

Coaching
Powerful Math Talk
in the Elementary Classroom
ENGAGE



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Engage 2026

HELLO!



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Elementary Instructional Math Coaches

Learning Target

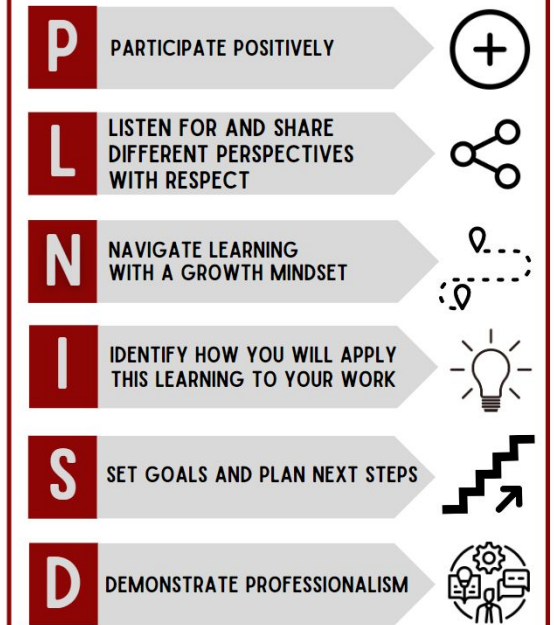
Today I will learn and practice strategies that promote mathematical discourse

So I can understand how to effectively increase student discourse in elementary math classrooms.

I know I'll have it when I can plan and facilitate math discourse that incorporates these strategies and results in active participation and visible thinking from all learners.



Northwest ISD
Professional Learning Expectations
A Culture of Learning





What is Discourse?



Discourse IS	Discourse IS NOT
A student asks, "I don't understand how you got that answer. Could you explain it again?"	The teacher provides an explanation of the mathematical procedure to the class.
A student explains, "I first added 20 and 40 to get 60. Then I subtracted 2 and added 3 to get 61."	A student answers with a number in response to the teacher's question.
A student says to another student, "I saw that $18 + 43$ was the same as $(20 + 40) - 2 + 3$. How did you solve it?"	The teacher provides instruction to the class about an activity they are about to engage in.
The teacher provides a counter example to a method posed by a student and asks how they are related.	Students practice applying a procedure to solve problems of a specific type (seat work).
A student states, "I think I see a pattern. Each one goes up by 3 more than the one before it." Other students use the signal to agree. The teacher asks a student to restate what was just said in their own words.	A student asks a question about nonmathematical procedures related to an assignment such as when the assignment is due, whether students need to show their work, and the like.
Two students discuss whether a procedure suggested by a student will work in all similar situations.	The teacher provides further explanation in response to a student's question. The teacher asks if students understand and they give her a thumbs up.
A student challenges an algorithm posed by another student saying "Yes, but how does it work with 37×98 ?"	Students write in their journals about their thinking to solve a problem.



Problem Solving Task

Tom and Diane started to race. Tom took 4 seconds to run 6 yards. Diane ran 5 yards in 3 seconds.



If they continued to run at the same speeds, who would get to 30 yards first? Show how you figured out your answer.

I agree/disagree
with you because I
solved it _____
and got ____.

I made a connection
to your work
because _____.

Partner Talk

I chose the strategy _____ because _____.

I got a solution of _____.

Our two strategies are similar because
_____.

Our two strategies are different because
_____.

Something you said that I hadn't thought of yet
was _____.



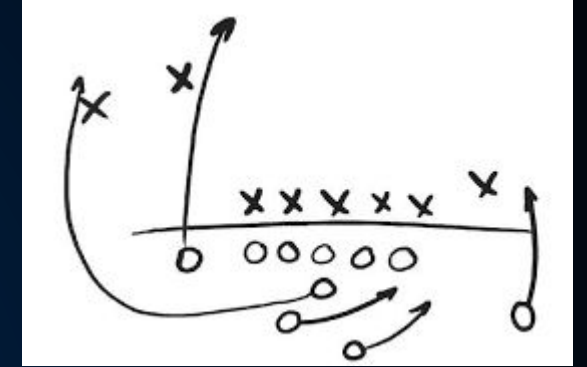
What is Discourse?

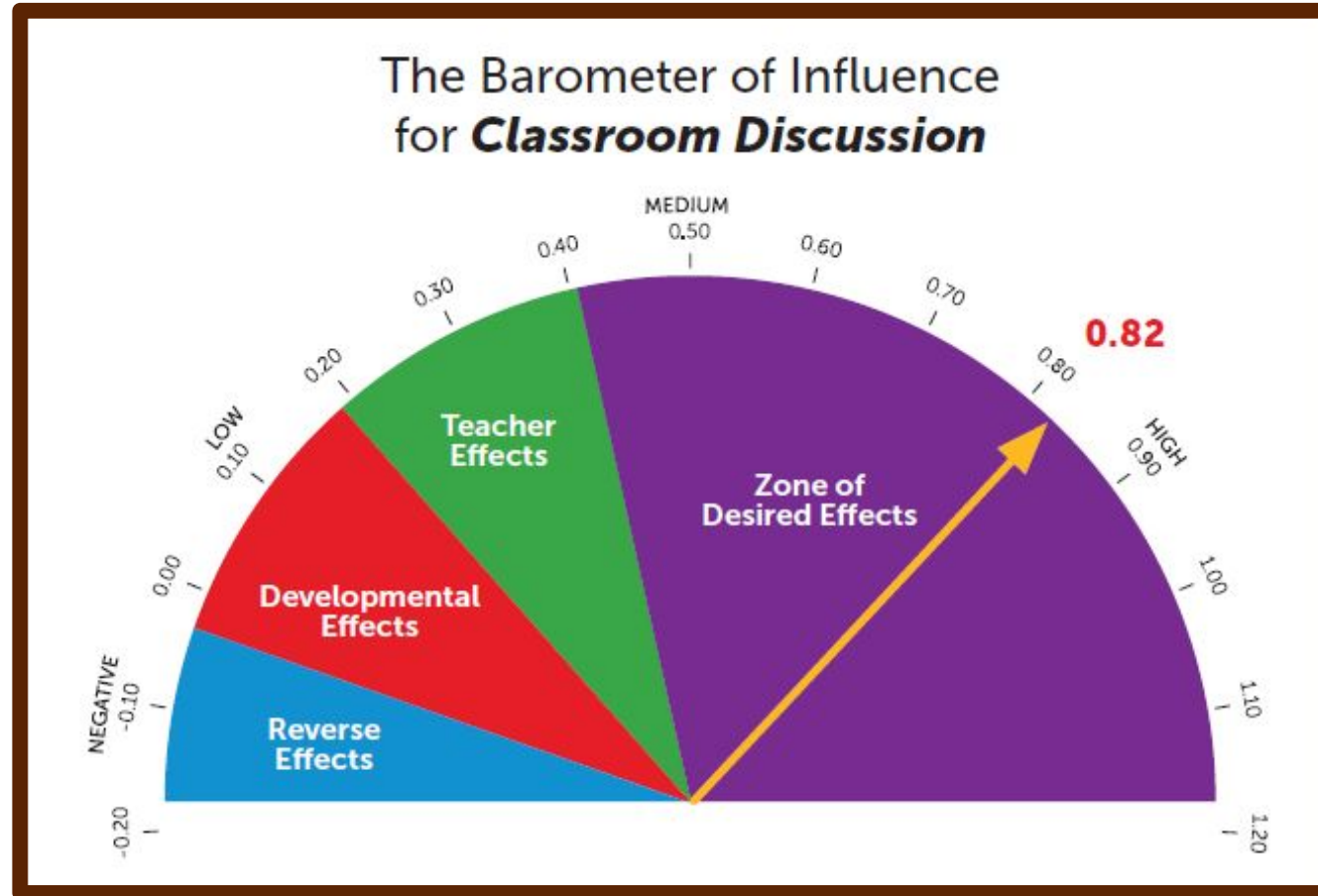
"Learners lead the conversation, posing questions of one another that probe for thinking: "How?" "Why?"

They listen to and respond to inquiries of their peers by explaining drawings, defending solutions, justifying answers or expanding thinking.

Learners take responsibility to ask questions when they are lost, and know that it is their job to explain effectively in order to allay the confusion of their peers."

Hoffer 2020





An effect size of 0.82 signifies that effective use of discourse can lead to approximately two years of learning gain for one year of classroom instruction. This positions classroom discourse as a desirable and high-impact educational practice.

Classroom discussion is ranked 15th in Hattie's list of 252 effects.



Five Major Reasons That Talk is Critical to Your Teaching and Student Learning:

Talk can reveal understanding and misconceptions.

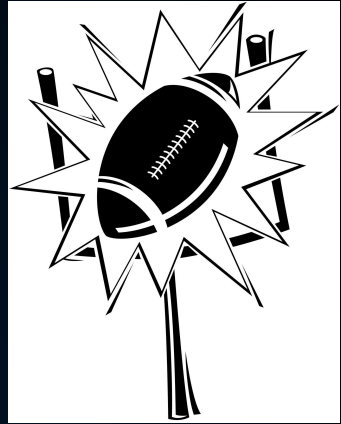
Talk supports robust learning by boosting memory.

Talk supports language development.

Talk supports deeper reasoning.

Talk supports development of social skills.

[Video](#)



Goals for Productive Discussions using Talk Moves

Checklist

Goals for Productive Discussions and Nine Talk Moves

Talk Science

www.inquiryproject.org

Goal One Help Individual Students Share, Expand and Clarify Their Own Thinking

Notes/Frequency of Use

1. Time to Think

- Partner Talk
- Writing as Think Time
- Wait Time

2. Say More:

- "Can you say more about that?"
- "What do you mean by that?"
- "Can you give an example?"

3. So, Are You Saying...?:

- "So, let me see if I've got what you're saying. Are you saying...?"
- (always leaving space for the original student to agree or disagree and say more)

Goal Two Help Students Listen Carefully to One Another

4. Who Can Rephrase or Repeat?

- "Who can repeat what Javon just said or put it into their own words?"
- (After a partner talk) "What did your partner say?"

Goal Three Help Students Deepen Their Reasoning

5. Asking for Evidence or Reasoning

- "Why do you think that?"
- "What's your evidence?"
- "How did you arrive at that conclusion?"

6. Challenge or Counterexample

- "Does it always work that way?"
- "How does that idea square with Sonia's example?"
- "What if it had been a copper cube instead?"

Goal Four Help Students Think With Others

7. Agree/Disagree and Why?

- "Do you agree/disagree? (And why?)"
- "What do people think about what Ian said?"
- "Does anyone want to respond to that idea?"

8. Add On:

- "Who can add onto the idea that Jamal is building?"
- "Can anyone take that suggestion and push it a little further?"

9. Explaining What Someone Else Means

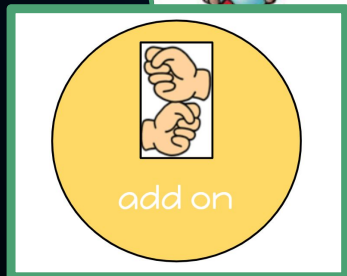
- "Who can explain what Aisha means when she says that?"
- "Who thinks they could explain why Simon came up with that answer?"
- "Why do you think he said that?"



The Inquiry Project: Bridging Research & Practice
Supported by the National Science Foundation
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Adapted from: Chapin, S., O'Connor, C., & Anderson, N. (2008).
Classroom Discussions: Using Math Talk to Help Students Learn.
Grades 3-6. San Rafael, CA: Math Solutions Publication.

Hand Signals

Sentence Stems



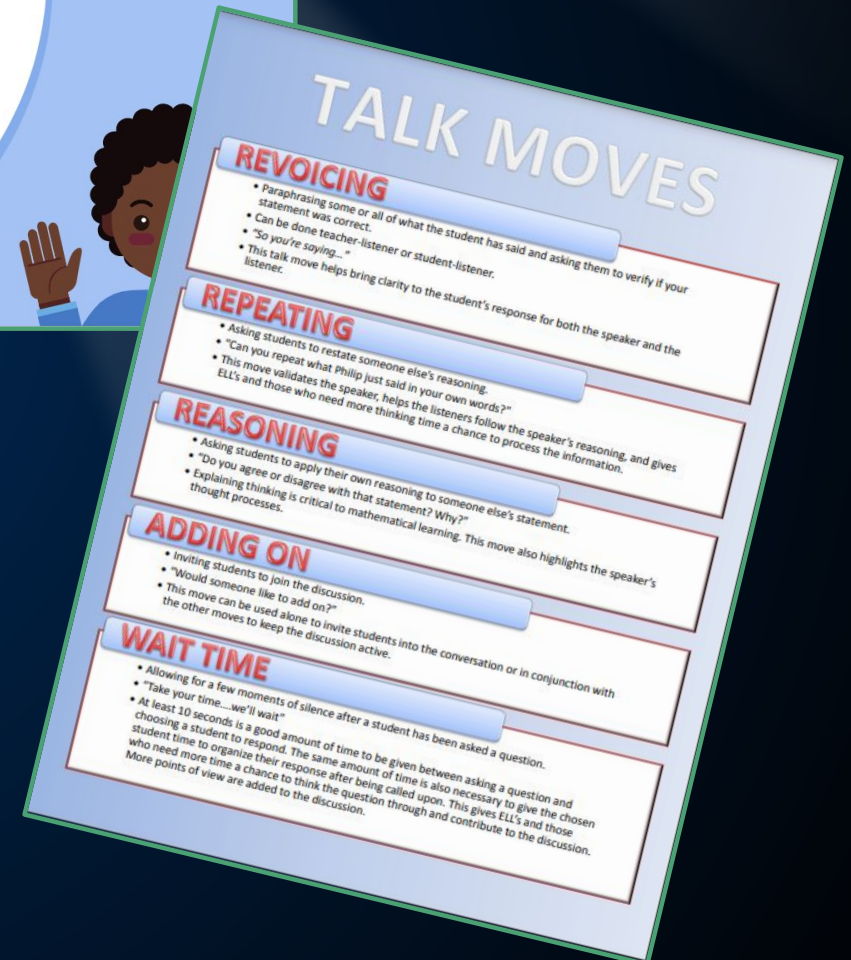
1.

Agree or Disagree

I can think with my classmates.
I can take a position and respectfully defend it in response to another student's thinking.
I can use ideas from others to support my own ideas.

"I agree with ____ because ____."
"I disagree with ____ because ____."

ACCOUNTABLE TALK STEMS	
OPINION	A) STATE A NEW OPINION - I think/believe that ... - In my opinion ... - From my perspective ... - Based on ..., it seems that - After reading ..., I conclude that
	B) AGREE, DISAGREE, OR ADD ON - I agree with you because ... - That answer makes sense because ... - I respectfully disagree with you because ... - I have a different point of view ... - I would like to add on ... - To expand on what ... said, ... - This reminds me of ... - To piggyback on what ... said
	C) ASK FOR CLARIFICATION - What do you mean by ...? - Why do you think that? - Will you explain that again? - I have a question about ... - I don't quite understand. Can you explain it little bit more?
	D) PARAPHRASE OR REINSTATE YOUR OPINION - So what you are saying is that ... - In other words, you think ... - I noticed that ... - If I understand you correctly, your opinion is that..



Reflection

What moves were made to promote student engagement and discourse?

Checklist

Goals for Productive Discussions and Nine Talk Moves

Talk Science
in the Inquiry Project

Goal One Help Individual Students Share, Expand and Clarify Their Own Thinking		Notes/Frequency of Use
☐ 1. Time to Think	- Partner Talk - Writing as Think Time - Wait Time	
☐ 2. Say More:	"Can you say more about that?" "What do you mean by that?" "Can you give an example?"	
☐ 3. So, Are You Saying...?:	"So, let me see if I've got what you're saying. Are you saying...?" (always leaving space for the original student to agree or disagree and say more)	
Goal Two Help Students Listen Carefully to One Another		
☐ 4. Who Can Rephrase or Repeat?	"Who can repeat what Javon just said or put it into their own words?" (After a partner talk) "What did your partner say?"	
Goal Three Help Students Deepen Their Reasoning		
☐ 5. Asking for Evidence or Reasoning	"Why do you think that?" "What's your evidence?" "How did you arrive at that conclusion?"	
☐ 6. Challenge or Counterexample	"Does it always work that way?" "How does that idea square with Sonia's example?" "What if it had been a copper cube instead?"	
Goal Four Help Students Think With Others		
☐ 7. Agree/Disagree and Why?	"Do you agree/disagree? (And why?)" "What do people think about what Ian said?" "Does anyone want to respond to that idea?"	
☐ 8. Add On:	"Who can add onto the idea that Jamal is building?" "Can anyone take that suggestion and push it a little further?"	
☐ 9. Explaining What Someone Else Means	"Who can explain what Aisha means when she says that?" "Who thinks they could explain why Simon came up with that answer?" "Why do you think he said that?"	



Word Whack

Share, Expand
and Clarify Their
Own Thinking

Not Discourse

Listen Carefully
to One Another

Deepen Their
Thinking

Think With Others

Scenario 1

Class is engaged in a Grand Conversation (whole class discussion facilitated by teacher but led by students) at the end of a module. Students are sharing facts about the attributes of different types of quadrilaterals, adding to thinking and making connections to the thoughts of others along the way.

3-2-1
WHACK
and
Justify

Think
With
Others

Scenario 2

Students just wrapped up a lesson over subtraction of three-digit numbers. The teacher provides an exit ticket with four examples. In the closing, the teacher asks for volunteers to share their answers. Then, the teacher collects the exit tickets and uses them to form small groups for the next day.

3-2-1
WHACK
and
Justify

Not
Discourse

Scenario 3

As students share orally, the teacher scribes student responses on the board.
"How could I write that? Now, what if I wanted to write it as a decimal?"

As students begin to share out, the teacher presses for evidence in their explanation when asking "Why do you think that?"

3-2-1
WHACK
and
Justify

Deepen
Their
Reasoning

Scenario 4

As students are completing a lesson over subtraction of three-digit numbers, the teacher chooses a student to share their thinking. When the student is explaining how to use the subtraction algorithm, they say they can't subtract 5 from 3. The teacher responds with "What do you mean by that?".

3-2-1
WHACK
and
Justify

Share, Expand,
and Clarify
Their Own
Understanding

Scenario 5

"The grid represents one whole. Turn and tell your partner how much of the grid is shaded and how you know."

The teacher observes that Billy is struggling to answer this question. The teacher strategically chooses Julie to justify her thinking to the class and then asks Billy to repeat what she just said.

3-2-1
WHACK
and
Justify

Listen
Carefully to
one
Another



Next Steps

Practice Two Talk
Moves on Your
Own

Introduce
Students to
Talk-Centered
Instruction

Begin with a
Whole-Class
Discussion

Use Partner Talk

Plan for
Opportunities for
Discourse

Table Talk

How do you plan for discourse?

How do you use discourse to surface student understanding/misunderstandings?

How do you use student talk to guide your instructional decisions?

How does discourse impact your classroom community?



Choose a lesson in Topic One.



Identify where they have already embedded opportunities for Academic Discourse.



Are there additional opportunities for discourse that you can incorporate into this lesson?

TIME TO PLAN



Learning Target

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Thank you!

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Elementary Instructional Math Coaches



Chapin, Suzanne H, et al. *Classroom Discussions : Using Math Talk to Help Students Learn, Grades K-6*. Sausalito, Calif., Math Solutions, 2009.

Almarode, John, et al. *Teaching Mathematics in the Visible Learning Classroom, High School*. Corwin Press, 17 Aug. 2018.

Region 11 Education Service Center. *[iCoaches Assemble!]*. Professional development training materials, January 2024.

Research and Resources



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