

BREATHE LIFE INTO PACIFIC DATA



**PACIFIC
DATAVIZ
CHALLENGE**



GOUVERNEMENT DE LA
NOUVELLE-CALÉDONIE



Pacific Community
Communauté
du Pacifique



Visual Narratives

How to tell a story with data

Emily Barone



What are visual stories?

- A mix of data and contextual information that, when put together in the right way, can communicate insights and ideas.
- It explains what's going on—and why.
- Key ingredients:
 - **Characters:** The audience
 - **Setting:** “Where” / “When”
 - **Plot:** Problems / Solutions
 - **Organization:** The order in which you present data (may depend on format)

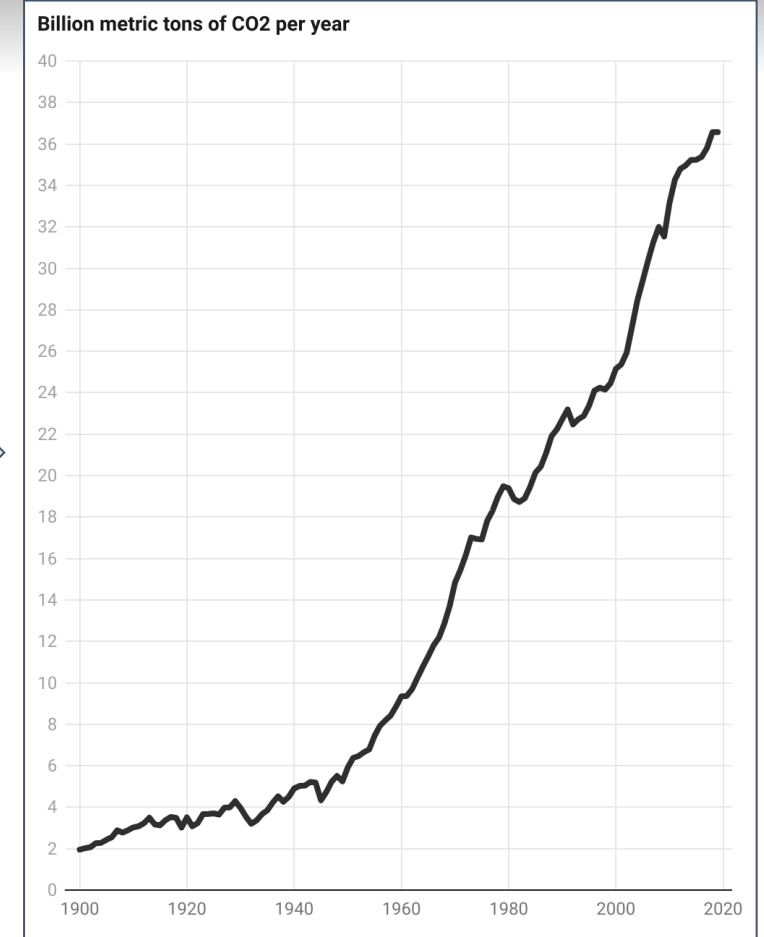
Turning data into a chart, then into a story!

Back in 2020, some climate scientists suggested that COVID lockdowns would make global emissions decline as much as 7%.

I wanted to see what that looked like in the context of historical emissions. I got some data and made a chart.

But this alone did not tell a story.

Year	Fossil	Land	Total	Peak-Trough	
1900	1.95330771	4.10021343	6.05352114	5%	
1901	2.01796998	4.2081716	6.22614159	3%	
1902	2.06909744	4.27418791	6.34328535	3%	
1903	2.25726949	4.33474577	6.59201525	9%	
1904	2.28122472	4.38604775	6.66727247	1%	
1905	2.42866774	4.42576097	6.85442872	6%	
1906	2.55086581	4.45277073	7.00363654	5%	
1907	2.88465987	4.49199451	7.37665438	13%	
1908	2.7757035	4.49993382	7.27563733	-4%	
1909	2.88529374	4.53666099	7.42195473	4%	
1910	3.02601699	4.45045396	7.47647095	5%	
1911	3.08123714	4.42618959	7.50742673	2%	
1912	3.22671992	4.38560705	7.61232697	5%	
1913	3.49136331	4.36153673	7.85290004	8%	
1914	3.1680776	4.28754849	7.45562609	-9%	
1915	3.1251575	4.24956656	7.37472406	-1%	
1916	3.37232362	4.21805248	7.5903761	8%	
1917	3.52837704	4.1998981	7.72827514	5%	
1918	3.48068642	4.19572752	7.67641394	-1%	
1919	3.01664082	4.1966799	7.21332072	-13%	-15%
1920	3.50761315	4.38717297	7.89478613	16%	
1921	3.07771237	4.4952386	7.57295097	-12%	
1922	3.22726952	4.58147093	7.80874045	5%	
1923	3.66171366	4.62127657	8.28299024	13%	
1924	3.67329923	4.65629107	8.3295903	0%	
1925	3.6992257	4.68112145	8.38034715	1%	
1926	3.6419244	4.69684966	8.33877406	-2%	
1927	3.97738192	4.71677334	8.69415526	9%	
1928	3.99111016	4.71997951	8.71108967	0%	
1929	4.29077789	4.71247776	9.00325565	8%	
1930	3.96561602	4.9417967	8.90741272	-8%	
1931	3.54267275	5.09191829	8.63459104	-11%	
1932	3.1961842	5.17839526	8.37457947	-10%	-26%
1933	3.36555721	5.27974348	8.64530069	5%	
1934	3.66155643	5.35100494	9.01256137	9%	
1935	3.84631947	5.41567169	9.26199116	5%	
1936	4.22353274	5.48132593	9.70485867	10%	
1937	4.52281942	5.51881901	10.0416384	7%	
1938	4.26471752	5.54448027	9.80919779	-6%	
1939	4.50300963	5.55405564	10.0570653	6%	
1940	4.90395699	5.65299498	10.556952	9%	
1941	5.0245654	5.73910248	10.7636679	2%	
1942	5.03988054	5.72169011	10.7615707	0%	
1943	5.21640108	5.69382845	10.9102295	4%	
1944	5.18099886	5.65680775	10.8378066	-1%	
1945	4.33338841	5.61503933	9.94842773	-16%	-17%
1946	4.73075716	5.57949716	10.3102543	9%	
1947	5.23661984	5.54033944	10.7769593	11%	
1948	5.50550298	5.48130882	10.9868118	5%	
1949	5.2449216	5.38813017	10.6330518	-5%	
1950	5.91428221	5.68096538	11.5952476	13%	
1951	6.37943222	5.85524126	12.2346735	8%	
1952	6.46617837	5.92520683	12.3913852	1%	
1953	6.64790741	6.02545737	12.6733648	3%	
1954	6.79122736	6.13155903	12.9227864	2%	
1955	7.4436448	6.22145882	13.6651036	10%	
1956	7.92466695	6.33870938	14.2633793	6%	

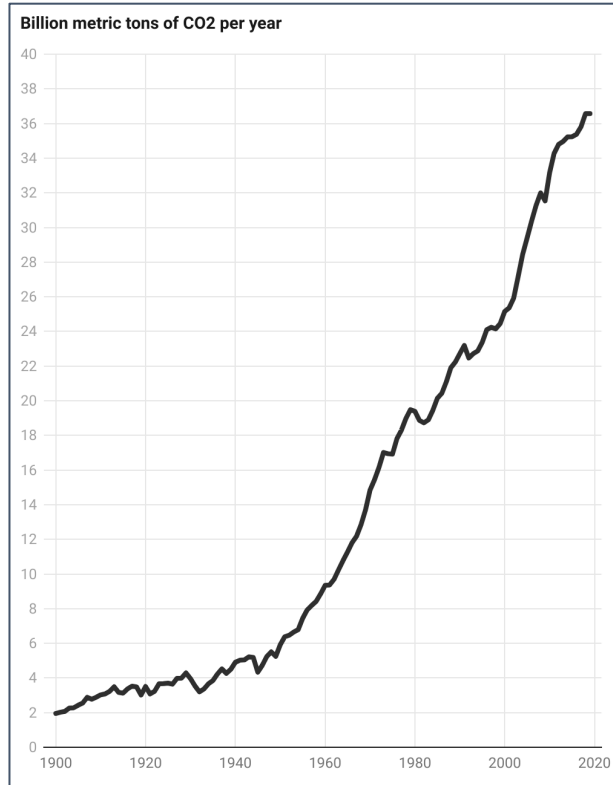


Source: <https://www.globalcarbonproject.org/carbonbudget/>

Make an
outline or
storyboard to
make sure
you hit all the
right goals!

- What do I want the characters (audience) to learn from this visual journey?
- What are the best data points to show this information?
- How can I provide context so they understand what they see?
- How can I organize the information so they:
 - Stay interested from beginning to end
 - Make clear connections between the data points
 - Leave the story with a sense of purpose

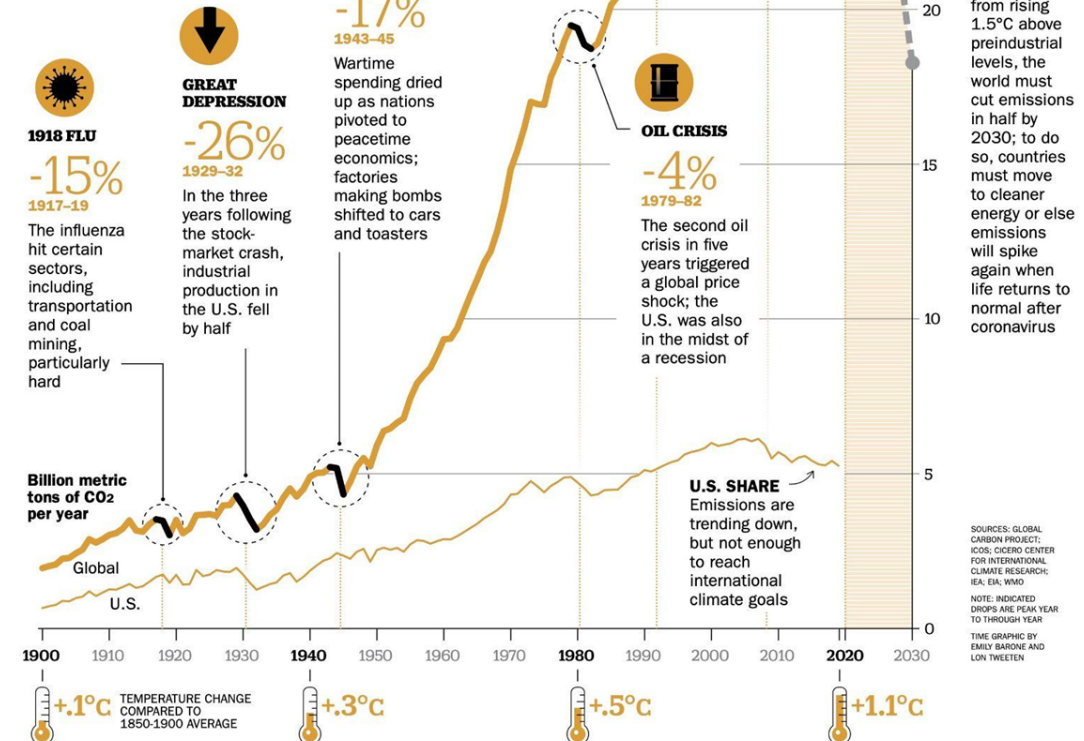
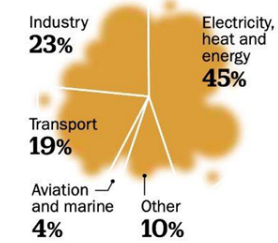
From chart to data story:



HOW WE GOT HERE

Carbon emissions have plummeted during the pandemic due to less traffic, power usage and industrial production. But historically, brief dips have had little effect on climate change, as only systemic shifts have long-term impacts.

Where fossil fuel CO₂ comes from



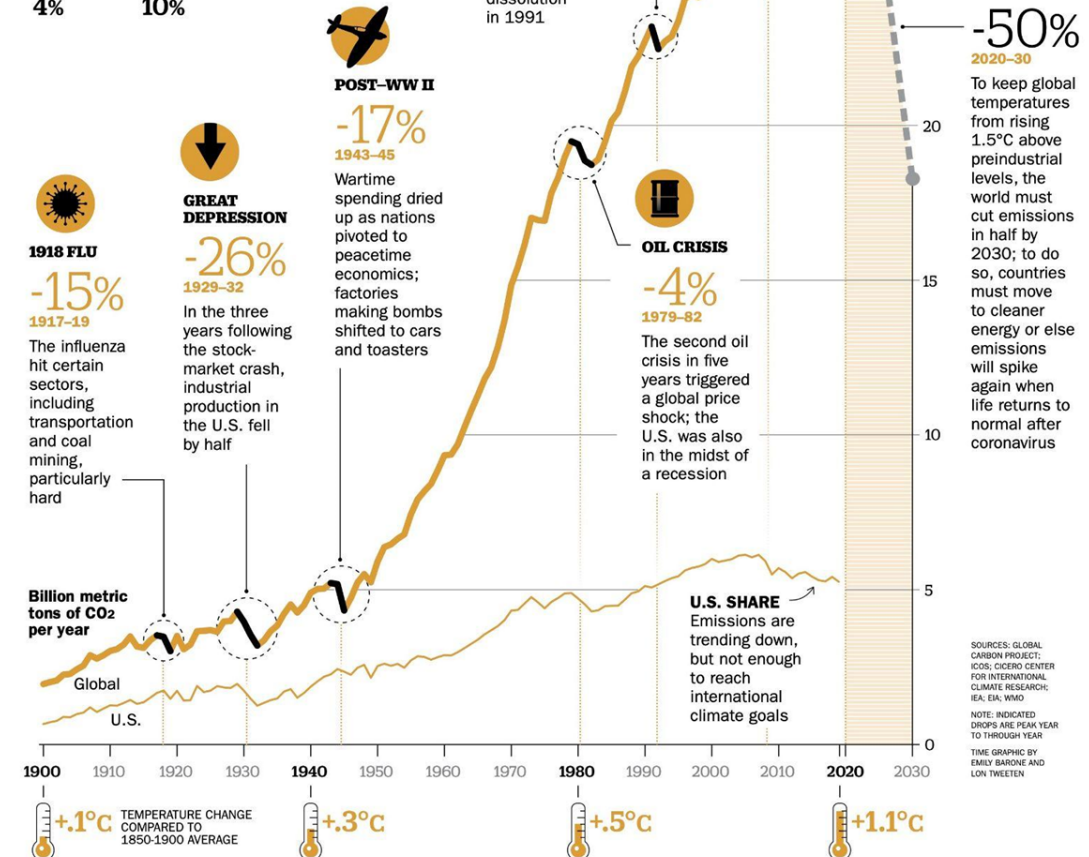
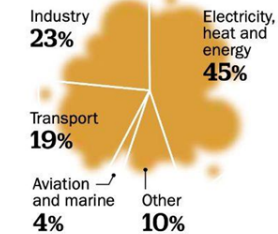
STORYTELLING TIPS

- Highlight the data points that matter (the drops in emissions)
- Add visual icons
- Offer explanations (text callouts)
- Layer the data (temperature changes)
- Provide context (pie chart of fossil fuel sources)
- Finish with a strong ending, usually a call to action (the emissions drop we must achieve).

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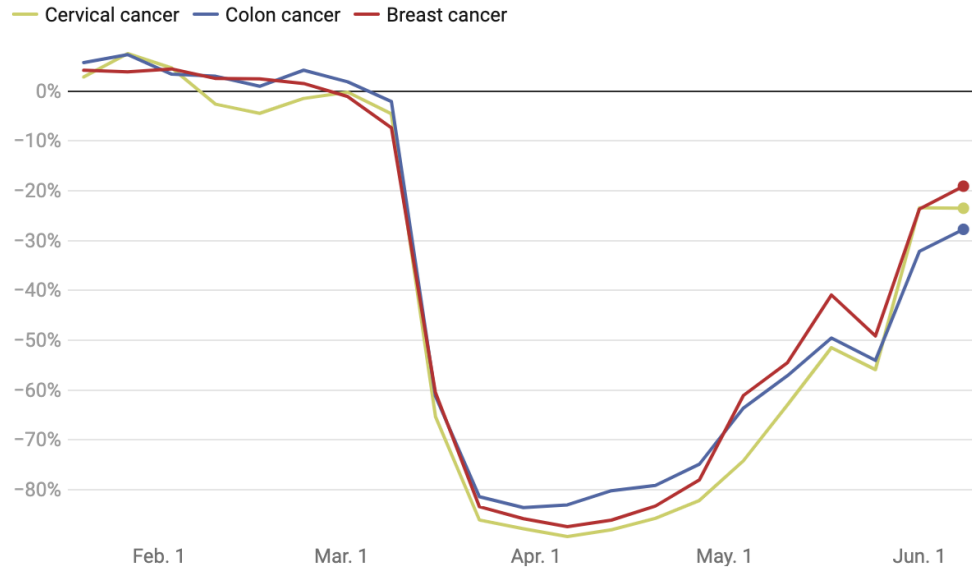
Multiple visuals

A collection of visuals can make a story

1. Cancer screenings drop dramatically

Percentage change in cancer screenings during COVID-19

The lines show how the volume of cancer screenings this year compares to the weekly average in the three years prior to the pandemic.



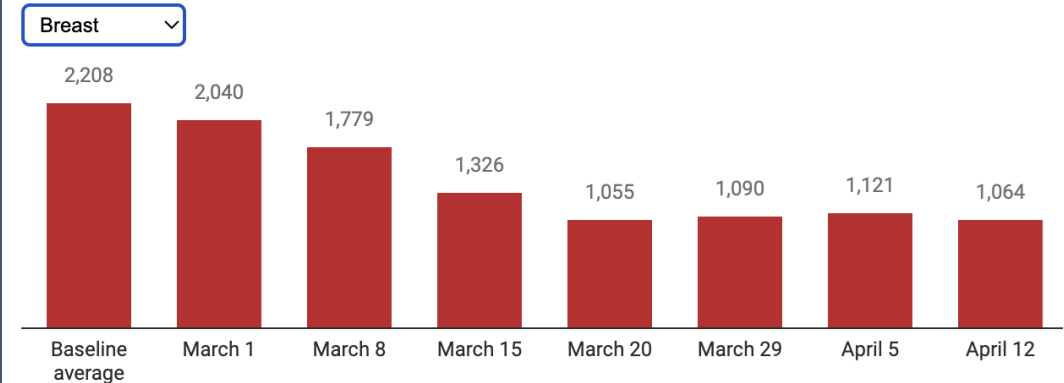
Data are pooled from 60 health care organizations representing 306 hospitals that span 28 states and cover 9.8 million patients.

Chart: Emily Barone for TIME • Source: [Epic Health Research Network](#) • [Get the data](#) • Created with [Datawrapper](#)

2. As a result, there are fewer active cancer patients

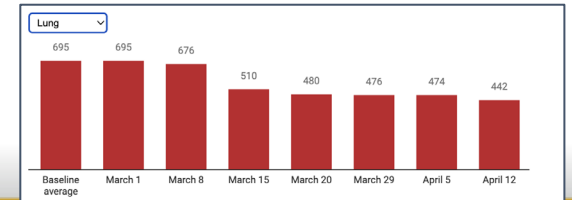
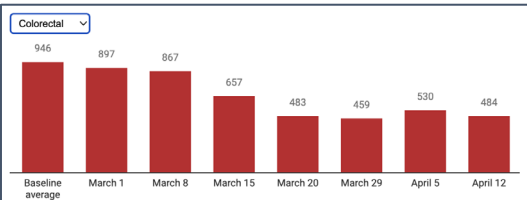
Newly identified cancer patients

Cancer testing data from Quest Diagnostics shows drops in new diagnoses during the early COVID-19 lockdown period. Use the pulldown to see the trends for the six cancers analyzed.



Baseline is a 60-week average prior to March 1. Subsequent tallies are for the week starting on the date shown.

Chart: Emily Barone for TIME • Source: [JAMA](#); [Quest Diagnostics](#) • [Get the data](#) • Created with [Datawrapper](#)

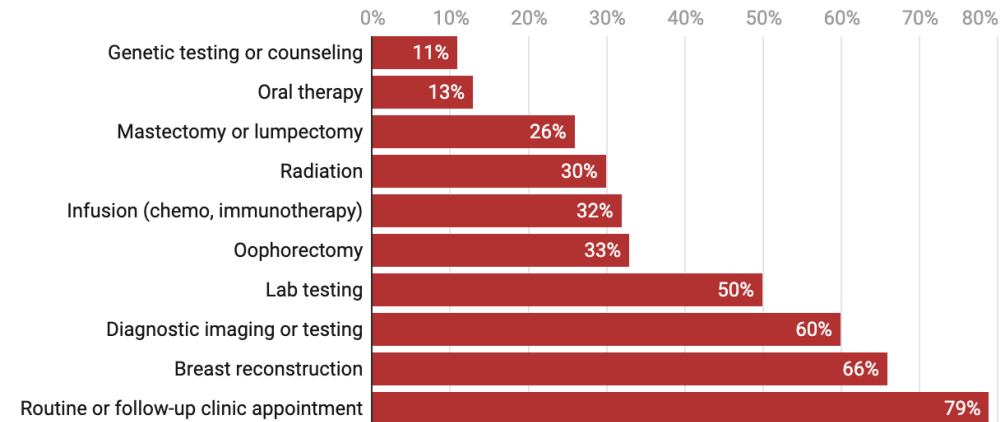


A collection of visuals can make a story

3. Also, people with cancer delayed treatment

Breast cancer patients with pandemic-related delays in care

The below data shows reported delays from a survey of 607 U.S. breast cancer patients and survivors, 63% of which were currently receiving cancer treatment.



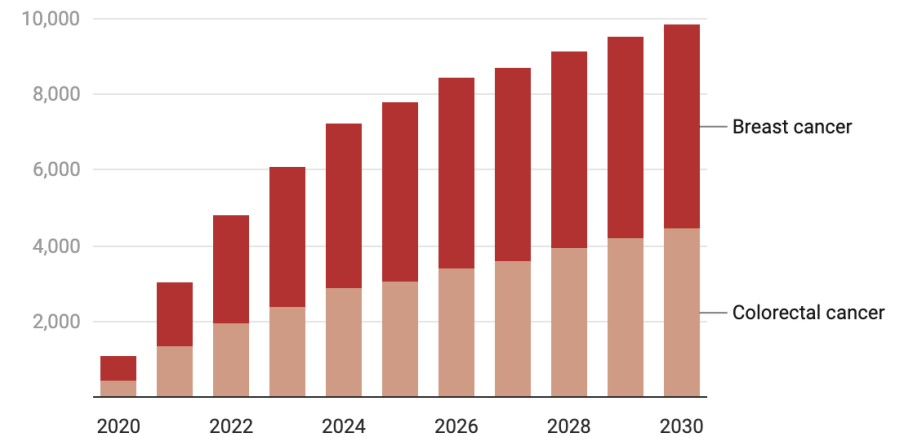
Survey was conducted from April 2 to April 27. In addition to the above categories, 73% chose "Other."

Chart: Emily Barone for TIME • Source: [Springer](#) • [Get the data](#) • Created with [Datawrapper](#)

4. A delay in care means higher rates of death

Cumulative excess deaths due to COVID-19

A moderate disruption in care for six months due to the pandemic may add nearly 10,000 deaths from two cancer types this decade.



Breast and colorectal cancers account for about one in six cancer deaths in the U.S.

Chart: Emily Barone for TIME • Source: [Science](#); [National Cancer Institute](#) • [Get the data](#) • Created with [Datawrapper](#)

Single visual

Be very deliberate and specific with the story you want to tell.

You do not have to introduce every data point.

Do not go on tangents or side notes that pull the viewer away from the storyline.

LUNAR LEAPS

The Cold War propelled lunar exploration, but humans have not stepped on the moon since 1972. Now, the U.S. is back in a space race that it won once before

SUCCESSFUL MISSIONS



MISSION ORIGIN



A Japanese orbiter **maps the entire lunar surface** in exceptional detail



Apollo 15 deploys an **automotive vehicle** and leaves a figurine to honor fallen astronauts



Mission control scrambles to bring Apollo 13 back home after an **oxygen-tank explosion**



Neil Armstrong and Edwin "Buzz" Aldrin are the first humans to **walk on the moon**



The first humans to orbit the moon take the **iconic photo** of an "earthrise" on the lunar horizon

China's expanding space program lands the **first rover** on the far side of the moon

LAUNCH YEAR

HOW FAR IT GOT

LAUNCH/ EARTH ORBIT

TRANS LUNAR SPACE

MOON ORBIT

MOON SURFACE



The U.S. Air Force attempts to **launch a lunar orbiter**; it explodes after 73 seconds



This impactor misses the moon, but is deemed a success for **escaping Earth's gravity**

The first human object to **touch the moon** carries Soviet Union medallions to scatter upon impact



The spacecraft sends photos of the moon's **never-before-seen far side**

A **computer failure** disables the probe before its planned crash landing



The first gentle touchdown proves that **landers will not sink** in lunar dust



NASA's Surveyor missions **test the lunar soil** ahead of Apollo landings



Two **Soviet tortoises** are the first creatures to whip around the moon and return to Earth alive

SOURCE: NASA
NOTE: "MOON ORBIT" INCLUDES MISSIONS THAT CIRCUMNAVIGATED THE MOON AND RETURNED TO EARTH AS WELL AS MISSIONS THAT ORBIT LAGRANGE POINTS. APOLLO 7 AND 9, WHICH ORBITED THE EARTH, ARE NOT INCLUDED.
TIME GRAPHIC BY EMILY BARONE AND LON TWEETEN

CLOCKWISE FROM TOP: PIONEER 0, LUNA 9, APOLLO 8, APOLLO 15, MOON, NASA (5); LUNA 1: JPL/NASA; LUNA 3: USSR/NASA; SURVEYOR 1: SSP/GETTY IMAGES; ZOND 5: RSC ENERGIA; APOLLO 11: NASA/AFP/GETTY IMAGES; APOLLO 13: BETTMANN ARCHIVE/GETTY IMAGES

Ready to make your own data story?

- Don't jump in right away. Take time to absorb all the data and then edit down the pieces that make the best narrative.
- Use a storyboard and pose questions to make the story flow with a beginning, a middle, and an end.
- Use color, icons, and little text callout to help the viewer follow (and understand) the logical path you've made for them.
- Give context and background information so that the data makes sense, but don't go on tangents.
- Don't forget your "characters!"

THANK YOU!

Questions?