

Introduction Lesson and 2 Day (+data gathering) 3rd Grade Statistics Poster Lesson

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Introduction Lesson

How Big

Objectives

- I can measure length in non-standard units and to the quarter inch with a ruler
- I can make a display of collected data that shows important ideas about the data
- I can decide on what ideas the display shows about the data
- I can decide on a single number to represent the typical data

Materials: rulers, record sheet, scissors, sticky notes.

Note: the lesson here had college age students and 3rd graders. This lesson has some really neat data to look at if you can compare data from two different ages, but it might be interesting to compare boys to girls or one class to another of the same grade.



Order:

Introduction to class. Today we'll be measuring, and we thought it might be interesting to compare 3rd graders and college students. And we'll measure two ways: inches and our own shoes.

Small groups:

Make shoe measuring cutout. (trace of each person's shoe)
Measure each person with their shoe cutout and then in inches.

(Shoes to within the half shoe, Inches to $\frac{1}{4}$ in.)

Mark measurements on sticky notes, one note for each measure. If comparing groups, make sure each group has their own color.

Whole class:

Make two displays, bar graph style. Inches in bin histogram every 3". Shoes by each half shoe amount.

Back to small groups to analyze. Then whole class to share observations.

Key questions: what can we tell from the graphs? How are they the same? Different? Why? What would a typical height be?

Extension: Find the median for each graph.



2 Day Lesson Overview

Day 1: Idea of a statistics poster, example with pet data and deciding on data.

Introduction to the idea.

Gather quick pet data.

Make a display.

Small group: interpret what we found.

Small group: decide on data for students to gather.

In between: learners gather data.

Day 2: Make displays and analyze. Assemble poster.

Students make displays,

Write inferences from the displays

Assemble poster.

Gallery walk.

(This is a packed day and can be spread out to a day 3 as time allows.)

Day 1

Details:

(15 min)

Introduce lesson idea. We're going to make statistics posters...

Small groups form, fill out data in small groups. ([Sheets](#))

Data to be gathered:

How many pets in your home?

Rate dogs 0-5, cats 0-5.

Collect data.

Whole class: build the displays.

One GV student from each group will come to the front board to add horizontal lines for each response from their group.

Small groups:

Pet Displays (10 min)

Discuss what we can tell from the displays.

What is typical for #, dog rating, cat rating? (Estimate the middle data point; discuss mode)

How else could you have displayed the data?

What else do we wish we'd know? (GV student? Gender? Non-cats & dogs?)

Data to collect: (25 min)

Discuss in groups

Possibilities:

What are they interested in?

Questions/topics they're interested in asking other people

Data they can collect by doing or measuring: how many of a task in a minute. How many of ___ they can hold in one hand, percent of times they can successfully do..., how many 12s on two dice...

Data they can find by researching. Sizes of animals, population sizes, people who live in different places, sports statistics (how many wins for Michigan football in the past x years...)

Help them form questions or decide what can be collected.

Help them create a record sheet, one for each member. (Including GV students)

Extra time: talk about possible displays, what they think they might find.

Whole class: brief share on what happened. (5 min)

Day 2



Familiarize yourself with the rules and idea of [the poster competition](#). (Rules also pasted below.) Very helpful to see previous winners for examples.

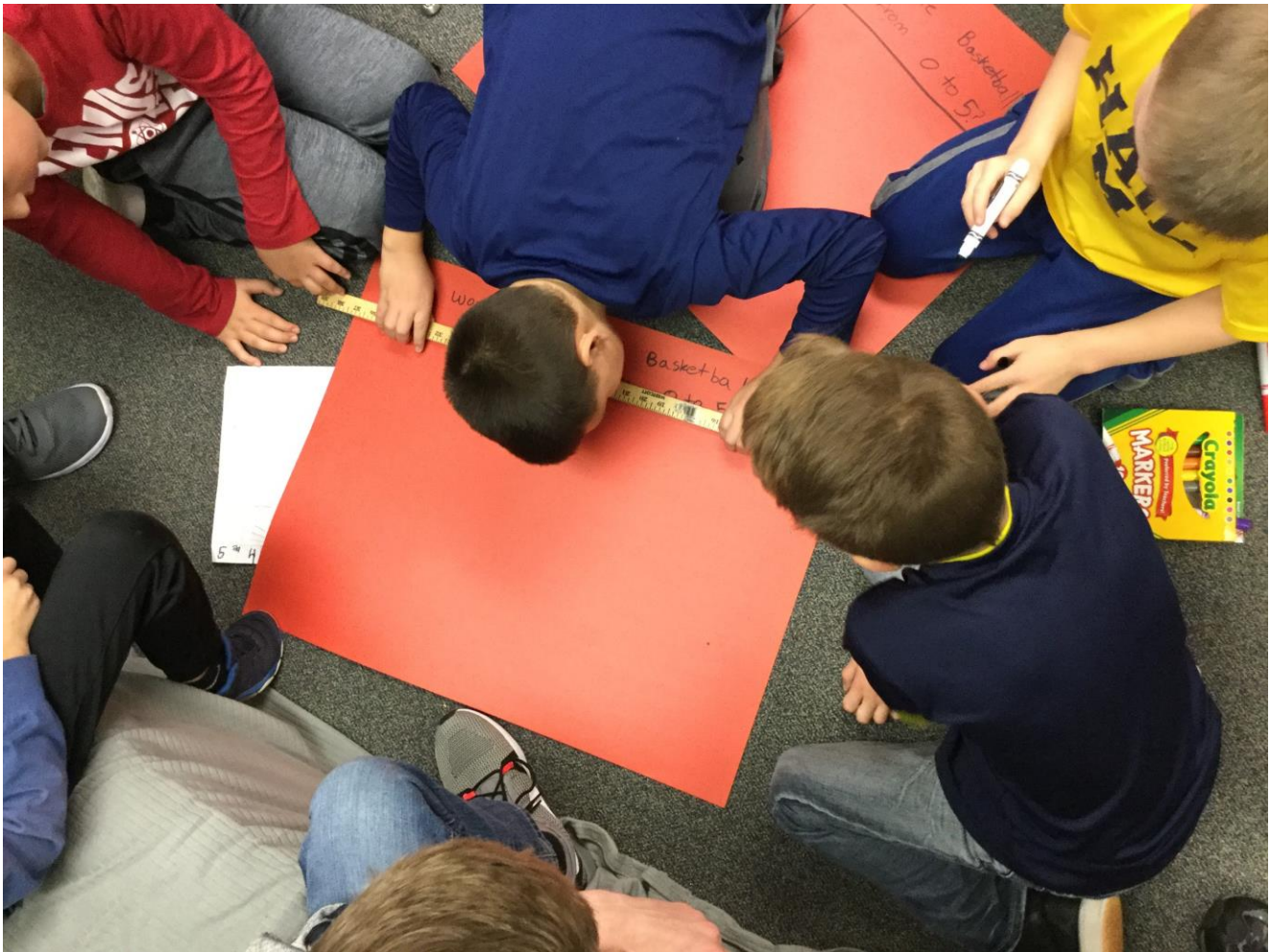
Guiding questions: what does the data tell you, and how can you share that story?

Support students in analyzing the data, creating displays and making the poster. If at all possible, support them in doing their work and stay out of the decision making process. If the posters are their own work they can be submitted for the poster competition. Posters must not identify school, city or students.

Displays: pictograph, bar graph, pie chart. Even a scatter plot if looking at two connected pieces of data.

You can tell them about types of displays and how to make them, but they should be the ones to make them. Have them organize the data to include on the poster and to analyze. Find the mode and median if it applies. Is there any way to process the data? (Like making cat/dog preference from the ratings in the first day lesson) In their analysis, they can talk about what they were expecting and how it compares to what they found out. You can support them in expressing their ideas, but it should be

their ideas. The minimum is one graph, but if they have more interesting graphs they can be included. The analysis should go on the poster, too.



On the **back** of the poster make sure the student names, teacher's name, and poster title are visible.

As time allows, we'll do a gallery walk at the end so they can see each other's posters. Get a picture of your poster and, if you want, your students. For your writing about this (see day 26) you might want pictures of work in progress. No faces in pictures you post on the web.

RULES

- Posters are to measure between 18 to 24 inches by 24 to 30 inches.
- Any weight of paper is permitted. Standard poster board is recommended.
- Be sure that anything attached to the front of the poster is affixed securely. Do not attach perishable items.
- Posters must be the original design and creation of the students.
- In the K-3 category, at least one graph is required. In the 4-12 categories, at least two graphs are required. The two graphs should impart different information (e.g., a bar graph and a pie chart of the same variable does not meet this criteria). Computer generated graphs are acceptable.

- Subject matter is the choice of the participants. Data may be original or published. For published data, a reference must be given.
- A brief description including the method of collection and purpose must be securely attached to the back of the poster.
- Posters and the brief description must not contain any marks, names, or information that reveal the identity of the individual, team, school, or location.
- Students may work individually or in teams. For the K-3 category, there is no restriction on the size of the team (it may be as large as the entire class). For the other three categories, the team may have up to four students. For teams with members from different grade levels, the highest grade level determines the category.