Daily Data Questions (Pre-K to 1st)

Why include a daily data question?
By establishing this daily math routine, students have regular practice with early numeracy skills like counting, quantifying, ordinal numbers, and the concept of "more" and "less". In discussing data, students are encouraged to defend their answers, communicating with peers about what they notice in the findings.

In addition, data questions encourage early literacy skills. Students are encouraged to read the question aloud, pointing to each word as it's spoken, thus connecting printed words to spoken language. The repetitive nature of a daily data question can be particularly helpful for English Language Learners, who get to hear/say variations of a single sentence type, getting more comfortable each time it's read aloud.

When does the daily data question happen?
This routine can be included as part of a daily math block, or incorporated during other times of day. Particular in Pre-K and K, it can be helpful to break up the routine into two sections: 1) answering the question, and 2) analyzing the data. For example, the question could be introduced as a transition activity at the end of Morning Meeting. One at a time, students would ask and answer the question before moving on to the next activity. Then, later in the day (i.e. after lunch), students would analyze the collected data together.

What is the routine?
Use the continuum below for a closer look at the data question as part of a daily routine in Pre-K through 1st grade:

Data Question Continuum

Question Type:	Yes/No Question (Pre-K/Early K)	2-choice Question (Late Pre-K/Early K)	3-Choice Question (K/Early 1)	Venn Diagram (1)
Examples:	• "Are you wearing red today?" • "Are you wearing shoelaces today?" • "Do you have 'T' in your name?"	• "Do you prefer broccoli or carrots?" • "Do you prefer Centers or Journal Time?" (Choose any two daily activities) • "Are you wearing long sleeves or short sleeves?"	• "How did you get to school today?" (walk/bus/car) • "Do you prefer breakfast, lunch, or dinner?" • "What is your favorite primary color?" (yellow/red/blue)	• My name...a) has 5 letters in it, b) has an "i" in it • I am...a) 6 years old, b) wearing glasses today • I like...a) pizza, b) bananas
Materials:	• Pocket chart with question displayed at the top, and two sections for "YES" and "NO" • Children's names displayed along the bottom of the chart • Pointer for reading the question	• Sentence Strip with question written out (use bold or different colors for the two options) • Two bins, each labeled (picture and word) with each option, i.e. "broccoli" and "carrots" • Unifix cubes for students to put in the bin • Pointer for reading the question	• Empty bar graph with question displayed at the top, and three columns representing the three options • Children's names written on squares that will fit inside each unit of the bar graph (could be sticky notes or magnets) • Pointer for reading the question	• Large venn diagram, either drawn on an anchor chart, whiteboard, or smartboard • Marker/stylus for students to write with

Routine:	1. Student uses a pointer, pointing to each word in the question as they read it aloud (Teacher models first)
	
	2. Student finds their name and put it in the "yes" or "no" category
	
	3. After all students have answered the question, teacher facilitates discussion on which option has more/less?
	
	4. Count and compare the amount of names in each category
		1. Student uses a pointer, pointing to each word in the question as they read it aloud (Teacher models first)
		
		2. Student takes a unifix cube and places the bin that corresponds with their answer
		
		3. After all students have answered the question, ask two volunteer to "build towers" using the cubes from each bin
		
		4. Count the cubes in each tower and compare the height, IDing which category has "more"/"less"
			1. Student uses a pointer, pointing to each word in the question as they read it aloud (Teacher models first)
			
			2. Student finds their name, puts it into correct bar on the graph
			
			3. After all students have answered the question, teacher asks students what they notice about the graph:
			   ● Which option has most/least
			   ● Anything surprising about the findings
			   ● Encourage students to justify their answers by using numbers (e.g. "I know this category A has the most because there are 3 more names than category B and 2 more than category C")
				1. Facilitated by teacher, students determine what venn diagram is asking/what each area represents
				
				2. One at a time, students write their name in appropriate section
				
				3. After all students have answered the question, teacher asks students what they notice about the graph:
				   ● Which option has most/least
				   ● Anything surprising about the findings
				   ● Encourage students to justify their answers by using numbers (e.g. "I know this category A has the most because there are 3 more names than category B and 2 more than category C")

Notes:	*Questions about clothing deal with the*	*By using unifix cubes, students can gain a sense*	*The format of the bar graph allows students to view data*	*Venn diagrams introduce students to another common*

	"here and now", making them a great place to start	*for quantities as "tall"/"short", cementing their understanding of more/less and early concepts of measurement*	*in a more formal, organized manner. The introduction of a third option encourages them to compare more numbers, taking the concept of "more/less" to the more advanced notion of "most/least"*	*graph type. In analyzing the data, we can introduce the concepts of "both/neither", alongside "more/less" and "most/least".*

Standards

Pre-K:
1.1 PK.B - Identify basic features of print
2.1 PK.A. - Know number names and the count sequence
2.1 PK.A.2 - Count to tell the number of objects
2.1 PK.A.3 - Compare numbers
2.1 PK.MP - Use mathematical processes when quantifying, comparing, representing and modeling numbers
2.4 PK.4 - Classify objects and count the numbers of objects in each category

Kindergarten:
K.CC.B4 - Understand the relationship between numbers and quantities; connect counting to cardinality.
K.CC.B5 - Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
K.CC.C6 - Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.
K.MD.B3 - Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
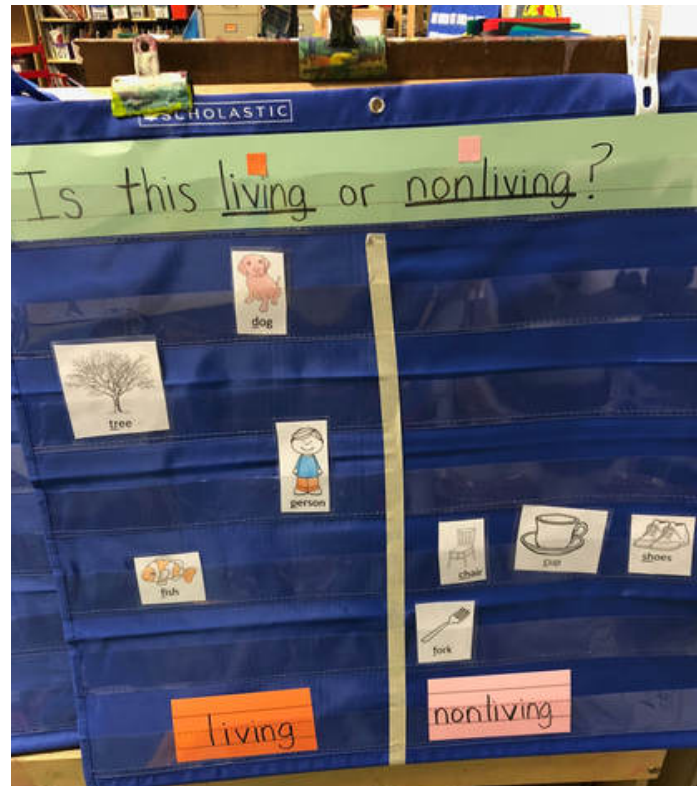
1st Grade
1.MD.C4 - Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Picture Examples

Yes/No Question
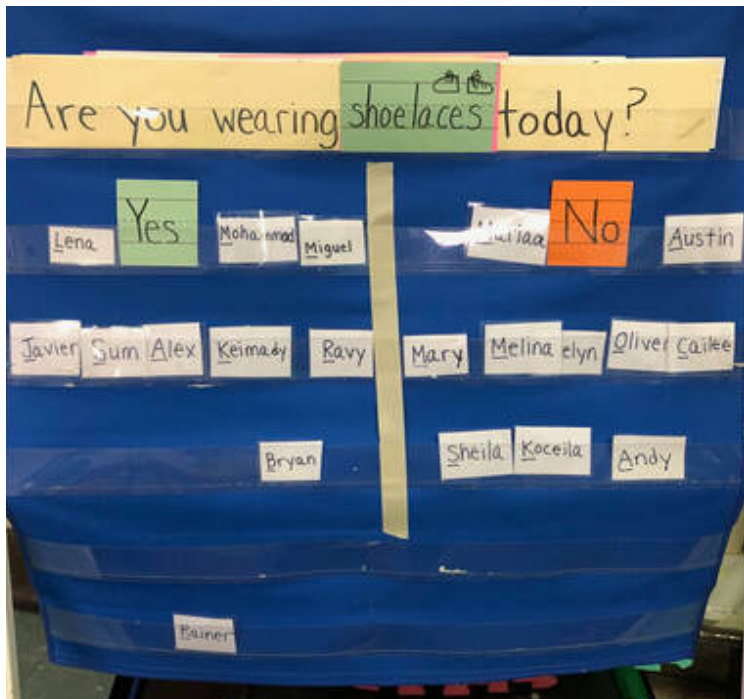
2-Choice Question

Video Examples

Basic Attendance Graph

"Picture Graph" with 4 choices