Reading Use Your Math Power Books:

A First Reading of <u>Penguins on Parade</u>

Goal: Students will enjoy and retell the story.

Summary of Book

In <u>Penguins on Parade,</u> the characters work together to figure out how to count by tens starting at a non-zero number. When they are asked to find strategies, Trevor asks his teacher to tell him how to do this type of counting. With Ms. Green's encouragement, he reluctantly joins his partner Zoe as she uses ten frames to add on tens, counting by ones. When Zoe and Trevor share their list of numbers with the class, other characters help them understand how to count on by tens.

Before Reading

If your students have never worked on a similar type of problem, you might give them a problem like this to work on in pairs prior to reading the story. A bit of time working together to make sense of this problem will prepare students to understand the thinking of the characters in the book. This can help them focus on the interactions and thinking of the characters during their math class.

> *Maria had 2 tulips in a vase. Her mom gave her ten more. How many tulips did she have then? Then her dad gave her ten more. How many did she have then?*

If your students are already comfortable with this type of problem, ask them the following prior to reading the book:

> *Think about a time when you were working on a math problem you hadn't seen before. What was that like? What helped you?*

Read and Discuss

Read the story. Have students retell the story building on each other's ideas. This is a chance for your students to tell what they noticed about how the characters worked together without being told how to solve the problem by the teacher. Prompt with questions such as:

> *What happens in this story? What happens next? Did anything surprise you? What did the characters do? What were the characters feeling? Why?*

Penguins on Parade: Making Sense of Unfamiliar Problems

Goal: Children will gain insight into how they can work with classmates to make sense of unfamiliar problems.

Prior to this lesson: A first and perhaps a second reading of <u>Penguins on Parade</u>.

Rereading the book:

Reread the book <u>Penguins on Parade</u>. Stop at key points to discuss how the characters have discussions as a class. Prompt with questions such as:

Page 9: Why does Trevor go to Ms. Green, not Zoe?
Page 14: What does Zoe do to make sense of counting by tens starting with 8?
Page 17: How does Trevor feel after Tyler talks about their list?
Page 19: How does Trevor feel after Tyler shows them the pattern?
Page 29: Why is Trevor smiling at the end of the book?

A Role-Play: A Problem About Partners Working Together

Tell students they will watch a different scenario with Trevor and Zoe working on the penguin problem. Quietly explain these roles to two volunteers:

Trevor uses ten frames to try to figure out how to count on by tens starting at 8.
Zoe says it doesn't make sense to count by tens from 8.
Trevor tries to get Zoe to work with him, but she keeps saying it won't work.

Discuss this role-play. Prompt with questions such as:

What did you notice about how Trevor and Zoe were working to figure out this problem? What could Trevor or Zoe do differently to help them learn?

Class Reflection On Perseverance and Taking Risks

Have students think about a time when they worked on a math problem they hadn't seen before or a time when they didn't understand a problem or a strategy.

Discuss what helps people keep trying to understand a new idea in math. Prompt with questions such as:

What made it difficult to try to solve an unfamiliar problem? What helped you? What helped Trevor realize he could figure out how to solve a problem he'd never seen before? What risk did Zoe take? How did it help?

Choices for Reflection

Reflect on how your class can use the ideas from Ms. Green's class. Prompt with questions such as:

What ideas can help our class persevere to make sense of new problems?

Have students work on one of the following:

- Have them work with a partner to write a list of things they can do to help them figure out how to do a problem that no one has taught them how to do.
- Have individuals write a reflection about what they can do to try to figure out how to solve a problem they've never seen before.

Penguins on Parade: Having Productive Math Discussions

Goal: Children will gain insight about how to communicate their thinking and questions in math class.

Prior to this lesson: A first and perhaps a second reading of Penguins on Parade.

Rereading the book:

Reread the book Penguins on Parade to students. Stop at key points to discuss how the characters have discussions as a class. Prompt with questions such as:

- *Page 13: Does Trevor understand Zoe's strategy? How do you know?*
- *Page 16: Do Trevor and Zoe understand that they haven't figured out how to count by tens from 8 yet? How do you know?*
- *Page 19: How does Tyler's idea help Trevor and Zoe and the rest of the class? How does Zoe's list help the class?*
- *Page 22: How did Ellie and Kayla help the class make sense of the problem?*

What Can We Do To Be Sure Everyone Learns From Our Discussions?

Use the Reader's Theater script (following this lesson) to act out the class discussion on pages 12 - 24. Give out the roles for narrators, characters in the class, and the teacher. Ask everyone to look and listen for evidence of careful listening and explaining.

Discuss the evidence. Prompt with questions such as:

What evidence did you see that the characters were listening to each other and thinking about each other's ideas? What evidence did you see that the characters tried to help each other understand their ideas? What did they do if they didn't understand or disagreed with each other?

Class Reflection and Choices for Reflection

Reflect on how your class can use the ideas from Ms. Green's class. Prompt with questions such as:

How did the characters listen, speak and think about each other's ideas? How did this help them learn? What we can try to do in our class to be sure everyone learns from our discussions?

Have students work on one of the following:

- Have students work with partners to list ideas for how your class can communicate effectively.
- Have them work with a partner to discuss what Trevor learned about working on new problems. Write a letter that Trevor might write to Ms. Green or to someone else to describe what he learned about sharing ideas with classmates.

READER'S THEATER SCRIPT: <u>PENGUINS ON PARADE</u> (pp. 16 – 25)

The parts: Narrator for Actions, Zoe, Trevor, Narrator for Thoughts, Ms. Green, Tyler, Ellie, Kayla, Hannah, Mia, Ben, Rosie

NARRATOR FOR ACTIONS: Zoe and Trevor showed their work to the class. They tell everyone how they got 8, 18, 28, and 38.

ZOE: But Trevor says we are still counting by ones.

MS. GREEN: They've done a lot of work with tens. Does anyone have an idea that might help them?

TYLER: Hey, look at their list. I bet 48 would come next.

NARRATOR FOR THOUGHTS: "How'd he know that?" thinks Trevor.

NARRATOR FOR ACTIONS: Zoe counted on 10 ore dots from a new 10-frame.

ZOE: Hey, you're right! Did you count by ones?

TYLER: I just looked at the pattern on your list."

TREVOR: Oh yeah. Every time we add on 10, we still have the 8 ones.

ZOE: Cool! And look. Each time there is one more 10. See. We have 1, 2, 3, 4, and then 5 so 58 must be next!

TREVOR: Wow! We figured it out! Hey, look Ms. Green!

MS. GREEN: You all really used your math power to help each other! Ellie and Kayla did something different. Let's see if they got the same numbers.

ELLIE: We used a number line.

KAYLA: We know 8 + 2 = 10, and that really helped us! So we started at 8. To make a jump of 10, we jumped up 2 then 8. That took us to 18.

NARRATOR FOR THOUGHTS: "Oh cool," thinks Trevor. "You can even do this on a number line."

READER'S THEATER SCRIPT: <u>PENGUINS ON PARADE</u> (continued)

ELLIE: It's like we took 2 penguins from the row of 10 and put them with the 8 in the beginning. Then there would be 8 left in the new row.

KAYLA: We did it again and got to 28.

HANNAH: Neat! Then 38 would be next, just like on Zoe and Trevor's list!

MIA: Yeah, when I tried it, I kept getting 8 in the ones place too.

MS. GREEN: I am so glad you all noticed that pattern. Now, why do you think the ones stay the same when we count the penguins by tens?

BEN: I guess that's because we still have the eight penguins in the first row.

ROSIE: Oh yeah! And we keep getting one more 10 when each new row of penguins marches by.