***How Many Pockets Do We Have?***

**Overview & Big Idea:** This cross grade level lesson is designed to introduce students to data collection, construct their own graph, and reason from a representation.

**Pockets- Part 1**

*Collecting & Displaying Data*

*Tools:* Cubes, *unlined* chart paper, markers

*Activity Structure:* (Whole Group Introduction, Small Group Work) Tell the students that they will work in table groups to collect information about how many pockets each student is wearing that day. Each table group will need to create a poster that displays the information about their table groups pockets. Students can create any display that clearly communicates their data.

*Discussion Prompts*: How can we figure out how many pockets each person in the class is wearing today? (or that each person in your table group is wearing?)

* How can we keep track of the pockets we have? (*open question*)
* Is there a way the cubes would help us keep track of our pockets? (*suggest a tool*)
* What if I put a cube in each pocket? (*suggest a use of the tool*)
	+ Could that help you to keep track of your pockets? (*thinking along*)
	+ How would that help you to keep track of your pockets? (*promote reasoning*)

*Teacher Role:* Rove the table groups as students work. Record student thinking, including ideas and problems they encounter. Also record the number of pockets each student is wearing. Use this information to prepare for Pockets- Part 2.

**Pockets- Part 2**

*Presenting Findings & Creating a Group Display*

*Tools:* Student posters from part 1, Chart paper, markers, cubes, possibly post-it notes

*Activity Structure:* *Whole group*. *Presentations*- Explain to students that each table group will be given 5-7 minutes to present their pocket findings to the class and answer questions about their display. Instruct the groups to review their findings from the Part 1 of the lesson and choose one presenter to share the group’s information with the rest of the class (5 minutes). Give each group 5 minutes to present their findings. Allow the audience to ask questions about the display and presentation (3 max.) Hold teacher questions until the end (2 max.).

 *Creating a Group Display*- Explain to the class that they will need to create a display that shows all the students’ pocket data. Another class in the school will use the display to answer questions about the data. Have a group discussion about the different ways to organize the data (based on small group presentations) and come to a class consensus about the display the students will build. Use the shared writing activity structure to create the display (teacher and students hold the pen).

*Discussion Prompts:*

* How can we put all our data together in one display so we can compare the information and report our findings to another class?
* How can we create a display that communicates information to someone else?
* Look at the displays each group created. What is the same about each display? What is different? Which display serves to answer our original question, “*How many pockets is each student wearing today?*”
* Which display would be easiest for our partner class to read and understand? Why do you think so?
* Are there parts of the different displays we could put together to organize our data in a clear way?

*Teacher Role:* *Presentations-* Teachers need to start to consider questions they will ask after the presentation. The goal of the teacher’s questions is to clarify student thinking, reasoning, and findings. This is not a teaching time. If audience makes statement instead of questions, redirect them to ask questions about “something you are wondering about this groups’ presentation.”

*Teacher Role: Creating a Group Display*- Use questioning to help students make decisions about constructing a display. Remind them to think about their audience. Help them problem solve, for example, students will not be wearing the same clothes as they were for Part 1, so any difficulties with the original displays may cause difficulty in presenting accurate data in the whole class display. Students will need to reason from the data in this situation.

**Pockets: Part 3**

*Interpreting Displays & Solving Problems*

*Tools: Class pockets graph, CGI story problems*

*Activity Structure: Whole Group. Post the class pocket graph in the front of the classroom where all students can see it. Pose the following CGI questions. Ask students to use the pocket graph to solve the story problems. Have students share strategies with the class; discuss strategies and how students used the graph in different ways to solve the problem.*

*Discussion Prompt:* What did we find out about the number of pockets we were wearing the other day? Remember to ask the students so show on the display how they came up with their idea. Where do you see that on the display?

*Sample Story Problems (use these or write your own):*

* Did the girls or boys have the most pockets? How do you know?
* Which table group had the most pockets?
* Which table group had the least pockets?
* How many more pockets did table groups x have than table group y?
* How many more pockets did student x have than student y?

*Individual Student Work*: *Grade 2/3*- Ask students to write 1-2 story problems (depending on grade level) to go with the pocket graph. Solve the problems and write about your strategy.

*Kindergarten/ Grade 1-* Ask the students to help you write and solve a story problem using the information from the pocket graph. Ask students to solve the problem independently in their math journal.

**Pockets: Part 4 (*optional*)**

*Exchanging, interpreting, and critiquing displays*

*Tools:* Class pockets graph from another classroom two grade steps away from your, chart paper, marker

*Activity Structure:* Exchange class pocket graph (display) with another classroom that also designed a display. Ask your students to read the graph and tell about the findings from the other class. Write a shared writing summary about the findings. Also write down any questions your has for the other class about the design of the graph. Return the graph and the summary to the other class

*Supporting Children’s Literature:*

* Peter's Pockets by Eve Rice and Winslow Parker (1989) Out of Print
* Katy No-Pocket by H. A. Rey - Out of print
* A Pocket for Corduroy by Don Freeman
* Plenty of Pockets by Braybrooks (2000) - Out of print
* Six Empty Pockets by Matt Curtis (1997)
* Too Many Pockets by Levenson (1968) - Out of print