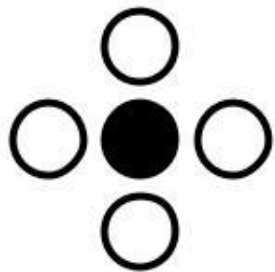


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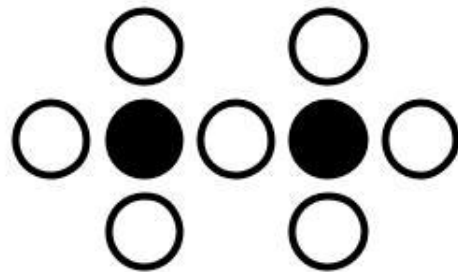




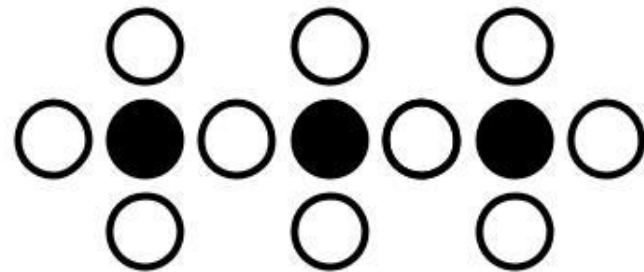
# What do you notice?



Term 1



Term 2



Term 3



# What do you notice?

A large, empty white rectangular box with a black border, intended for the user to write their observations or findings.

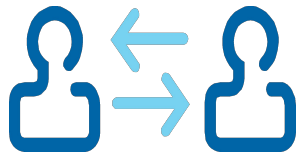


# Share



I noticed ...  
What did you notice?



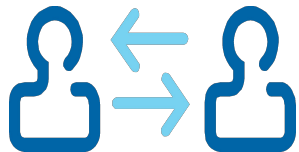


## Find a Calculation Shortcut

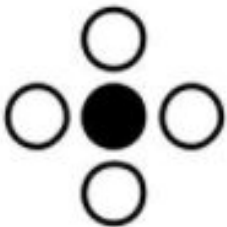
Find the number of ***circles***  
in the ***6th term*** of the sequence.

Be prepared to explain *why* your strategy works.

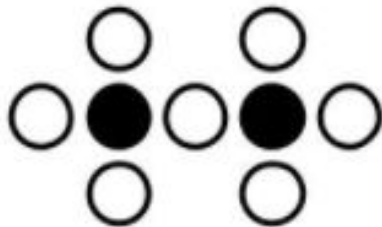




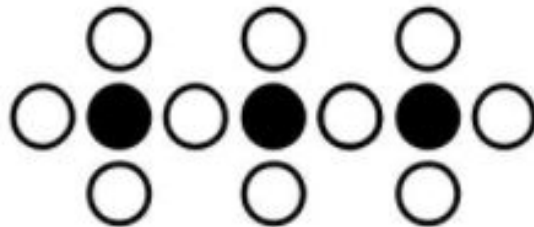
# Find a Calculation Shortcut



Term 1



Term 2



Term 3

Find the number of ***circles***  
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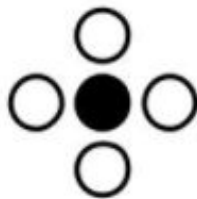
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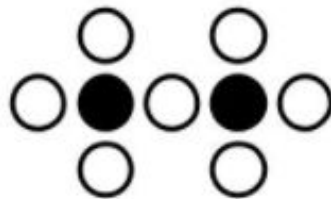


# Share and Study Shortcuts

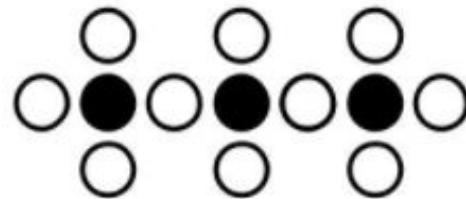
Find the number of ***circles*** in the ***6th term*** of the sequence.



Term 1



Term 2



Term 3

## Presenter

We noticed... so we...

We knew... so we...

Our strategy works because...

## Audience

They noticed... so they...

They knew... so they...

Their strategy works because...



# Reflect on Learning



*Paying attention to \_\_\_\_\_ in a sequence is helpful because \_\_\_\_\_.*

*You can make it easier to find terms in a sequence by \_\_\_\_\_.*



# Quick write/share

1. What connections to the formative assessment strategies did you see?
2. Share what you wrote with a partner.



# Contemplate then Calculate



**WHAT:** Practice looking for *calculation strategies* using what you know about the way ***equations*** and ***bar models*** work.

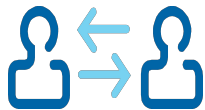
**WHY:** to “think like mathematicians”,  
to find calculation shortcuts using mathematical *structure*.



# Contemplate then Calculate



**Notice**



**Find a calculation strategy**



**Share and study strategies**



**Reflect on learning**



# What do you notice?



What do you think might be mathematically important?

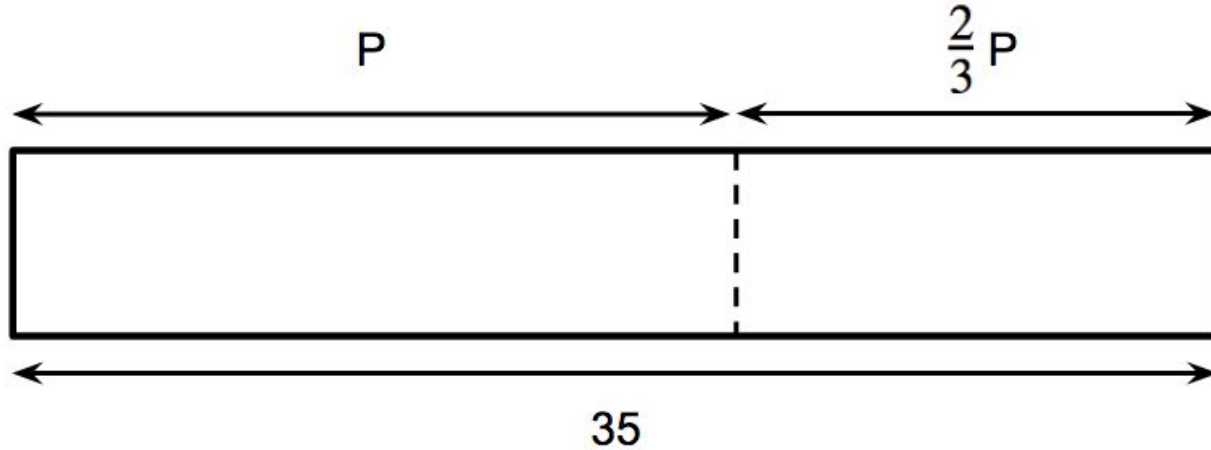


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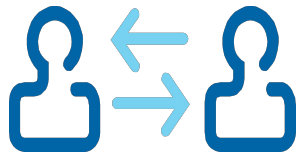


# Share



I noticed ...  
What did you notice?



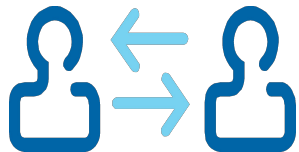


# Find a Calculation Strategy

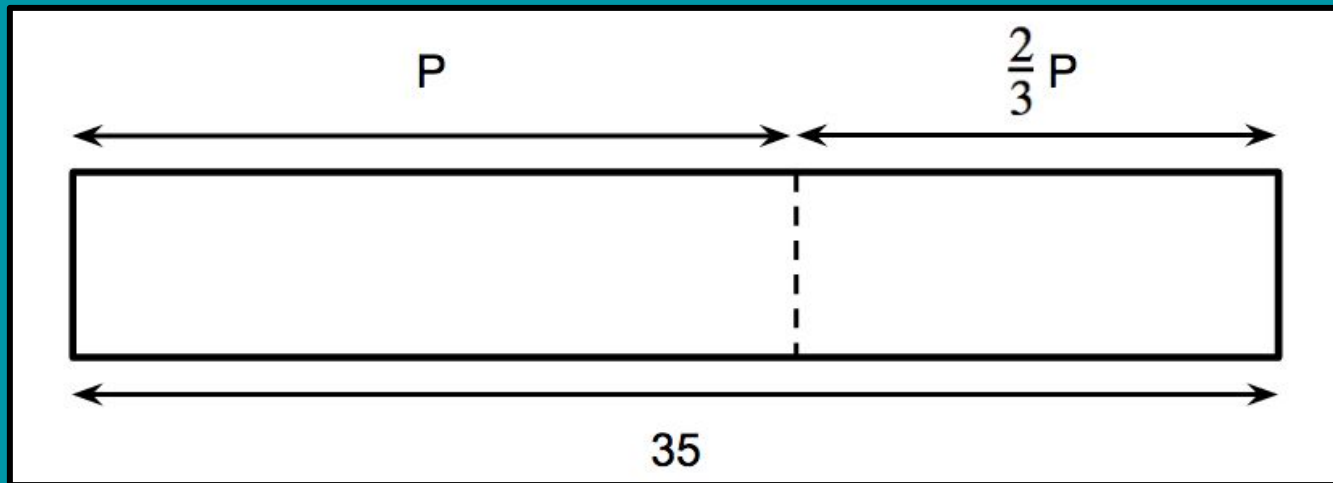
Find the value of  $P$ .

Be prepared to explain *why* your strategy works.





# Find a Calculation Strategy



Find the value of  $P$ .

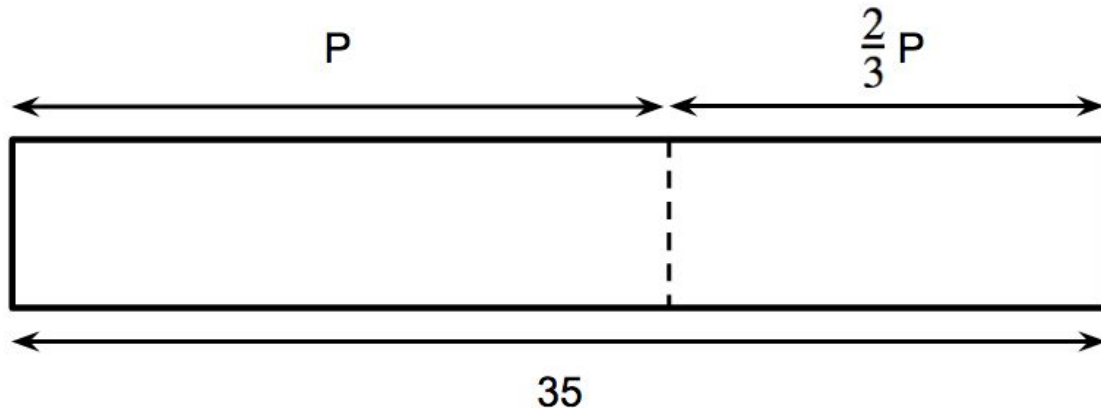
Be prepared to explain *why* your strategy works.





# Share and Study Strategy

Find the number of ***circles*** in the ***6th term*** of the sequence.



## Presenter

We noticed... so we...

We knew... so we...

Our strategy works because...

## Audience

They noticed... so they...

They knew... so they...

Their strategy works because...

# Reflect on Learning



*Paying attention to \_\_\_\_\_ in equations is helpful because \_\_\_\_\_.*

*You can find shortcuts to solve equations by \_\_\_\_\_.*



# Connecting Routines to Formative Assessment

## Idea Carousel:

**Goal:** Collaborate to describe the Contemplate then Calculate routine and record any questions we have about the routine.

# Connecting Routines to Formative Assessment

## **Idea Carousel:**

Choose which formative assessment strategy you want to start with.

Introduce yourself to the people in your group.

# Connecting Routines to Formative Assessment

## **Idea Carousel:**

*With your group:*

1. Write down connections you see
2. Add any questions you have about this strategy.



# Connecting Routines to Formative Assessment

## **Idea Carousel:**

*With your group:*

1. Rotate to the next poster.
2. Give the marker to someone else in your group.

# Connecting Routines to Formative Assessment

## Idea Carousel:

- ✓ Add a check mark where you agree with an idea.
- ✚ Use a plus sign when you want to add an idea.
- ★ Star the **three** most important ideas.

Circle the **most** important idea.

# Connecting Routines to Formative Assessment

## Idea Carousel:

1. With your group, *quietly* walk around and look at the changes on all five posters.
2. Put an exclamation point ( ! ) anywhere you are surprised or there is something you want to talk about further.

# Connecting Routines to Formative Assessment

## Idea Carousel:

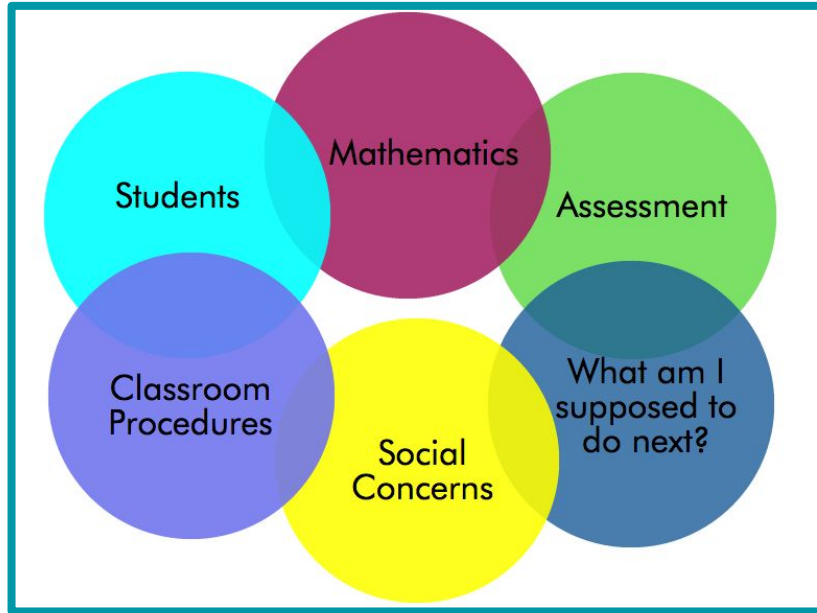
1. Return to your seats.
2. Open discussion:
  - a. What remaining questions do you have about the routine?
  - b. How does this routine give all students access to the mathematics?

# Instructional routines are formative assessment

| Part of an instructional routine | Formative Assessment Strategy   |  |  |  |   |
|----------------------------------|---|--|--|--|---|
|                                  | Clarifying, sharing, and understanding learning intentions and criteria for success | Engineering effective classroom discussions, activities, and learning tasks that elicit evidence of learning | Providing feedback that moves learning forward | Activating learners as instructional resources for one another | Activating learners as owners of their own learning |
| Lesson Preparation               |   | ✓  |  |  |   |
| Lesson Launch                    | ✓   | ✓  |  |  | ✓   |
| Orientation to the task          |   | ✓  |  | ✓  | ✓   |
| Partner work                     |   | ✓  | ✓  | ✓  |   |
| Sharing and studying strategies  |   | ✓  | ✓  | ✓  | ✓   |
| Application                      |   | ✓  | ✓  | ✓  | ✓   |
| Meta-reflection                  | ✓   | ✓  | ✓  |  | ✓   |

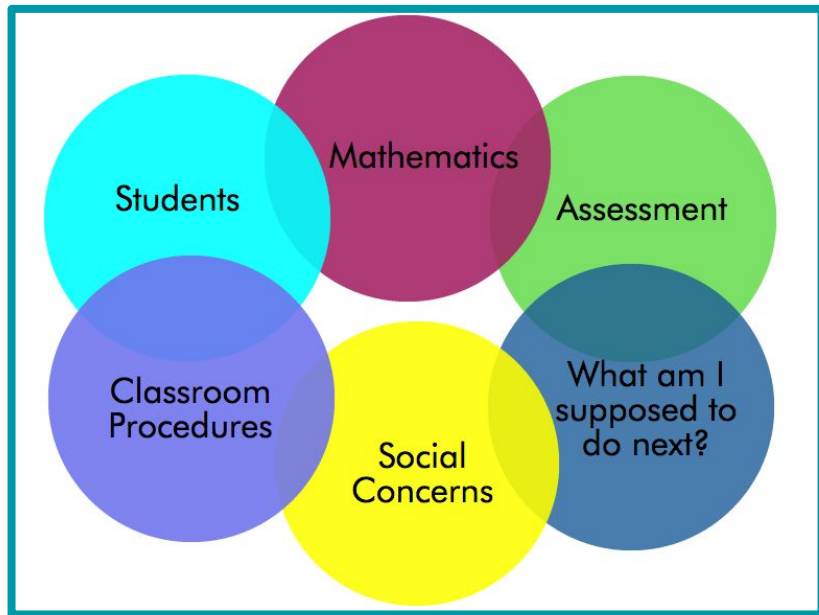
# Cognitive focus in the classroom

***Without*** instructional routines...

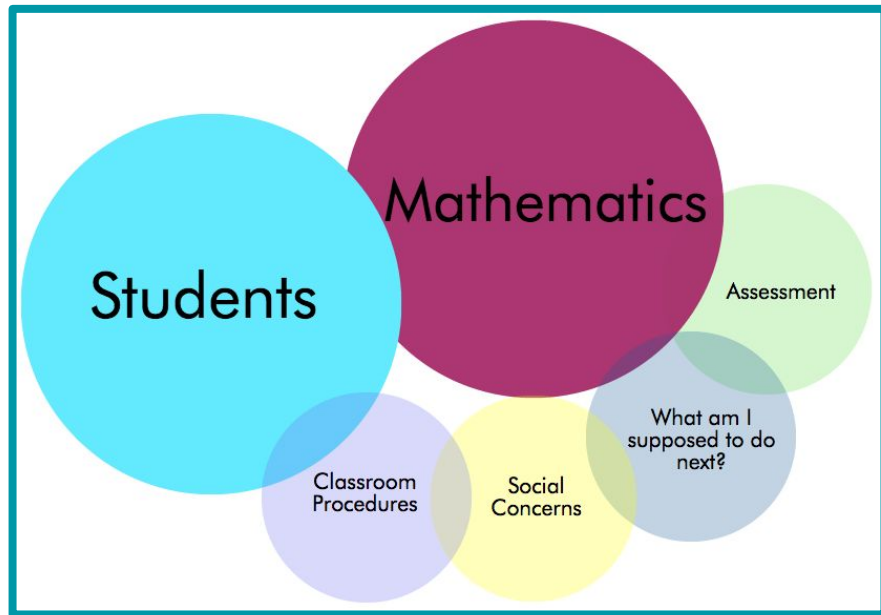


# Cognitive focus in the classroom

**Without** instructional routines...



**With** instructional routines...



# Conversations about teaching

*Without* instructional routines...



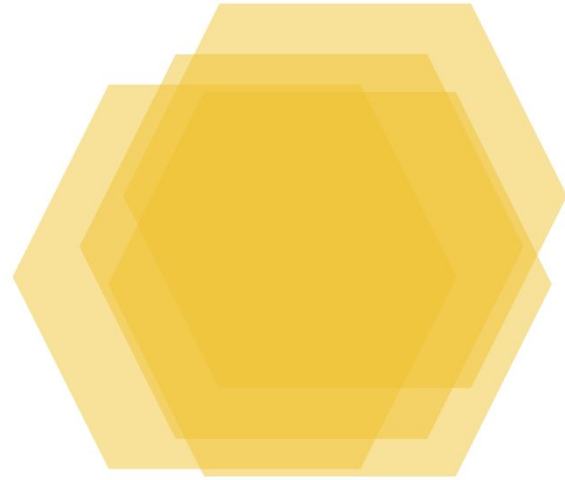


# Conversations about teaching

***Without*** instructional routines...



***With*** instructional routines...



# Credits and thank yous

