# Implementing the Nevada Academic Content Standards Talking About Computational Procedures (Option 2)

Background for Facilitator: Option 1 and 2         • Description
P. 120 "About This Chapter"         Presentation:         Presentation:         Distribute "Stop and Jot" note taker document to teachers.         Say, "Stop and Jot" note taker document to teachers.         Say, "Stop and Jot" note taker document to teachers.         Say, "Stop and Jot" note taker document to teachers.         Say, "Stop and Jot" note taker document to teachers.         Say, "Stop and Jot" note taker document to teachers.         Say, "Stop and Jot" note taker document to teachers.         Say, "Stop and Jot" note taker document to teachers.         Say, "Stop and Jot" note taker document to teachers.         Say, "Stop and Jot" note taker document to the set the middle column." After individuals have written their own thoughts, share out with a partner. This will be revisited at end of the presentation: Connect to prior learning from the Fall/Winter mathematics "pink"         Wetlensdays.         Presentation:         Consider having participants think about the 'talk moves' they have been using to support the productive classroom discussion and moving student thinking and reasoning between these four steps.         Distributer       Background for Facilitator: Specific to Option 2         Presentation: Here's our guiding question for today's work.         Presentation: Here's our guiding question for today's work.         Presentation: Here's our guiding question for today's work.         Presentation: Here's our guiding question for today's
<ul> <li>Presentation:</li> <li>Distribute "Stop and Jot" note taker document to teachers.</li> <li>Say, "Stop and Jot" note taker document to teachers.</li> <li>Say, "Stop and Jot" note taker document to teachers.</li> <li>Say, "Stop and Jot what your thoughts are regarding these statements in the middle column." After individuals have written their own thoughts, share out with a partner. This will be revisited at end of the presentation, as an exit ticket.</li> <li>Background: The purpose of this slide is to connect to prior learning from the Fall/Winter mathematics "pink"</li> <li>Wednesdays.</li> <li>Presentation: Connection to the work that was engaged in the fall 2013. The four steps provide a structure for analyzing and planning for components of productive classroom discussion and moving student thinking and reasoning between these four steps.</li> <li>Background for Facilitator: Specific to Option 2</li> <li>Background for Facilitator: Specific to Option 2</li> <li>Presentation: Here's our guiding question for today's work.</li> <li>Presentation: Here's our guiding question for today's work.</li> </ul>
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Essential Questions         • What does this look and sound like?       Objective         • Objective       Background for Facilitator: Specific to Option 2         • What does this look and sound like?       Presentation: Here's our guiding question for today's work.         • What does this look and sound like?       Presentation: Here's our guiding question for today's work.         • What does this look and sound like?       Presentation: Here's our guiding question for today's work.
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Guiding Question       Background for Facilitator: Specific to Option 2         How can productive talk be used to assist students in obtaining computational proficiency?       Presentation: Here's our guiding question for today's work.         Image: Computational proficiency?       Background for Facilitator:         Image: Computational proficiency?       Background for Facilitator:         Image: Computational proficiency?       Background for Facilitator:         Image: Computational proficiency?       Presentation:         Image: Computational proficiency?       Background for Facilitator:         Image: Computational proficiency?       Presentation:
Guiding Question       Presentation: Decline to option 2         How can productive talk be used to assist students in obtaining computational proficiency?       Presentation: Here's our guiding question for today's work.         Image: Computational proficiency?       Background for Facilitator:         Image: Computational proficiency?       Presentation: Here's our guiding question for today's work.         Image: Computational proficiency?       Presentation: Here's our guiding question for today's work.         Image: Computational proficiency?       Presentation: Here's our guiding question for today's work.
How can productive talk be used to assist students in obtaining computational proficiency?       Presentation: Here's our guiding question for today's work.         Image: Computational proficiency?       Background for Facilitator:         Image: Computational proficiency?       Presentation: Here's our guiding question for today's work.
How can productive talk be used to assist students in obtaining computational proficiency?       Background for Facilitator: p.121 in Classroom Discussions in Math
proficiency?       Image: Constraint of the second for Facilitator:       p.121 in Classroom Discussions in Math
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Background for Facilitator: p.121 in Classroom Discussions in Math
p.121 in Classroom Discussions in Math
COMPUTATIONAL PROCEDURES Presentation:
If you already presented Option 1 do a quick review of slides
7-13 as they already had that content.
Background for Facilitator: Option 1 and 2
Computational Strategy p.121 IN Classroom Discussions IN Math
are <b>manipulated</b> in order to create an equivalent but easier computation.
Definable features:
Ine steps involved change depending on the specific numbers involved
• Oner encient and accurate ways to compute
Background for Facilitator: Ontion 1 and 2
In the event that the questions get asked regarding what is
A generalized set of steps used to perform "the standard algorithm," Jason Zimba, a leading author of
Definable features: the CCSS-M (NACS), was quoted as saying, "The standard
They are efficient     Produce accurate results     algorithm is the algorithm that works for the student." (NNMC
Can be used to perform many computations using the same process Mini-Conference 3/8/14)
Presentation:
Strategies develop into algorithms for efficiency and
generalization. "When do we push for moving from stratogies to

Talking About Mathematical Terminology, Symbols, and Definitions

	algorithms?": Our standards dictate when we move our	
	instruction from strategy focus to algorithm	
	Background for Facilitator: Ontion 1 and 2	
Strategy vs. Algorithm Hunt	Notos: For time purposes you can choose whether or not to	
In each grade level indicate whether students are using a strategy (5) or an algorithm (A) as directed by the standards. Make additional notes regarding strategy vs. algorithm work for whole and rational numbers	show teachers the search teal on their ann to sneed up this	
	show teachers the search tool on their app to speed up this	
	portion of the training.	
	<b>Extension:</b> If you need it to take longer, (depending on how	
	familiar teachers are with standards) have teachers include	
and management	the boundaries: (ie: 1 <sup>st</sup> grade addition strategies are "within	
N	100, using concrete models or drawings and strategies based	
	on place value; relate this strategy to written method and	
	explain the reasoning used".)	
	Presentation: Ask teachers to look at the standards for their	
	grade. After, review the grades below and above to complete	
	this chart. KINDER differentiation- After they've looked at $1^{st}$	
	grade standards, ask kinder teachers to identify standards	
	that support the work in first grade.	
	Limit time to 5 minutes	
	Background for Facilitator: Option 1 and 2	
Strategy vs. Algorithm Hunt answers	Familiarize yourself with the standards and whether you're	
	relating the strategy to written form concrete models	
- S S S	drawing or if strategies are to be based on place value	
	Kinder only has "strategies" for comparing numbers by using	
e tampinen tampinen Sampinen S	matching and counting strategies	
A A A A A A A A A A A A A A A A A A A	Notes: For time purposes you can choose whether or not to	
	show teachers the search tool on their ann to sneed up this	
	nortion of the training	
	Extension: If you need it to take longer (depending on how	
	familiar teachers are with standards) have teachers include	
	the boundaries: (ie: 1 <sup>st</sup> grade addition strategies are "within	
	100 using concrete models or drawings and strategies based	
	an place value, relate this strategy to written method and	
	on place value; relate this strategy to written method and	
	explain the reasoning used .)	
	KINDER differentiation: Consider asking kinder teachers to	
	share out the standards they found that support the work of	
	first grade.	
	Presentation:	
	leachers should also be familiar with standards and whether	
	they should relate the strategy to written form, concrete	
	models, drawing or if strategies are to be based on place	
	value.	
	Ask: "What are you noticing or What do you notice?", "In	
	what grade level do you see a strategy for rational numbers	
	and an algorithm for whole numbers?"	
	Background for Facilitator: Option 1 and 2	
K         I         Z         Z         4         5         6           AddRiss and Subtraction         C         P         5         6	-Hide this slide if you are doing this option after already	
White Norther Mathematics C P s	presenting Option 2.	
Anterio na di Germal Addition and Externa Fraction and Externa	-If unfamiliar with Partial Product login into	
Heatguitzation and Division  C P	www.everydaymathonline.com	
Development of Processing Including Beck Rearly and approximate Bioperational of Security of concess and procedures	-Click on "Algorithms" tab on far right side of page	
W teachers interface	-Open "Algorithms Library of Animations"	
and the state of t	-Open "Multiplication"	
	-Choose any of the "Partial Products" videos	
	Presentation:	
	Explain that the information in this visual refers to the	
	computational expectations found in the CCSS-M (NACS) for	
	grades K-6.	
	Say, "You still need to look closely at your standards as under	
	a neading you may have some standards that are working on	
	conceptual understanding, while others are procedural."	
	This visual shows whole Number Multiplication in grade 4 and	
	whole Number Division in grade 5 as a Standard Algorithm	
	because of the phrase "relate to a written method" in the	
	standards. However, this can be the writing out of the	
	strategy, i.e. partial products.	

Three Suggestions for Whole Class Discussion on Computational Procedures 1. Use whole-class discussion to teach computational procedures. 2. Use whole-class discussion to connect computational procedures to concepts. 3. Use whole-class discussion to build number sense skills.	<b>Background For Facilitator:</b> Read pages 121-122, 132-133 and 142-143 in <i>Classroom</i> <i>Discussions in Math</i> for more details on each of the three suggestions.	
Inplications for Suggestion 1: Use whole-class discussions to teach computational procedures. "Classroom discussions should enter on student spinorations about the ins and outs of computational procedures including why mathematically they can perform certain steps" (new Former Merror Former Certain Steps)	Background for Facilitator: There is a slide for "I Can" statements, objectives and guiding questions. Only show the slide that the site you are presenting to requires and hide the other two. Presentation: Say, "This leads to a change in practice of how we word our objectives, "I Can" statements, or guiding questions depending upon what your site requires."	
Change in Practice: "I Can" Statements Instead of "I can demonstrate how to use lattice to solve multi-digit multiplication problems." "I can explain why lattice works when solving multi-digit multiplication problems."	Background for Facilitator: Therefore we have this change in practice Note: If your site requires "I can" Statements, use this slide, if not hide this slide and show only the slide for what your site uses. Presentation:	
Assume that there are many things you don't know about students, and the shared history of the teacher and students in the video.     Assume good intent and expertise on the part of the cacher.     Keep focused on your observations about what student are getting out of the talk and interaction.     Keep focused on how the classroom discourse is serving the mathematical goals of the lesson.     Winner	Background of Facilitator: Just a reminder of norms for viewing records of practice. Presentation: A record of practice is a way for us to have a discussion around a common source of information. They are not examples or non-examples, yet just a clip from practice for us to use to discuss the guiding questions.	
Guiding Questions Guiding Questions What was the benefit of using talk to compare the different subtraction strategies? How did that build the students' number sense skills? What evidence did you observe indicating that students' number sense skills were developed?	Background for Facilitator: Video 4C Presentation: Read questions before viewing video. Return to questions and discuss after viewing video.	
Construction of the second secon	Background for Facilitator: Activity Option A: In this activity participants will select a standard to either build their toolbox of strategies around selected standard or engage in planning through the steps for a whole classroom discussion on computational procedures of an algorithm. (Hide slide 23-24 if you choose this option). Presentation: *Distribute Lesson planning template for those wanting to work on the second bullet. They may also use their school's planning template. Inform staff how much time they will have to work on this before returning to whole group.	
Three Suggestions for Whole Class Discussion on Computational Procedures Use whole-class discussions to teach computational procedures. Use whole-class discussion to connect computational procedures to concept. Use whole-class discussion to build number sense skills.	<ul> <li>Background For Facilitator: Read pages 121-122, 132-133 and 142-143 in <i>Classroom Discussions in Math</i> for more details on each of the three suggestions.</li> <li>Presentation:</li> <li>Display this slide while teachers are working on the activity.</li> </ul>	

	Background for Facilitator:	
SBAC Implications	Activity Option B: Participants will identify how classroom	
How do these suggestions for whole	discussion about computational procedures support the work	
class discussion support what students	students will have to do independently on the SBAC and what	
the SBAC?	indicators on the IPG are being achieved.	
	Presentation:	
Winnerstanding	(Hide slide 22 if you choose this option.)	
V	Distribute the SBAC sample questions document and ask	
	participants to review the items and discuss the above	
	question with group.	
	Background for Facilitator: Option 2	
Instructional Practice Guide (IPG)	Activity Option B: Participants will identify how classroom	
Correlations	discussion about computational procedures support the work	
productive mathematical discussion focused	students will have to do independently on the SBAC and what	
on computational procedures?	indicators on the IPG are being achieved.	
gathered look like?	Presentation:	
atte	Distribute the IPG document and ask participants to review	
	the items and discuss the above question with group.	
	Background for Facilitator: Final slide for Options 1 and 2	
Stop and Jot Exit Ticket Stop and Jot: Instruction about Computational Procedures	Presentation:	
University descentions for Callery interpretation of the Callery interpretation of the Callery	"Stop and Jot any changes in thinking or evidence that	
	strengthened your prior thinking in the final column."	
Name in the second	You may want to consider collecting this document to assess	
	for future coaching needs.	
	Consider:	
W	Invite participants to leave a comment on the bottom of	
	document indicating whether they want additional support in	
	computational procedures, classroom discussion, etc.	

# Additional Notes:

#### School Level Essential Question:

What strategies can we use to enhance our instruction so students learn mathematics with understanding? What does this look and sound like?

## **Talk Moves & Strategies**

Turn & Talk Think, Pair, Share & Revoice Who can add on? Revoice/Restate Stop & Jot (then revise)

## Additional Notes & Support: Chapter 4: Talking About Computational Procedures



Videos to support: 4A Adding Three Numbers (3:19) 4B Subtracting on the Number Line (4:37) 4C Comparing Subtraction Strategies (4:44) 4D Fraction Number Line (6:59)