

# Next in Data Visualization

@michelle\_borkin



Michelle **Borkin**  
Northeastern

@arvindsatyal



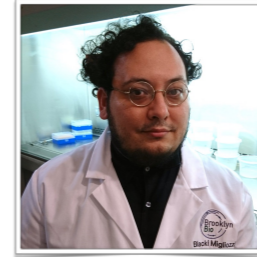
Arvind **Satyanarayan**  
MIT

@dalbersszafir



Danielle Albers **Szafir**  
University of Colorado

@BlackiLi



Blacki **Migliozi**  
NYTimes

@RadInstitute



RADCLIFFE INSTITUTE  
FOR ADVANCED STUDY  
HARVARD UNIVERSITY

#RadDataViz @alyssa\_a\_goodman



Acknowledge John Huth for Next in Science

## PROGRAM

2:30 PM

Welcome

Alyssa Goodman RI '17, codirector of the science program at the Radcliffe Institute and Robert Wheeler Willson Professor of Applied Astronomy in the Faculty of Arts and Sciences, Harvard University

2:35–3 PM

Michelle Borkin, assistant professor, Khoury College of Computer Sciences, Northeastern University, and codirector of the Northeastern University Visualization Consortium

Data Visualization Across Disciplines

3–3:25 PM

Arvind Satyanarayan, assistant professor, Department of Electrical Engineering and Computer Science, MIT

Visualization: A Petri Dish for Intelligence Augmentation

3:25–3:40 PM

Break

3:40–4:05 PM

Danielle Albers Szafir, assistant professor of information science and affiliate professor of computer and cognitive science, University of Colorado Boulder

Driving Exploratory Visualization through Perception and Cognition



<https://teachingmama.org/8-apple-activities-for-preschoolers/>

# Which apple did you like the best?



1. Jaiden
2. Victoria
3. Nahira
4. Arely
5. Anahi
6. Julian
7. Jose
8. Giovanni
9. Eliazar



1. Jimena
2. Paige
3. Alan



1. Gurkirat
2. Alex
3. Steve
4. Isabela
5. Andrea
6. Neha
7. Kristian
8. Ms. Alma
9. Ms. Maria

leaf candy apples  
skin applesauce  
flesh apple picking  
core  
eds

# My favorite kind of apple is...

The most: green  
The least: yellow

Alonso  
Glenda  
Lissa

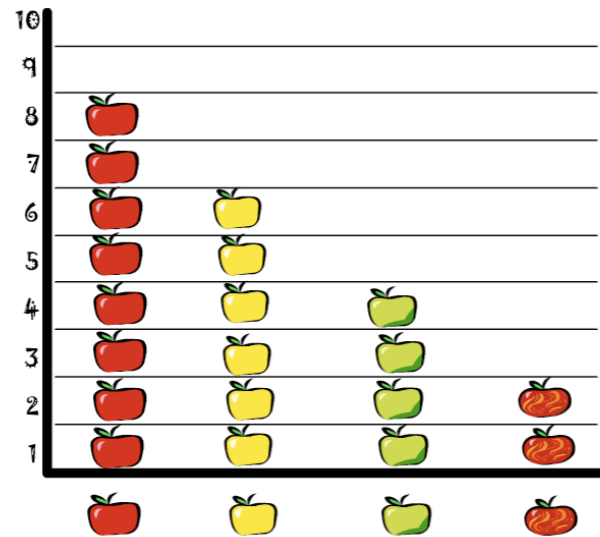
Karandeep  
Casey  
Brandon  
Lupe  
Anna

Mansrat  
Ruby  
Alex

<http://luvmykinders.blogspot.com/2014/09/five-for-fraturday-loads-of-apples.html>

# Our Favorite Apples

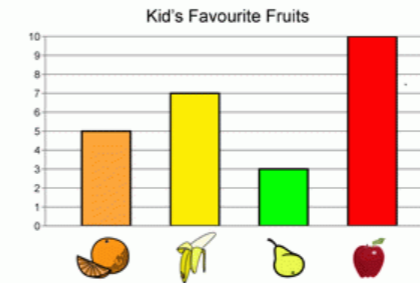
Directions: Make a graph by dragging the apples:



## Reading Bar Charts

Kindergarten Graphing Worksheet

Read the bar graph and answer the questions.



How many kids liked .....

-  Apples \_\_\_\_?
-  Oranges \_\_\_\_?
-  Bananas \_\_\_\_?
-  Pears \_\_\_\_?

<http://etechplace.org/clough/?tag=graph&paged=3>

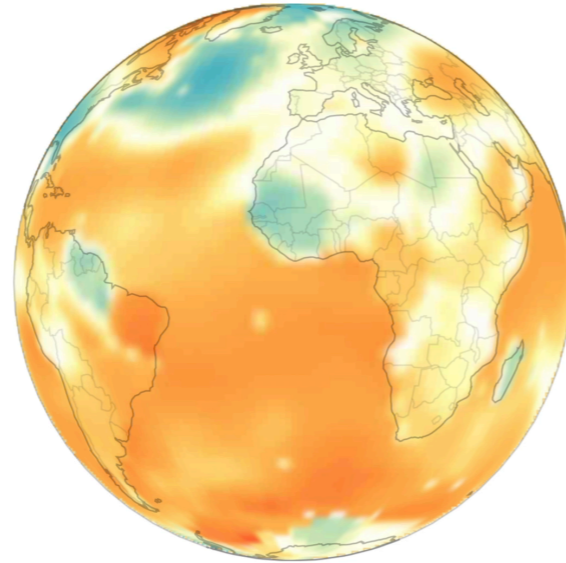
<https://www.k5learning.com/free-preschool-kindergarten-worksheets/graphing/bar-charts>

### Temperatures before and after Hansen's Senate testimony

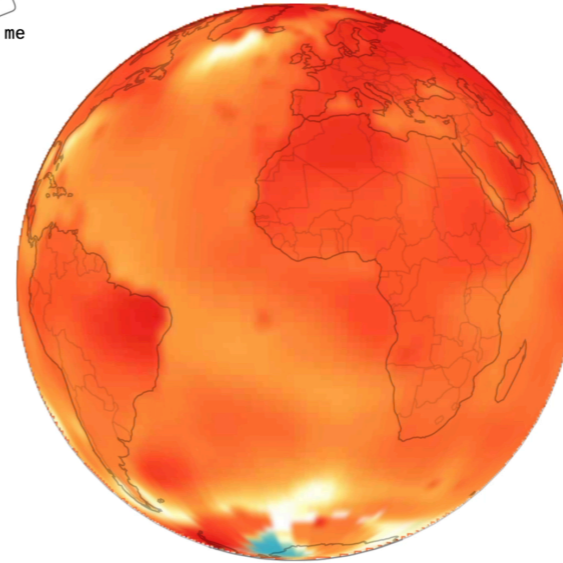
Temperature anomaly (°F), 1901-2000 baseline



1959–1988



1988–2017



Data: [NASA's Goddard Institute for Space Studies](#); Graphic: Harry Stevens/Axios

<https://www.axios.com/how-much-earth-has-warmed-since-hansen-testified-b6f8fdb4-484e-477f-b8b6-6ee320994dc0.html>

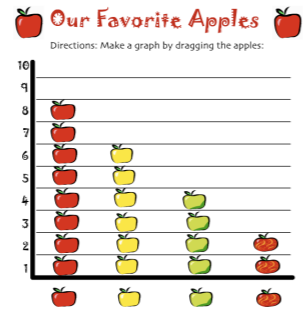


TEN QUESTIONS TO ASK WHEN CREATING A VISUALIZATION



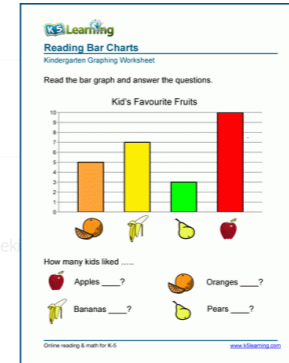
## The 10 Questions

- Who** | Who is your audience? How expert will they be about the subject and/or display conventions?
- Explore-Explain** | Is your goal to explore, document, or explain your data or ideas, or a combination of these?
- Categories** | Do you want to show or explore pre-existing, known, human-interpretable, categories?
- Patterns** | Do you want to identify new, previously unknown or undefined patterns?
- Predictions & Uncertainty** | Are you making a comparison between data and/or predictions? Is representing uncertainty a concern?
- Dimensions** | What is the intrinsic number of dimensions (not necessarily spatial) in your data, and how many do you want to show at once?
- Abstraction & Accuracy** | Do you need to show all the data, or is summary or abstraction OK?
- Context & Scale** | Can you, and do you want to, put the data into a standard frame of reference, coordinate system, or show scale(s)?
- Metadata** | Do you need to display or link to non-quantitative metadata? (including captions, labels, etc.)
- Display Modes** | What display modes might be used in experiencing your display?



10viz conversation! There's so much more to talk about.

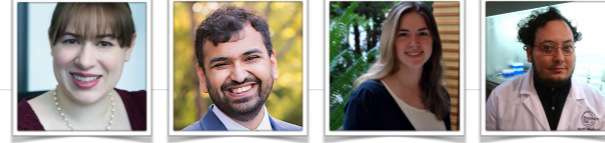
10QViz? Try the About page.  
and participate in 10QViz? Try the How to page.  
ship behind 10QViz.org's questions? Write to ask for a draft of our research paper, Coltek





TEN QUESTIONS TO ASK WHEN CREATING A VISUALIZATION

## The 10 Questions



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Now, visit the [10QViz conversation](#)! There's so much more to talk about.



Curious about the **origins** of 10QViz? Try the [About](#) page.

Want to learn **how best to use** and **participate** in 10QViz? Try the [How to](#) page.

Want to read about the **scholarship** behind 10QViz.org's questions? [Write](#) to ask for a draft of our research paper, Coltekin & Goodman 2019.

[10QViz.org](#)



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Explore

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Blacki Migliozi, graphics editor, New York Times

