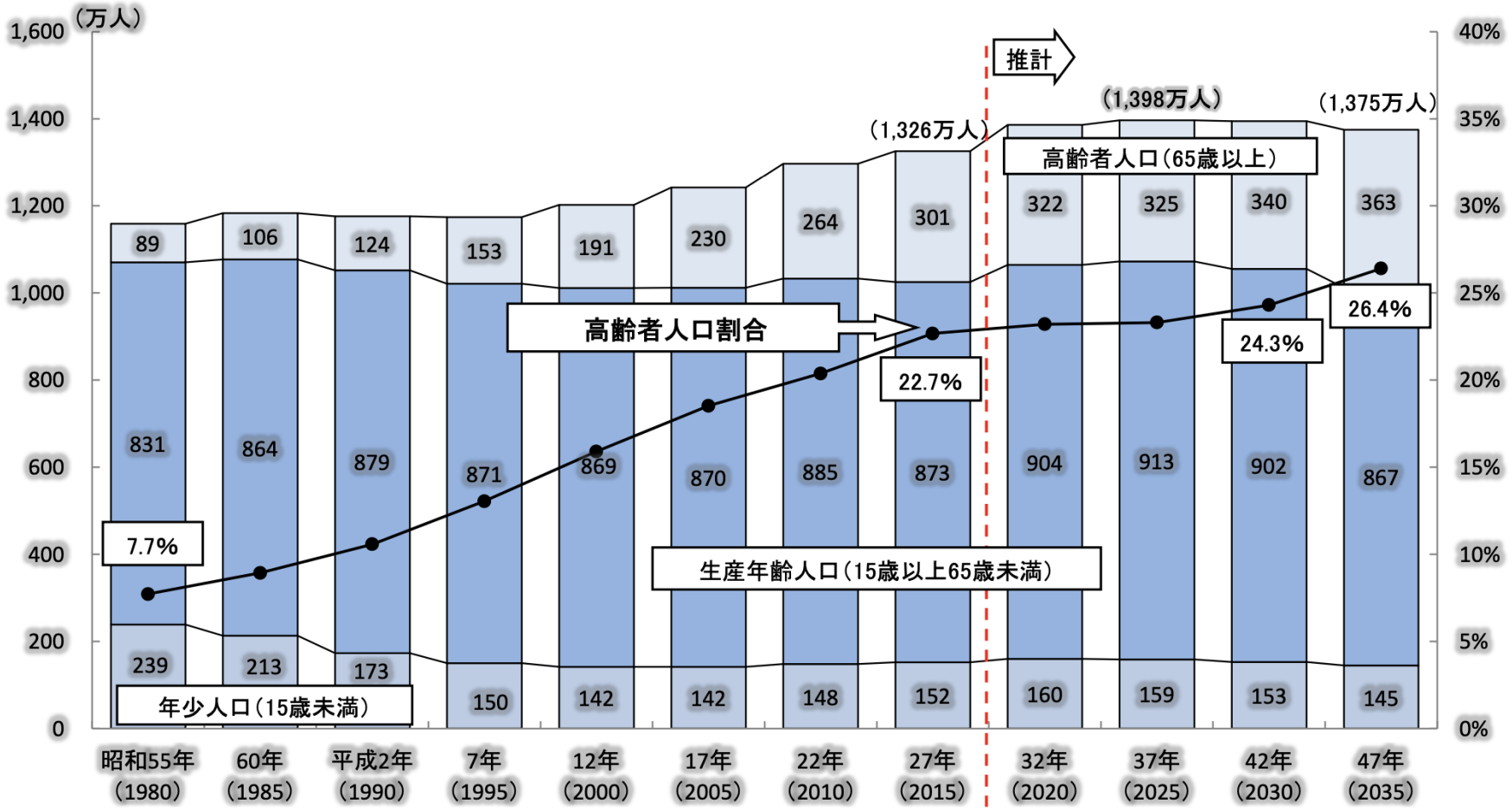
Time for visualization!

Let's talk about communication through design

人口の推移（東京都）

東京都における高齢化率は、総人口がピークを迎える平成37年には23．3%であり、平成42 年には24．3%とおよそ 4人に1人が高齢者になると推計されます。



（注）（ ）内は総人口。1万人未満を四捨五入しているため、内訳の合計値と一致しない場合がある。
出典：総務省「国勢調査」[昭和55年～平成27年]、東京都政策企画局による推計[平成32年～47年]

The Feltron Report

Nicholas Felton

feltron.com

NICHOLAS FELTON PRESENTS THE

Feltron 2007 Annual Report

AN ACCOUNTING OF THE YEAR IN

Photos

ANALOG & DIGITAL

FLICKR VIEWS:

14,702

WWW.FLICKR.COM/PHOTOS/FELTRON

PERCENT OF PHOTOS POSTED TO FLICKR:

3%

201 PHOTOS

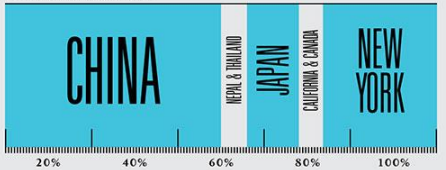
DIGITAL PHOTOS:

6,115

ANALOG PHOTOS:

648

PHOTOS BY LOCATION:

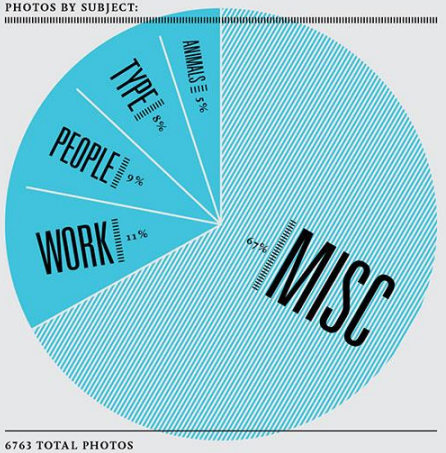


LAST PHOTO:

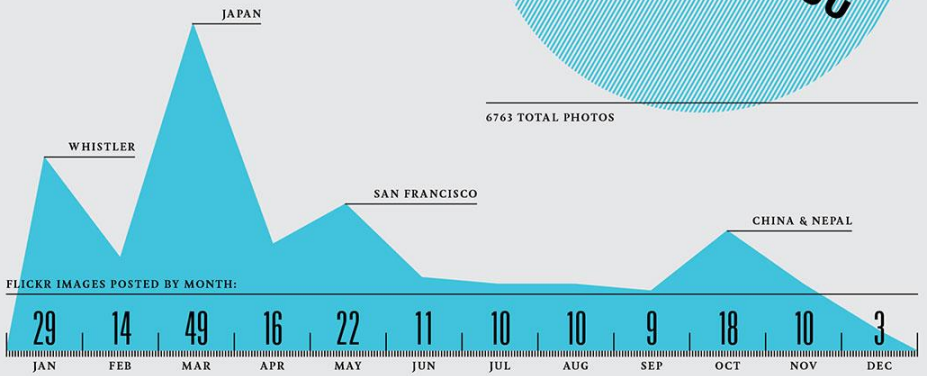
RYAN, BONNIE & SARA

PATRIOT SALOON, 11:58 PM, DECEMBER 31ST

PHOTOS BY SUBJECT:

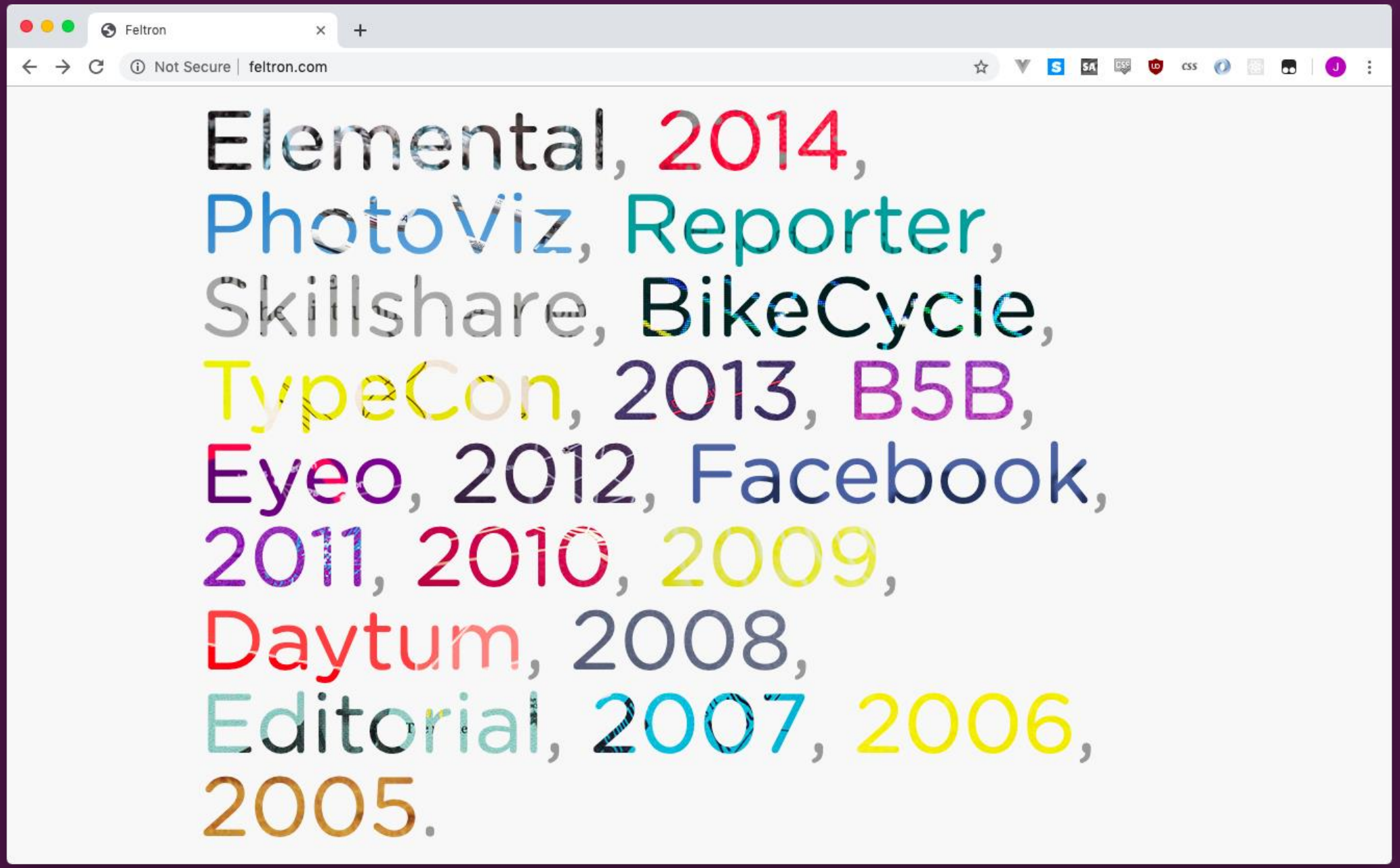


6763 TOTAL PHOTOS



FLICKR IMAGES POSTED BY MONTH:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
29	14	49	16	22	11	10	10	9	18	10	3


Feltron
Not Secure | feltron.com
Elemental, 2014,
PhotoViz, Reporter,
Skillshare, BikeCycle,
TypeCon, 2013, B5B,
Eyeo, 2012, Facebook,
2011, 2010, 2009,
Daytum, 2008,
Editorial, 2007, 2006,
2005.

DAYTUM

https://daytum.com

USER NAME: PASSWORD: Sign in (REMEMBER ME ON THIS COMPUTER)

HELLO...

DAYTUM HELPS YOU COLLECT, CATEGORIZE AND COMMUNICATE YOUR EVERYDAY DATA.

START USING DAYTUM

BEGIN COLLECTING AND EXPLORING YOUR DATA TO REVEAL THE BIGGER PICTURE. LEARN MORE...

CREATE YOUR ACCOUNT

Submit Email

WHAT'S NEW?

IPHONE APP

DEC 31, 2010: THE DAYTUM IPHONE APP HAS BEEN RELEASED AND IS AVAILABLE FOR

WHO USES DAYTUM?

RAEO USES DAYTUM TO TRACK HIS 274 MUSIC PURCHASES

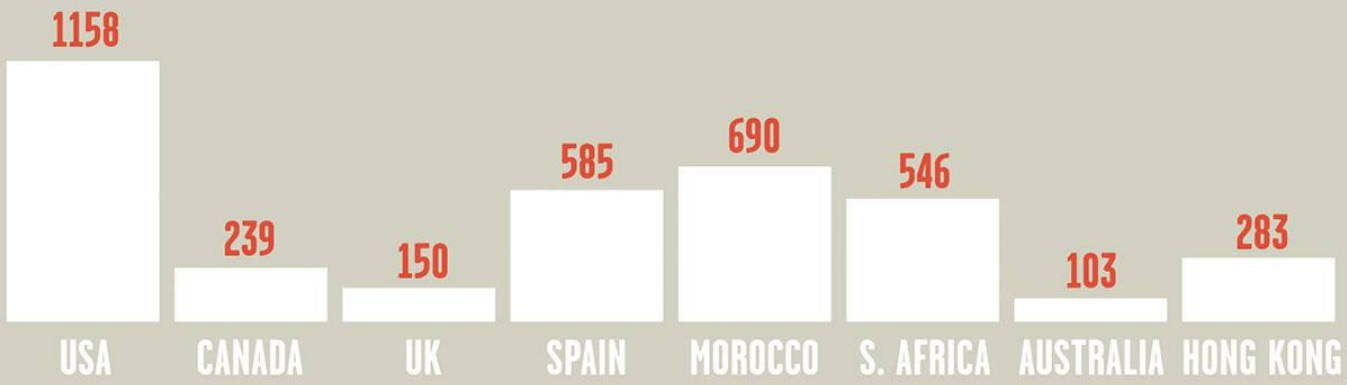
SPOUTDOORS: (2 MINUTES AGO) ADDED 0.5 TR OUTSIDE CLIMBING TO "WORKOUT"

SPOUTDOORS: (3 MINUTES AGO) ADDED 0.33 TRAD CLIMBING TO "WORKOUT"

SPOUTDOORS: (4 MINUTES AGO) ADDED 0.05 LIGHT LIFTING TO "WORKOUT"

SPOUTDOORS: (4 MINUTES AGO)

PHOTOGRAPHS PER COUNTRY



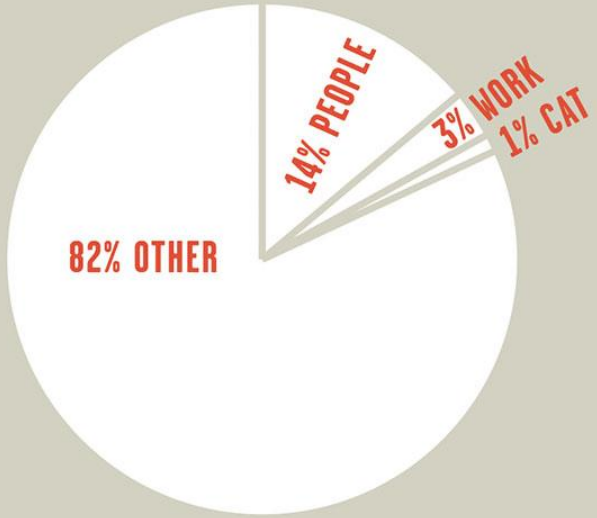
DIGTAL PHOTOS

3,754

ANALOG PHOTOS

0

PHOTOGRAPHIC SUBJECTS



1980-1989
MILL VALLEY & LARKSPUR

THE EIGHTIES

706 ENTRIES

CALENDAR

JUL 14, 1980
51 YEARS AND 10 DAYS

MILES SAILED ON THE *VIRAGO* FROM VICTORIA, BC TO SAUSALITO

870

AUGUST 9-20, 1988

1985
MOST VISITS TO A WORK LOCATION

80

THE STATE OFFICE BUILDING, SF

SECOND DIVORCE

NOV 3, 1987

AFTER 14 YEARS, 2 MONTHS AND 3 DAYS OF MARRIAGE

1985

ELEVATORS ADJUSTED

1984-1990
DAYS OF WORK

268

AND 35 DAYS JOB HUNTING

PHYSICAL ACTIVITIES

TWELVE

CYCLING, DANCING, FISHING, HIKING, ICE SKATING, KAYAKING, RAFTING, SAILING, SKIING, TAI CHI AND WORK

MOVIES VIEWED

THIRTEEN

6 WITH CHILDREN

DAYS TAI CHI PRACTICED

11

1986-1987

PARTIES ATTENDED

TWENTY

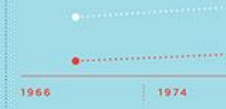
2 CHRISTMAS AND 1 CHANUKAH

1970-2010

CAL

4,412 RECORDS

ENTRIE



NUMBER OF CALENDARS

3

26 DESK
7 POCKET

YEAR WITH THE MOST ENTRIES

1985

269 DAYS

FIRST CALENDAR

1970

150 DAYS

NUMBER OF WORDS

17,5

AVERAGE

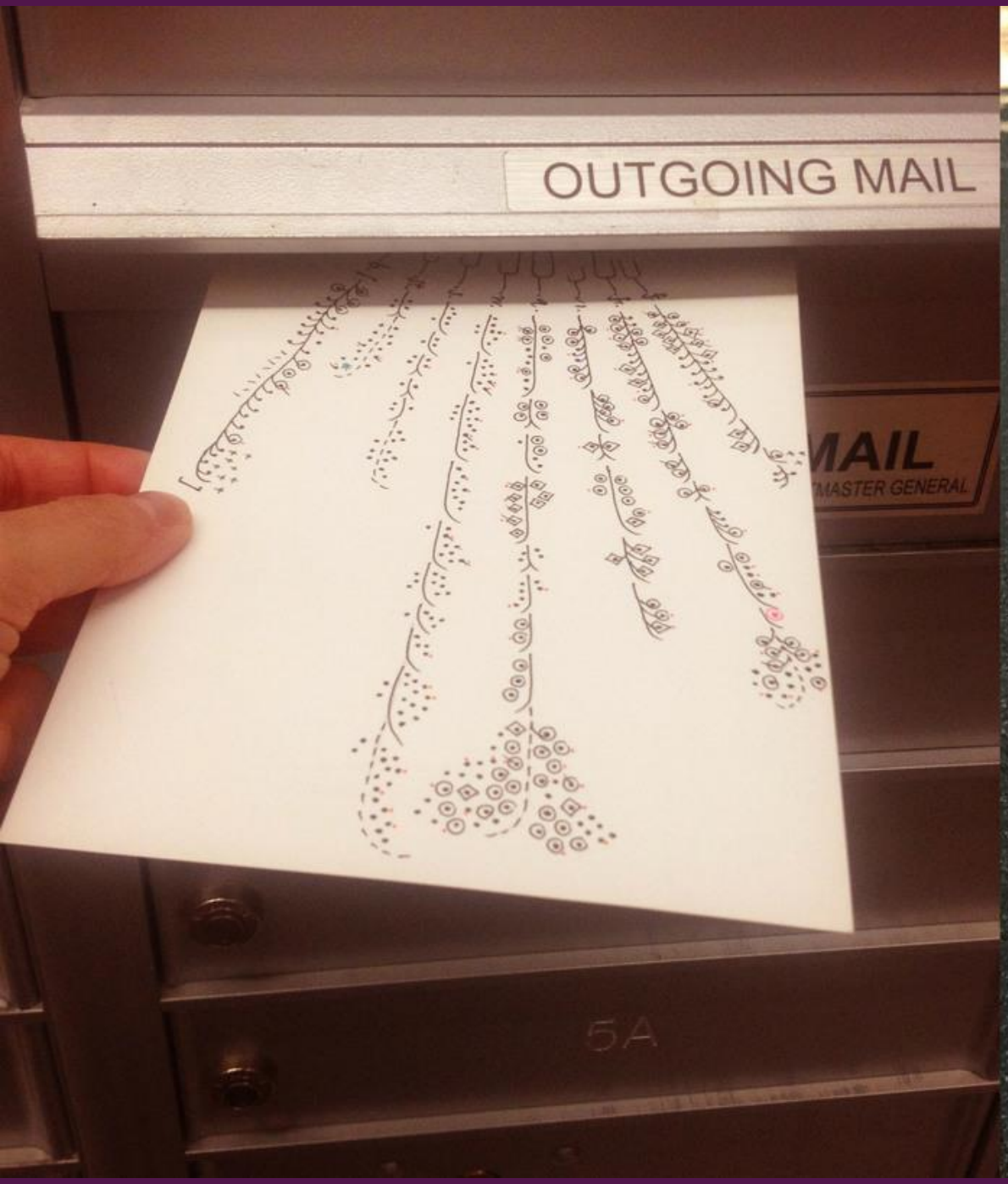
615 MEALS

EATING

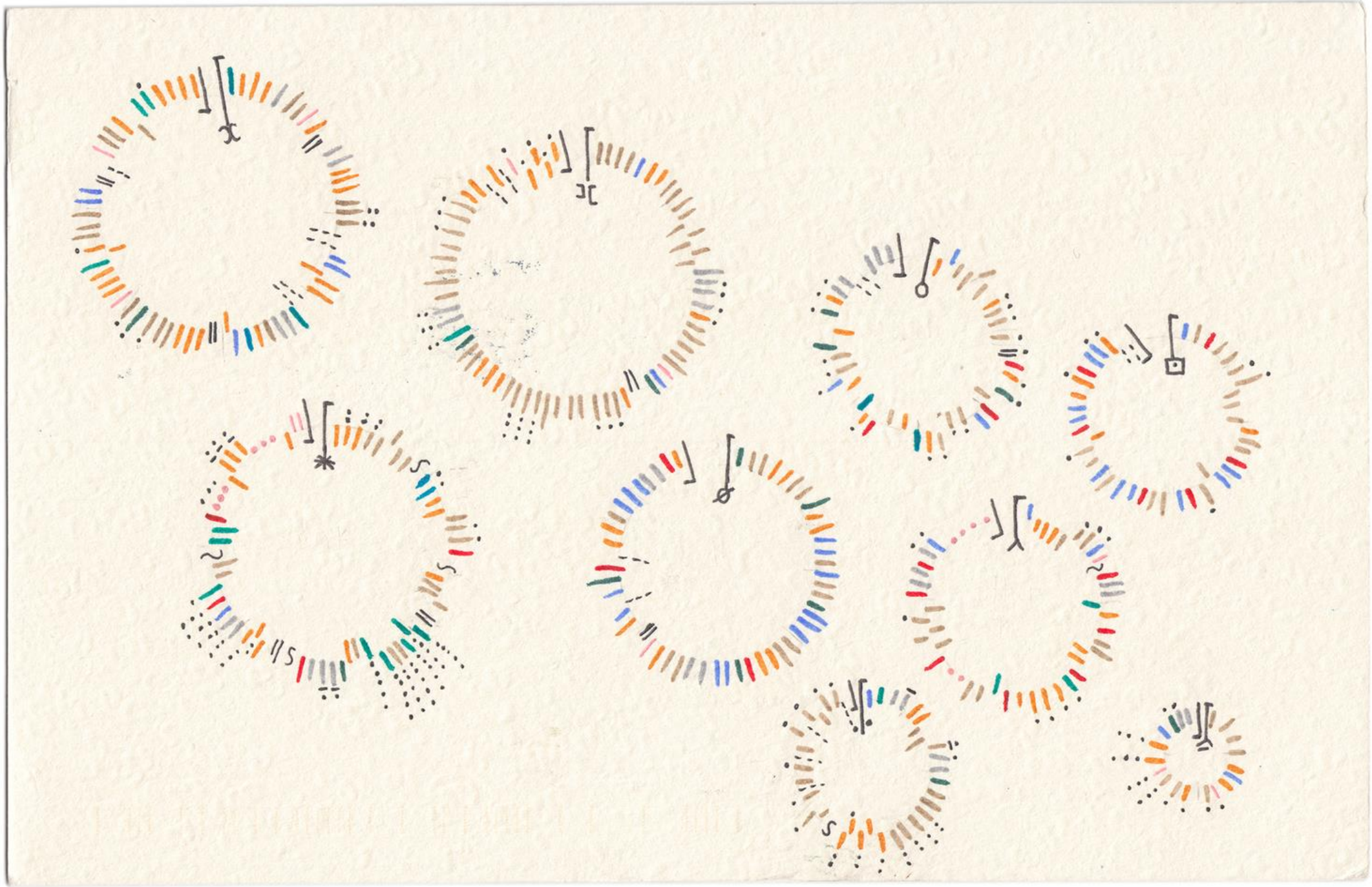
Dear Data

Giorgia Lupi and Stefanie Posavec

dear-data.com


OUTGOING MAIL
MAIL
MASTER GENERAL
5A


12
Other Collections
03457 740740
www.royalmail.com
0345 6000606



“DEAR DATA

WEEK 08: PHONE ADDICTION!

FROM:
GIORGIA LUPI
[redacted]
11249 BROOKLYN
- NY - USA

SEND TO:
STEFANIE POSAVEC
[redacted]
LONDON [redacted]
- UK -
ENGLAND

HOW TO READ IT:

- Every circle represents a PLACE or SITUATION where I checked my phone, somehow ordered from left to right according to how many times I did it in that place.
- Every single LINE is a SINGLE TIME I interacted with my phone, ordered chronologically per each place.

PLACES / sit.*

- x while walking
- * while working
- II while waiting for sthing or s.body
- ø in the Bathroom
- o on the couch
- ⊡ on the bed
- ∧ other places at home
- % cafe / restaurants shops....
- ≈ public transportation

COLORS: the reason why I picked it:

- text / email
- social media
- other APPS
- check the time
- check the weather
- phone call
- text with somebody who was in the room
- to charge it
- text / email with you
- take pictures of our postcards!

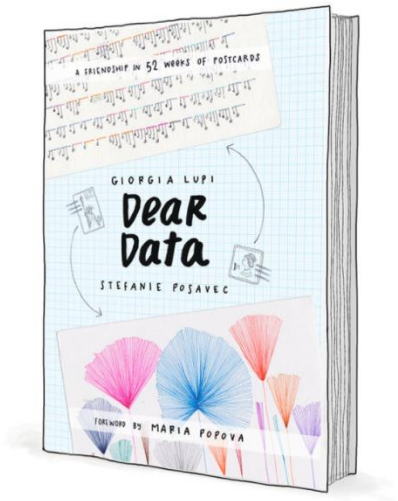
- ... dots = while with others (how many)
- •| = used others' phone

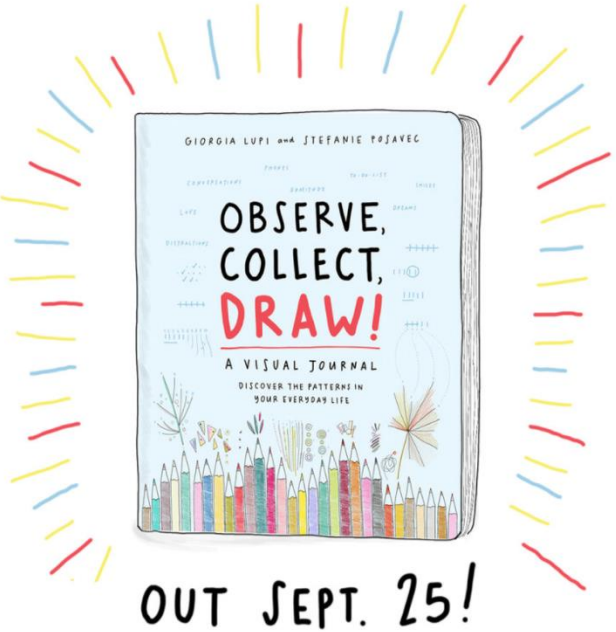
ATTRIBUTES:

- → outside = I picked it PURPOSELY
- ↳ INSIDE = Because of an alert
- ~ = turned the phone facing the table not to see it
- --- didn't picked it because I didn't want to report
- = thought it was ringing but wasn't!

Dear Data

Not Secure | dear-data.com





OUT SEPT. 25!

What's the point?

In this case, maybe **art vs information?**

Why or why not?

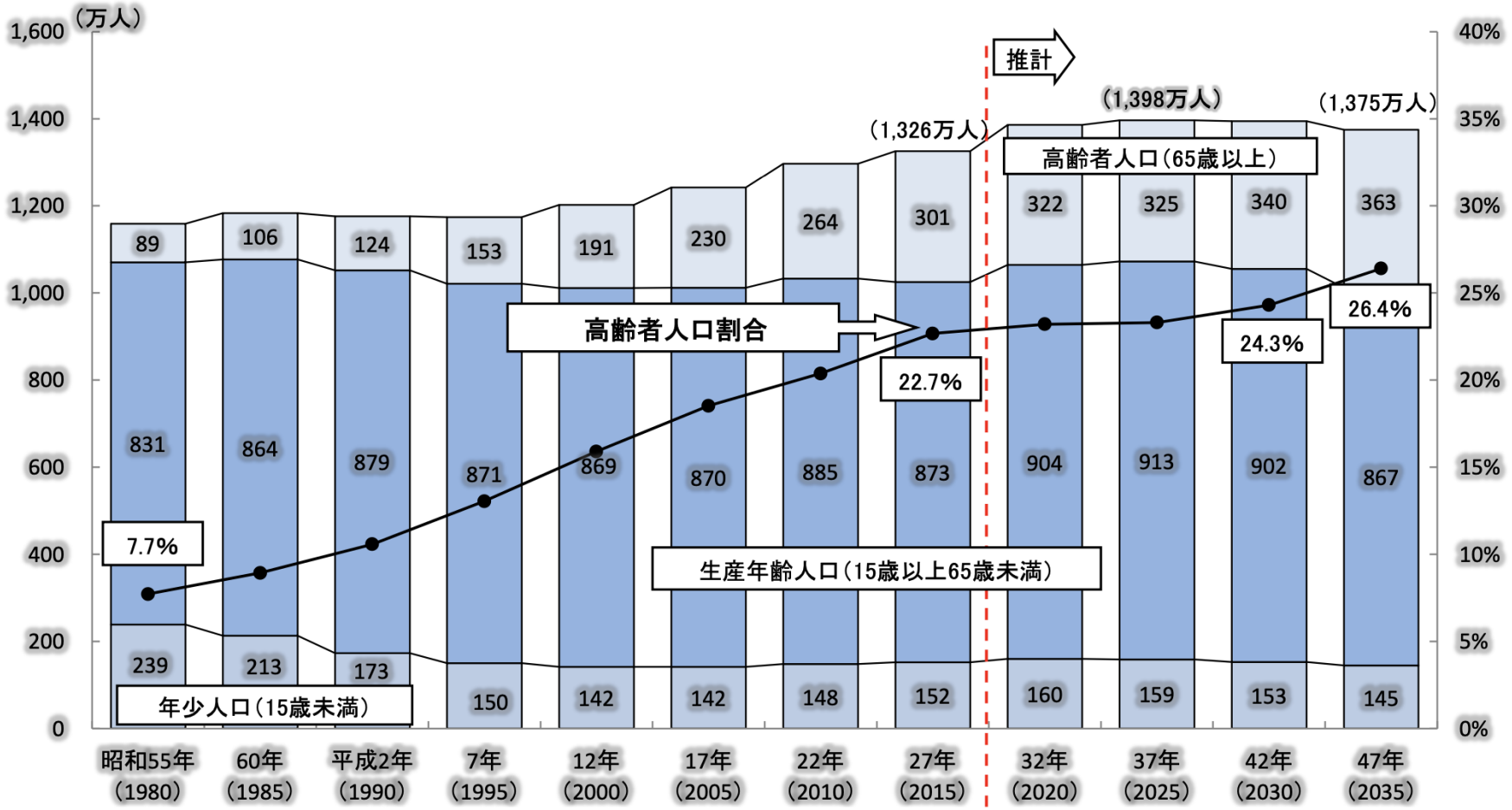
Everything should be on purpose.

Every drop of ink should have a reason.

Every color should have a story.

人口の推移（東京都）

東京都における高齢化率は、総人口がピークを迎える平成37年には23．3%であり、平成42 年には24．3%とおよそ 4人に1人が高齢者になると推計されます。



（注）（ ）内は総人口。1万人未満を四捨五入しているため、内訳の合計値と一致しない場合がある。
出典：総務省「国勢調査」[昭和55年～平成27年]、東京都政策企画局による推計[平成32年～47年]

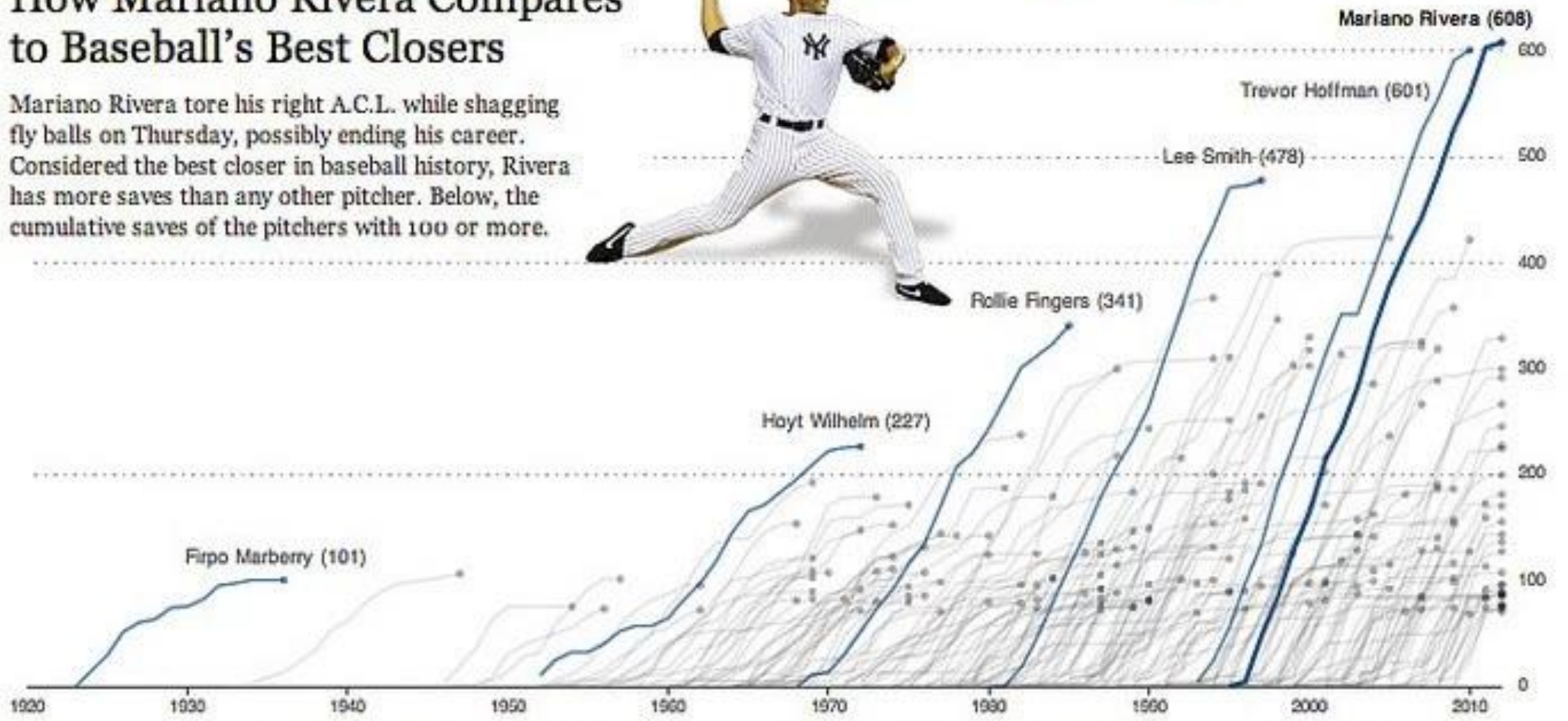
DATA IS THE ENEMY

...THE MORE DATA YOU SHOW,
THE LESS INFORMATION THE USER CAN SEE

Published: May 5, 2012

How Mariano Rivera Compares to Baseball's Best Closers

Mariano Rivera tore his right A.C.L. while shagging fly balls on Thursday, possibly ending his career. Considered the best closer in baseball history, Rivera has more saves than any other pitcher. Below, the cumulative saves of the pitchers with 100 or more.



The closers who broke new hundred-save milestones:

Firpo Marberry (101)
The first reliever to get to 100 cumulative saves, done at a time before relief pitchers were commonplace. (Marberry also started

Hoyt Wilhelm (227)
In addition to being the first pitcher to break the 200 save mark, Wilhelm pitched a no-hitter against the Yankees in 1958.

Rollie Fingers (341)
Known for his handlebar moustache, Fingers was the second relief pitcher inducted into Baseball's Hall of Fame.

Lee Smith (478)
From 1983 to 1995, Smith averaged 35 saves a season, saving no fewer than 25 in any season.

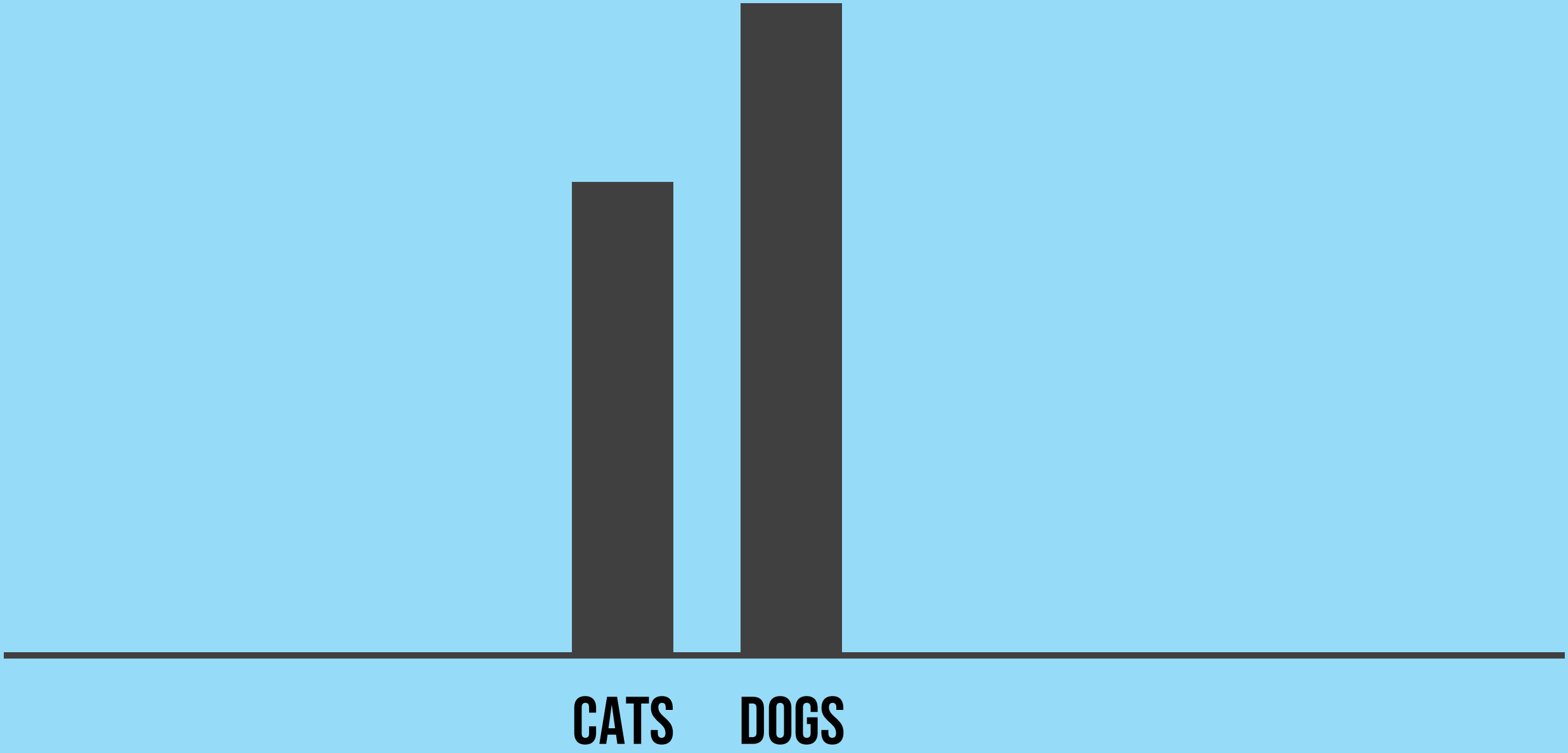
Trevor Hoffman (601)
Hoffman was the first to break the 500 and 600 save marks, despite a 1994 shoulder injury that forced him to change his pitching style.

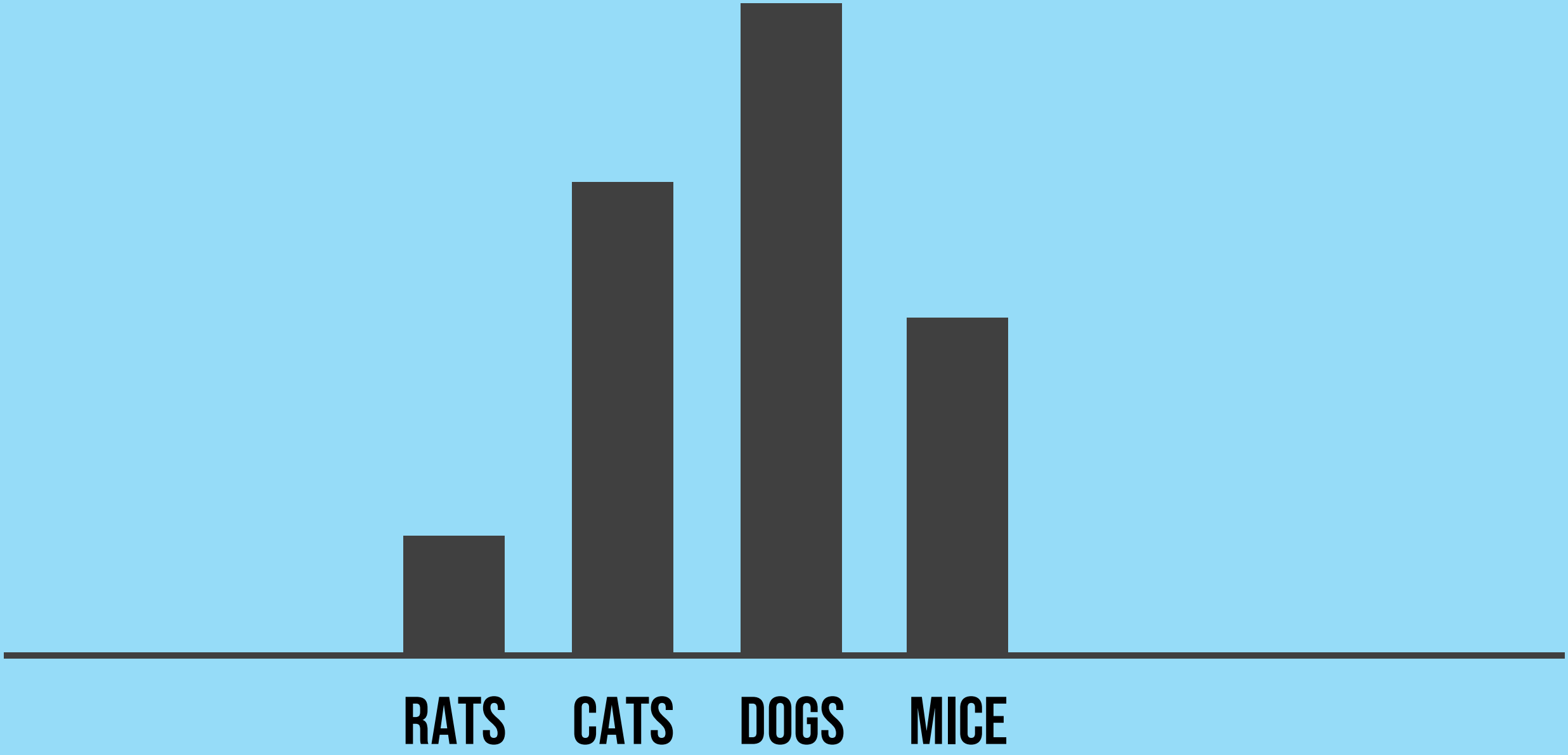
FOCUS

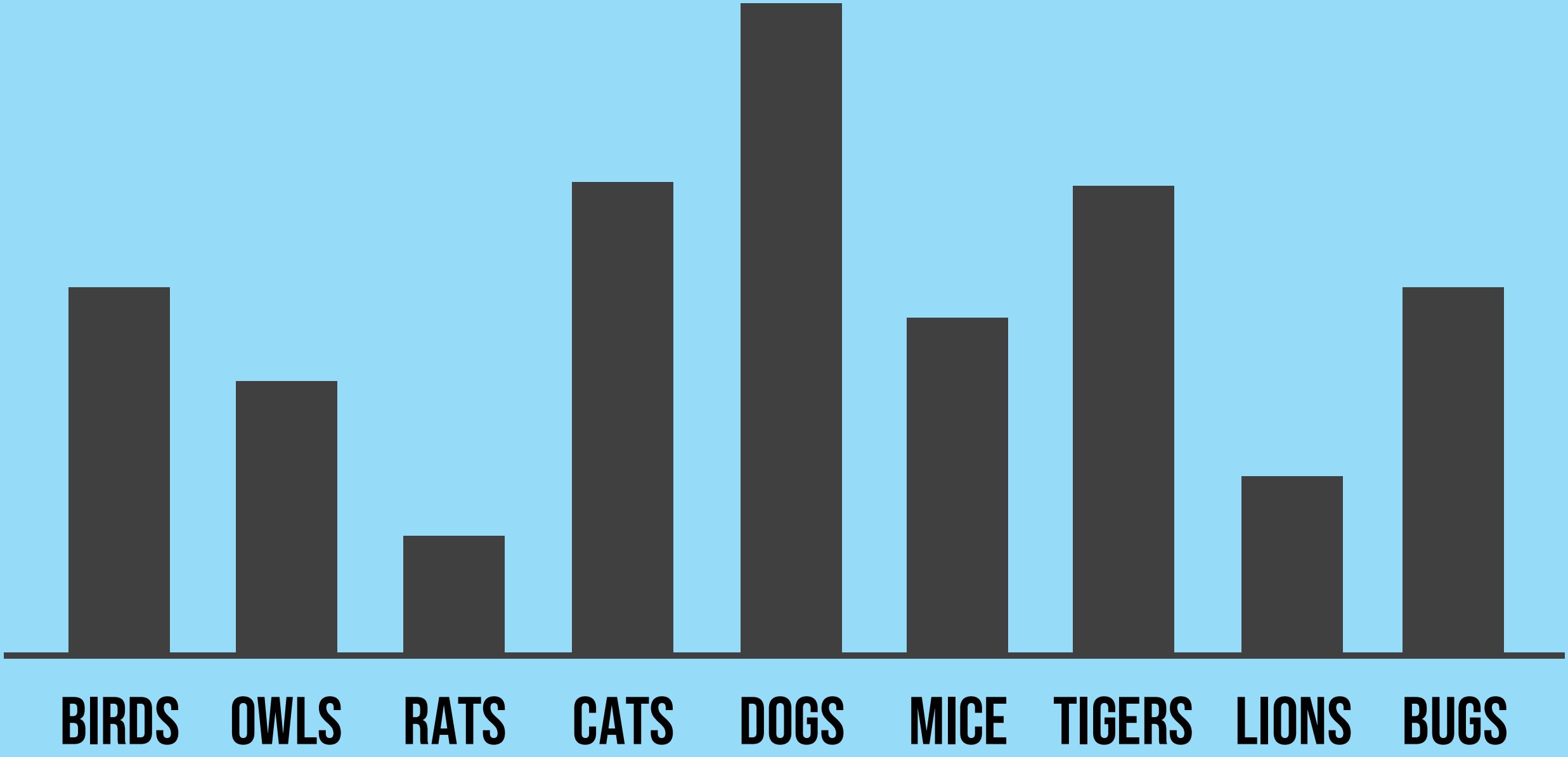
what should the reader pay attention to?

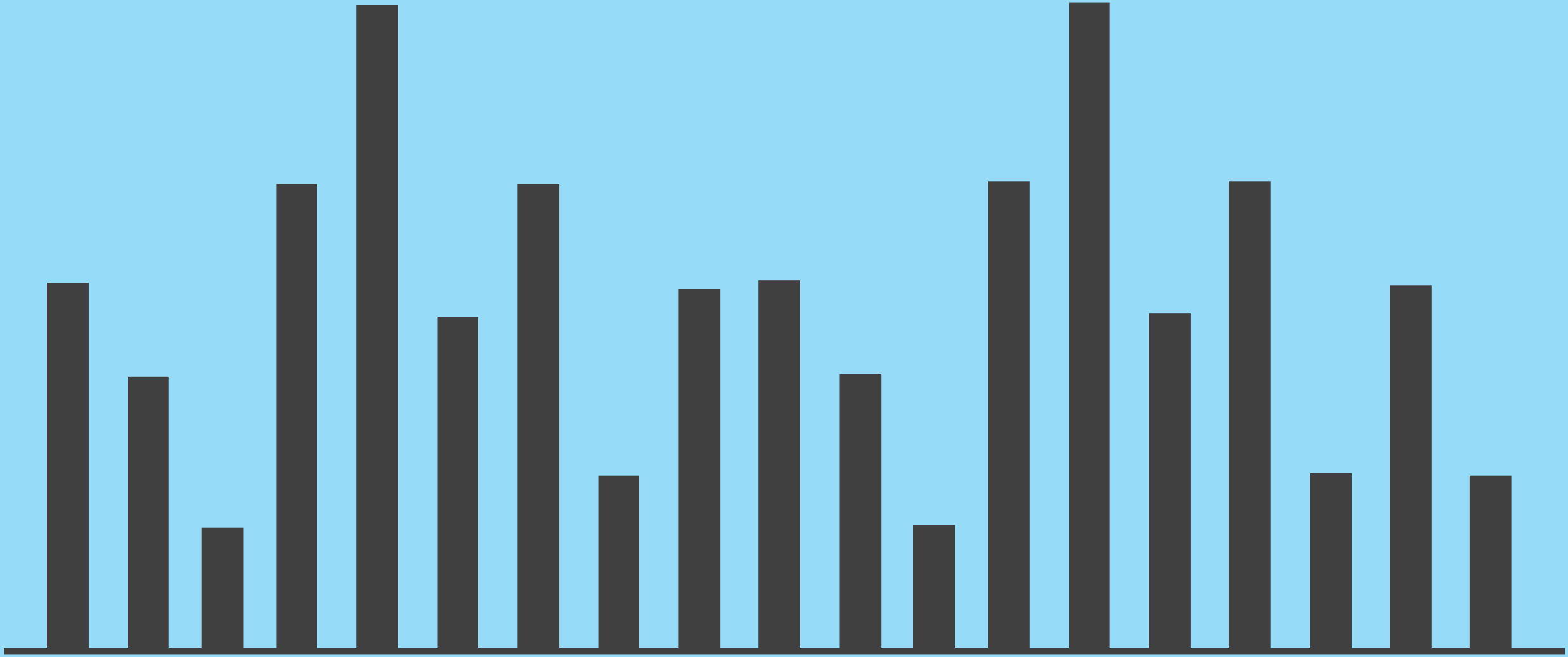
SMALL DATA
VS
LARGE DATA

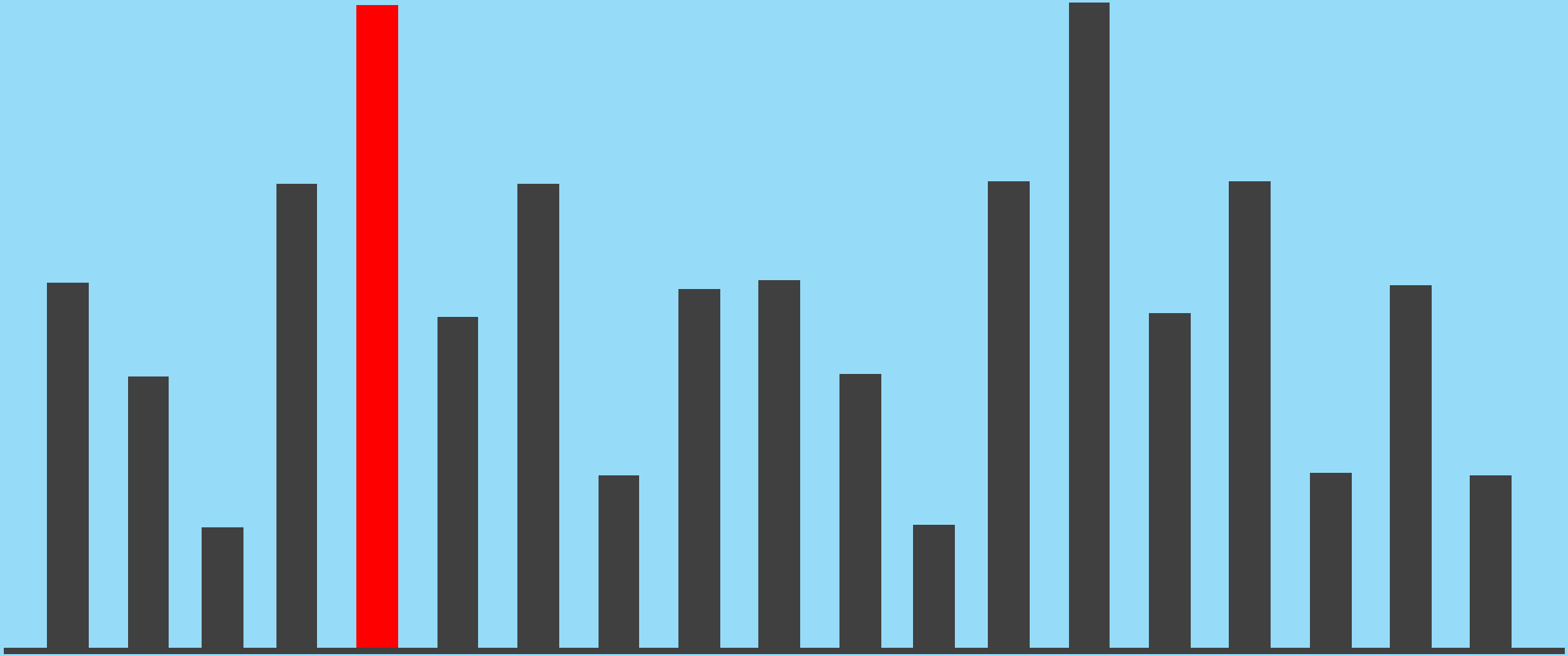
...DON'T LET YOUR USER GET DISTRACTED


CATS
DOGS

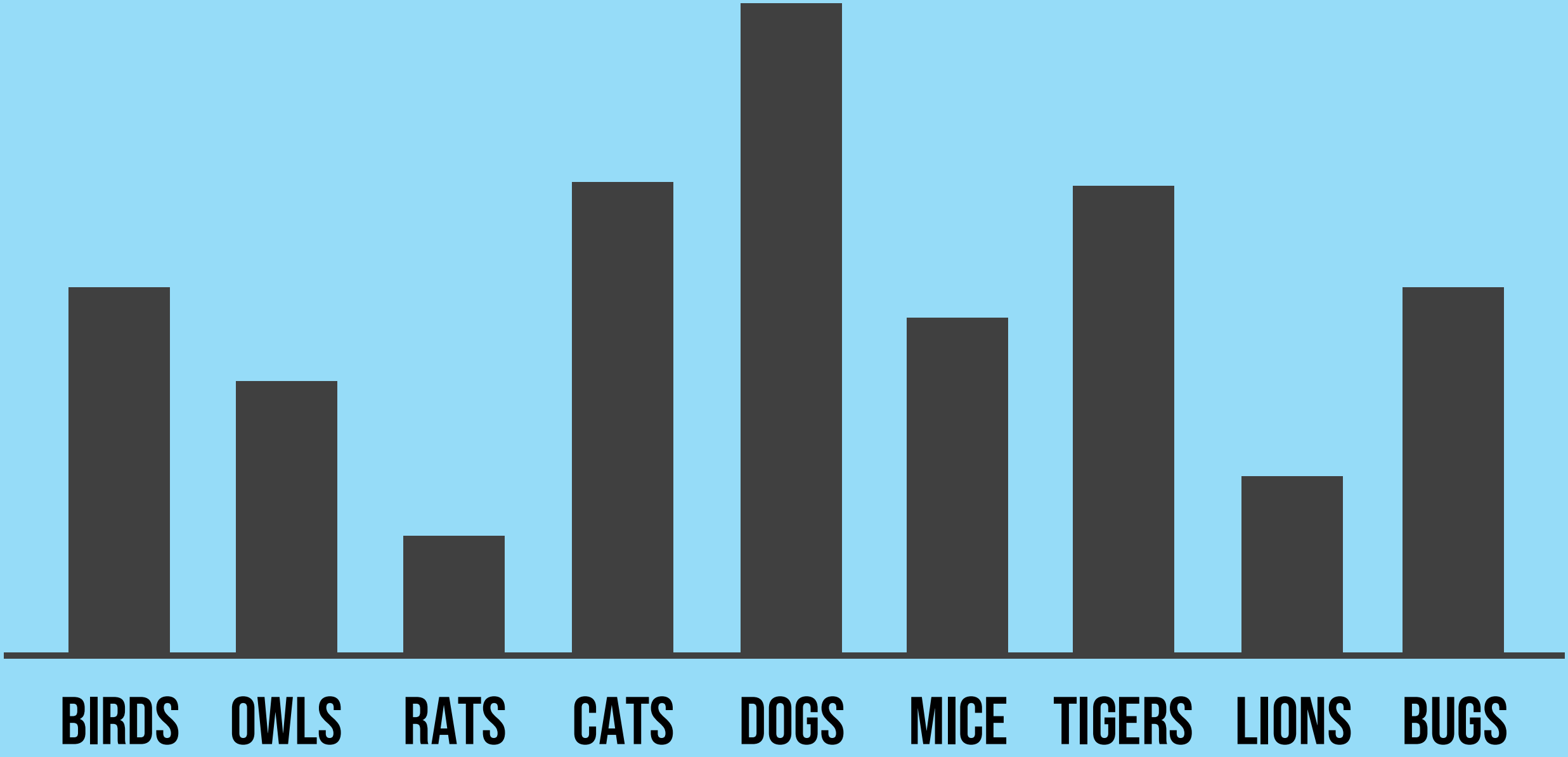

RATS
CATS
DOGS
MICE

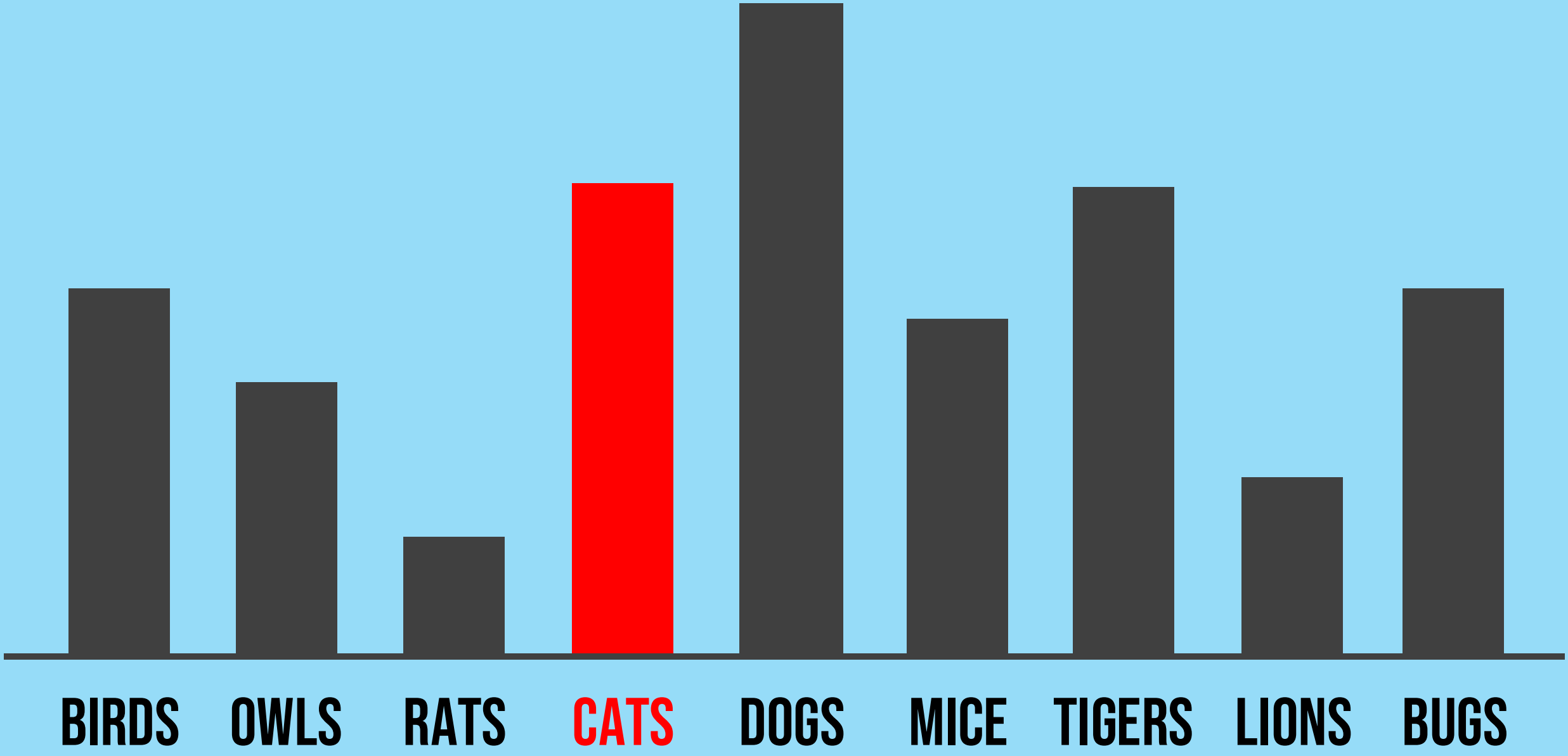

BIRDS
OWLS
RATS
CATS
DOGS
MICE
TIGERS
LIONS
BUGS

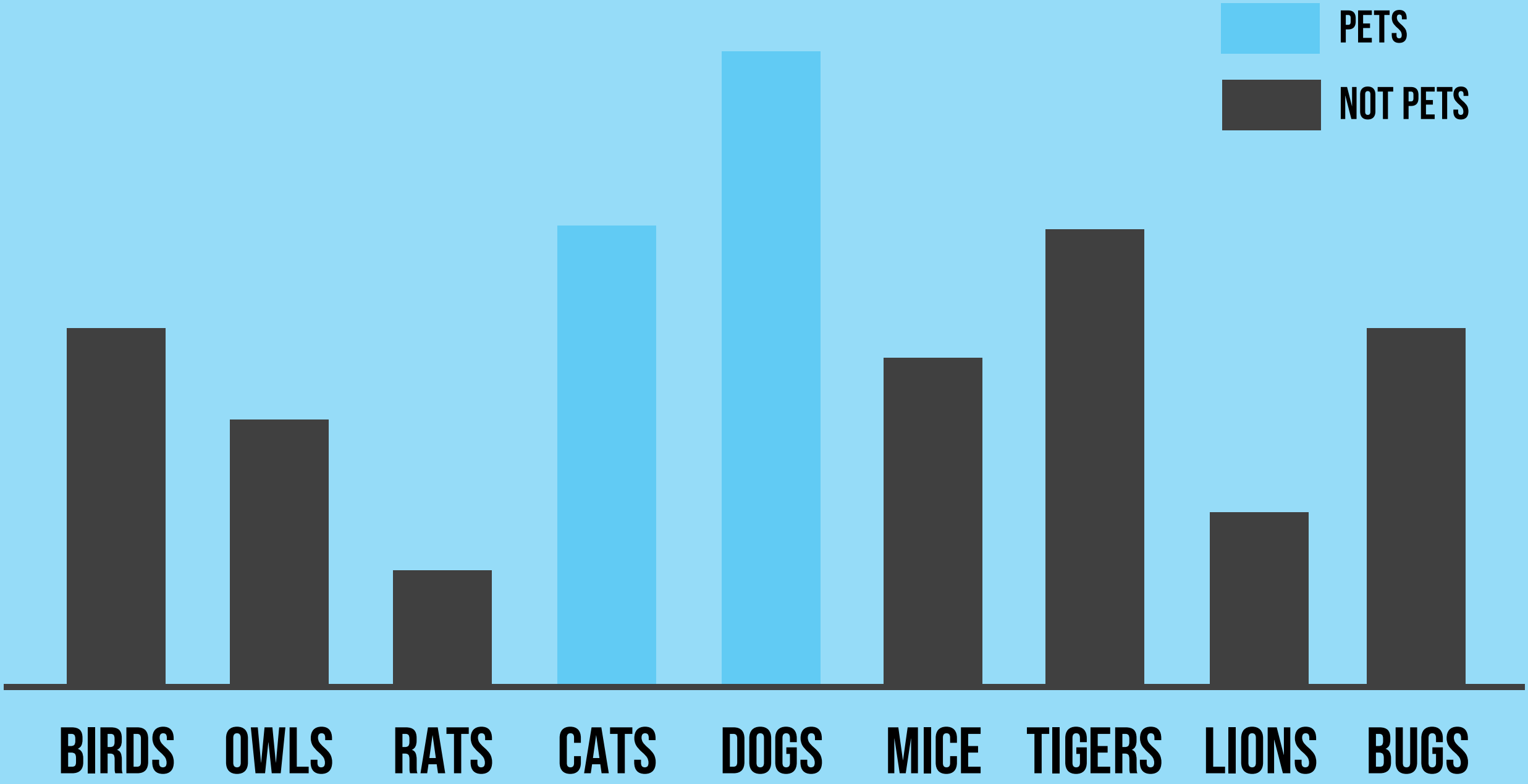




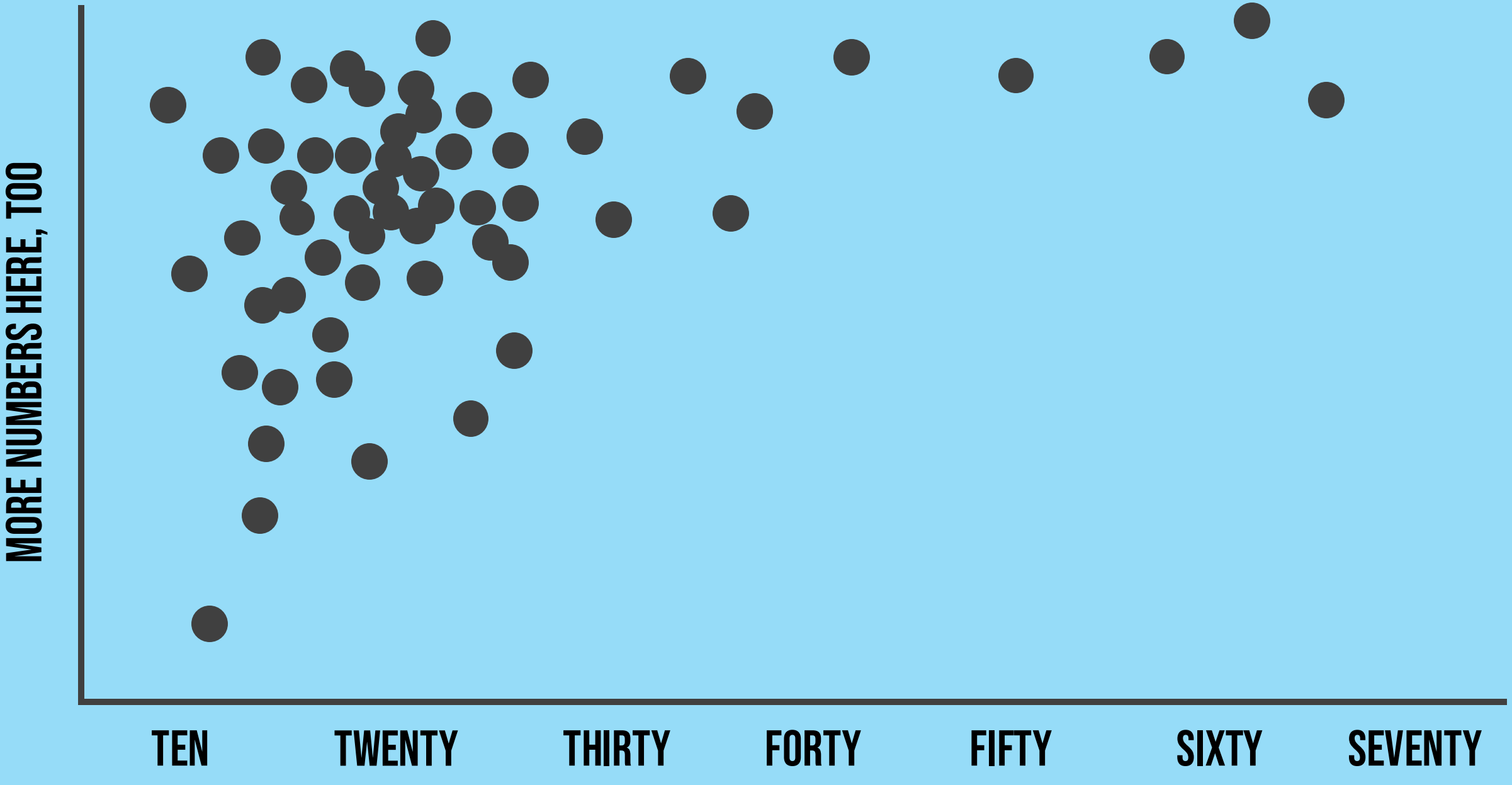
DIRECT FOCUS TO WHAT'S IMPORTANT

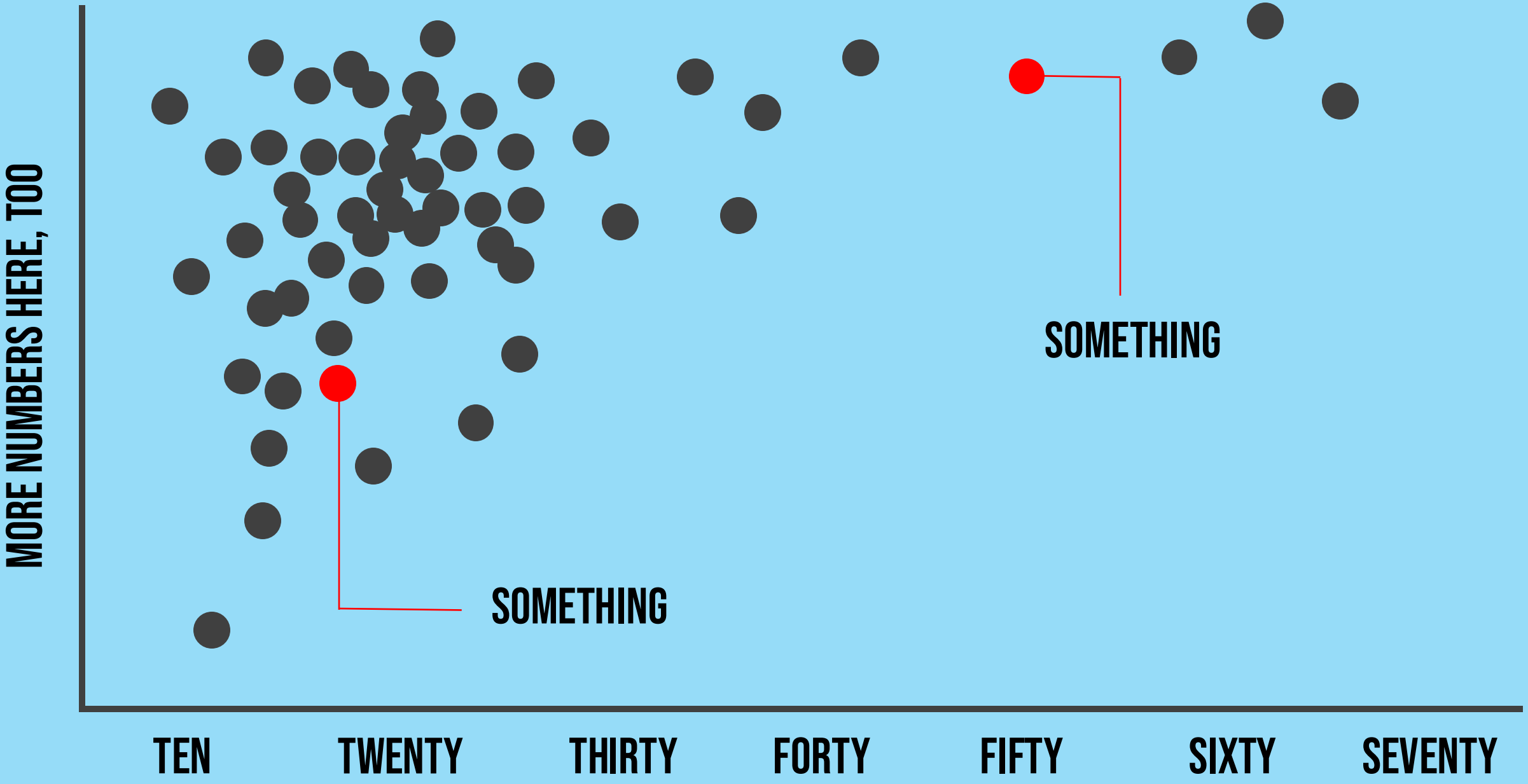

BIRDS
OWLS
RATS
CATS
DOGS
MICE
TIGERS
LIONS
BUGS

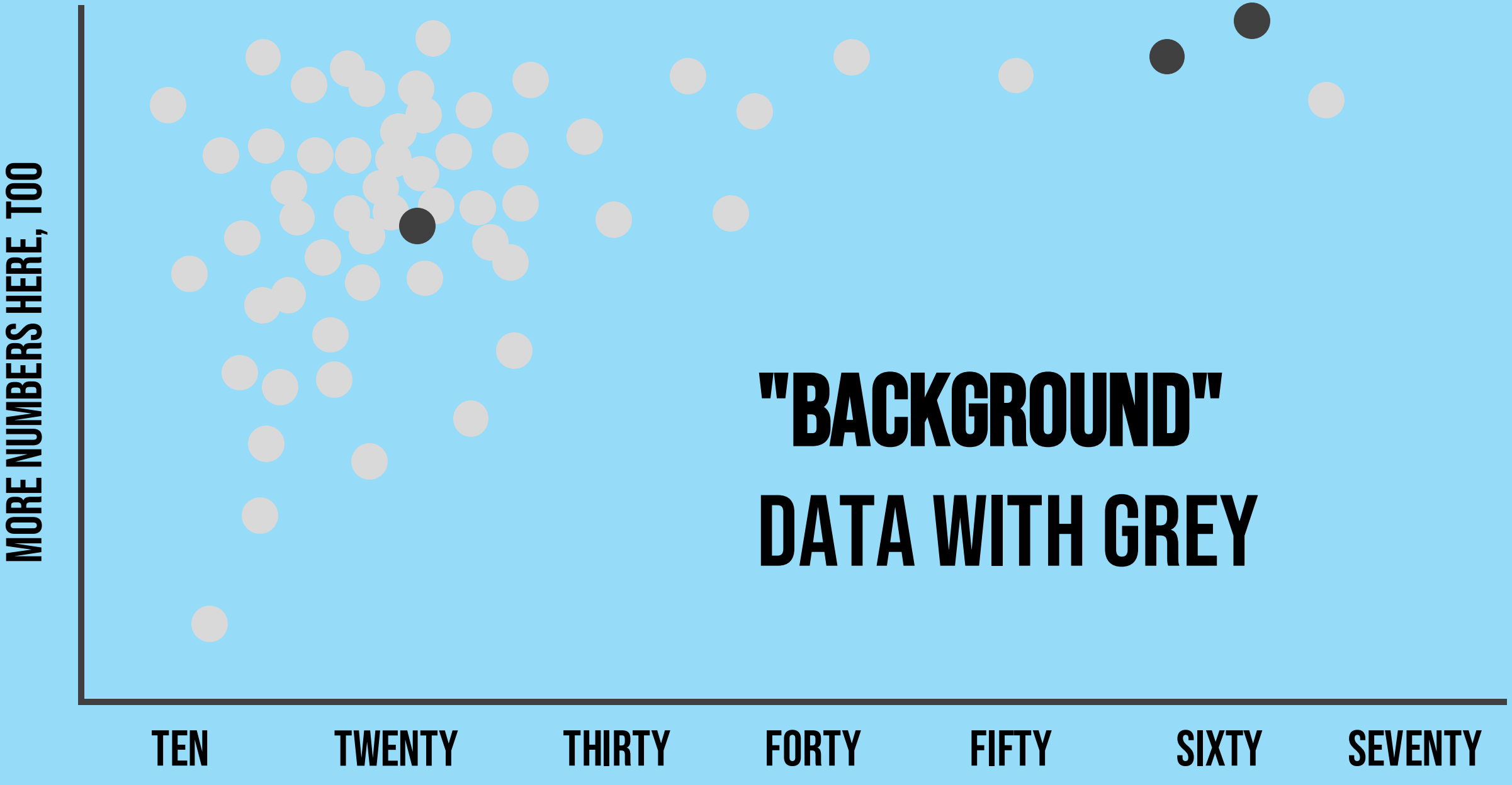

BIRDS
OWLS
RATS
CATS
DOGS
MICE
TIGERS
LIONS
BUGS

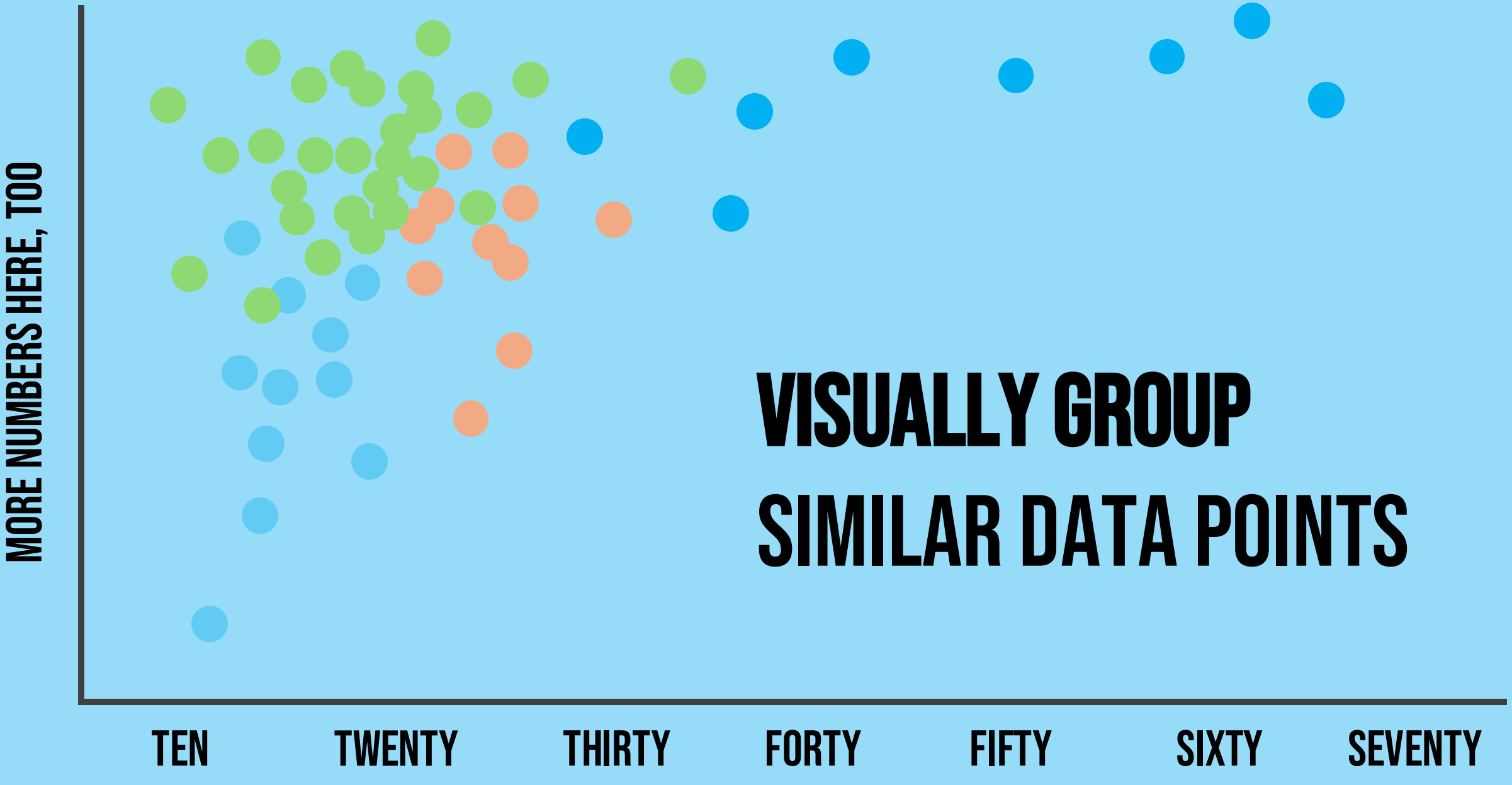

PETS
NOT PETS
BIRDS
OWLS
RATS
CATS
DOGS
MICE
TIGERS
LIONS
BUGS

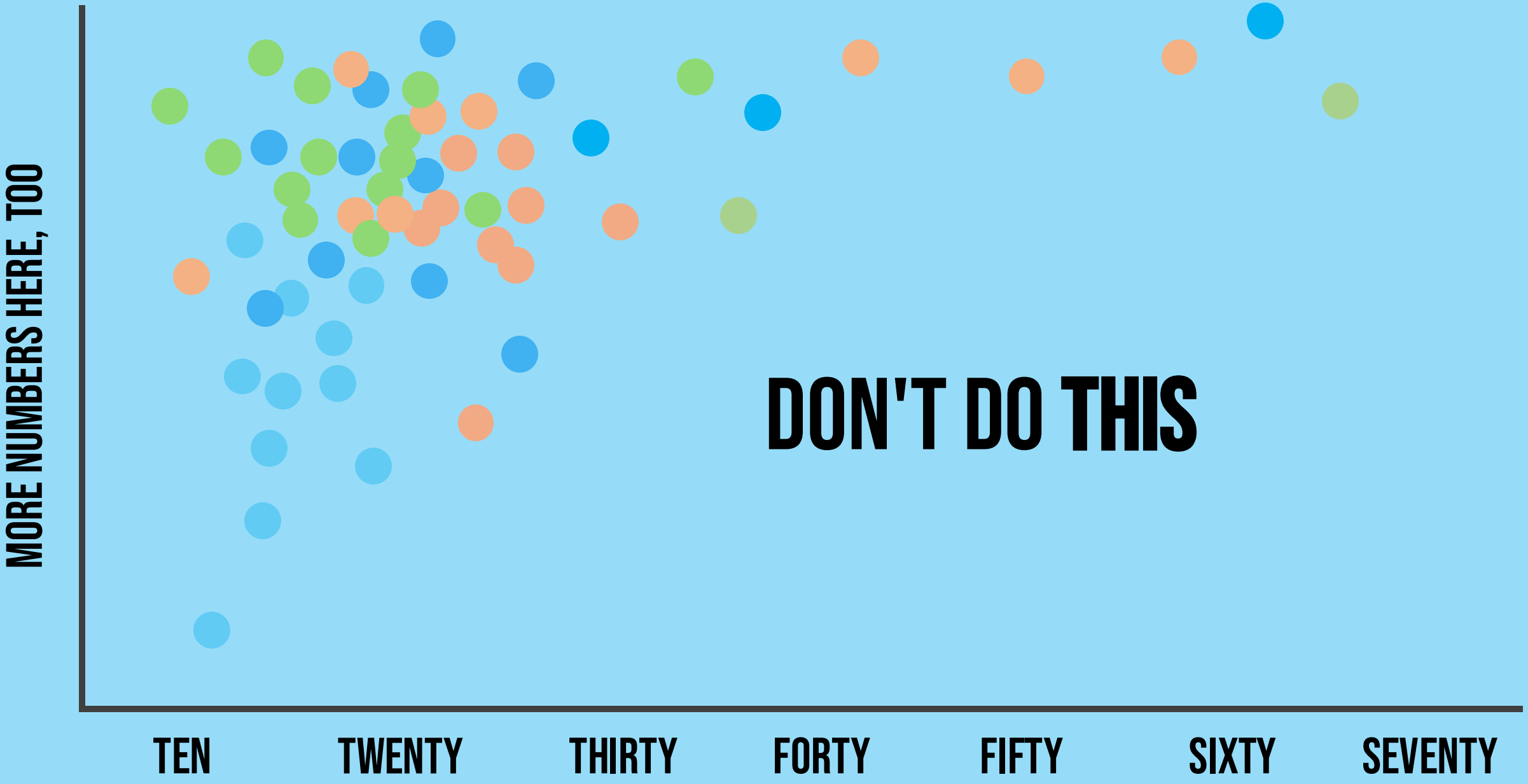

MORE NUMBERS HERE, TOO
TEN
TWENTY
THIRTY
FORTY
FIFTY
SIXTY
SEVENTY

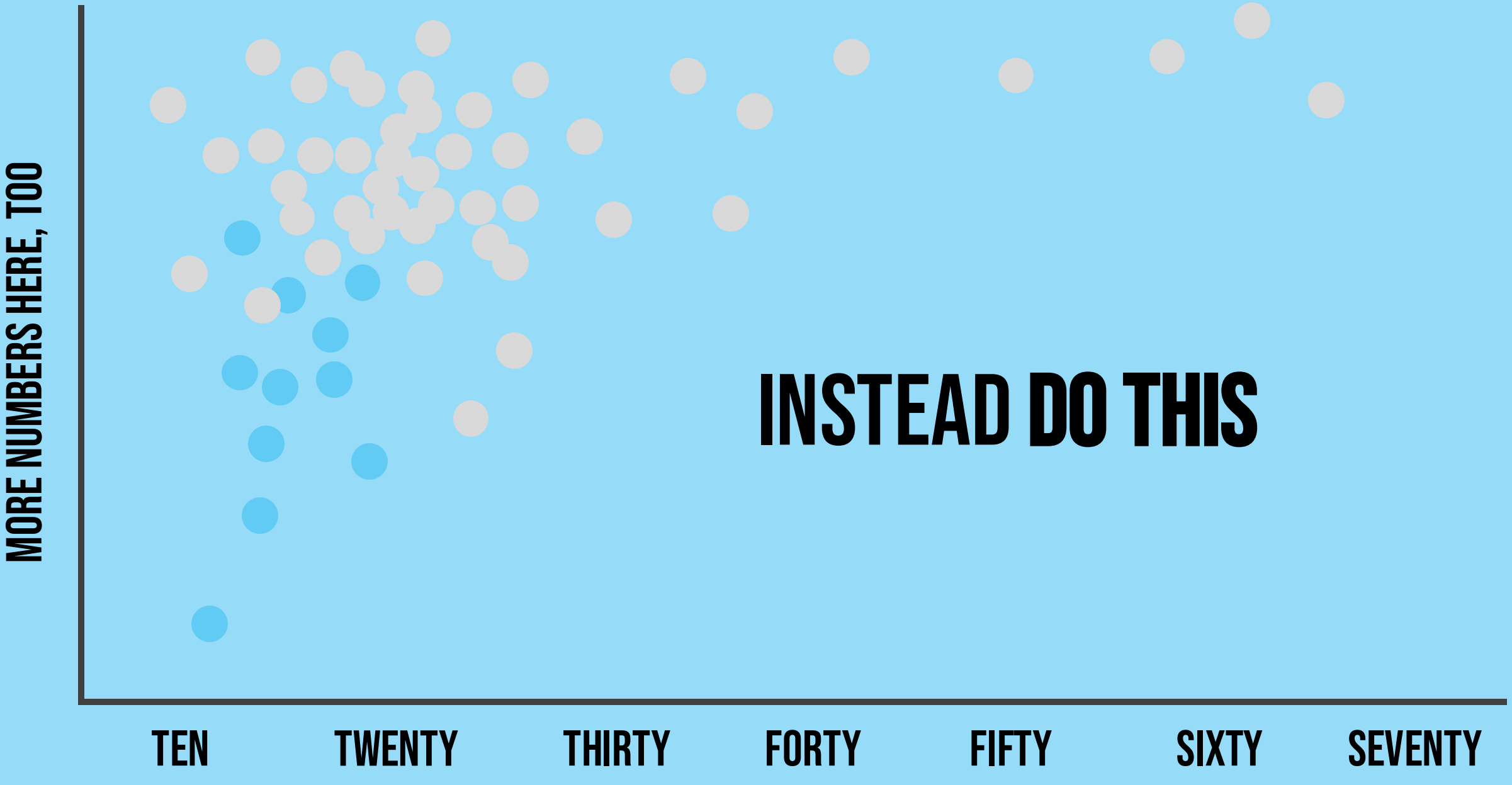

MORE NUMBERS HERE, TOO
TEN
TWENTY
THIRTY
FORTY
FIFTY
SIXTY
SEVENTY

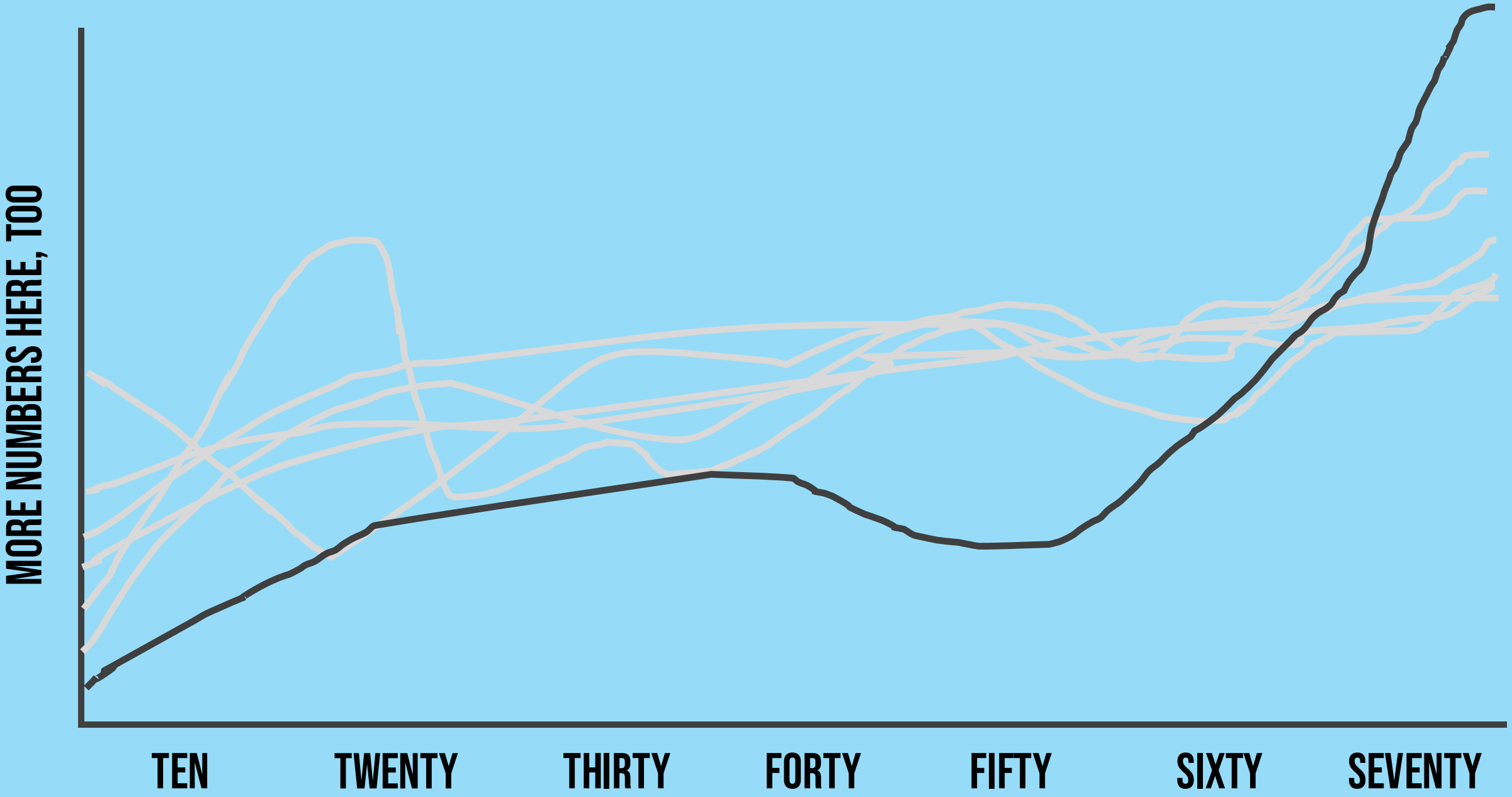

MORE NUMBERS HERE, TOO
SOMETHING
SOMETHING
TEN
TWENTY
THIRTY
FORTY
FIFTY
SIXTY
SEVENTY


MORE NUMBERS HERE, TOO
"BACKGROUND"
DATA WITH GREY
TEN
TWENTY
THIRTY
FORTY
FIFTY
SIXTY
SEVENTY


MORE NUMBERS HERE, TOO
VISUALLY GROUP
SIMILAR DATA POINTS
TEN
TWENTY
THIRTY
FORTY
FIFTY
SIXTY
SEVENTY

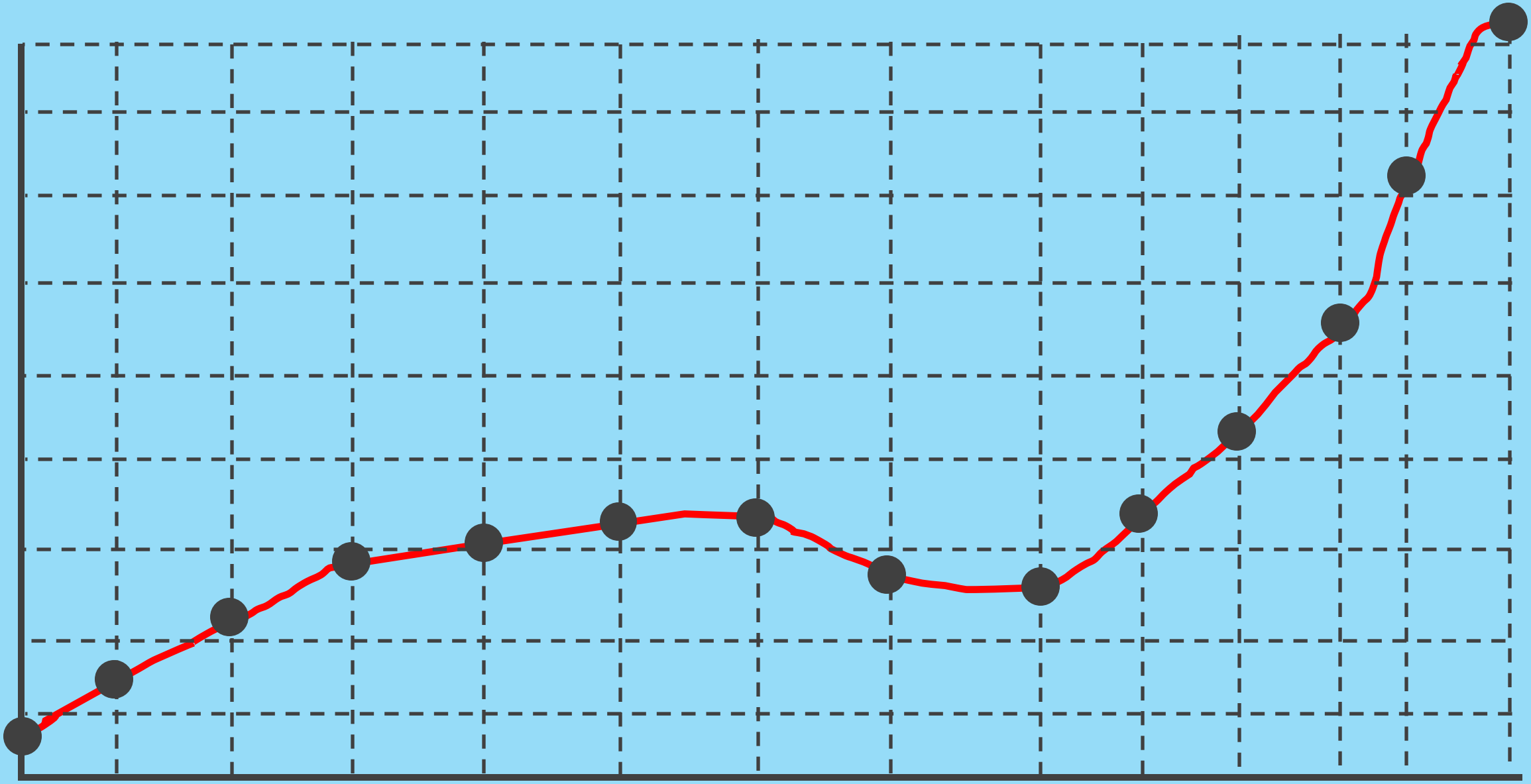

MORE NUMBERS HERE, TOO
DON'T DO THIS
TEN
TWENTY
THIRTY
FORTY
FIFTY
SIXTY
SEVENTY

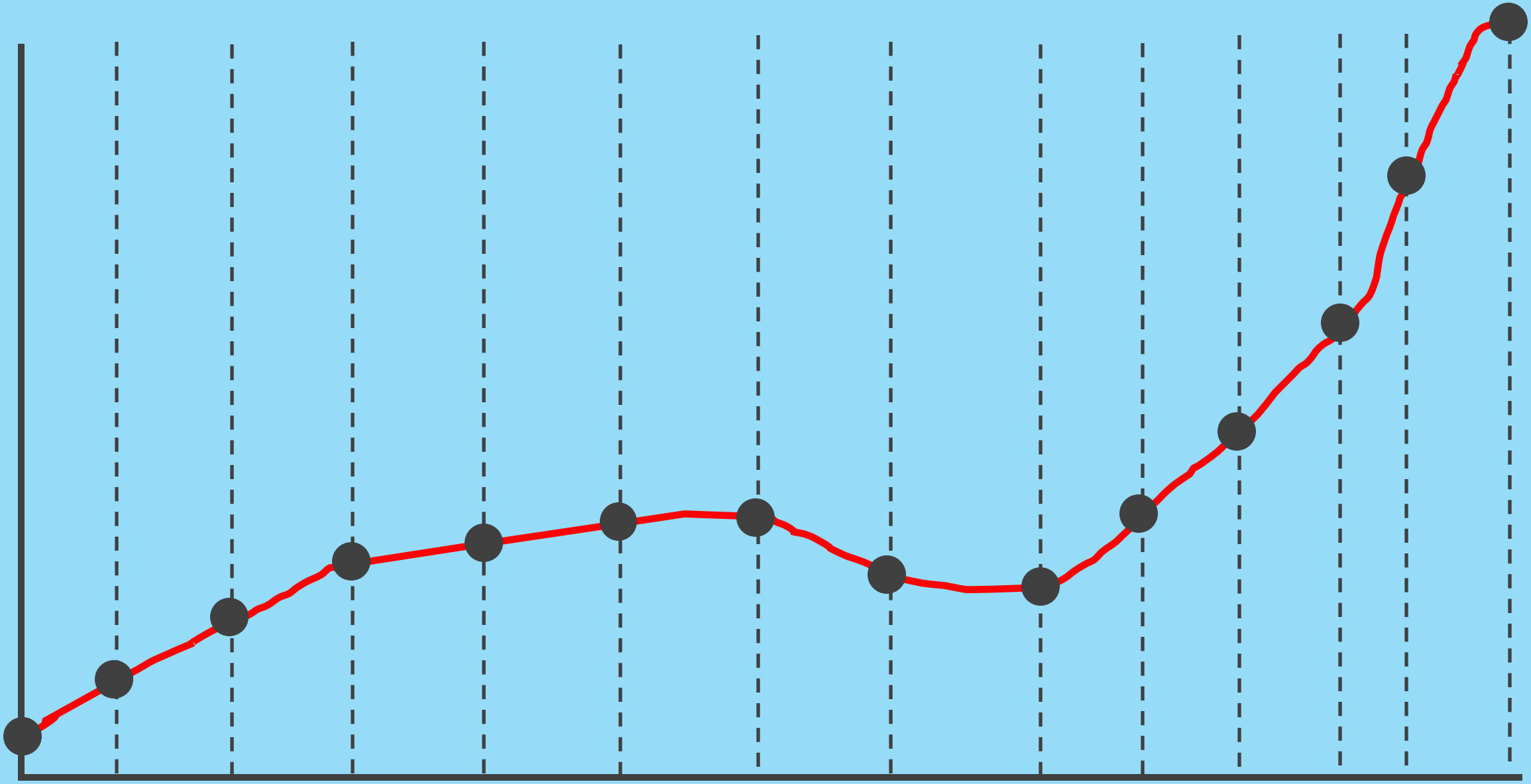

MORE NUMBERS HERE, TOO
INSTEAD DO THIS
TEN
TWENTY
THIRTY
FORTY
FIFTY
SIXTY
SEVENTY


MORE NUMBERS HERE, TOO
TEN
TWENTY
THIRTY
FORTY
FIFTY
SIXTY
SEVENTY

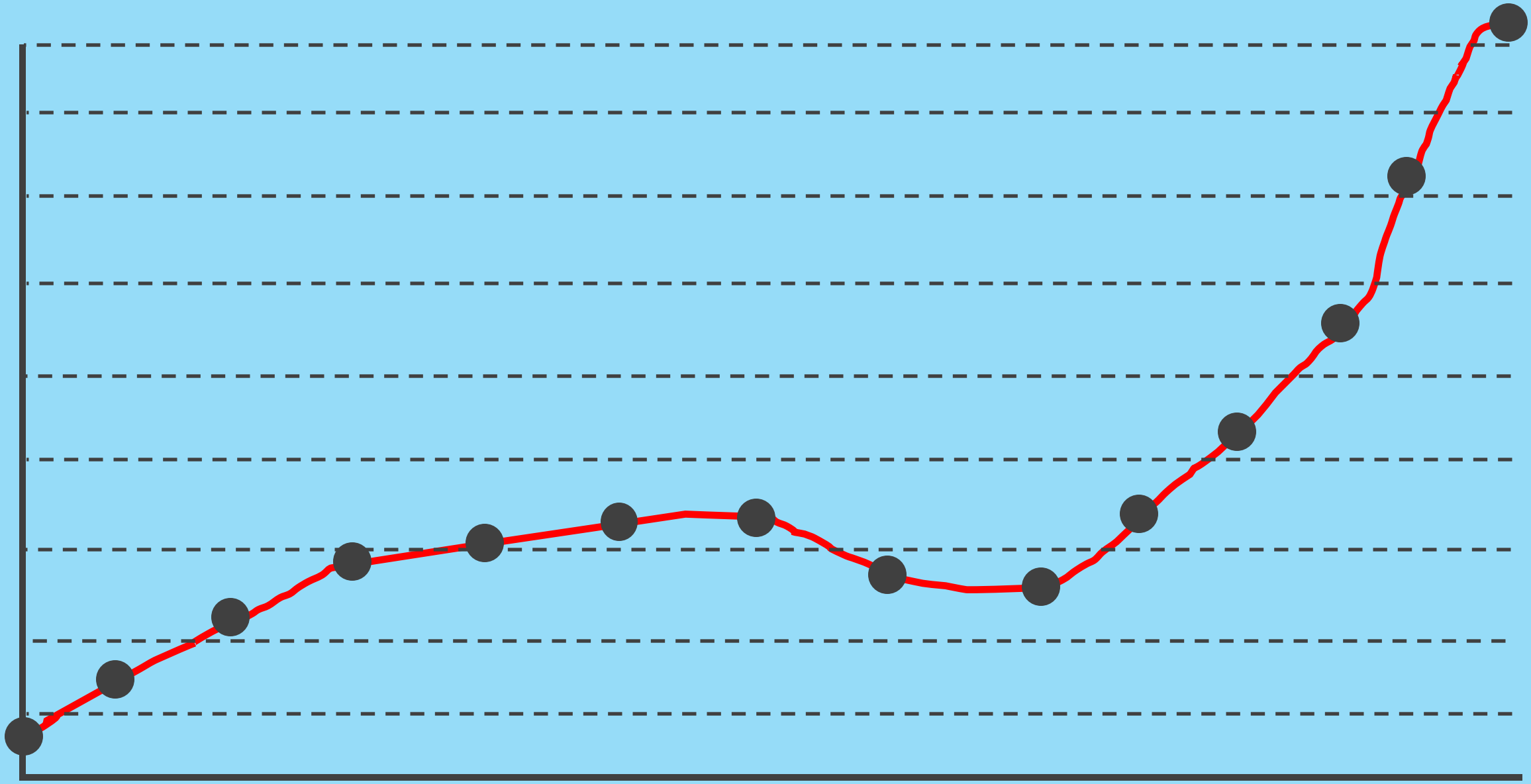
KEEPING YOUR LINES IN LINE

...SHOW YOUR USER ONLY WHAT THEY NEED TO KNOW.

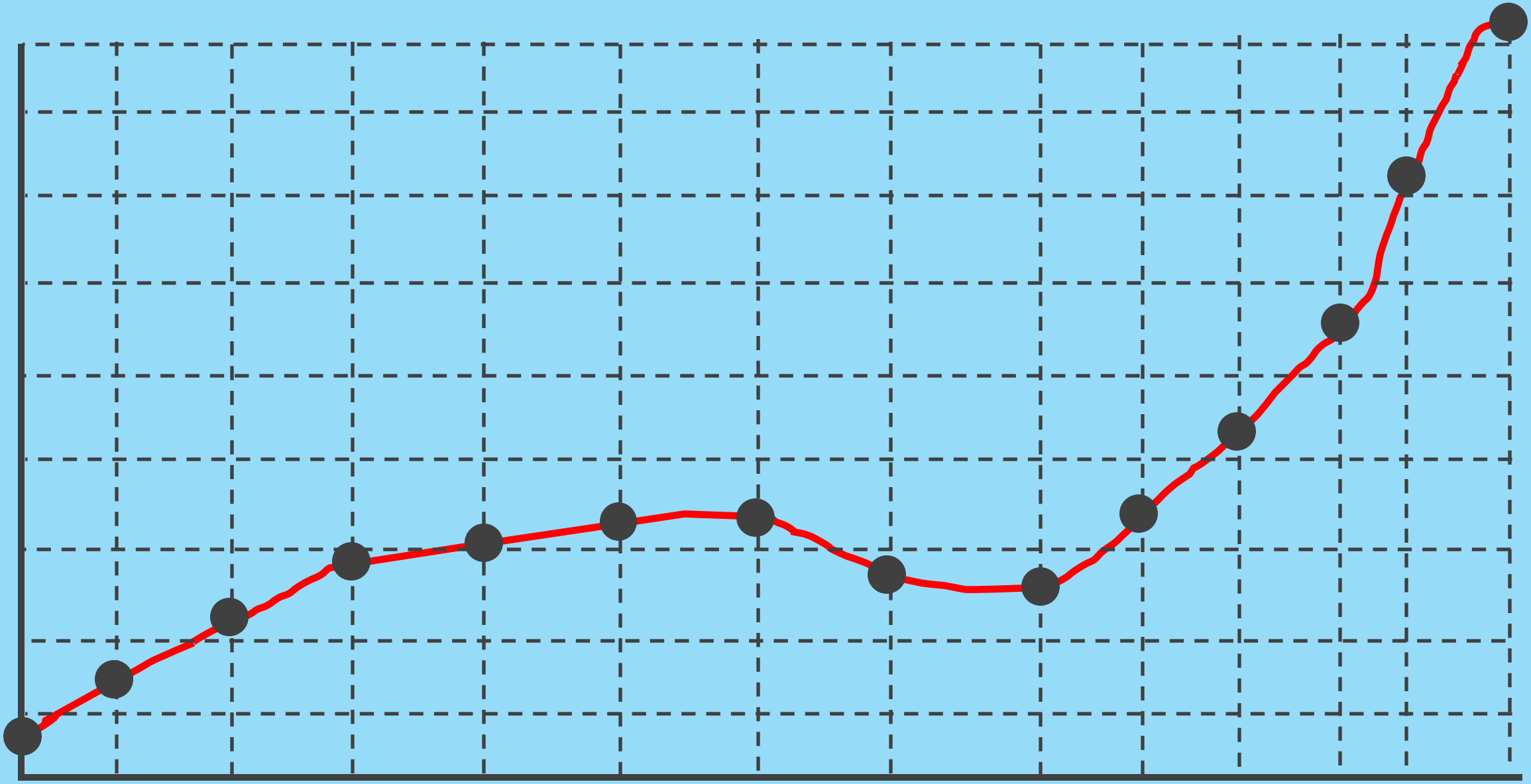




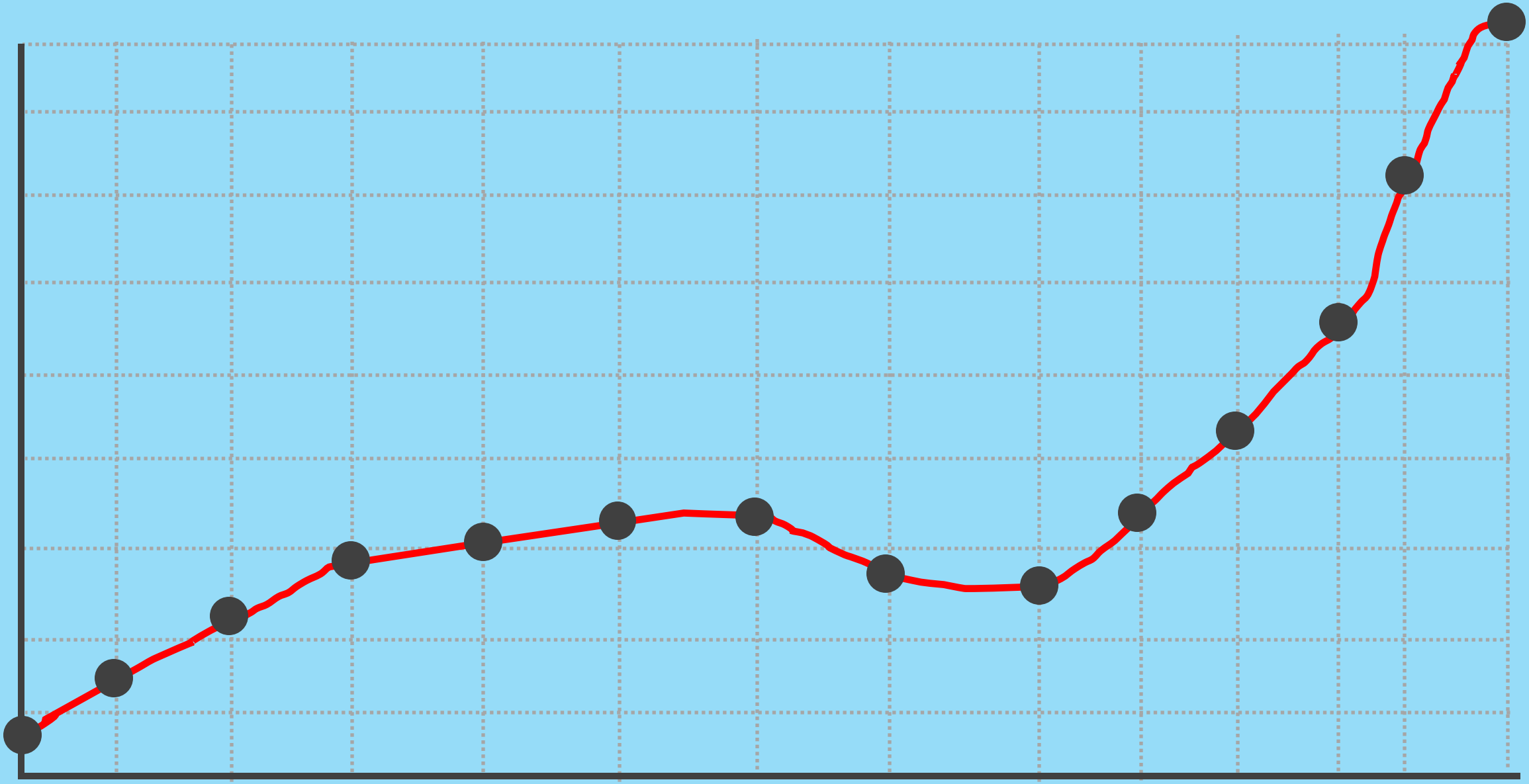
DO YOU NEED TO KNOW **EXACTLY WHERE EACH POINT IS?**



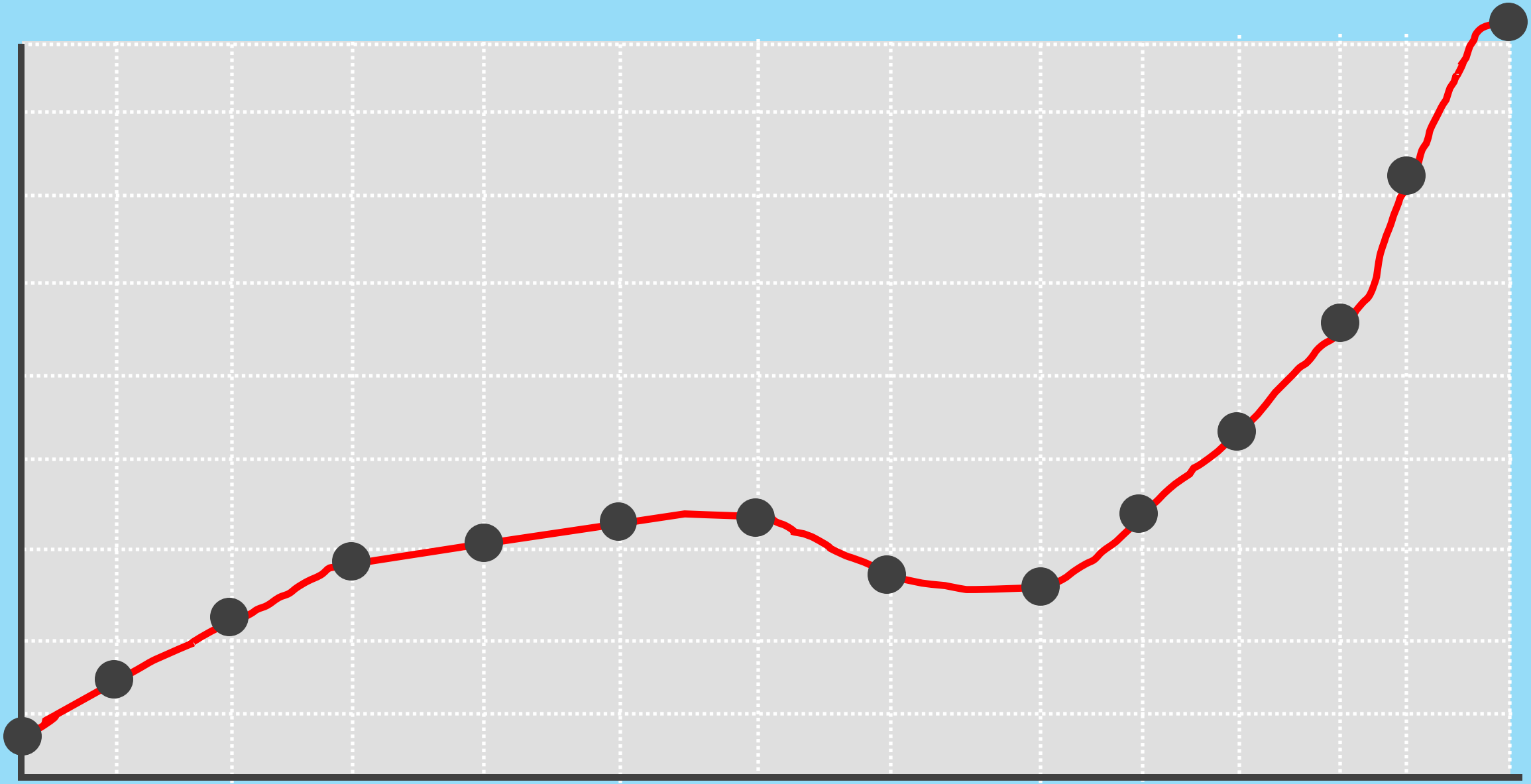
DO YOU NEED TO KNOW **EXACTLY WHAT EACH VALUE IS?**



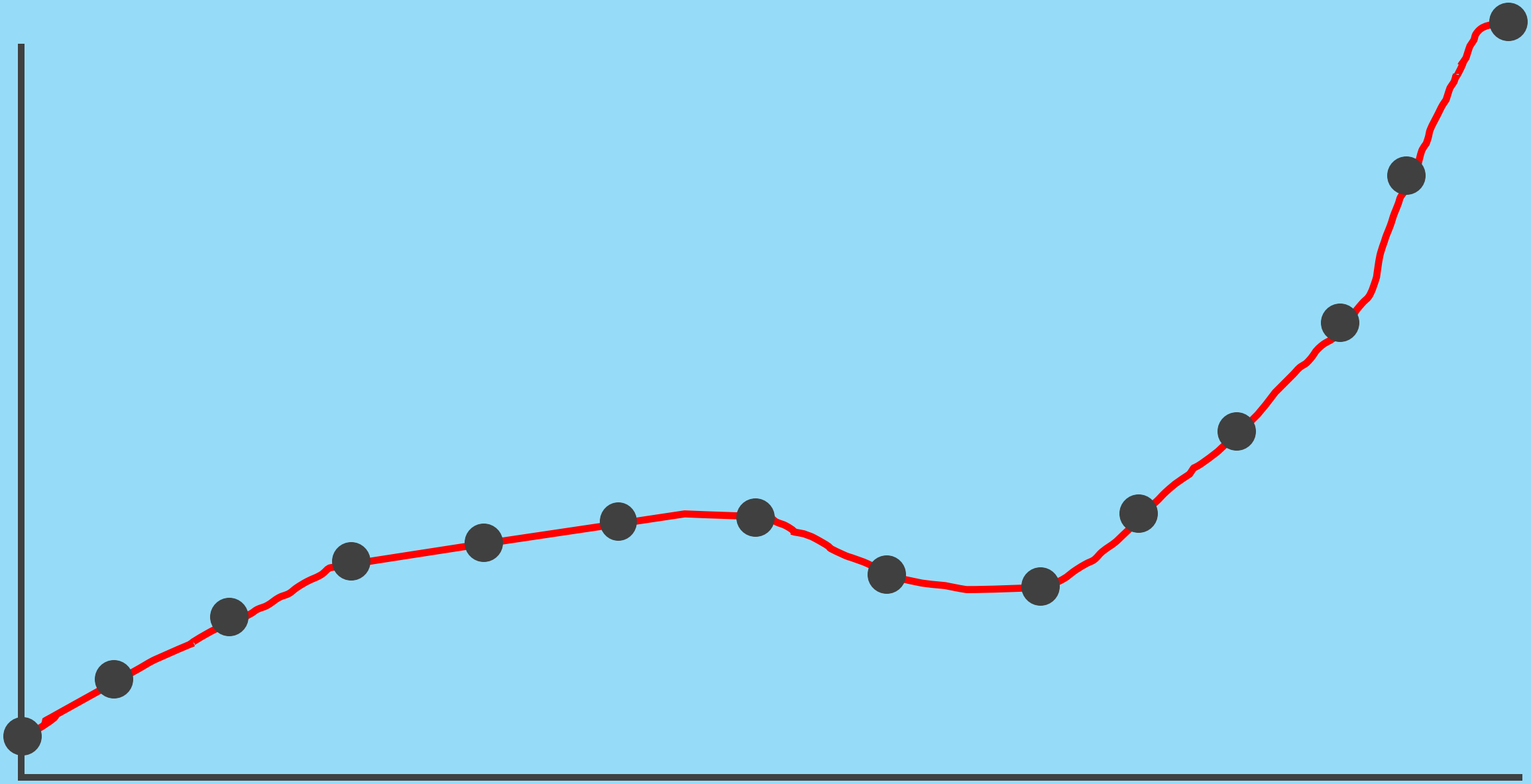
DO YOU NEED TO KNOW EVERYTHING?

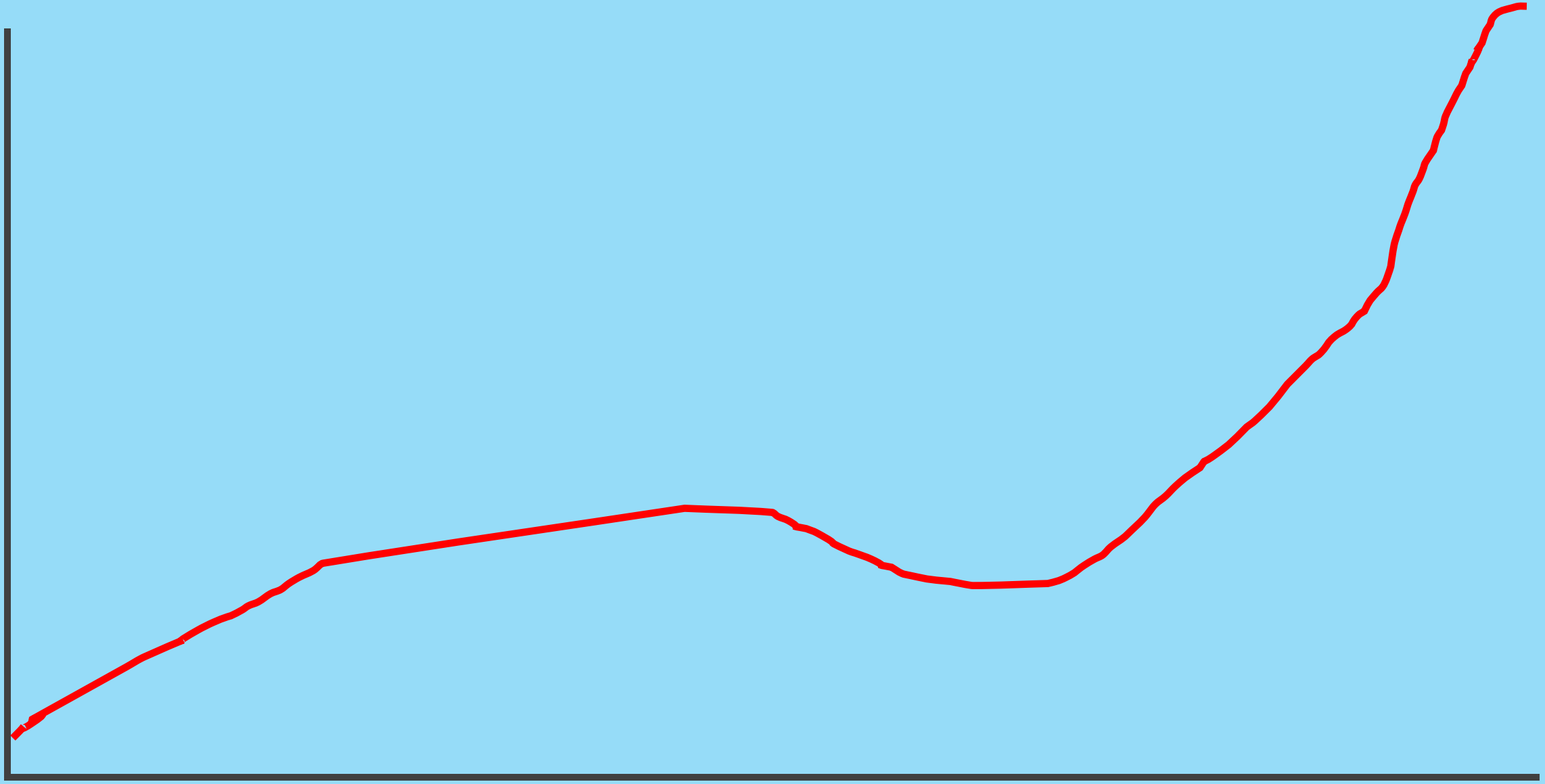


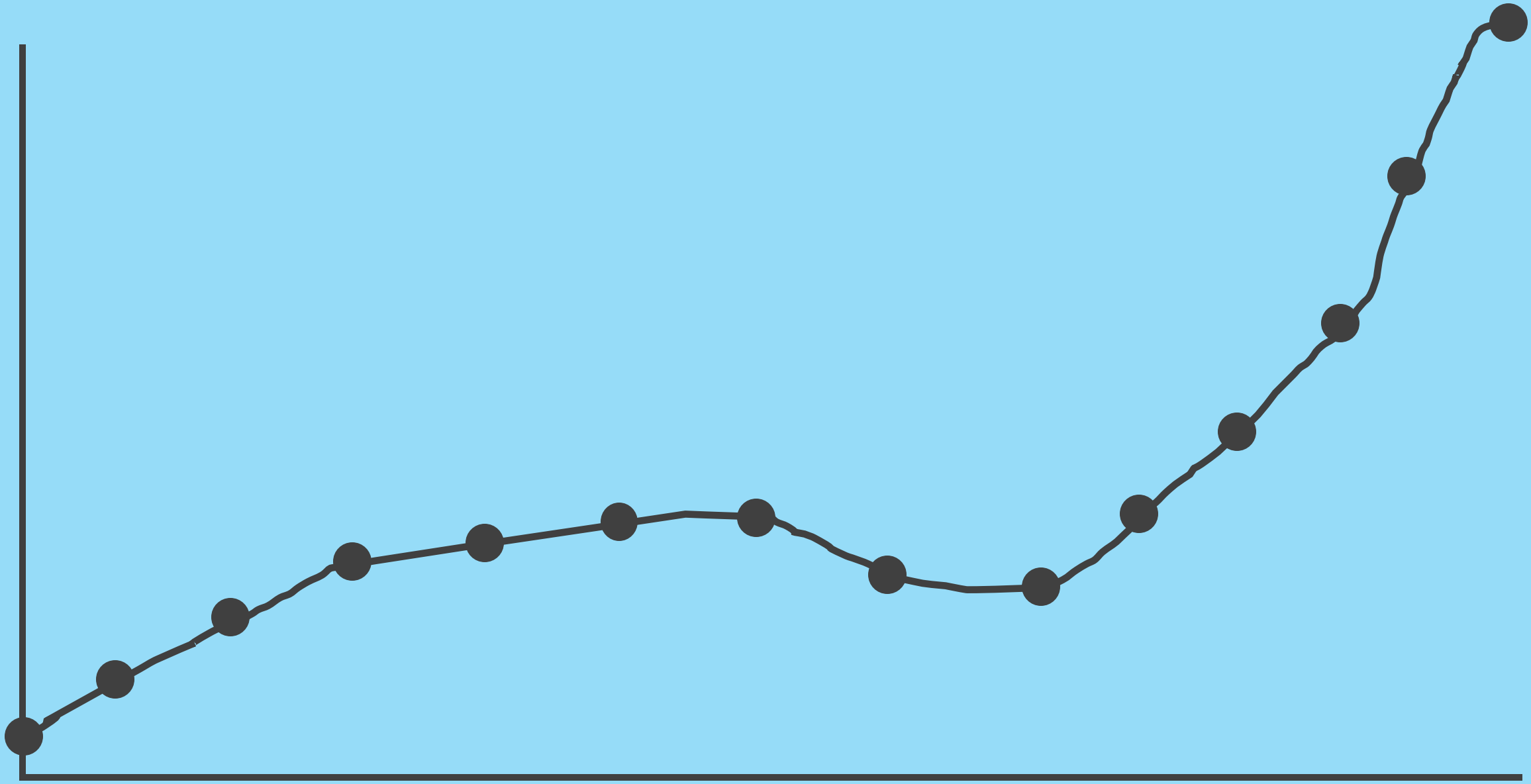
HIDE YOUR GUIDE LINES TO SIMPLIFY



ALTERNATIVE: WHITE OVER GREY

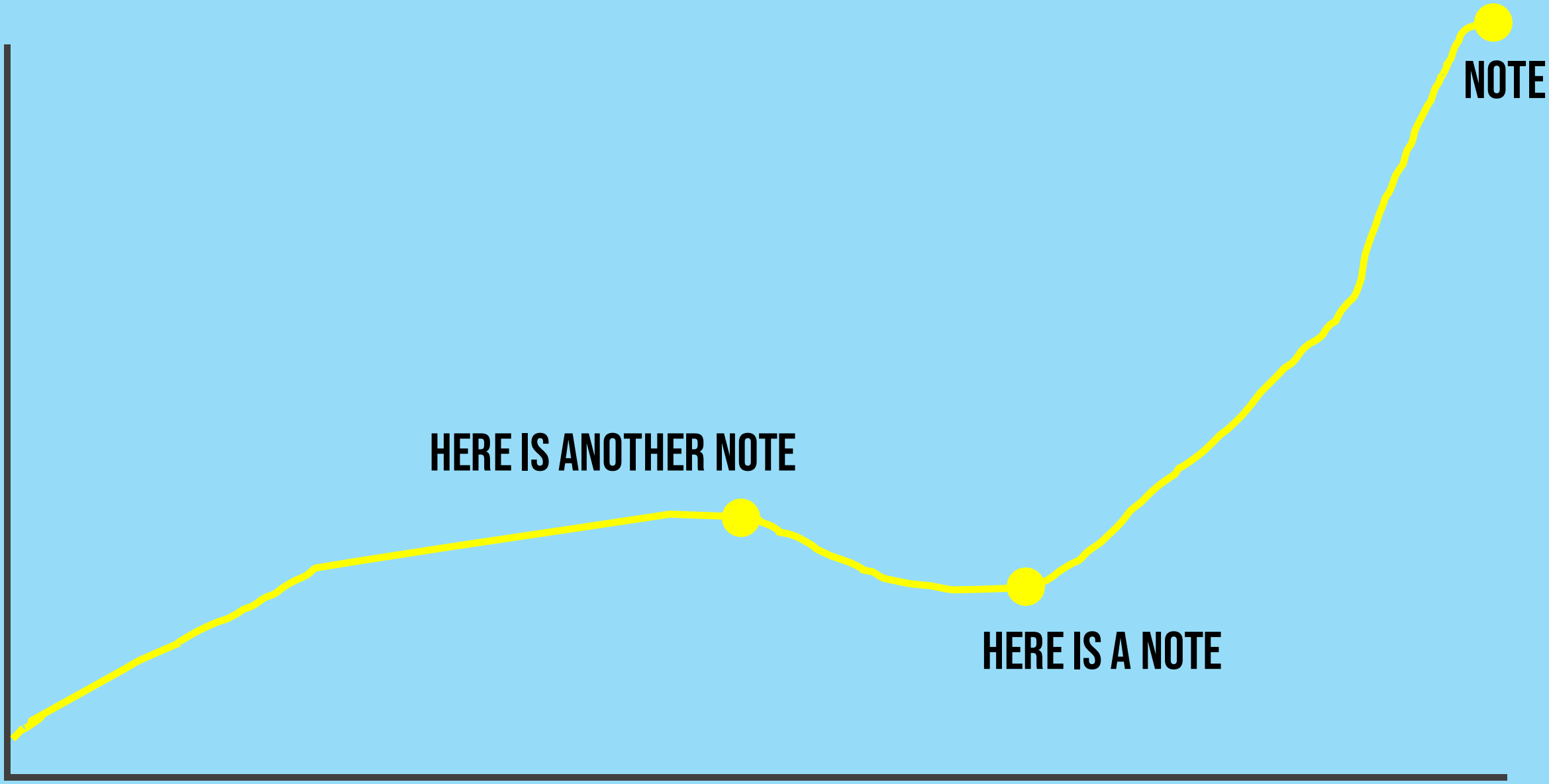




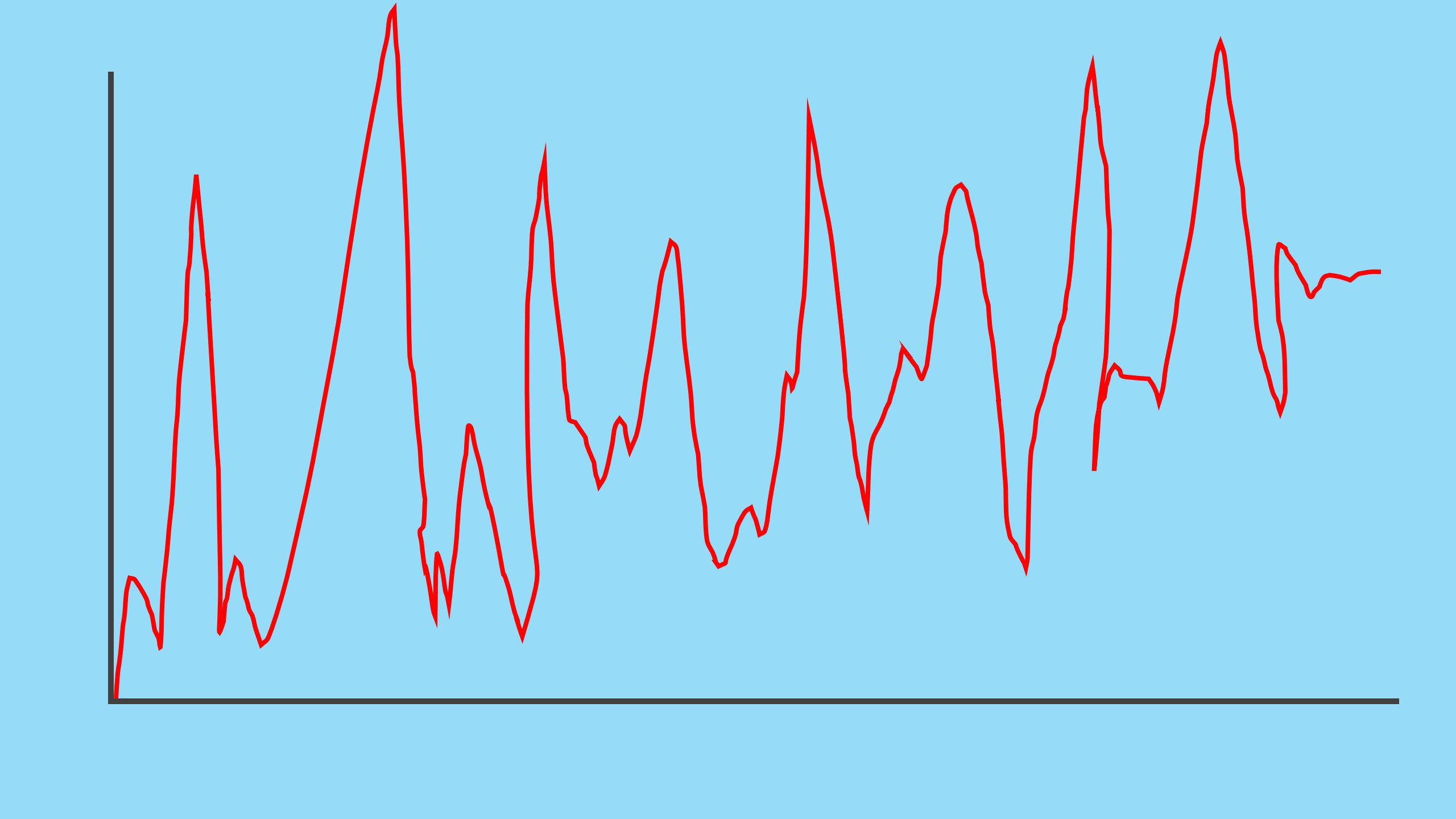


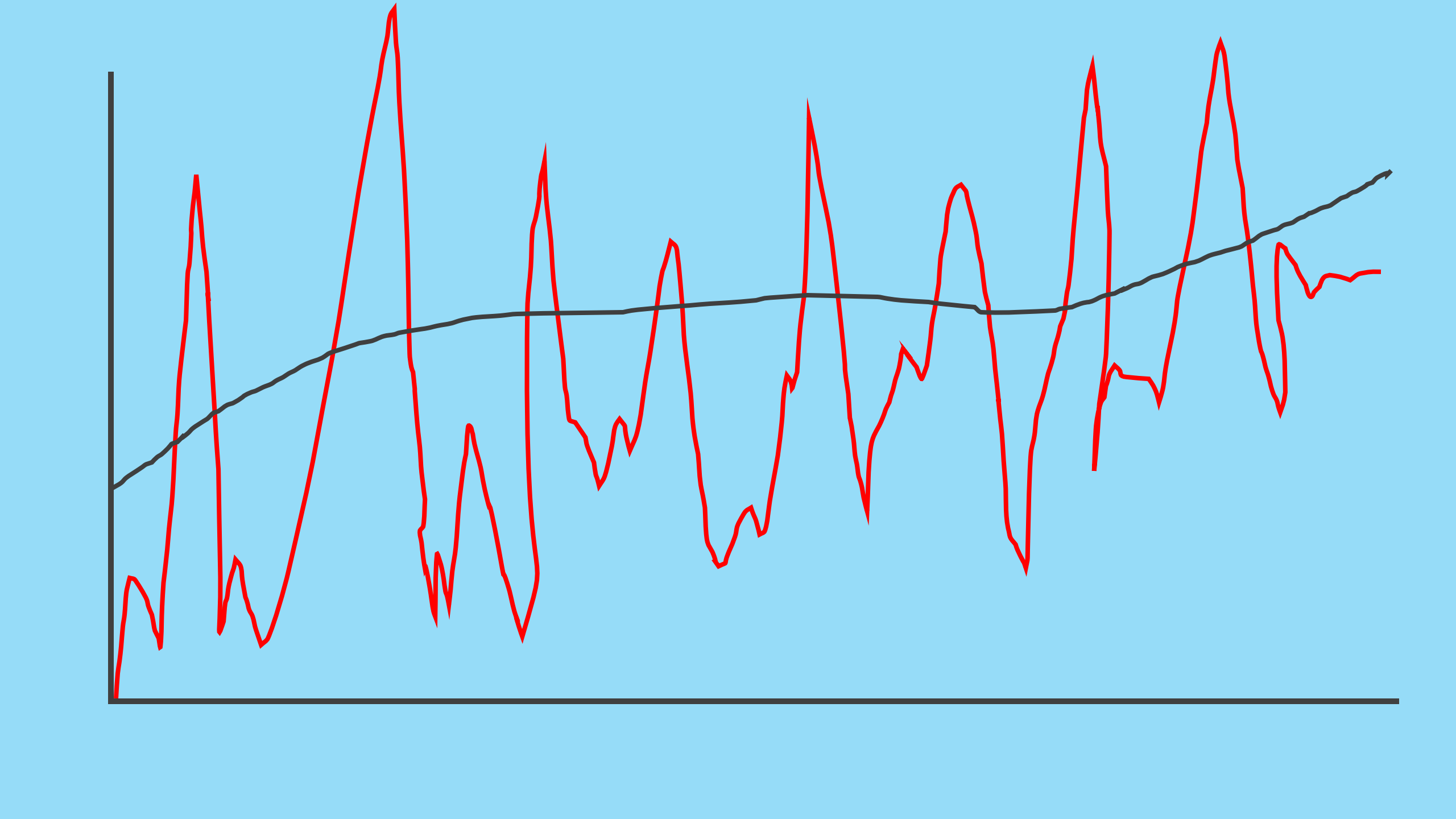
MATCH YOUR LINES AND YOUR DOTS

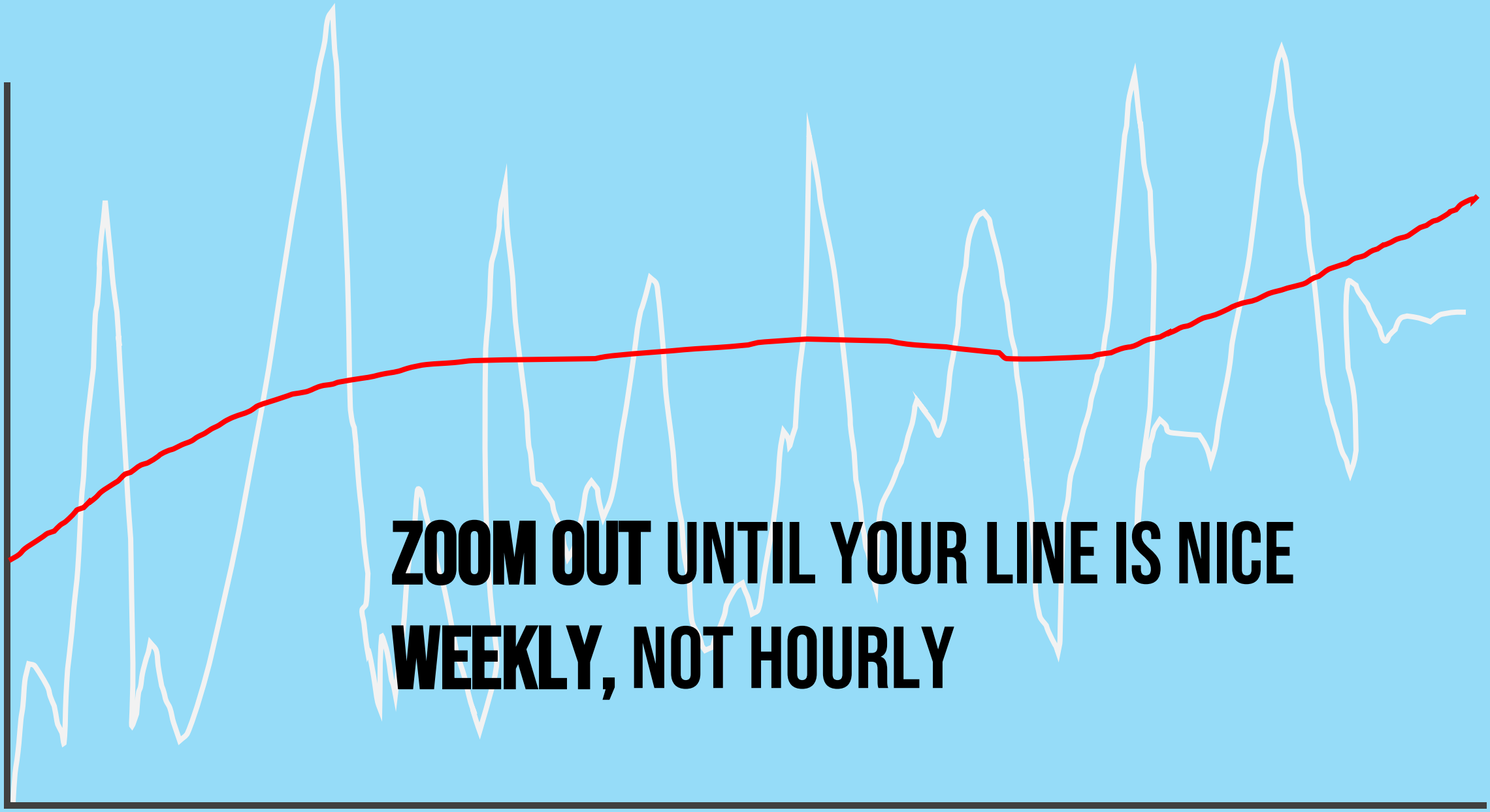
MATCH YOUR LINES AND YOUR DOTS

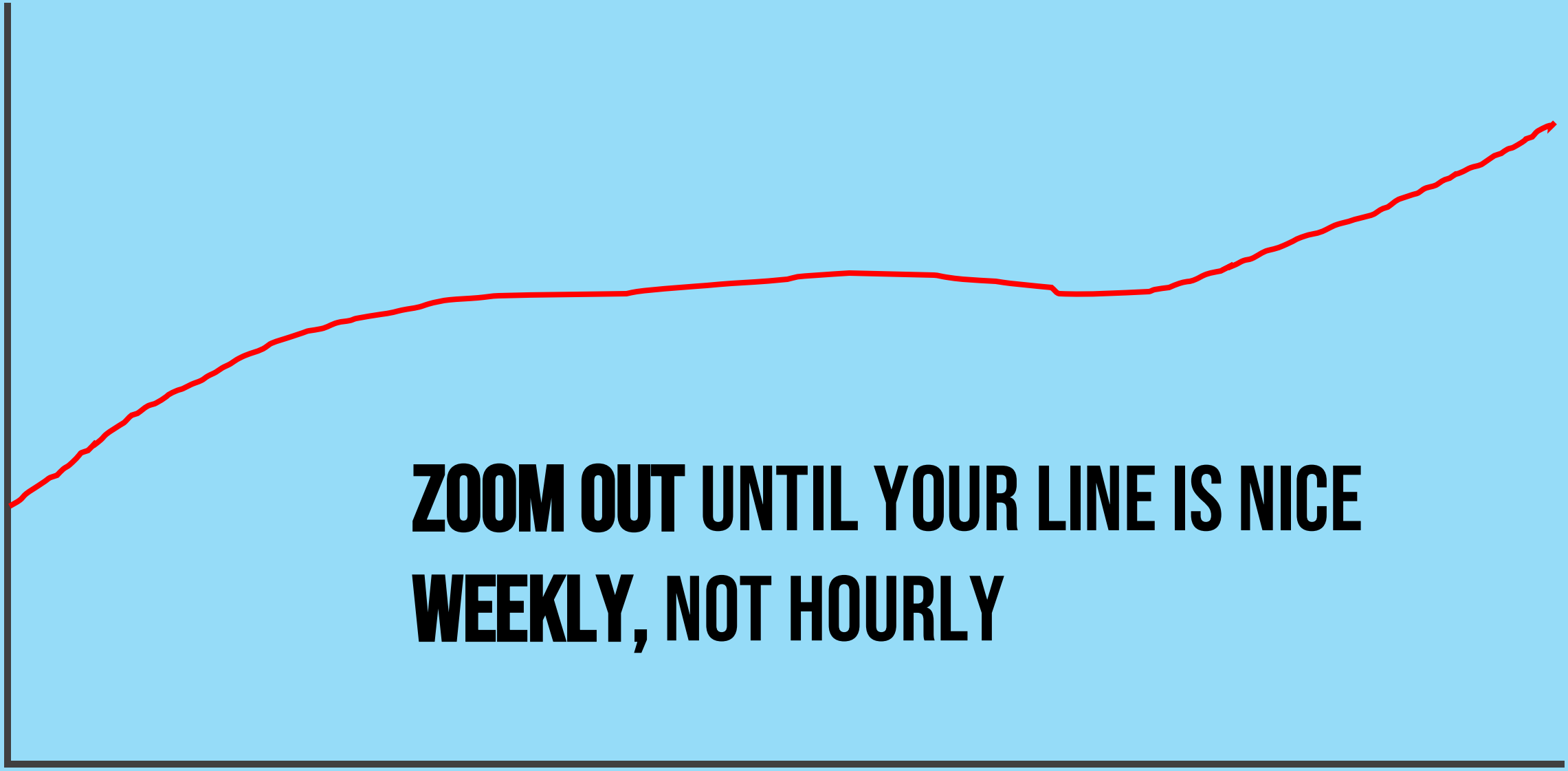


MATCH YOUR LINES AND YOUR DOTS



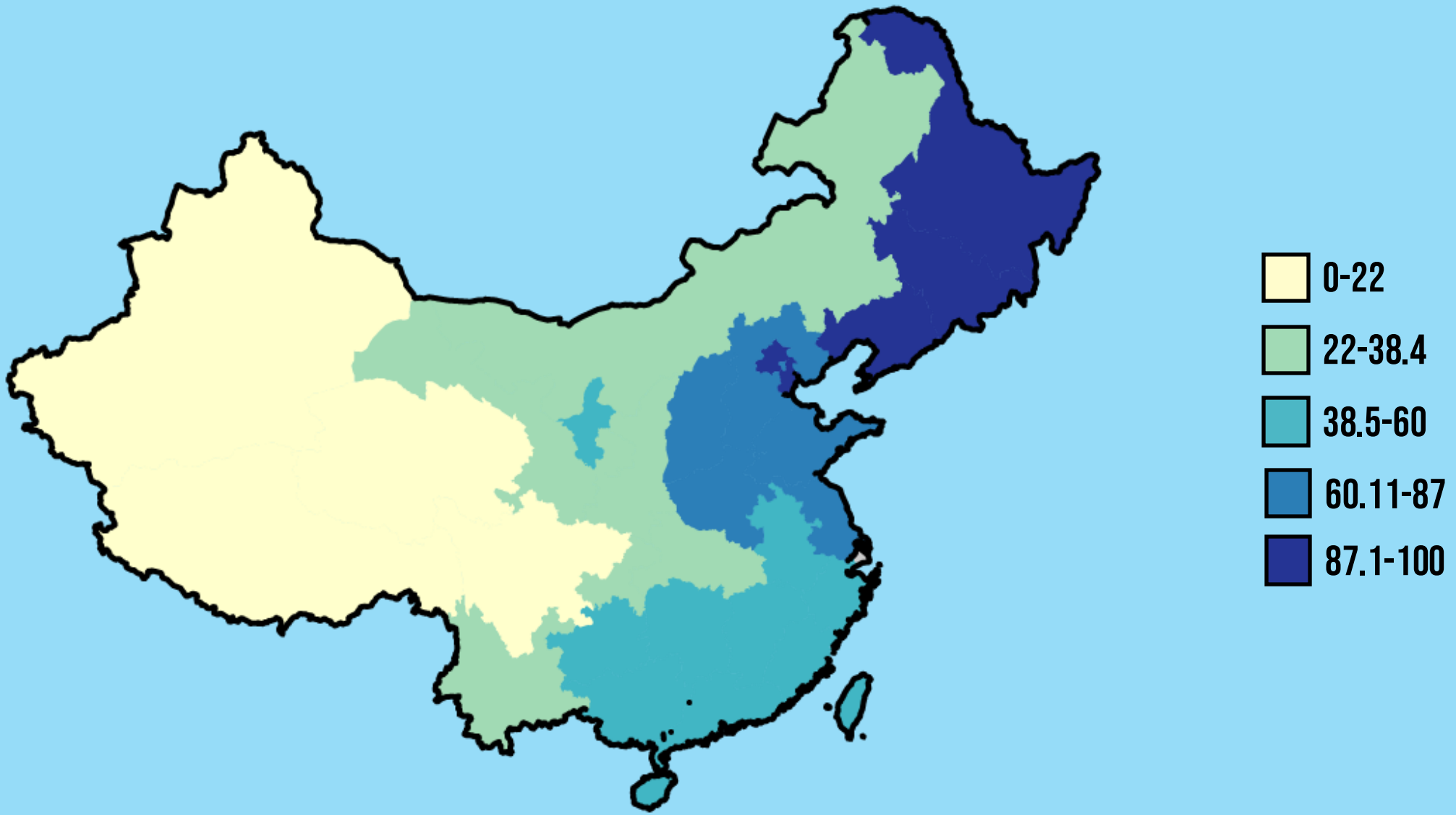


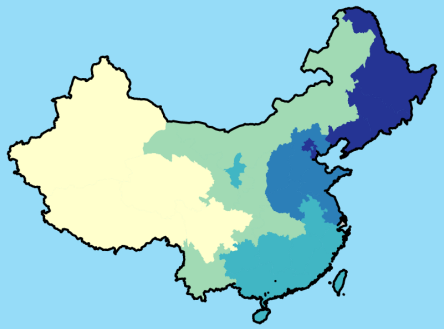

ZOOM OUT UNTIL YOUR LINE IS NICE
WEEKLY, NOT HOURLY


ZOOM OUT UNTIL YOUR LINE IS NICE
WEEKLY, NOT HOURLY

BEAUTIFUL LEGENDS

...SIMPLIFY, SIMPLIFY, SIMPLIFY


0-22
22-38.4
38.5-60
60.11-87
87.1-100



0-22

22-38.4

38.5-60

60.11-87

87.1-100

ROUND OFF TO "REAL" NUMBERS

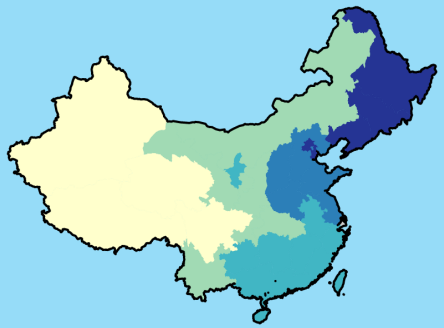
0-20

21-40

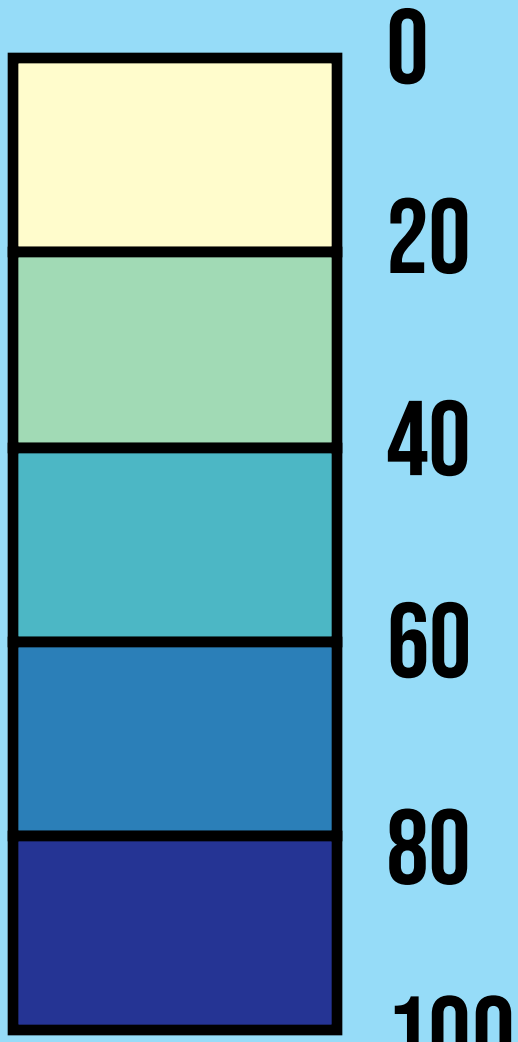
41-60

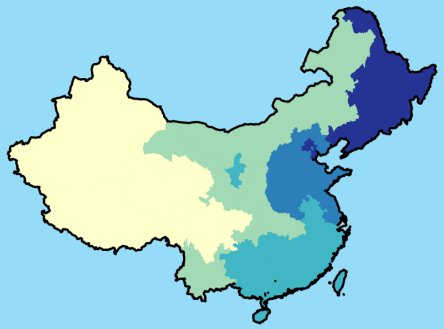
61-80

81-100

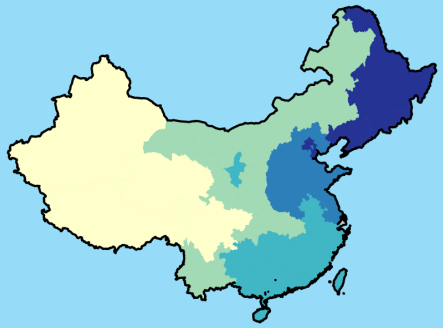


MARK BOUNDS, NOT RANGES

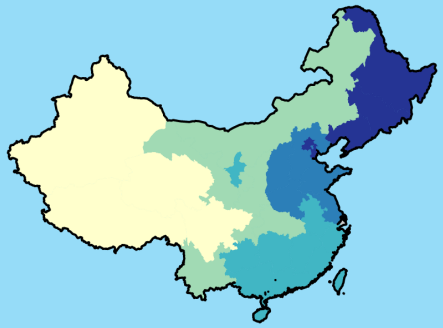




NUMERIC SCALES GO HORIZONTAL



TOO MANY OUTLINES ARE UGLY



DO YOU NEED EVERY NUMBER?

20 40 60 80

0 100

DO YOU NEED EVERY COLOR?

20 40 60 80

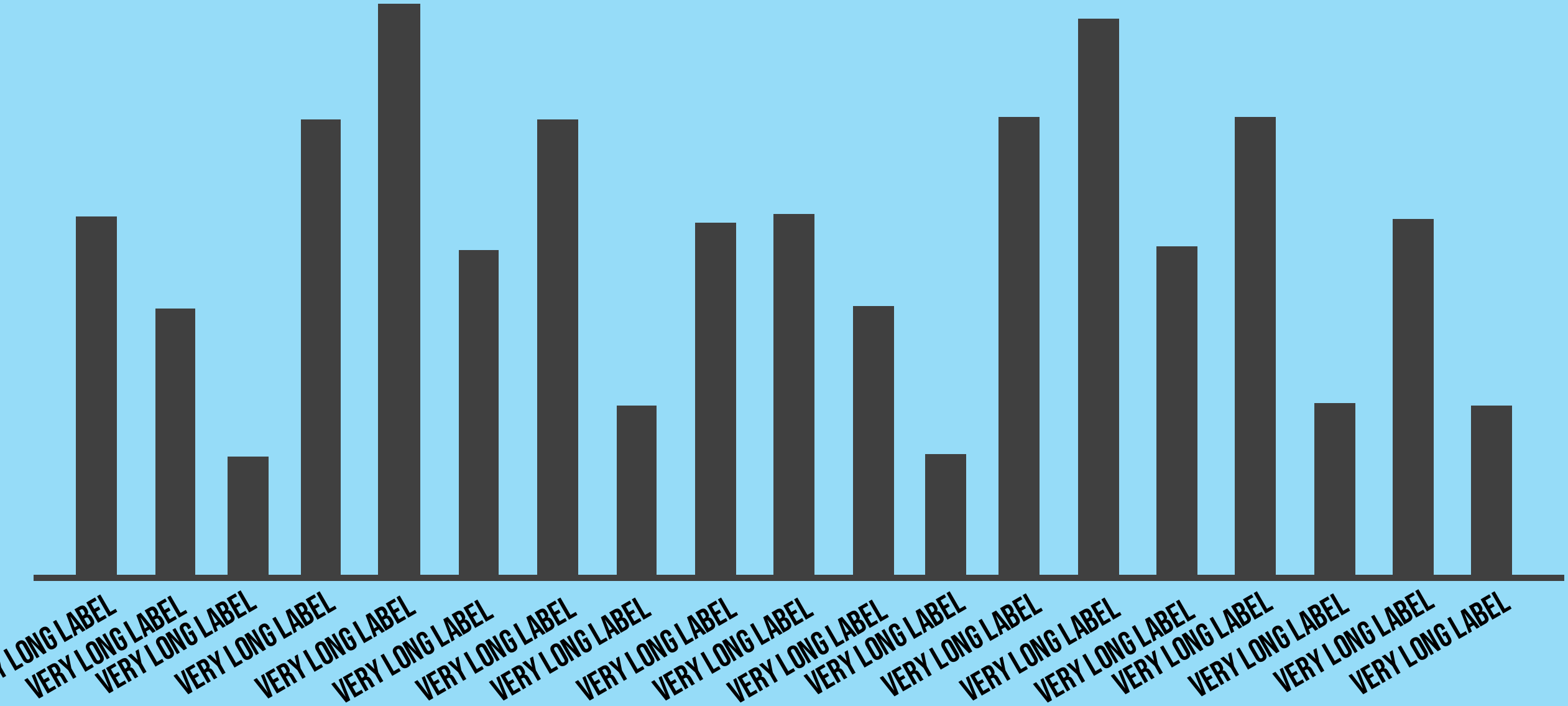
0 100

(THESE ARE UGLY, I HATE THEM)

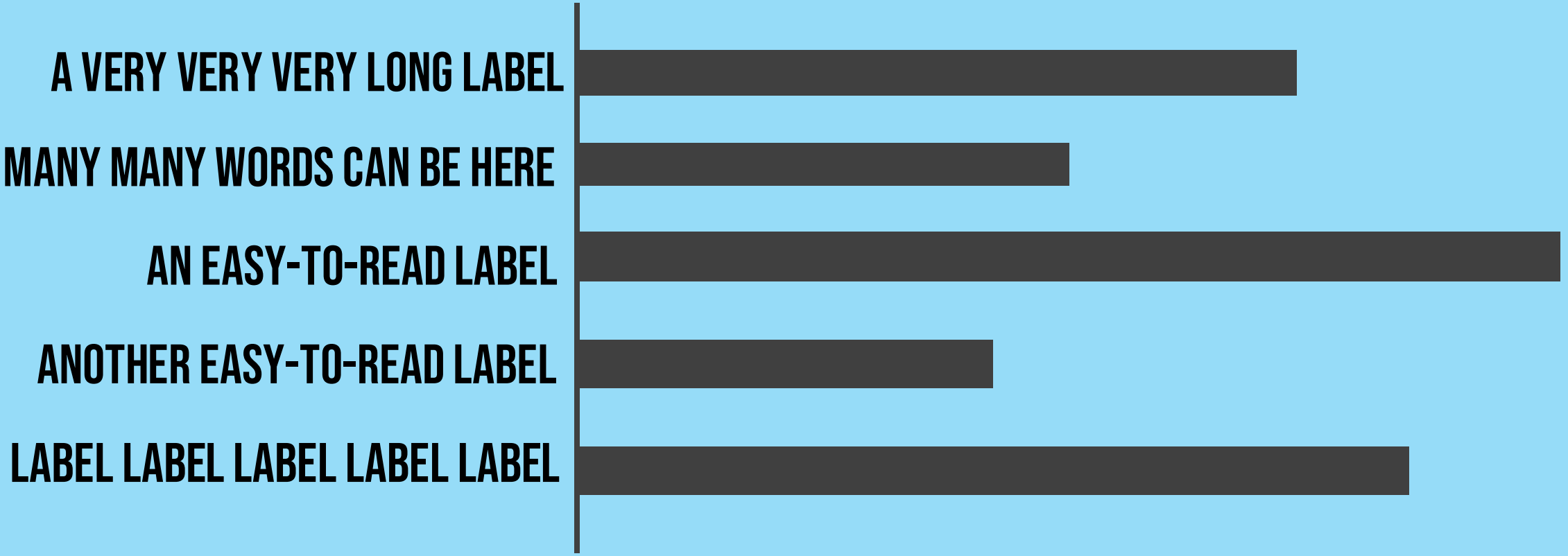
BAR AND COLUMN GRAPHS

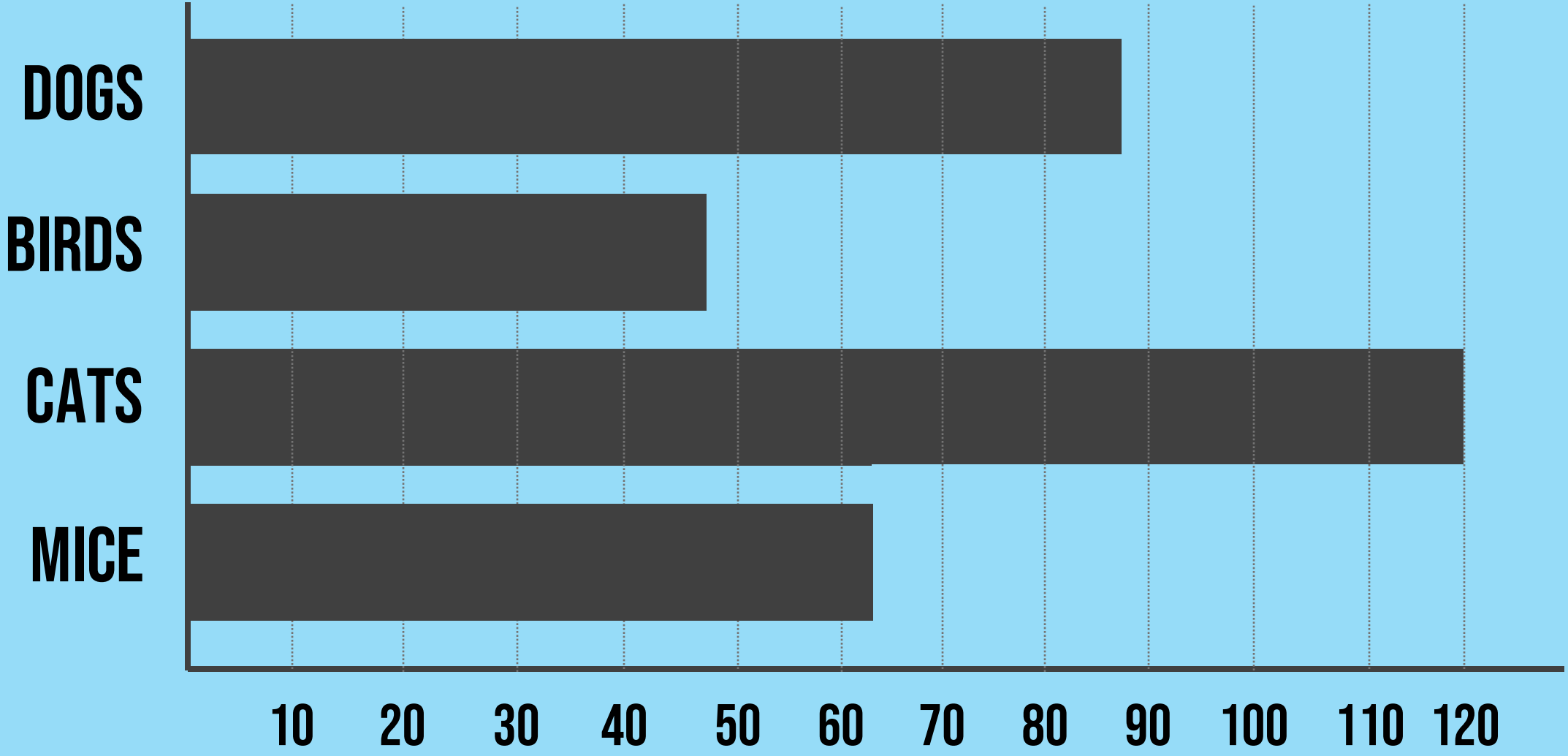
...ARE SIMPLE TO MAKE AND SIMPLE TO IMPROVE

LONG LABELS + VERTICAL COLUMNS = **CLUTTERED**

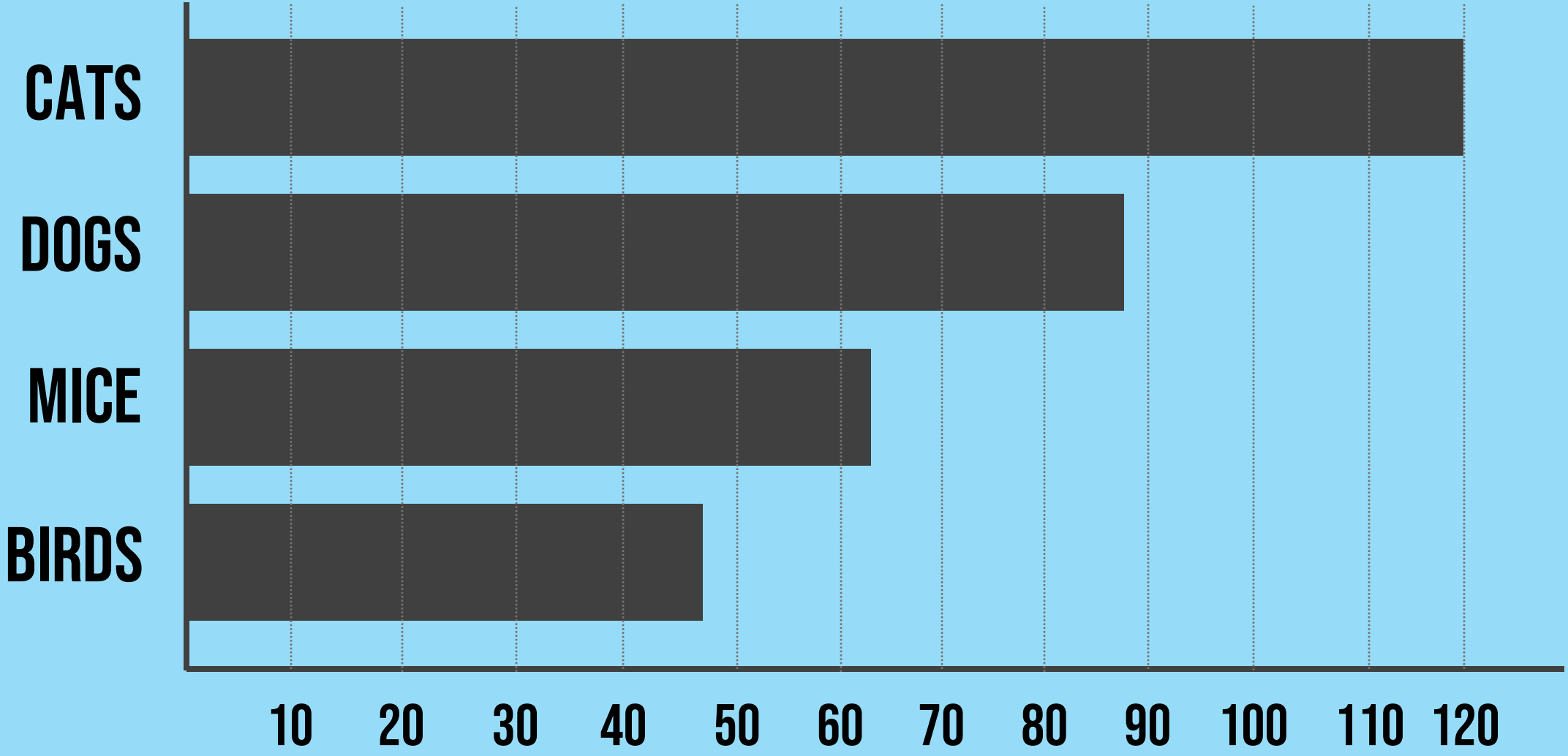


LONG LABELS GET HORIZONTAL BARS

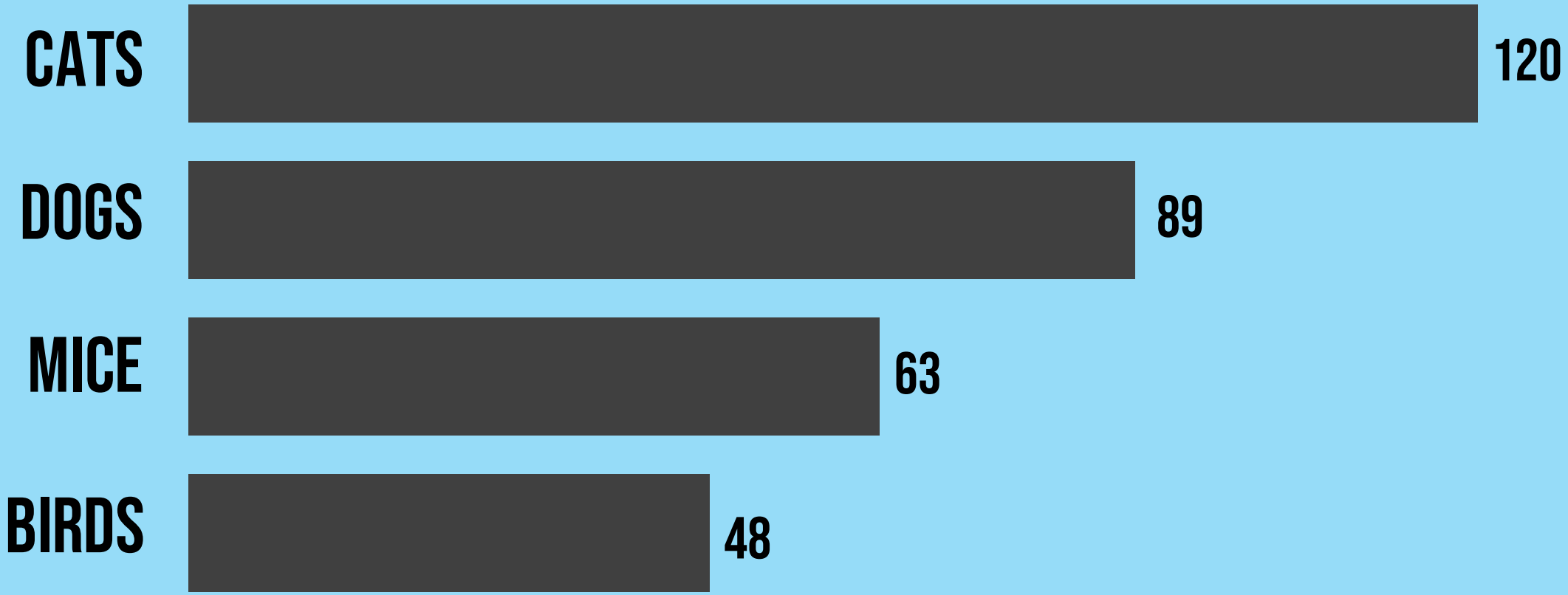



DOGS
BIRDS
CATS
MICE
10
20
30
40
50
60
70
80
90
100
110
120

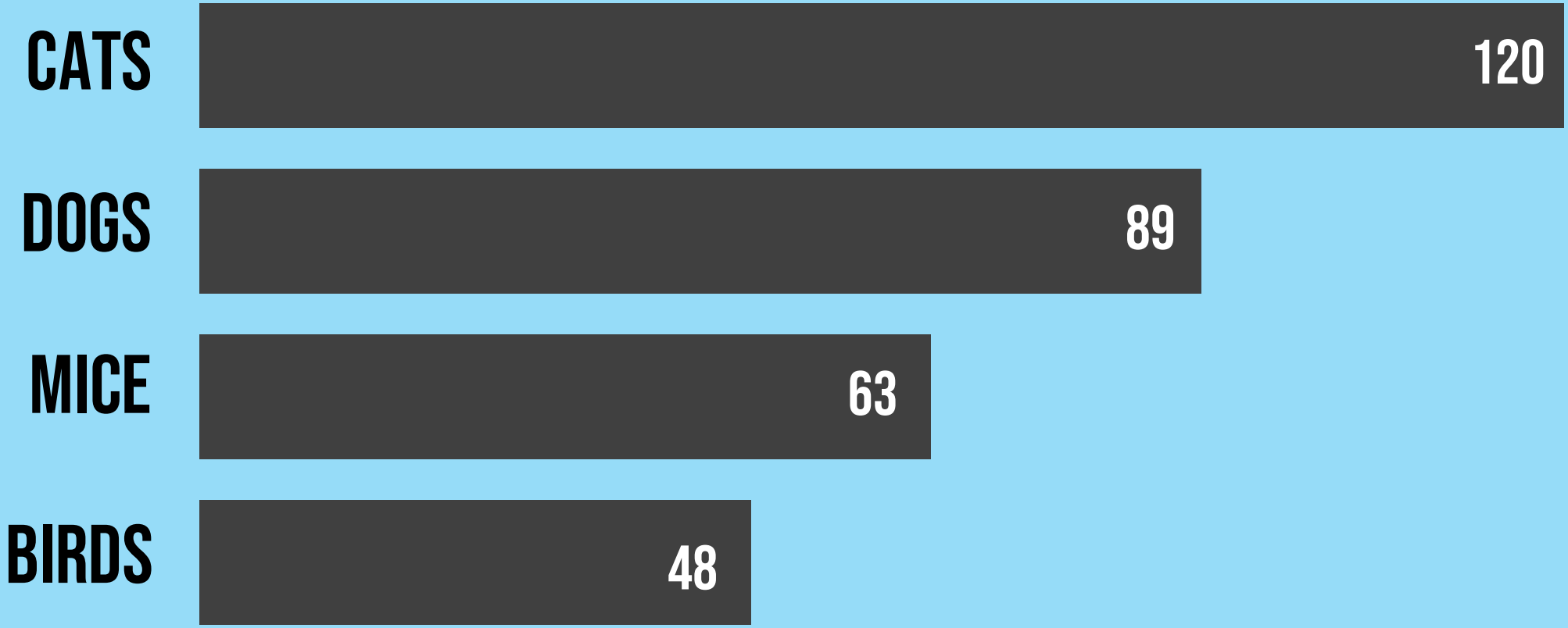
KEEP YOUR BARS IN ORDER

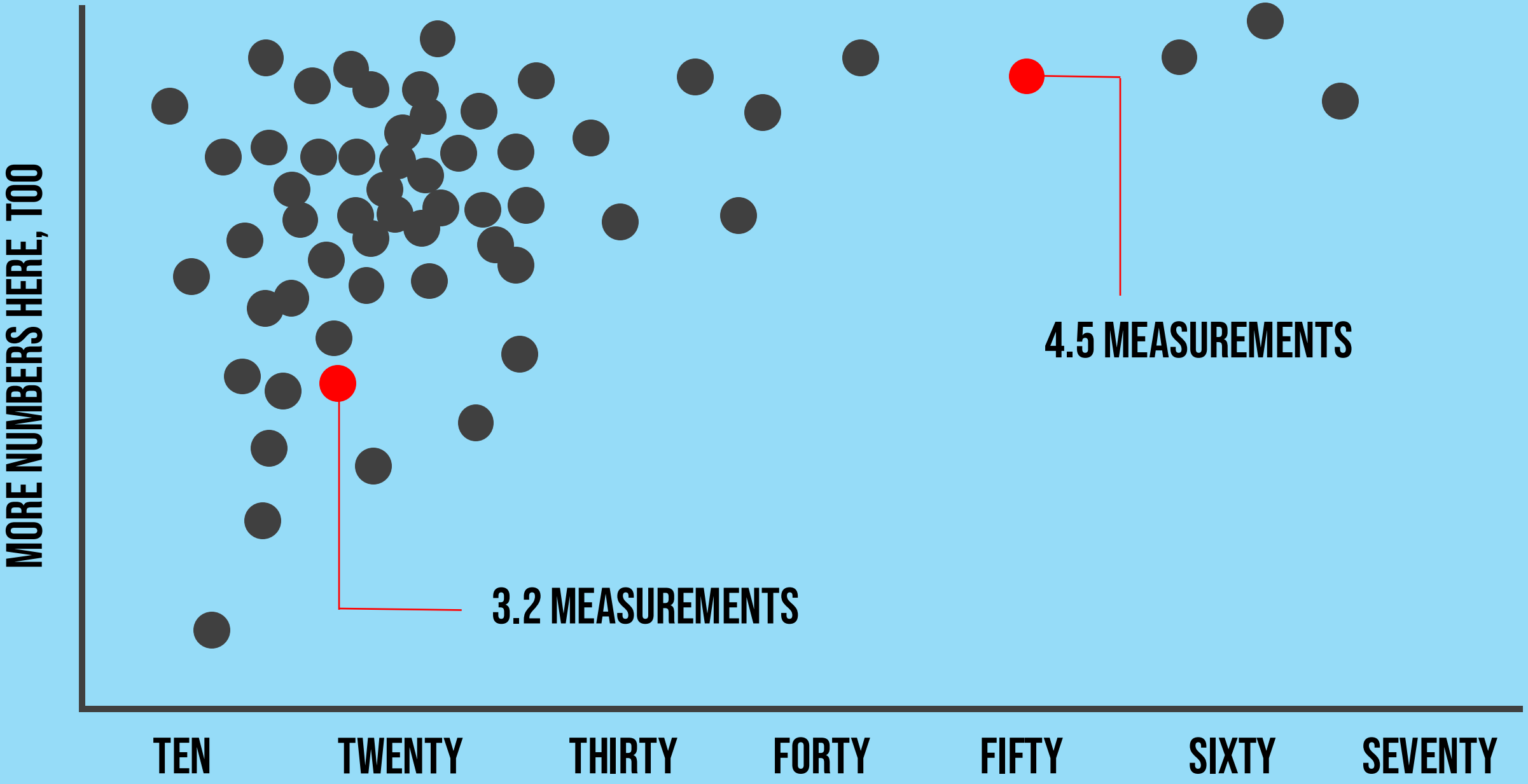


DIRECTLY LABEL IF YOU HAVE FEW DATA POINTS



YOU CAN GO **INSIDE**, TOO!

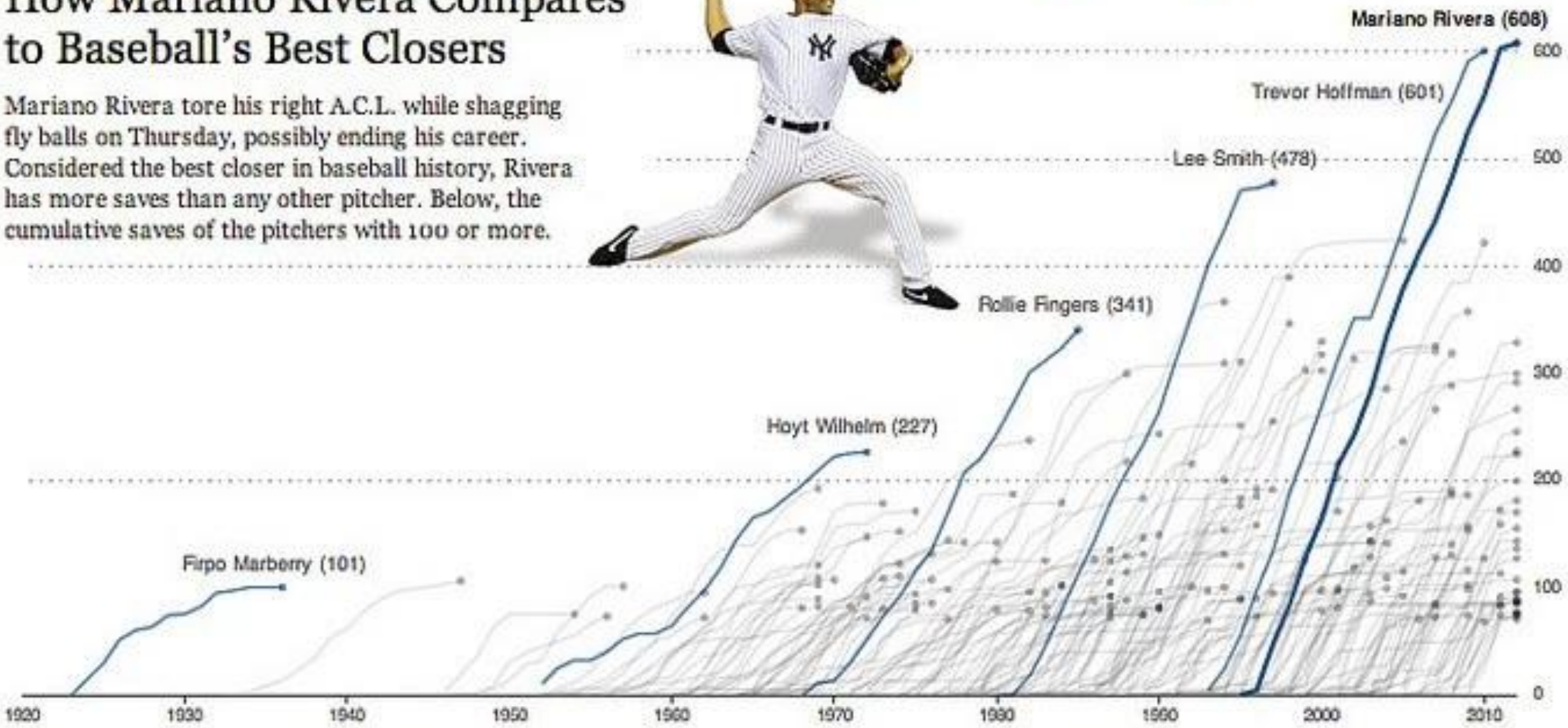



MORE NUMBERS HERE, TOO
4.5 MEASUREMENTS
3.2 MEASUREMENTS
TEN
TWENTY
THIRTY
FORTY
FIFTY
SIXTY
SEVENTY

Published: May 5, 2012

How Mariano Rivera Compares to Baseball's Best Closers

Mariano Rivera tore his right A.C.L. while shagging fly balls on Thursday, possibly ending his career. Considered the best closer in baseball history, Rivera has more saves than any other pitcher. Below, the cumulative saves of the pitchers with 100 or more.



The closers who broke new hundred-save milestones:

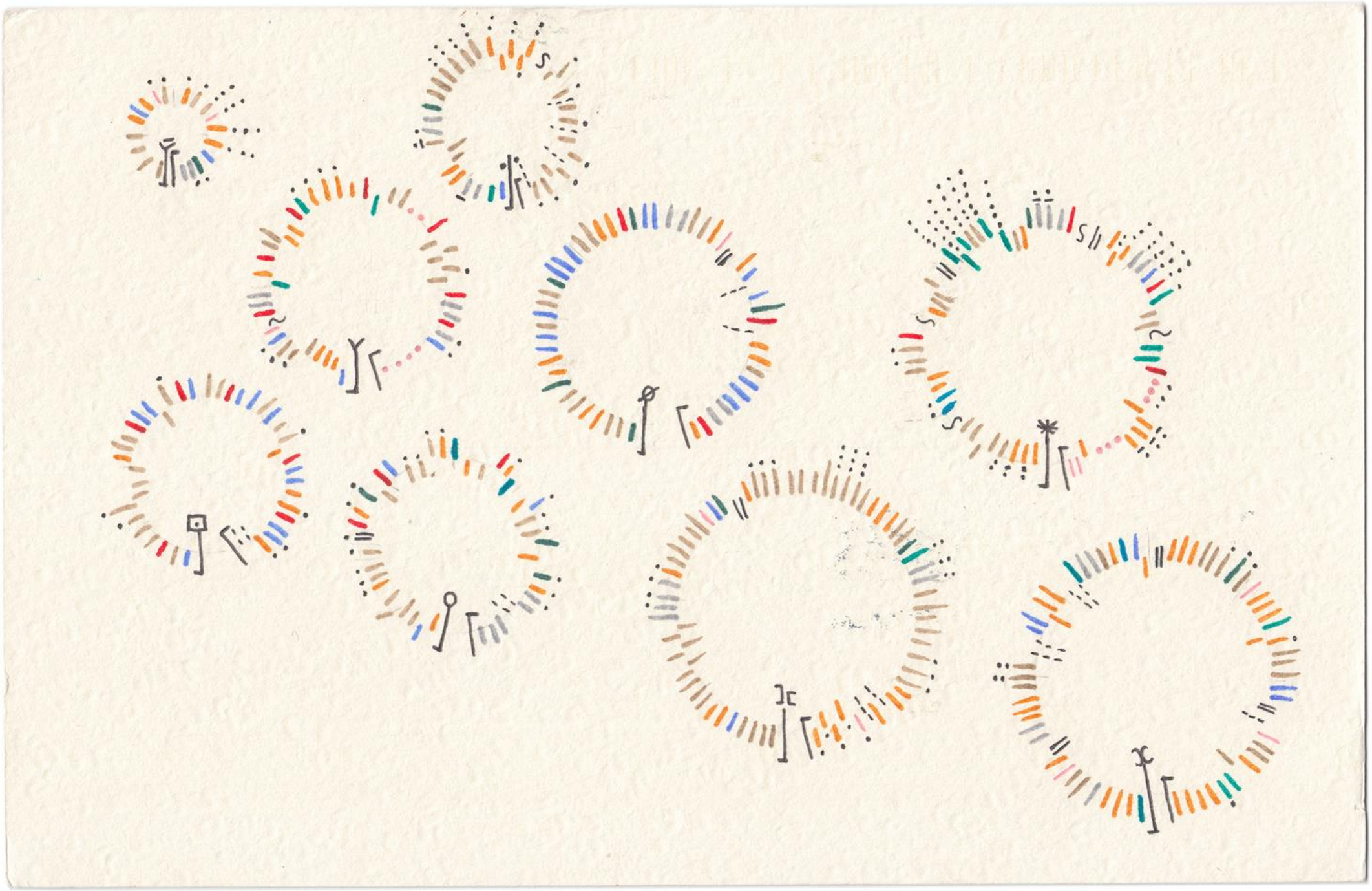
Firpo Marberry (101)
The first reliever to get to 100 cumulative saves, done at a time before relief pitchers were commonplace. (Marberry also started 186 games.)

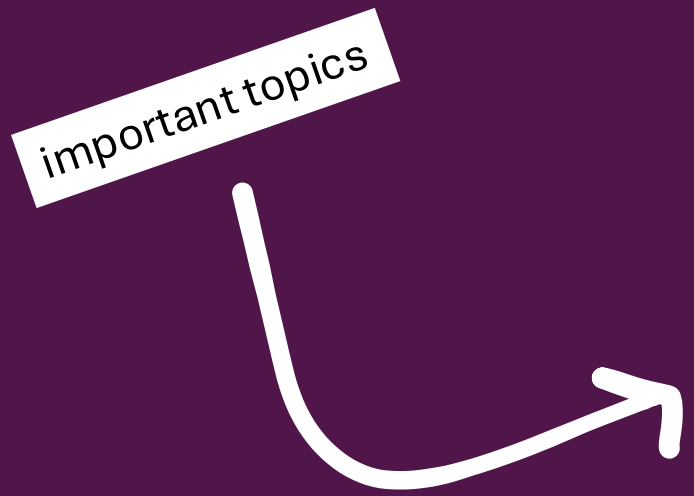
Hoyt Wilhelm (227)
In addition to being the first pitcher to break the 200 save mark, Wilhelm pitched a no-hitter against the Yankees in 1958.

Rollie Fingers (341)
Known for his handlebar moustache, Fingers was the second relief pitcher inducted into Baseball's Hall of Fame.

Lee Smith (478)
From 1983 to 1995, Smith averaged 35 saves a season, saving no fewer than 25 in any season.

Trevor Hoffman (601)
Hoffman was the first to break the 500 and 600 save marks, despite a 1994 shoulder injury that forced him to change his pitching style.





Why annotate

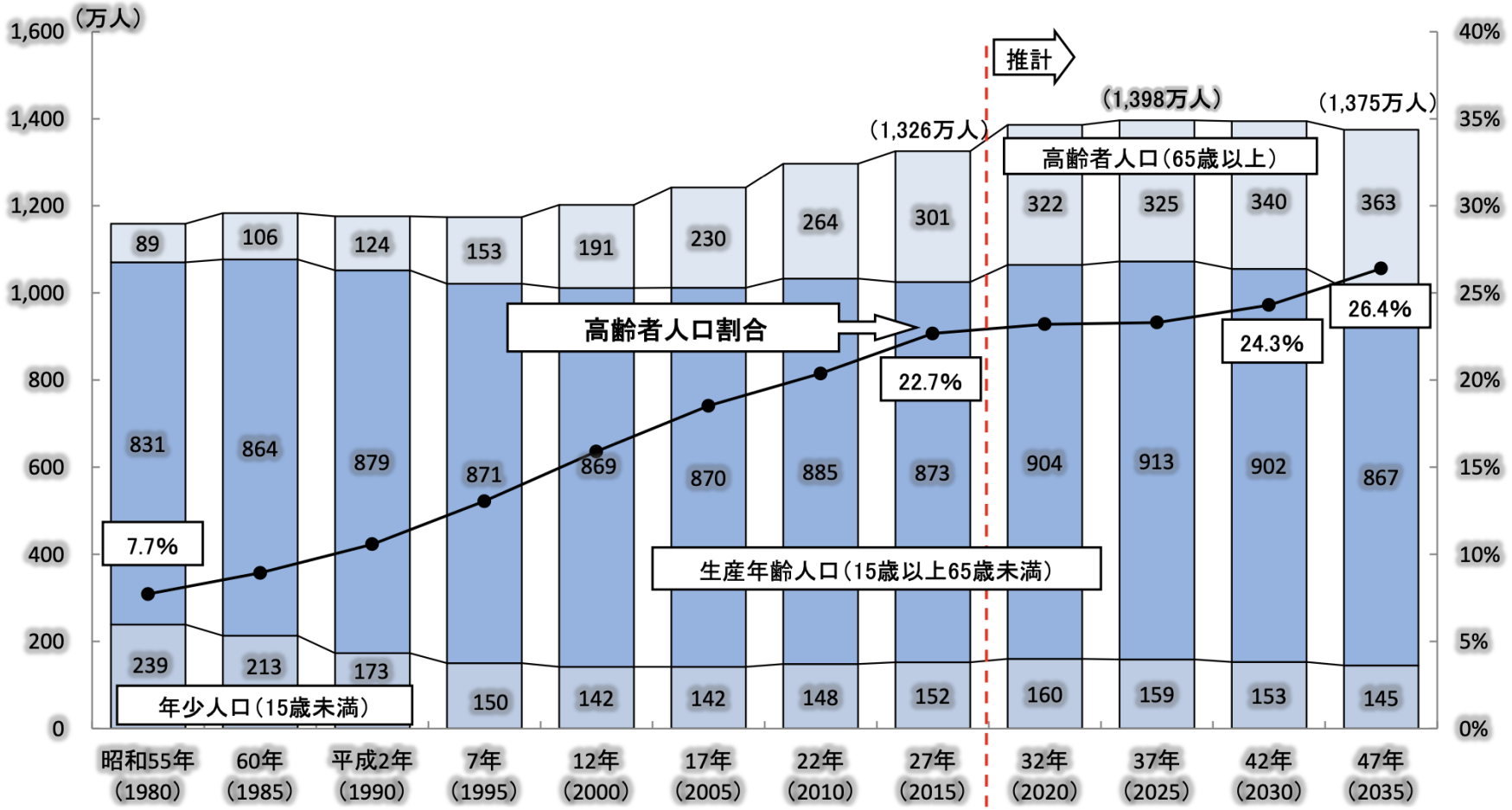
What to annotate

When to annotate

How to annotate

人口の推移（東京都）

東京都における高齢化率は、総人口がピークを迎える平成37年には23．3%であり、平成42 年には24．3%とおよそ 4人に1人が高齢者になると推計されます。



（注）（ ）内は総人口。1万人未満を四捨五入しているため、内訳の合計値と一致しない場合がある。
出典：総務省「国勢調査」[昭和55年～平成27年]、東京都政策企画局による推計[平成32年～47年]

Datawrapper Blog

blog.datawrapper.de

Datawrapper | Blog

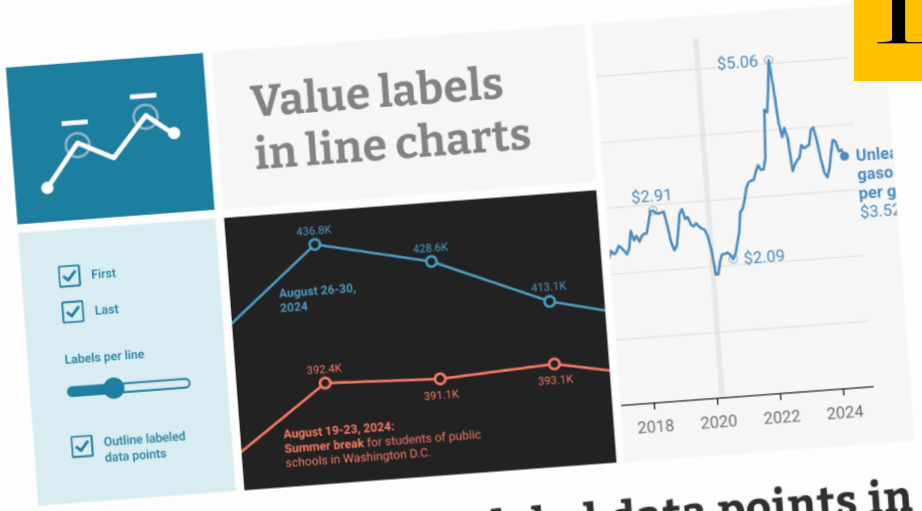
Product Solutions Pricing Resources Dashboard

Datawrapper Blog

This is a blog written by people who work at Datawrapper. We love charts, and we created this place to talk about them. Here you'll find:

- Latest Datawrapper features
- Data Vis Do's & Dont's
- Color in Data Vis
- Opinions
- Maps
- Weekly Charts
- Data Vis Dispatch
- Data Vis Book Club
- How others use us

Find a chronological list of our articles, and learn about our newsletters or about us.



New: Automatically label data points in line charts

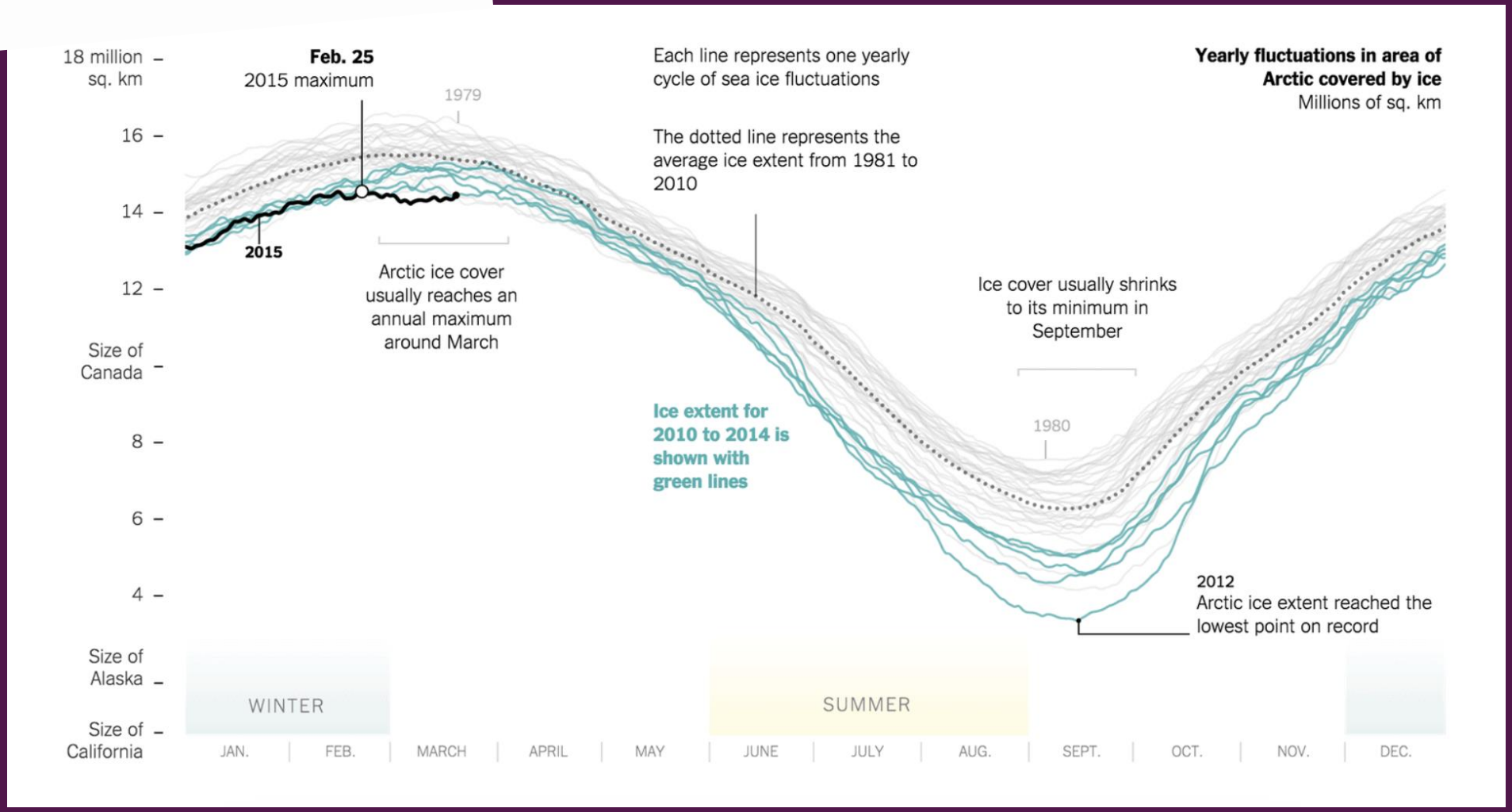
At Datawrapper, we're constantly striving to help you create better data visualizations. A big part...

September 18th, 2024 by Luc Guillemot

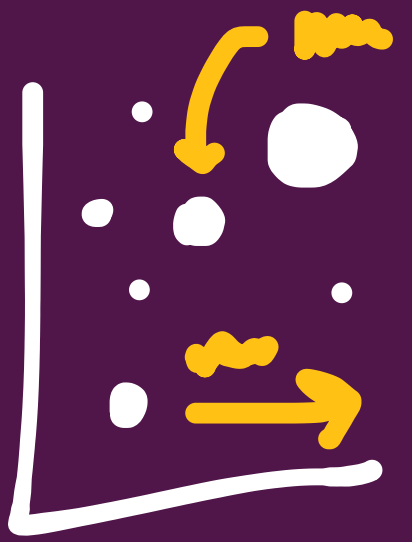
Lisa Charlotte Muth

Sometimes, I give workshops. They are mostly introductions to data visualization. And if you've ever visited one of these workshops, you've seen this chart before:

https://blog.datawrapper.de/readers-time/



Why annotate?



For readers: they help them understand the graphic

- We talked about color and position to direct attention
- Annotations do a better job with slightly less elegance

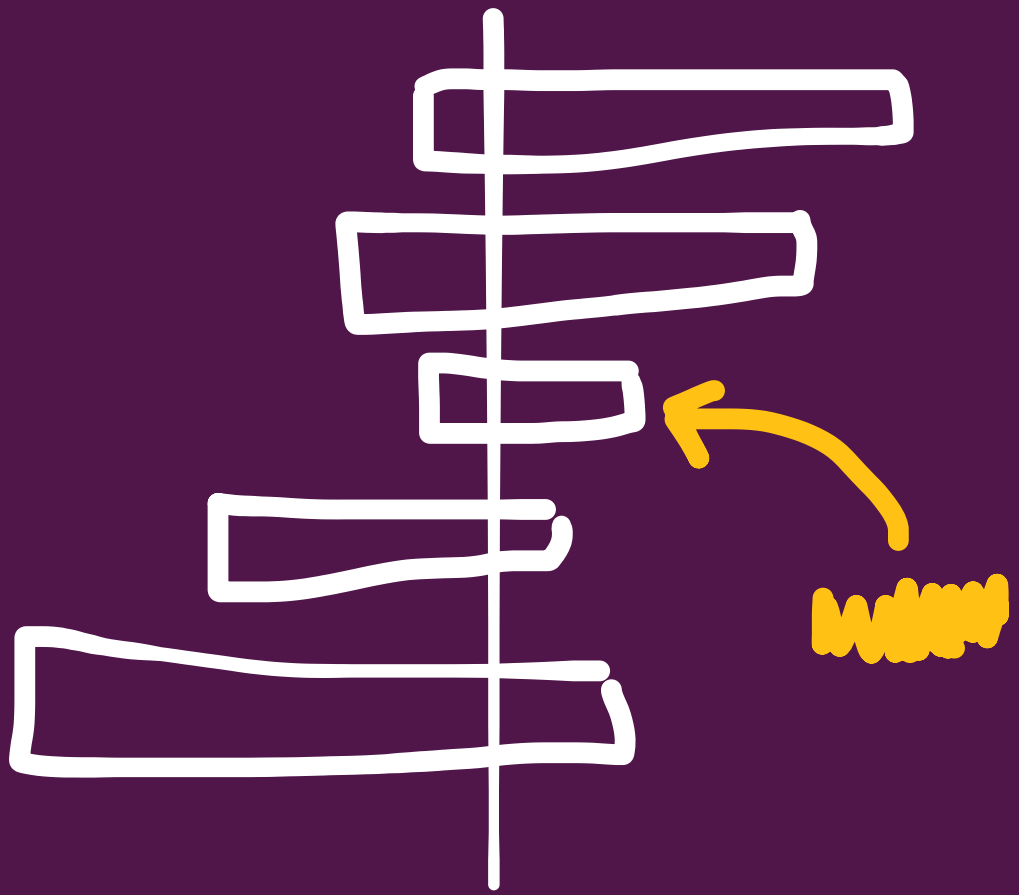
For you: they force you understand the visual a little better

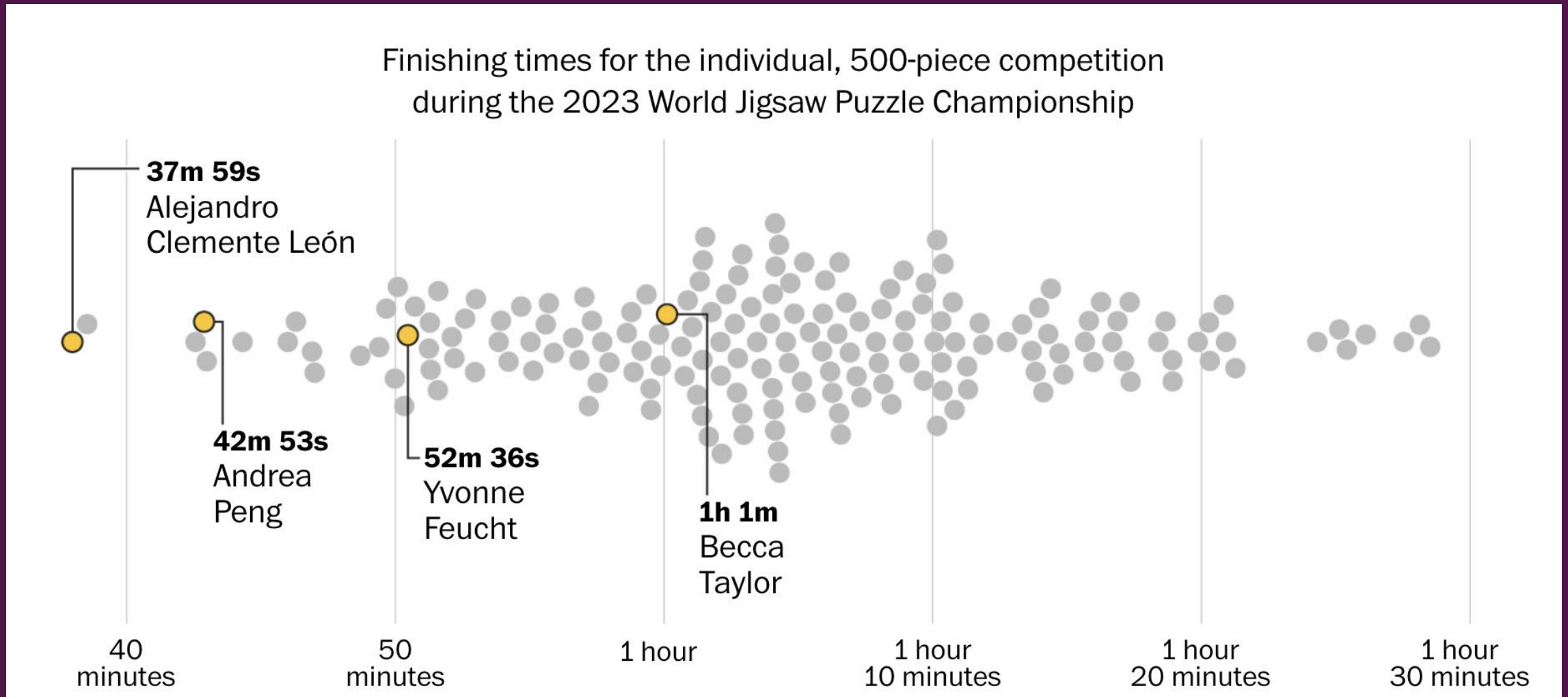
- Just like with titles, you need to determine **what's important**
- There has to be something worth directing attention to

What to annotate?

- **Point out data points** that you want noticed
- Explain why data points **look like they do**
- Explain or support **design decisions**
- **Provide specifics** or follow-up from title

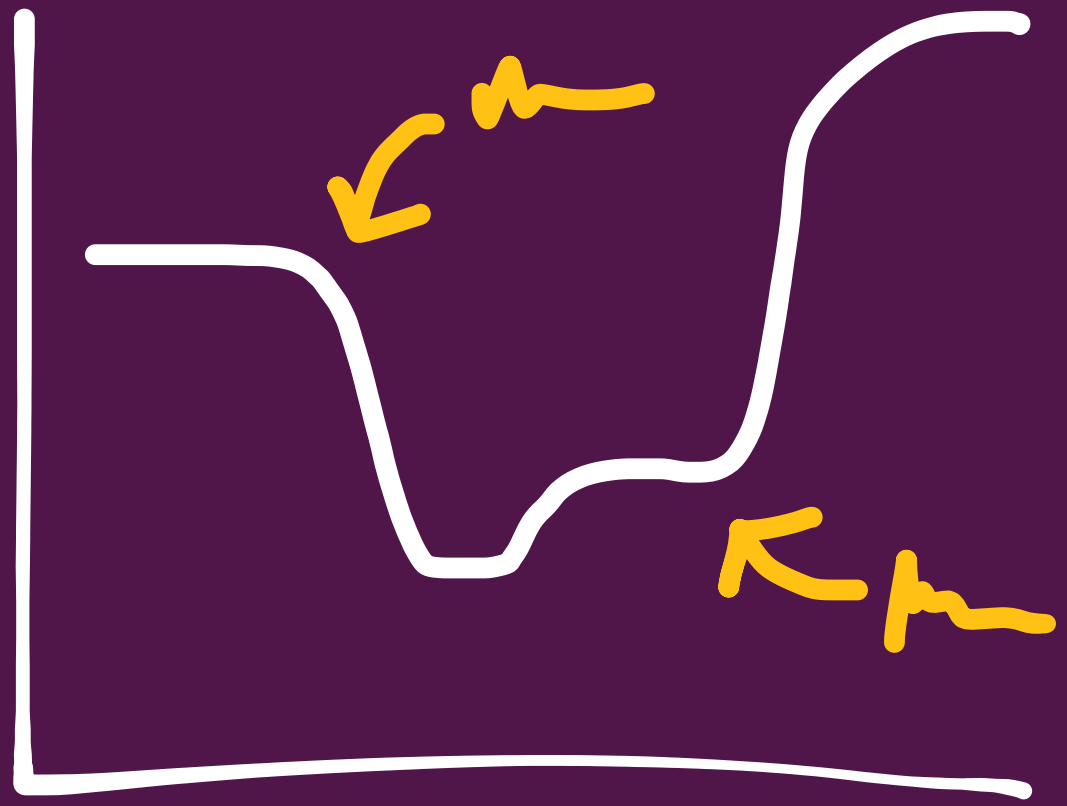
Point out data points you want noticed



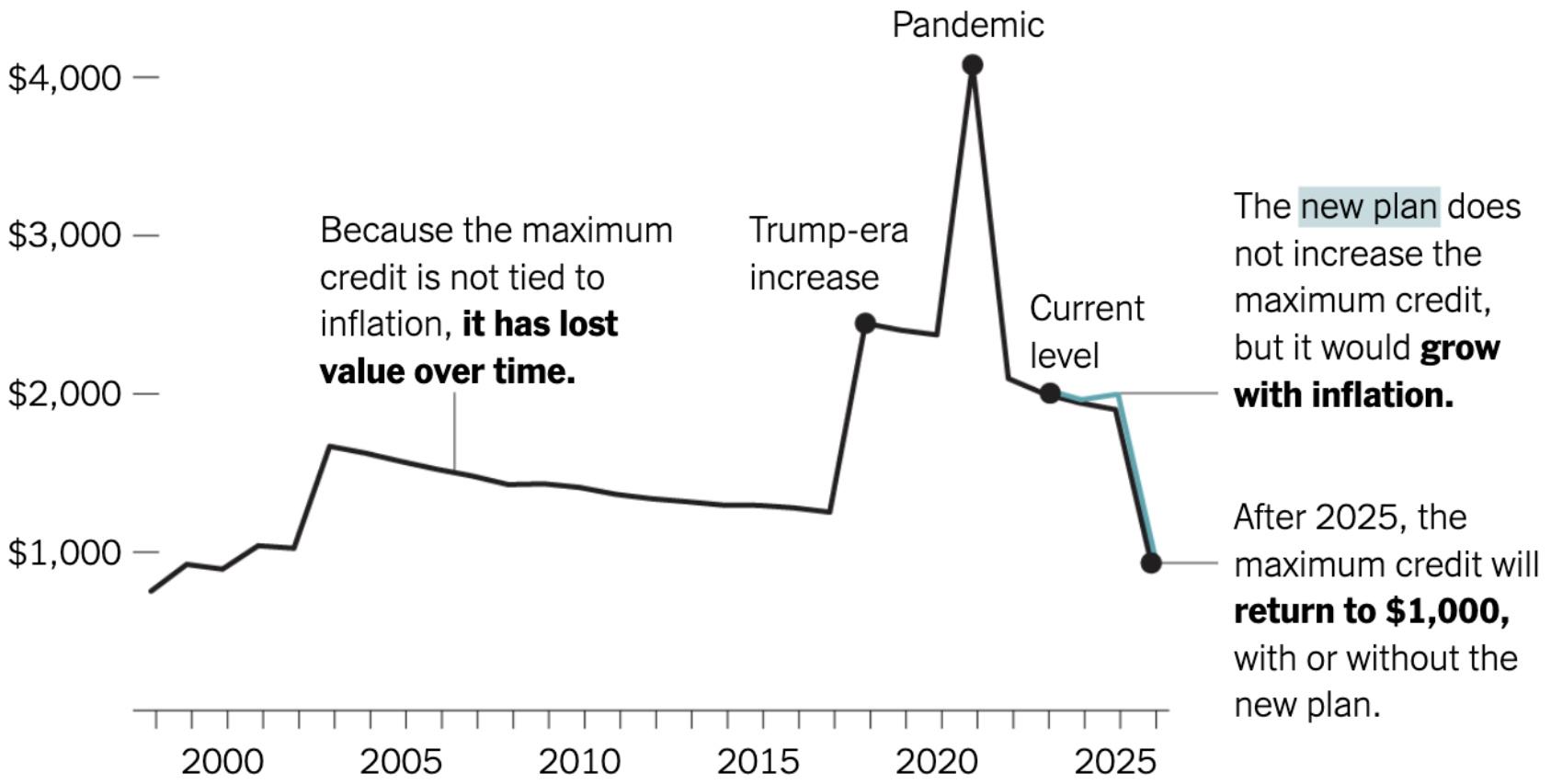


https://www.washingtonpost.com/style/interactive/2024/speed-puzzling-competitions/

Explain why the data looks that way



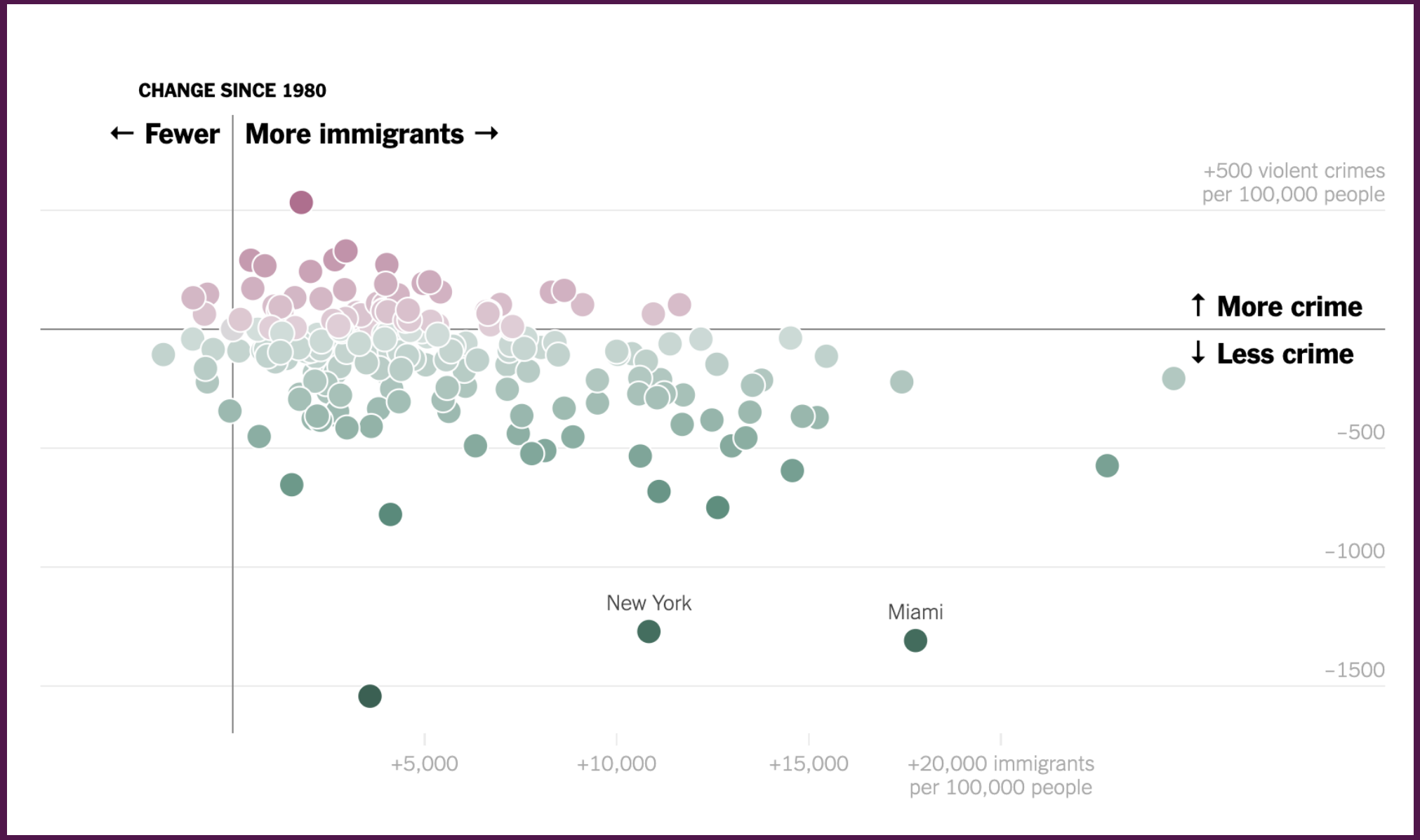
Maximum Child Tax Credit, in 2023 Dollars



Note: The increase shown around the pandemic was for children under six; older children received a slightly lower amount. • Sources: Congressional Research Service; Federal Reserve Bank of St. Louis

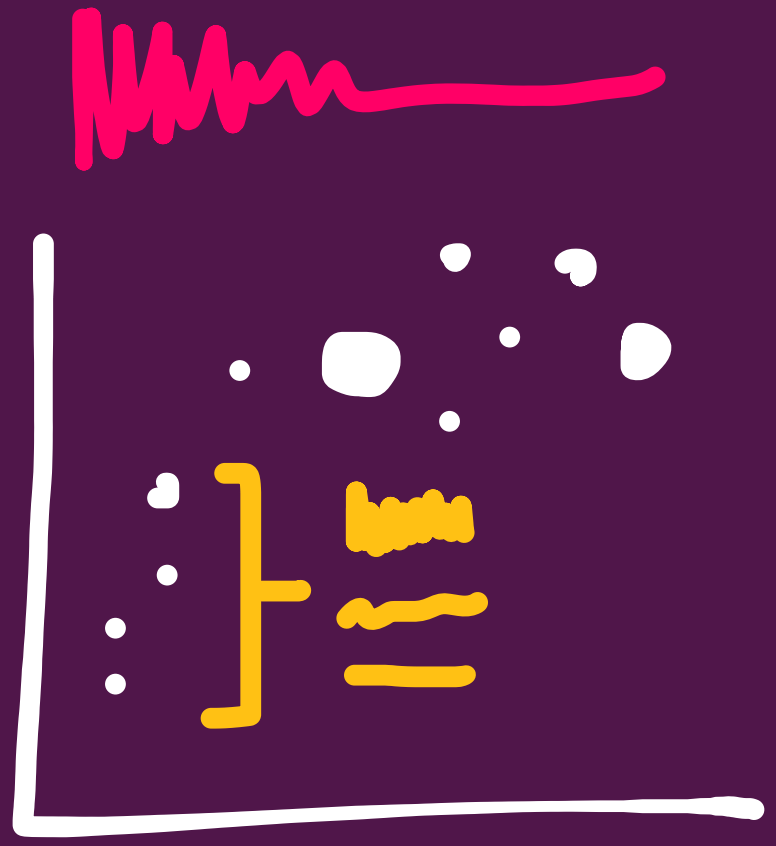
https://www.nytimes.com/2024/01/30/upshot/child-tax-credit-poverty.html

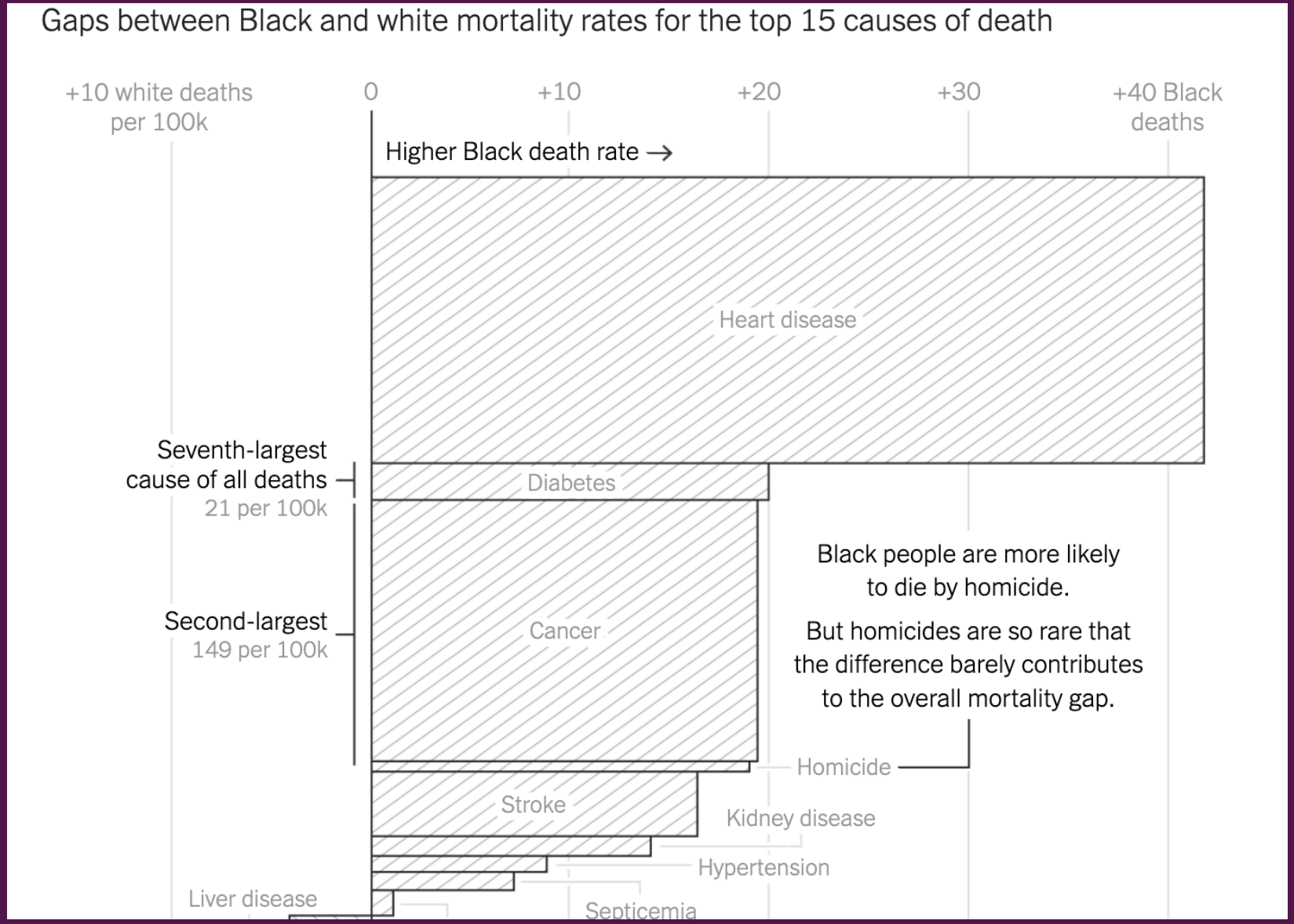
Explain or support design decisions



https://www.nytimes.com/interactive/2018/03/30/upshot/crime-immigration-myth.html

Provide specifics or follow-up from title





https://www.nytimes.com/interactive/2020/08/11/opinion/us-coronavirus-black-mortality.html

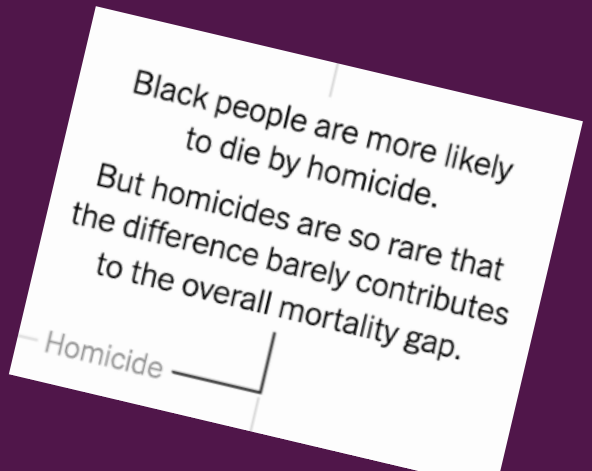
“what that is” vs “why that is”

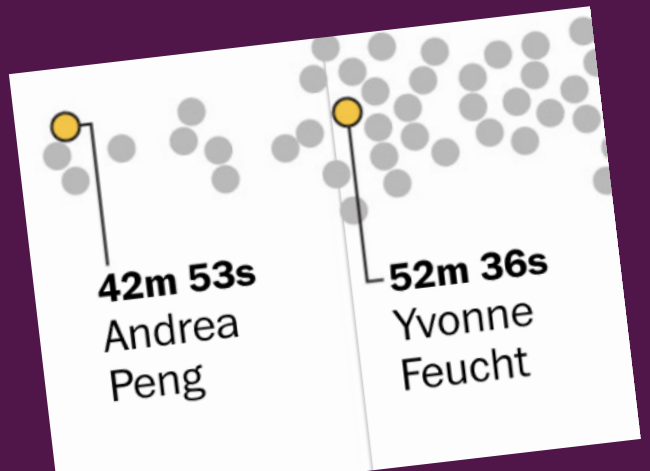
Here’s *what* this data point is: **Texas**

Here’s *why* this data point is here: **Texas has a lot of cattle farms**

A little bit of both: **Texas, 4lb**

You’re deciding between **narrative** or **data-driven** (either is fine!)





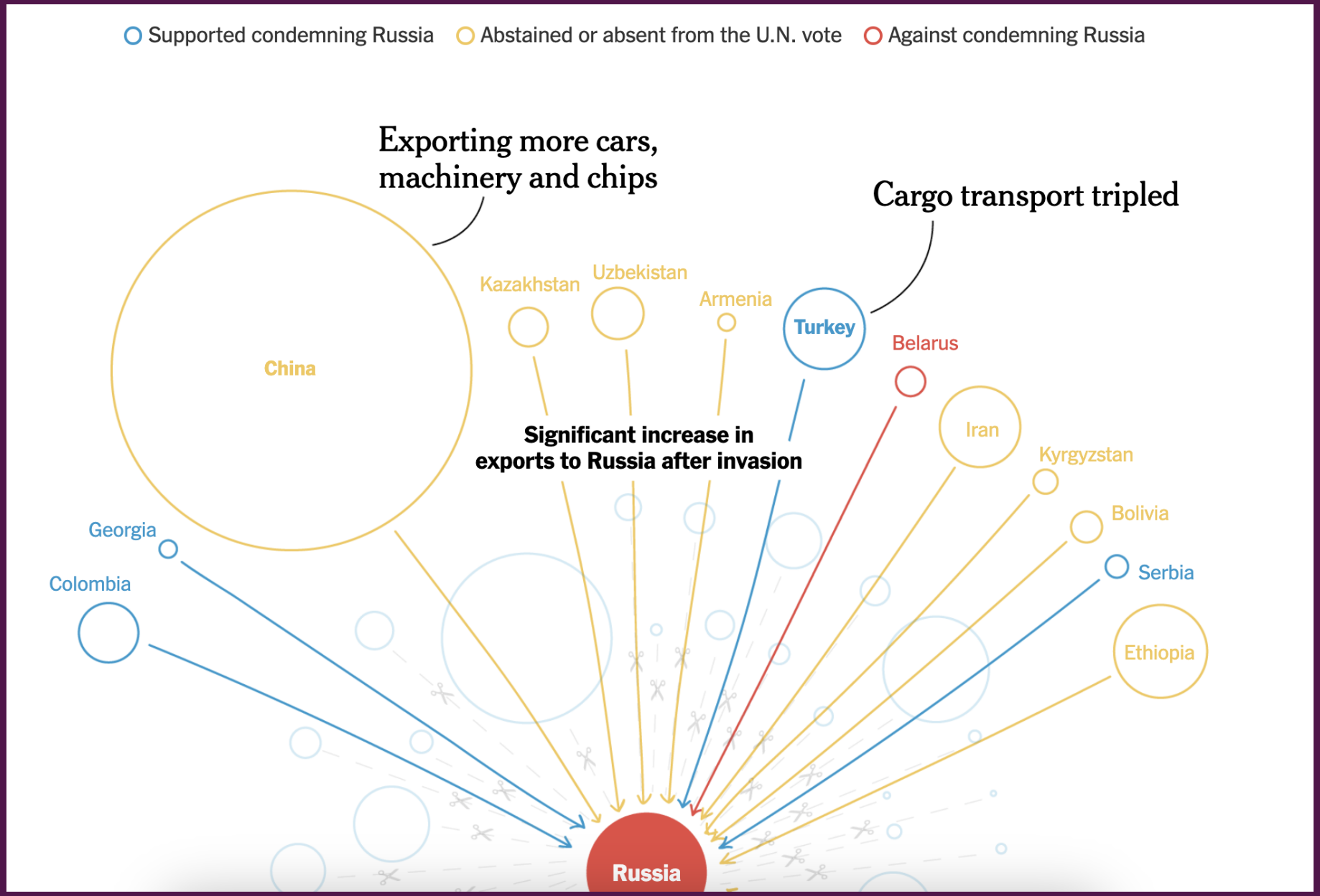
When to annotate

Complicated graphics?

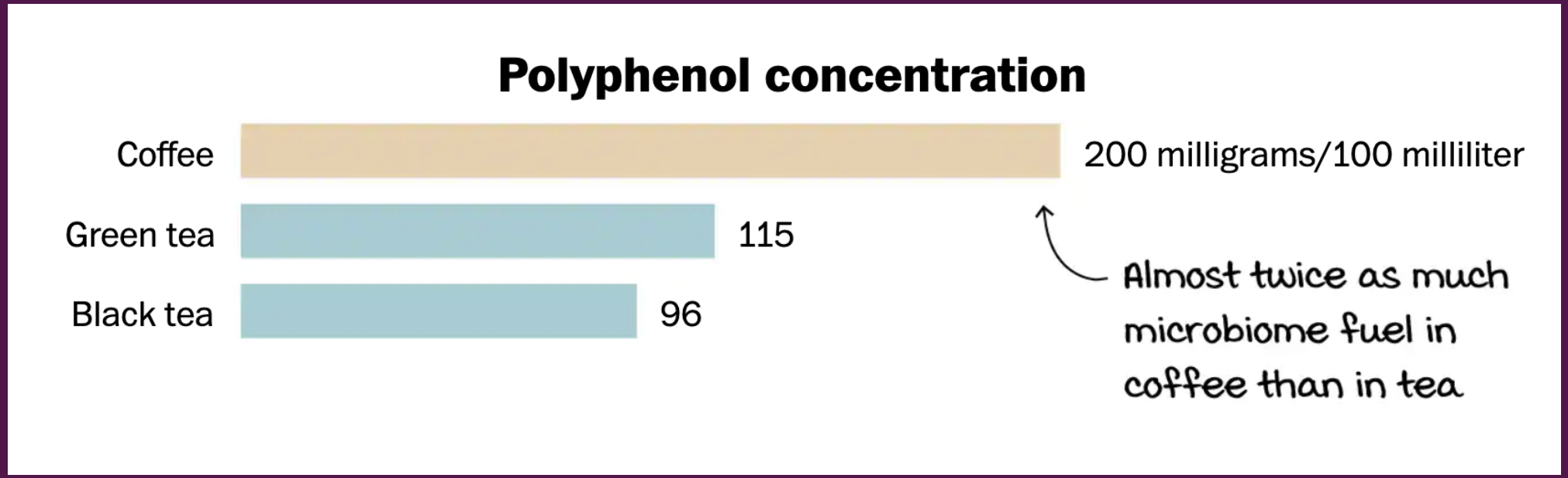
- No, you should probably just split them up
- Annotations are *not* an excuse for lack of curation
- I bet every one of your visuals could be 2-3 smaller graphics
- But sure, okay, annotate it, it’ll help

Simple graphics?

- Honestly, you can annotate anything
- Provides a “thought about” or “lived in” a feel



https://www.nytimes.com/interactive/2023/12/11/upshot/nighttime-deaths.html



https://www.washingtonpost.com/wellness/interactive/2022/coffee-vs-tea-nutrition-health/

How to annotate

Flourish: Use the pencil icon - details here

Datawrapper: Annotations tab – details here

- **Bonus:** you can also use them to add measurement types for axes

Altair: `mark_text` (potentially with `transform_filter`)

A few links at https://jonathansoma.com/everything/visuals/annotations/

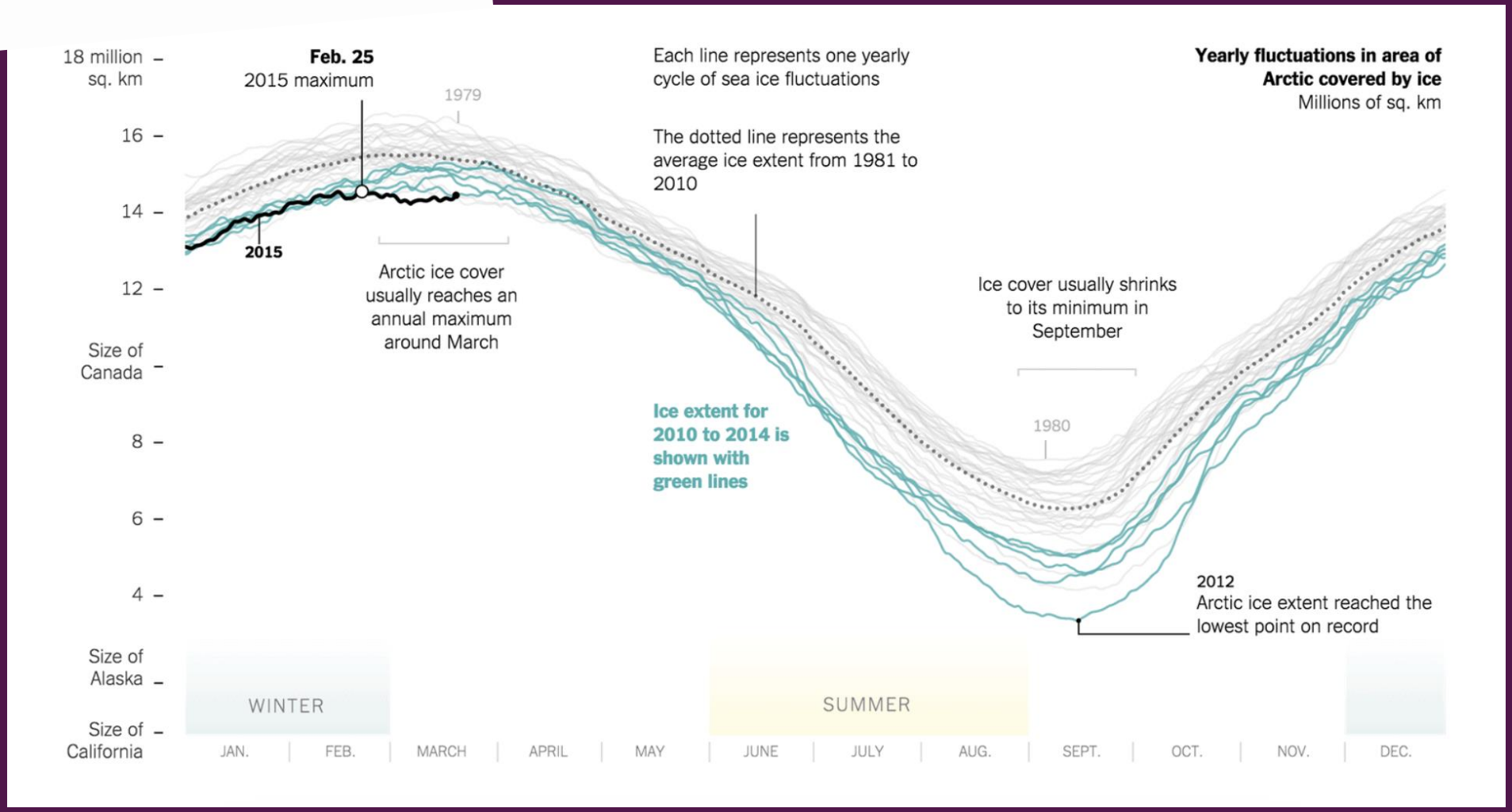
Bonus wisdom

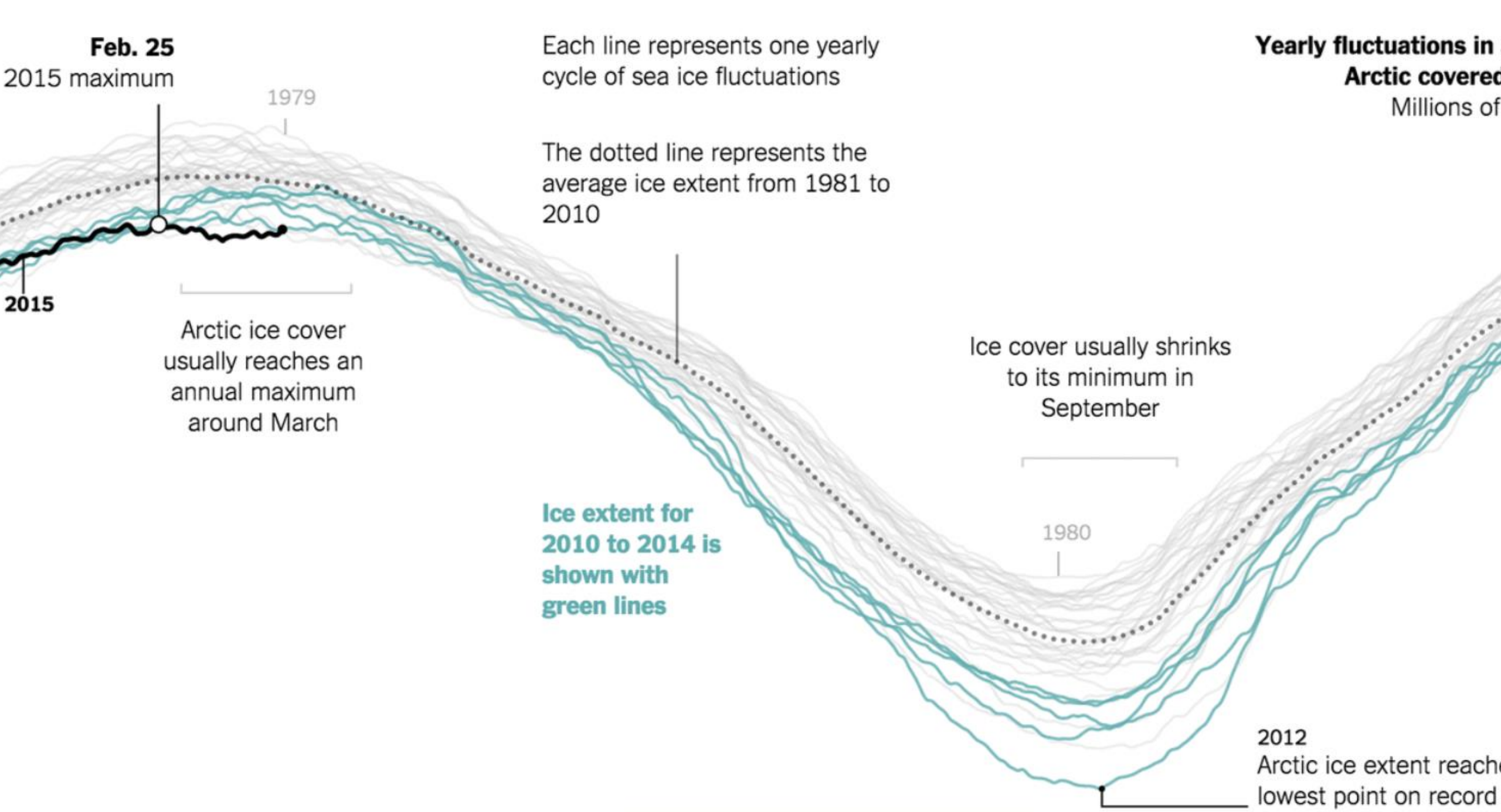
Annotations are the primary reason why
you move away from tooling

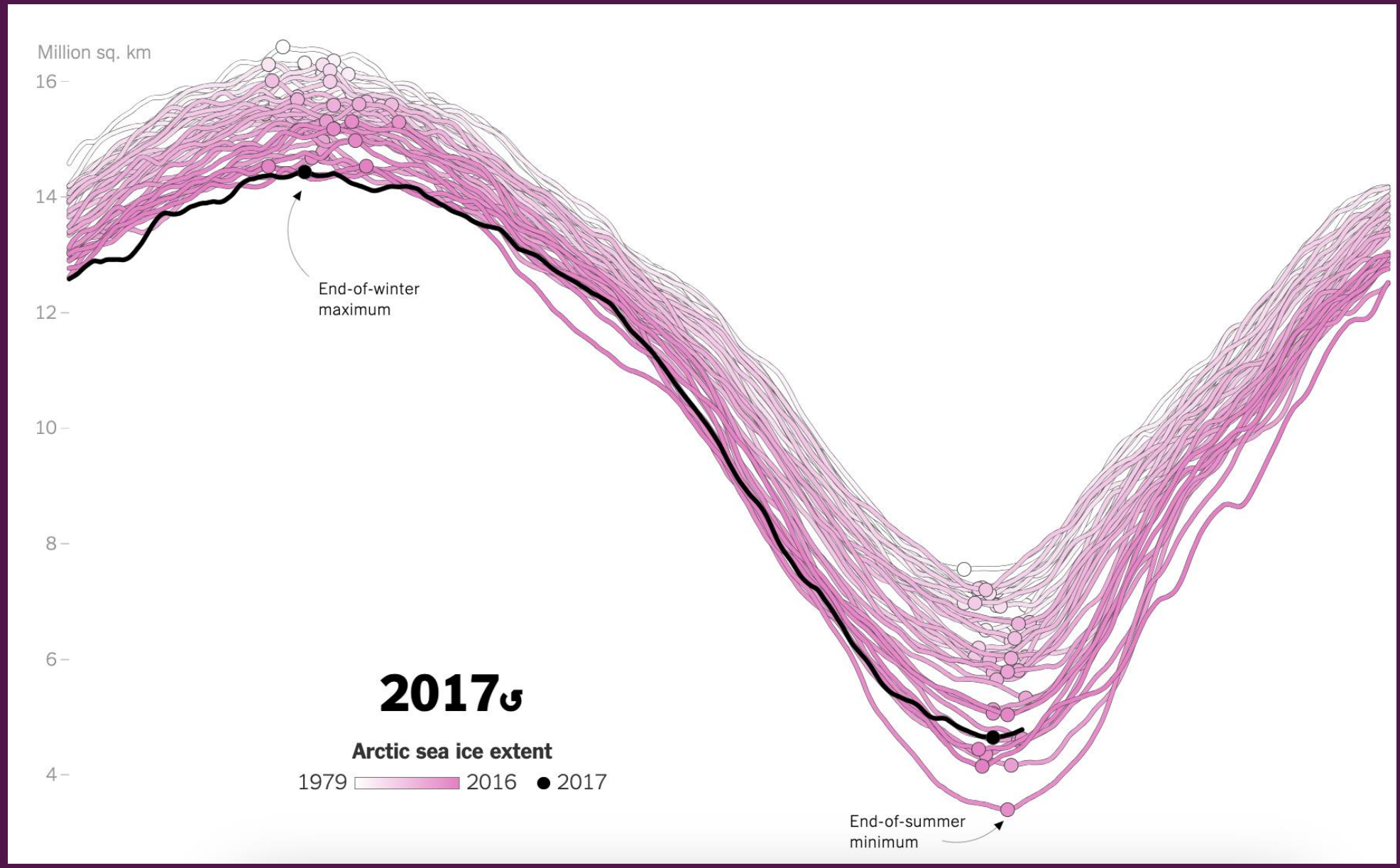
Lisa Charlotte Muth

Sometimes, I give workshops. They are mostly introductions to data visualization. And if you've ever visited one of these workshops, you've seen this chart before:

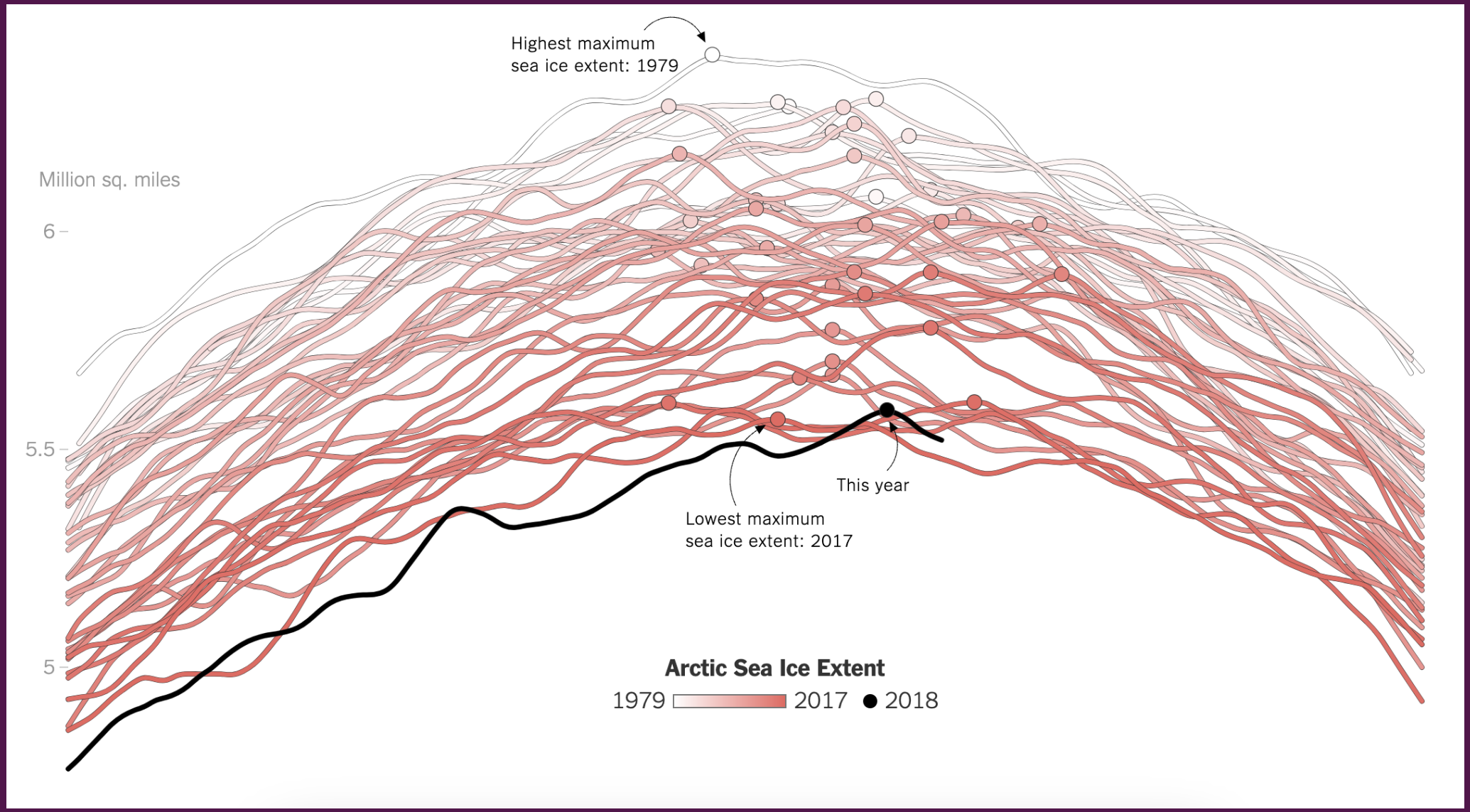
https://blog.datawrapper.de/readers-time/



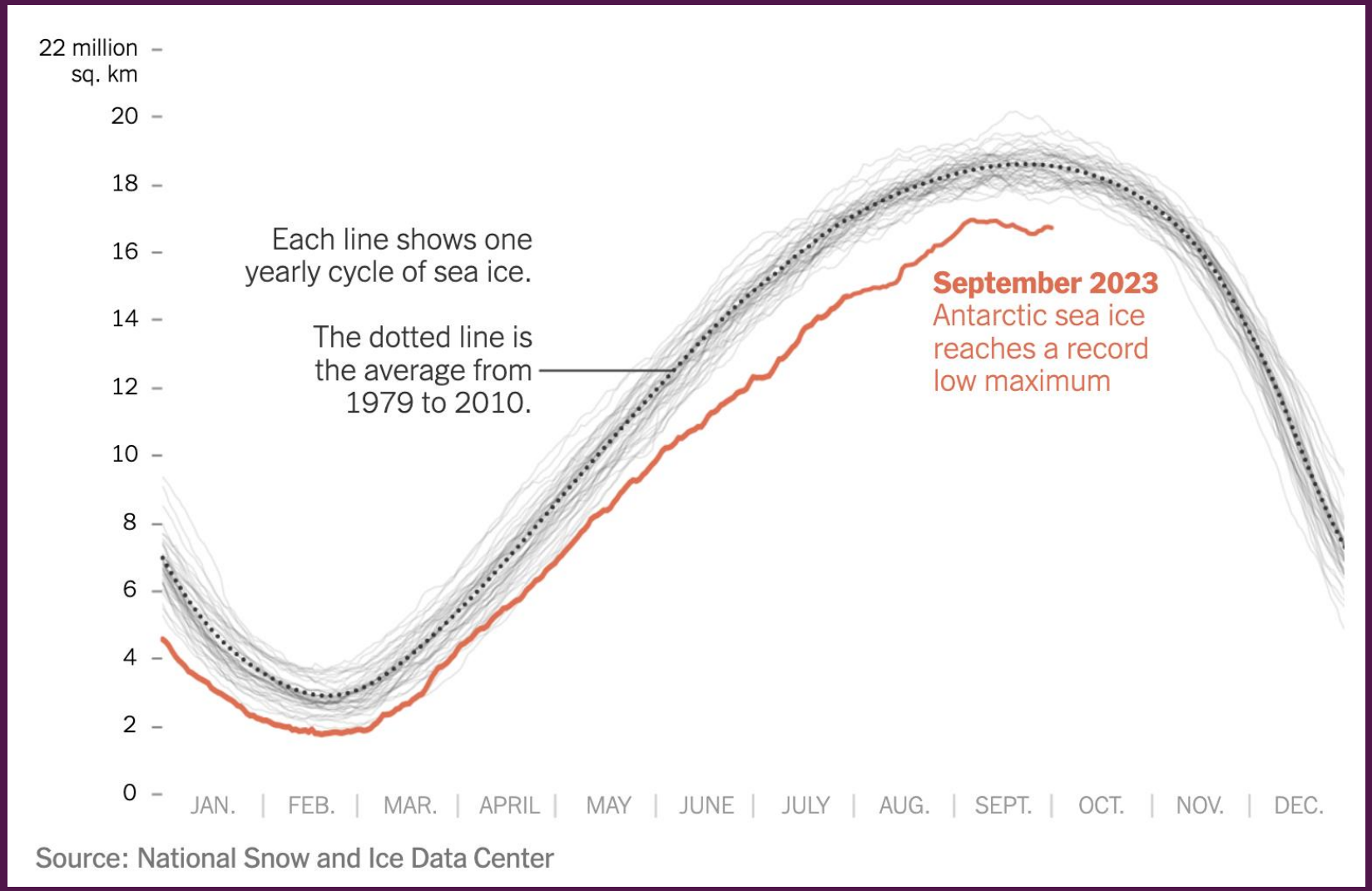

Feb. 25
2015 maximum
1979
2015
Arctic ice cover usually reaches an annual maximum around March
Each line represents one yearly cycle of sea ice fluctuations
The dotted line represents the average ice extent from 1981 to 2010
Ice extent for 2010 to 2014 is shown with green lines
Ice cover usually shrinks to its minimum in September
1980
2012
Arctic ice extent reache
lowest point on record
Yearly fluctuations in
Arctic covered
Millions of



https://www.nytimes.com/interactive/2017/09/22/climate/arctic-sea-ice-shrinking-trend-watch.html



https://www.nytimes.com/interactive/2018/03/23/climate/arctic-ice-maximum.html



https://www.nytimes.com/2023/10/04/climate/antarctic-sea-ice-record-low.html

today's topics

Why annotate

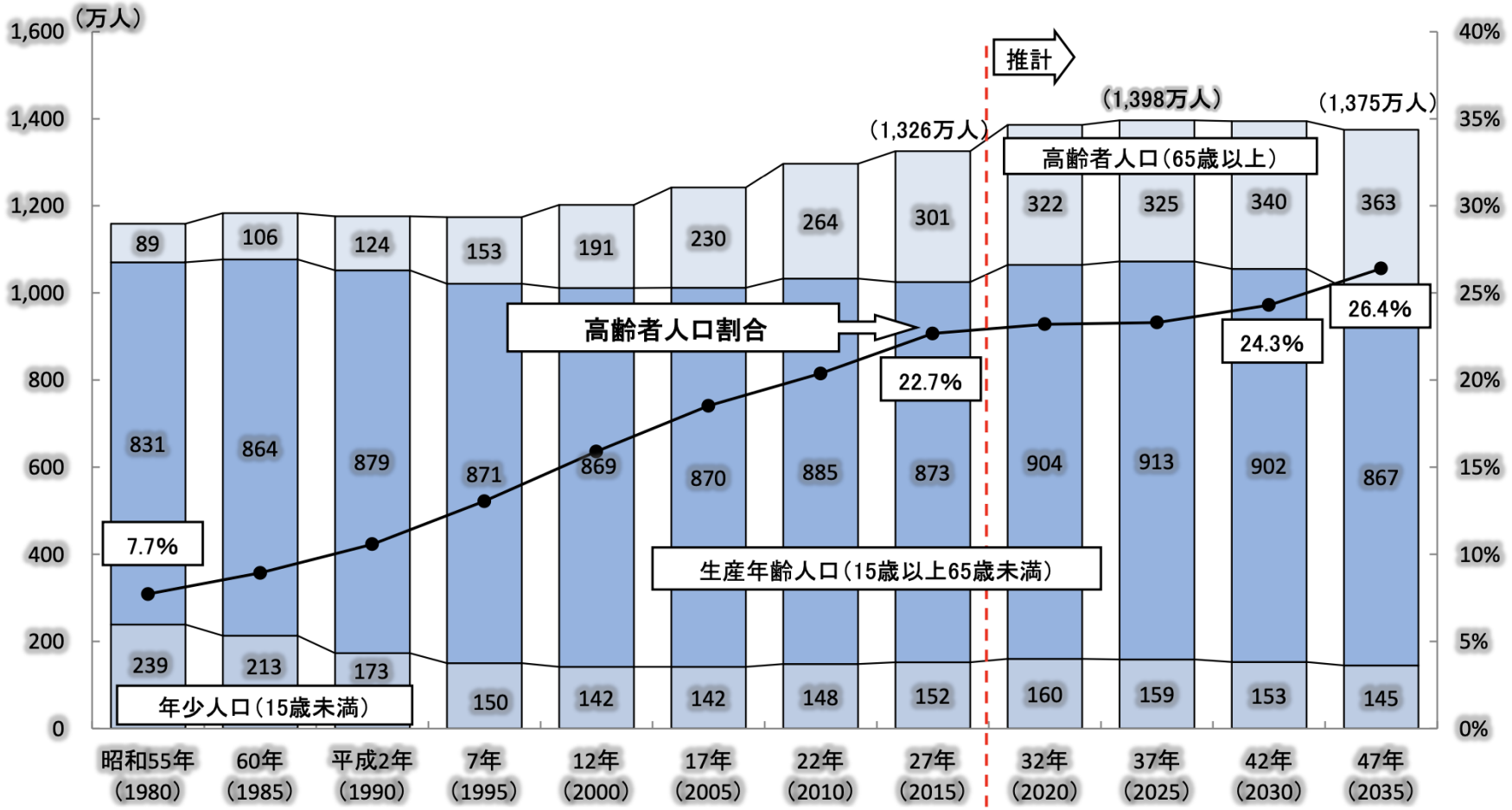
What to annotate

When to annotate

How to annotate

人口の推移（東京都）

東京都における高齢化率は、総人口がピークを迎える平成37年には23．3%であり、平成42 年には24．3%とおよそ 4人に1人が高齢者になると推計されます。



（注）（ ）内は総人口。1万人未満を四捨五入しているため、内訳の合計値と一致しない場合がある。
出典：総務省「国勢調査」[昭和55年～平成27年]、東京都政策企画局による推計[平成32年～47年]

What would you do?

Visual Vocabulary

Deviation

Emphasise variations (+/-) from a fixed reference point. Typically the reference point is zero but it can also be a target or a long-term average. Can also be used to show sentiment (positive/neutral/negative).

Example FT uses
Trade surplus/deficit, climate change

Diverging bar

A simple standard bar chart that can handle both negative and positive magnitude values.

Diverging stacked bar

Perfect for presenting survey results which involve sentiment (eg disagree/neutral/agree).

Spine

Splits a single value into two contrasting components (eg male/female).

Surplus/deficit filled line

The shaded area of these charts allows a balance to be shown – either against a baseline or between two series.

Correlation

Show the relationship between two or more variables. Be mindful that, unless you tell them otherwise, many readers will assume the relationships you show them to be causal (i.e. one causes the other).

Example FT uses
Inflation and unemployment, income and life expectancy

Scatterplot

The standard way to show the relationship between two continuous variables, each of which has its own axis.

Column + line timeline

A good way of showing the relationship between an amount (columns) and a rate (line).

Connected scatterplot

Usually used to show how the relationship between 2 variables has changed over time.

Bubble

Like a scatterplot, but adds additional detail by sizing the circles according to a third variable.

XY heatmap

A good way of showing the patterns between 2 categories of data, less effective at showing fine differences in amounts.

Ranking

Use where an item's position in an ordered list is more important than its absolute or relative value. Don't be afraid to highlight the points of interest.

Example FT uses
Wealth, deprivation, league tables, constituency election results

Ordered bar

Standard bar charts display the ranks of values much more easily when sorted into order.

Ordered column

See above.

Ordered proportional symbol

Use when there are big variations between values and/or seeing fine differences between data is not so important.

Dot strip plot

Dots placed in order on a strip are a space-efficient method of laying out ranks across multiple categories.

Slope

Perfect for showing how ranks have changed over time or vary between categories.

Lollipop

Lollipops draw more attention to the data value than standard bar/column and can also show rank and value effectively.

Bump

Effective for showing changing rankings across multiple dates. For large datasets, consider grouping lines using colour.

Distribution

Show values in a dataset and how often they occur. The shape (or 'skew') of a distribution can be a memorable way of highlighting the lack of uniformity or equality in the data.

Example FT uses
Income distribution, population (age/sex) distribution, revealing inequality

Histogram

The standard way to show a statistical distribution – keep the gaps between columns small to highlight the 'shape' of the data.

Dot plot

A simple way of showing the change or range (min/max) of data across multiple categories.

Dot strip plot

Good for showing individual values in a distribution, can be a problem when too many dots have the same value.

Barcode plot

Like dot strip plots, good for displaying all the data in a table, they work best when highlighting individual values.

Boxplot

Summarise multiple distributions by showing the median (centre) and range of the data

Violin plot

Similar to a box plot but more effective with complex distributions (data that cannot be summarised with simple average).

Population pyramid

A standard way for showing the age and sex breakdown of a population distribution; effectively, back to back histograms.

Cumulative curve

A good way of showing how unequal a distribution is: y axis is always cumulative frequency, x axis is always a measure.

Frequency polygons

For displaying multiple distributions of data. Like a regular line chart, best limited to a maximum of 3 or 4 datasets.

Beeswarm

Use to emphasise individual points in a distribution. Points can be sized to an additional variable. Best with medium-sized datasets

Change over Time

Give emphasis to changing trends. These can be short (intra-day) movements or extended series traversing decades or centuries: Choosing the correct time period is important to provide suitable context for the reader.

Example FT uses
Share price movements, economic time series, sectoral changes in a market

Line

The standard way to show a changing time series. If data are irregular, consider markers to represent data points.

Column

Columns work well for showing change over time – but usually best with only one series of data at a time.

Column + line timeline

A good way of showing the relationship over time between an amount (columns) and a rate (line).

Slope

Good for showing changing data as long as the data can be simplified into 2 or 3 points without missing a key part of story.

Area chart

Use with care – these are good at showing changes to total, but seeing change in components can be very difficult.

Candlestick

Usually focused on day-to-day activity, these charts show opening/closing and high/low points of each day.

Fan chart (projections)

Use to show the uncertainty in future projections - usually this grows the further forward to projection.

Connected scatterplot

A good way of showing changing data for two variables whenever there is a relatively clear pattern of progression.

Calendar heatmap

A great way of showing temporal patterns (daily, weekly, monthly) – at the expense of showing precision in quantity.

Priestley timeline

Great when date and duration are key elements of the story in the data.

Circle timeline
Good for showing

Magnitude

Show size comparisons. These can be relative (just being able to see larger/bigger) or absolute (need to see fine differences). Usually these show a 'counted' number (for example, barrels, dollars or people) rather than a calculated rate or per cent.

Example FT uses
Commodity production, market capitalisation, volumes in general

Column

The standard way to compare the size of things. Must always start at 0 on the axis.

Bar

See above. Good when the data are not time series and labels have long category names.

Paired column

As per standard column but allows for multiple series. Can become tricky to read with more than 2 series.

Paired bar

See above.

Marimekko

A good way of showing the size and proportion of data at the same time – as long as the data are not too complicated.

Proportional symbol

Use when there are big variations between values and/or seeing fine differences between data is not so important.

Isotype (pictogram)

Excellent solution in some instances – use only with whole numbers (do not slice off an arm to represent a decimal).

Lollipop

Lollipop charts draw more attention to the data value than standard bar/column – does not have to start at zero (but preferable).

Radar

A space-efficient way of showing value of multiple variables – but make sure they are organised in a way that makes sense to reader.

Parallel coordinates

An alternative to radar charts – again, the arrangement of the variables is important. Usually benefits from highlighting values.

Bullet
Good for showing a

Part-to-whole

Show how a single entity can be broken down into its component elements. If the reader's interest is solely in the size of the components, consider a magnitude-type chart instead.

Example FT uses
Fiscal budgets, company structures, national election results

Stacked column/bar

A simple way of showing part-to-whole relationships but can be difficult to read with more than a few components.

Marimekko

A good way of showing the size and proportion of data at the same time – as long as the data are not too complicated.

Pie

A common way of showing part-to-whole data – but be aware that it's difficult to accurately compare the size of the segments.

Donut

Similar to a pie chart – but the centre can be a good way of making space to include more information about the data (eg total).

Treemap

Use for hierarchical part-to-whole relationships; can be difficult to read when there are many small segments.

Voronoi

A way of turning points into areas – any point within each area is closer to the central point than any other centroid.

Arc

A hemicycle, often used for visualising parliamentary composition by number of seats.

Gridplot

Good for showing % information, they work best when used on whole numbers and work well in small multiple layout form.

Venn

Generally only used for schematic representation.

Waterfall

Can be useful for showing part-to-whole relationships where some of the components are negative.

Spatial

Aside from locator maps only used when precise locations or geographical patterns in data are more important to the reader than anything else.

Example FT uses
Population density, natural resource locations, natural disaster risk/impact, catchment areas, variation in election results

Basic choropleth (rate/ratio)

The standard approach for putting data on a map – should always be rates rather than totals and use a sensible base geography.

Proportional symbol (count/magnitude)

Use for totals rather than rates – be wary that small differences in data will be hard to see.

Flow map

For showing unambiguous movement across a map.

Contour map

For showing areas of equal value on a map. Can use deviation colour schemes for showing +/- values

Equalised cartogram

Converting each unit on a map to a regular and equally-sized shape – good for representing voting regions with equal value.

Scaled cartogram (value)

Stretching and shrinking a map so that each area is sized according to a particular value.

Dot density

Used to show the location of individual events/locations – make sure to annotate any patterns the reader should see.

Heat map

Grid-based data values mapped with an intensity colour scale. As choropleth map – but not snapped to an admin/political unit.

Flow

Show the reader volumes or intensity of movement between two or more states or conditions. These might be logical sequences or geographical locations.

Example FT uses
Movement of funds, trade, migrants, lawsuits, information; relationship graphs.

Sankey

Shows changes in flows from one condition to at least one other; good for tracing the eventual outcome of a complex process.

Waterfall

Designed to show the sequencing of data through a flow process, typically budgets. Can include +/- components.

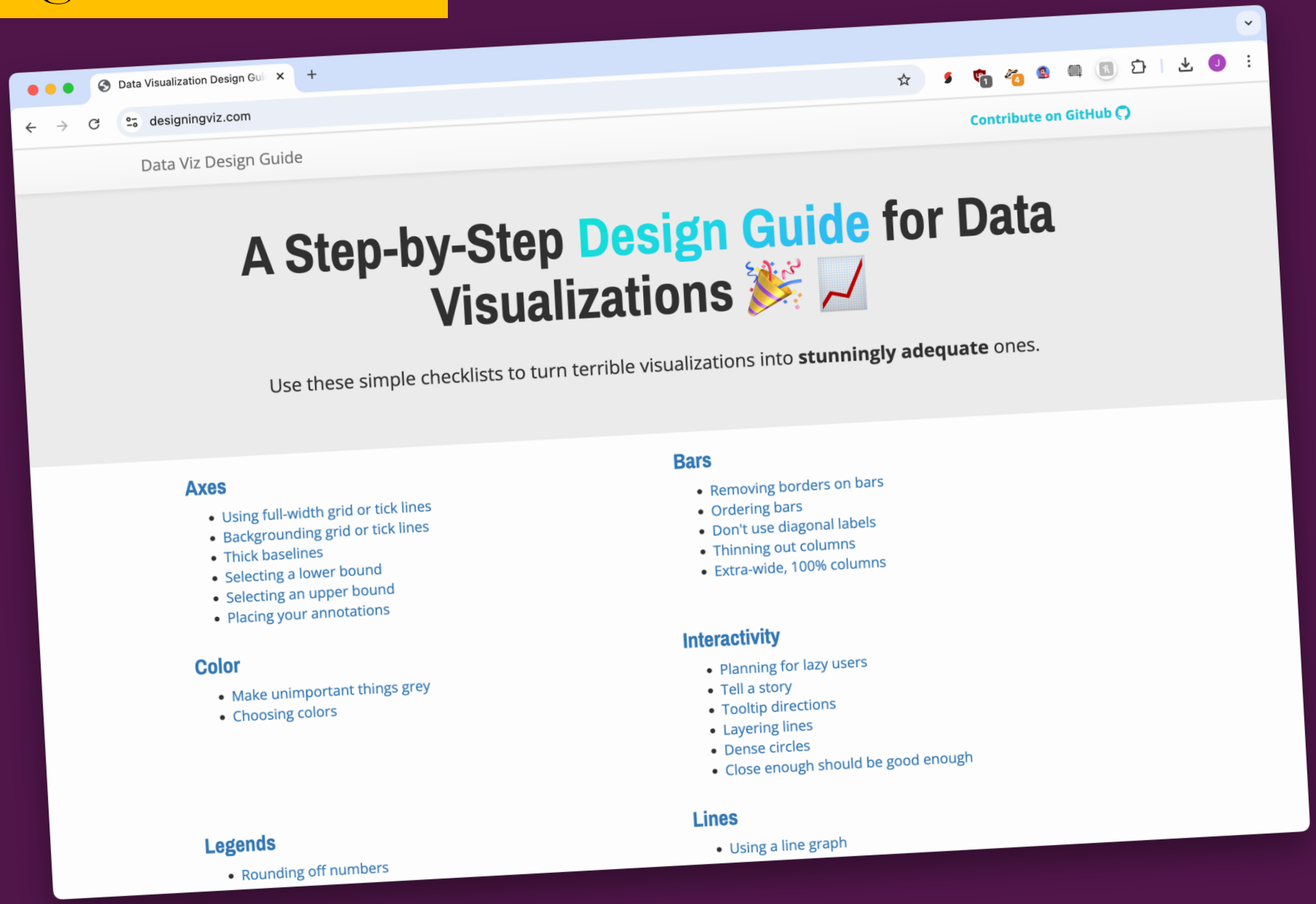
Chord

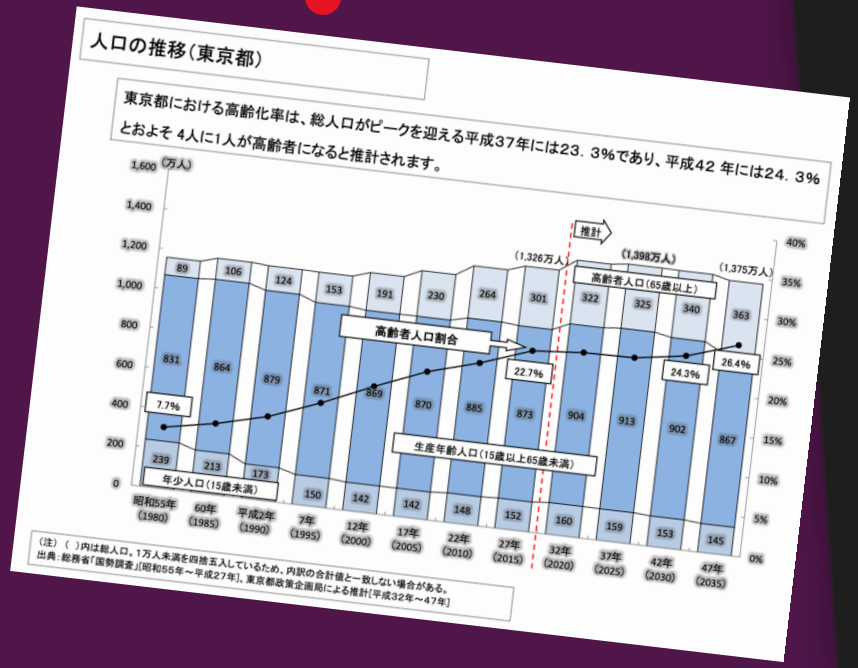
A complex but powerful diagram which can illustrate 2-way flows (and net winner) in a matrix.

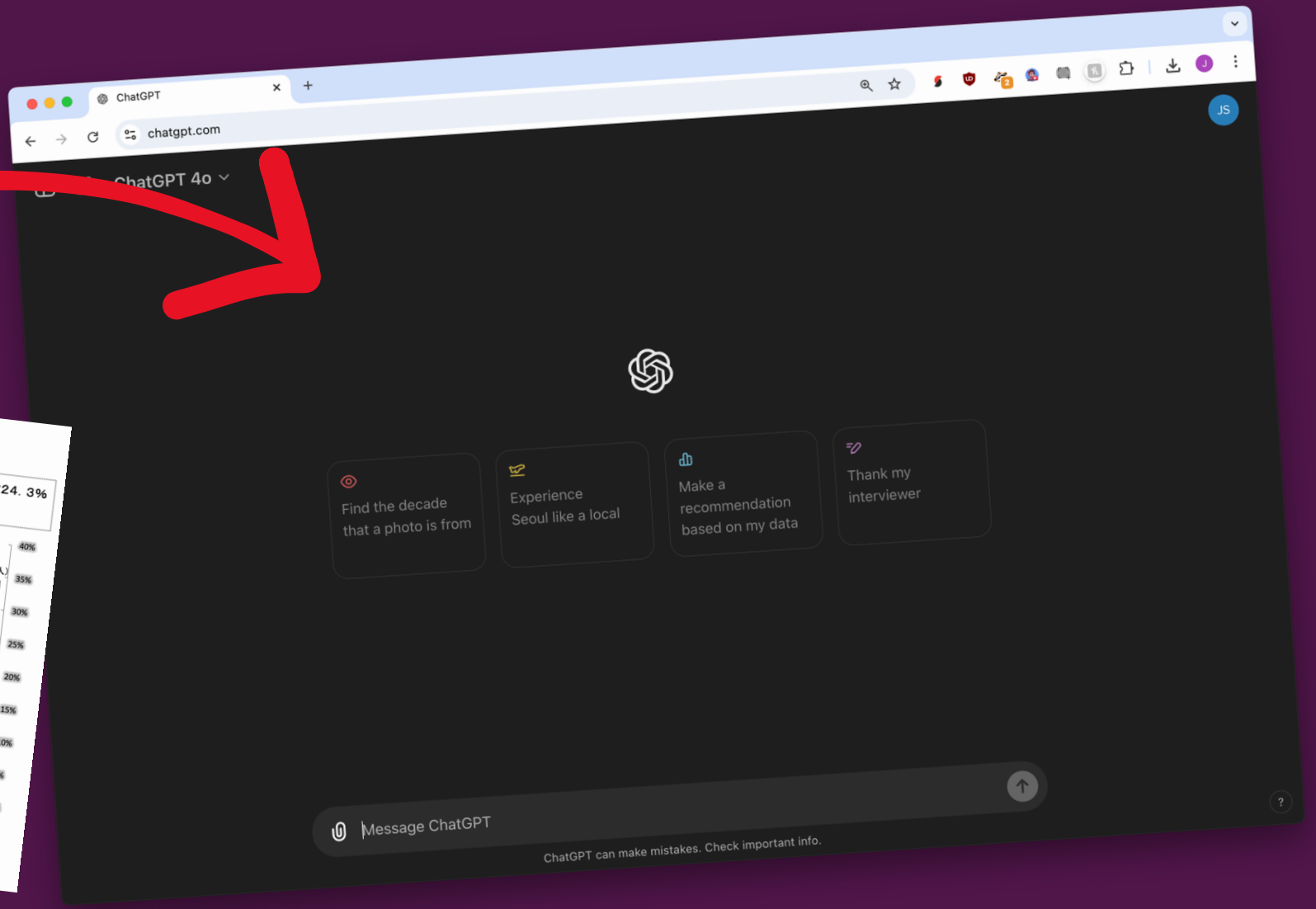
Network

Used for showing the strength and inter-connectedness of relationships of varying types.

designingviz.com




人口の推移（東京都）
東京都における高齢化率は、総人口がピークを迎える平成37年には23．3%であり、平成42 年には24．3%とおよそ 4人に1人が高齢者になると推計されます。
（万人）
推計
(1,326万人)
(1,398万人)
(1,375万人)
高齢者人口（65歳以上）
高齢者人口割合
生産年齢人口（15歳以上65歳未満）
年少人口（15歳未満）
7.7%
22.7%
24.3%
26.4%
昭和55年 (1980)
60年 (1985)
平成2年 (1990)
7年 (1995)
12年 (2000)
17年 (2005)
22年 (2010)
27年 (2015)
32年 (2020)
37年 (2025)
42年 (2030)
47年 (2035)
（注）（ ）内は総人口。1万人未満を四捨五入しているため、内訳の合計値と一致しない場合がある。
出典：総務省「国勢調査」[昭和55年～平成27年]、東京都政策企画局による推計[平成32年～47年]

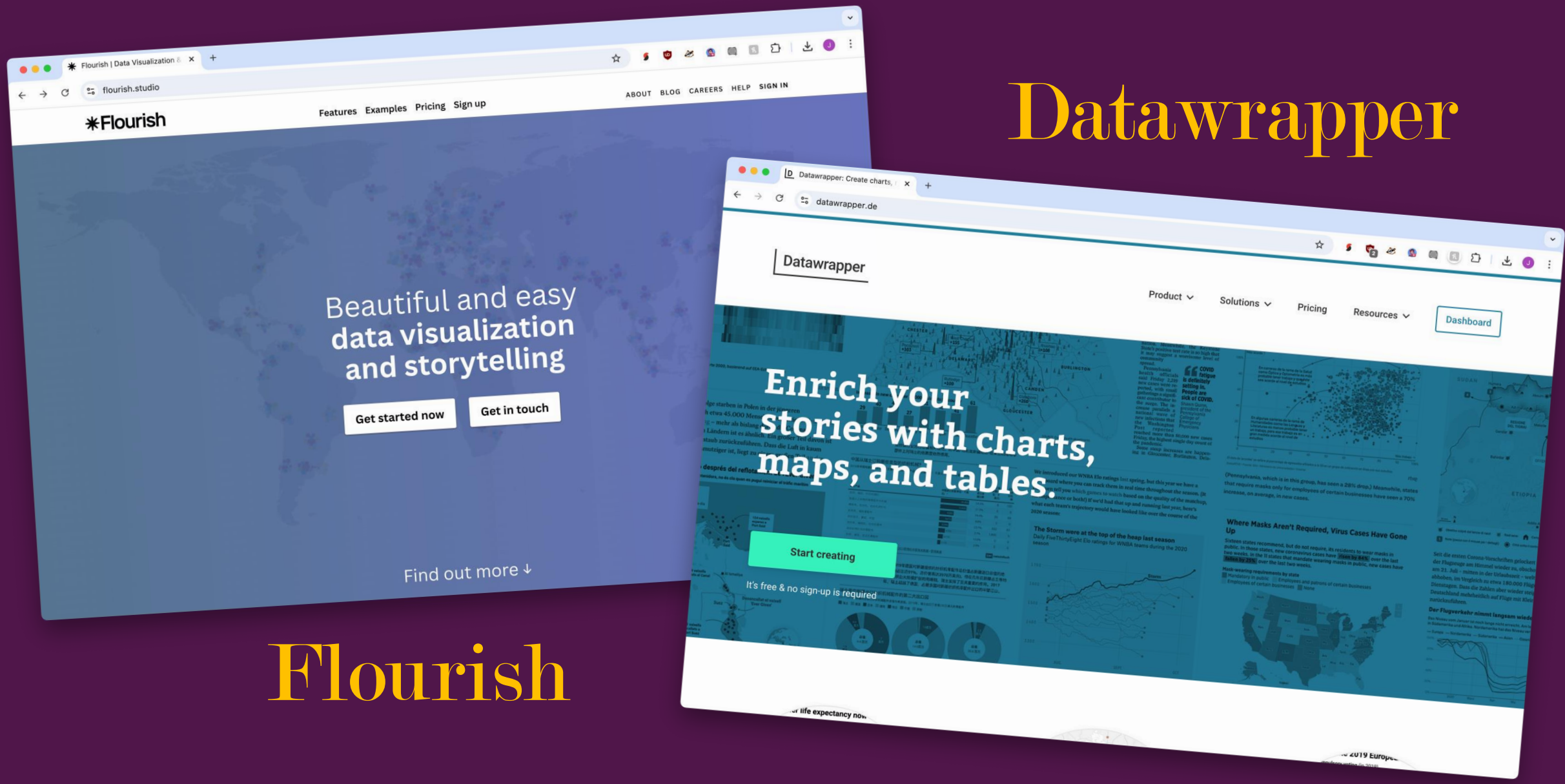

ChatGPT
chatgpt.com
ChatGPT 4o
JS
Find the decade that a photo is from
Experience Seoul like a local
Make a recommendation based on my data
Thank my interviewer
Message ChatGPT
ChatGPT can make mistakes. Check important info.

Tokyo_Population_Projection.csv

Open with Numbers

Year	Young Population (万人)	Working-age Population (万人)	Elderly Population (万人)	Total Population (万人)	Elderly Population %
1980	239	831	104	1174	7.7
1990	213	816	126	1155	10.9
2000	173	785	154	1112	13.9
2010	150	710	230	1090	21.1
2015	140	664	264	1068	24.7
2020	124	640	322	1086	29.7
2025	145	602	325	1072	30.3
2030	140	570	340	1050	32.4
2035	137	536	353	1026	34.4
2040	125	513	360	998	36.1
2045	114	495	363	972	37.4

Copy the image into ChatGPT, and ask for a table of data



Flourish

Datawrapper