Region 11 K-2 Number Sense – **DAY 3** – PLC Meeting 3
Classroom Conversation B

Choose at least a Number Talk or a Conversation about Problem Solving Strategies to investigate students' mathematical thinking in your class prior to PLC Meeting 3 at your site.

ENGAGING STUDENTS IN NUMBER TALKS	**ENGAGING STUDENTS IN CONVERSATIONS ABOUT PROBLEM SOLVING STRATEGIES**
You may do a number talk with a small group or with your entire class. Adapt or use an **open number line** or **subtraction** activity from the Day 3 session. As you observe students working or listen to their thinking, watch for: • size of the intervals they chunk along the **open number line** – do they chunk by 10s, multiple 10s, 5s, 2s, or just by 1s? • use of "get to 10" strategy • students who chunk first and then do one-by-one counting to solve problem • students who chunk first interval using one-by-one counting, then continue with one-by-one counting, then recount all • whether students count forward or backward or change direction based on different contexts You might continue to do number talks using **rekenreks**, **ten frames**, or **dot cards.** Consider: • related equations ("number strings") that may encourage students to use a known fact to derive an unknown fact • equations that may encourage the use of making a ten or doubles • **mental math activities** from your curriculum materials **Reflection Questions for Your Number Talk** 1. What questions or prompts from you caused students to more clearly verbalize their thinking? 2. What strategies are most used by your students? 3. What new strategies are beginning to emerge? Why do you think that is happening?	Engage your students in at least 3 problems and have classroom conversations about their thinking and strategies. *For this conversation you can select from several problems in either Set A: Valentine's Day Problems or Set B: St. Patrick's Day Problems. All problems in a set use the same context to help with reading comprehension and to highlight the different actions in various problem types. A vocabulary sheet for each set is included to discuss the context. A template is included if you want to run off the problems you select for the students. Feel free to use your students' names in the problems or adapt problems to another context that interests your students, especially if the holiday themes do not work.* Directions: • You may do the problems/conversations over several days (the power of developing number sense over short, frequent experiences). You may do two to three problems on the same day (the power of developing relational thinking by comparing and contrasting problems and solution strategies). • Select the number pair in the parenthesis that makes the most sense for the level of your students. You can differentiate and give different number pairs to different students. If you find large amounts of derived fact/recall strategies, consider using a more challenging pair of numbers or a different problem type. • With younger students or those with emerging number sense you can act out the problems, engage students in a classroom conversation, and, when appropriate, record their thinking on the board or chart paper. • Problems can be solved mentally, with manipulatives, or on paper/white boards. • You may read problems to students and clarify the context; manipulatives may be available.

GETTING READY FOR YOUR PLC	GETTING READY FOR YOUR PLC
• As soon as possible after your classroom conversation, make notes of the highlights, misconceptions, strengths, perplexing moments, or ah-ha's that occurred during your discussion. • Save any artifacts that will help you share your students' thinking, strategies, misconceptions, or mathematical strengths. Artifacts might include: dot cards or number combinations you used, your notes, audio/video recording of the talk, copy of a recording chart you used.	• As soon as possible after your classroom conversation, make notes of the highlights, misconceptions, strengths, perplexing moments, or ah-ha's that occurred during your discussion. • Save any artifacts that will help you share your students' thinking, strategies, misconceptions, or mathematical strengths. Aim to have artifacts that reflect the thinking of at least 4-6 of your students whose work you find interesting. For example: o if your students work on paper, save 4-6 pieces of the work; o If they act out the problem, work with manipulatives, or work on white boards, you could photograph/video the work or describe it in your notes; o if you had students describe their thinking or strategies while you recorded, you could save the recording sheet or photograph the board space.

Set A: Valentine's Day Problems to Use for PLC #3, Following Session 3 of Region 11 Training

Note: This time, comparison problems and subtraction problem types are included along with addition problems, though students may often use either subtraction or addition strategies to solve a given problem. All of the problems are listed together to help teachers select problems they most want to explore with their students. Because teachers report they present problems on the board, go over the context and vocabulary and have students work on blank paper, white boards, with manipulatives, etc, we did not format each problem individually. A template for 4 problems is provided if you want to give students printed copies of the problem. You can just copy/paste or handwrite in the problems on these templates.

You may want to go over the following words with students prior to using the problems.

valentines	 
valentine bags	
candy hearts	
candy hearts in a box	

SET A: Valentine's Day Problems

1. **Join, Result Unknown**
   Sam put _____ candy hearts in a box.
   Then, Sam put _____ more candy hearts in the box.
   How many candy hearts are in the box now?
   (2, 3) (7, 4) (16, 6) (38, 5) (27, 34)

2. **Join, Result Unknown**
   Almeda signed _____ of her valentines before supper.
   After supper, Almeda signed _____ valentines.
   How many valentines are signed now?
   (4, 2) (6, 7) (18, 5) (37, 6) (26, 45)

3. **Separate, Result Unknown**
   Almeda had _____ valentines.
   Almeda wrote her name on _____ valentines.
   Almeda wants to write her name on all the valentines.
   On how many more valentines does Almeda need to write her name?
   (6, 3) (10, 7) (23, 5) (35, 25) (45, 27)

4. **Separate, Result Unknown**
   Sam had _____ candy hearts.
   Sam gave away _____ candy hearts to his friends.
   How many candy hearts does Sam have left?
   (5, 3) (11, 5) (25, 7) (46, 23) (65, 37)

5. **Join, Change Unknown**
   Pua is decorating a bag for valentines.
   Pua put _____ red hearts on the bag.
   Then Pua put some pink hearts on the bag.
   Now there are _____ hearts on the bag. How many pink hearts did Pua put on the bag?
   (4, 6) (7, 15) (14, 23) (20, 45) (28, 44)

6. **Join, Start Unknown**
   Pua put some red hearts on a Valentine's bag.
   Then, Pua put _____ pink hearts on the bag.
   Now Pua has _____ hearts on the bag.
   How many red hearts did Pua put on the bag?
   (3, 5) (6, 13) (8, 23) (15, 32) (23, 52)

7. **Separate, Change Unknown**
   Sam put _____ candy hearts in a box.
   Sam gave some of the candy hearts to his friends.
   Now Sam has _____ candy hearts left in the box.
   How many candy hearts did Sam give to his friends?
   (5, 2) (14, 7) (19, 8) (36, 16) (54, 25)

8. **Comparison, Difference Unknown**
   Almeda got _____ candy hearts.
   Briceda got _____ candy hearts.
   How many more candy hearts did Almeda get than Briceda?
   (4, 2) (11, 5) (18, 7) (23, 17) (43, 25)

9. **Comparison, Compare Quantity Unknown**
   Joanna got _____ candy hearts.
   Emmy got _____ more candy hearts than Joanna.
   How many candy hearts did Emmy get?
   (3, 2) (7, 8) (17, 6) (37, 8) (35, 28)

Set B: St. Patrick's Day Problems to Use for PLC #3, Following Session 3 of Region 11 Training

Note: This time, comparison problems and subtraction problem types are included along with addition problems, though students may often use either subtraction or addition strategies to solve a given problem. All of the problems are listed together to help teachers select problems they most want to explore with their students. Because teachers report they present problems on the board, go over the context and vocabulary and have students work on blank paper, white boards, with manipulatives, etc, we did not format each problem individually. A template for 4 problems is provided if you want to give students printed copies of the problem. You can just copy/paste or handwrite in the problems on these templates.

You may want to go over the following words with students prior to using the problems.

	leprechaun
	pot of gold
	clover
	gold coin
	rainbow

SET B: St. Patrick's Day Problems

1. **Join, Result Unknown**

Leprechaun Erin picked _____ lucky clovers.
Leprechaun Patrick gave Erin _____ more clovers.
How many clovers does Erin have now?

(3, 3) (8, 4) (17, 7) (37, 6) (28, 35)

2. **Join, Result Unknown**

Leprechaun Erin found _____ coins in the pot.
Leprechaun Patrick gave Erin _____ more coins.
How many coins does Erin have now?

(4, 2) (6, 8) (17, 6) (38, 7) (28, 45)

3. **Separate, Result Unknown**

Leprechaun Erin found _____ coins in the pot.
Erin gave _____ coins to Patrick.
How many coins does Erin have now?

(6, 3) (10, 7) (23, 5) (35, 25) (45, 27)

4. **Separate, Result Unknown**

Leprechaun Erin had _____ lucky clovers.
Erin gave _____ clovers to Patrick.
How many lucky clovers does Erin have left?

(5, 3) (11, 5) (25, 7) (46, 23) (65, 37)

5. **Join, Change Unknown**

Patrick had _____ gold coins.
Patrick got some more coins from the pot of gold.
Now Patrick has _____ coins.
How many coins did Patrick take from the pot?

(3, 5) (8, 15) (13, 21) (25, 40) (27, 43)

6. **Join, Start Unknown**

Leprechaun Erin had some clovers.
Erin went out and picked _____ more clovers.
Now Erin has _____ clovers.
How many clovers did Erin have at first?

(4, 6) (7, 13) (9, 24) (15, 43) (24, 51)

7. Separate, Change Unknown

Leprechaun Erin picked _____ clovers.
Erin gave some clovers to Patrick.
Now Erin has _____ clovers left.
How many clovers did Erin give to Patrick?

(5, 2) (14, 7) (19, 8) (36, 16) (54, 25)

8. Comparison, Difference Unknown

Two leprechauns found a pot of gold.
Leprechaun Erin took _____ coins out of the pot.
Leprechaun Patrick took _____ coins out of the pot.
How many more coins did Erin take than Patrick?

(5, 3) (12, 7) (17, 9) (24, 16) (44, 25)

9. Comparison, Compare Quantity Unknown

Two leprechauns were picking lucky clovers.
Erin picked _____ clovers.
Patrick picked _____ more clovers than Erin.
How many clovers did Patrick pick?

(4, 2) (9, 6) (16, 7) (36, 7) (45, 23)

Name	Date
1.	

Name	Date
2.	

Name	Date
3.	

Name	Date
4.	