Cell Signal Analyzing the Data Presentation

Collecting data

- **Where is your home located—in a flat part of your town or in a hilly area?**
- **Who is wearing short sleeves vs. long sleeves today?**
- **Has it been windy this week?**

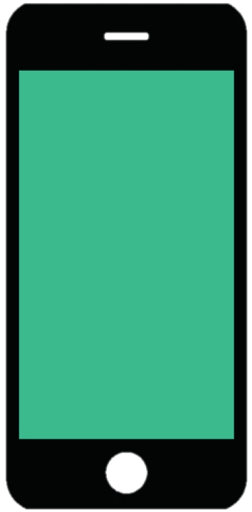
The Anatomy of a High-Altitude Balloon

- **Balloon**
- **Payload**
  - **Parachute**
  - **Stratostar Flight Computer (GPS, temperature, altitude)**
  - **GoPro cameras**
  - **Testing materials/devices**
  - **Harnesses**

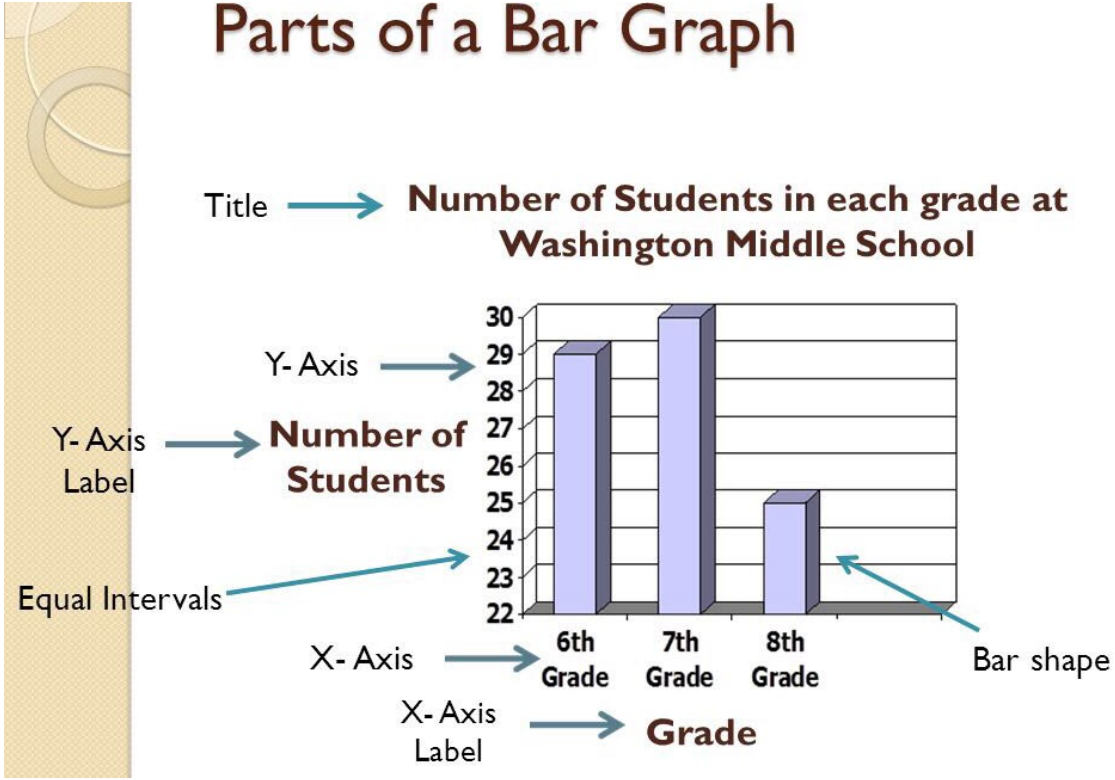
→ All of this must weigh under 12 lbs.

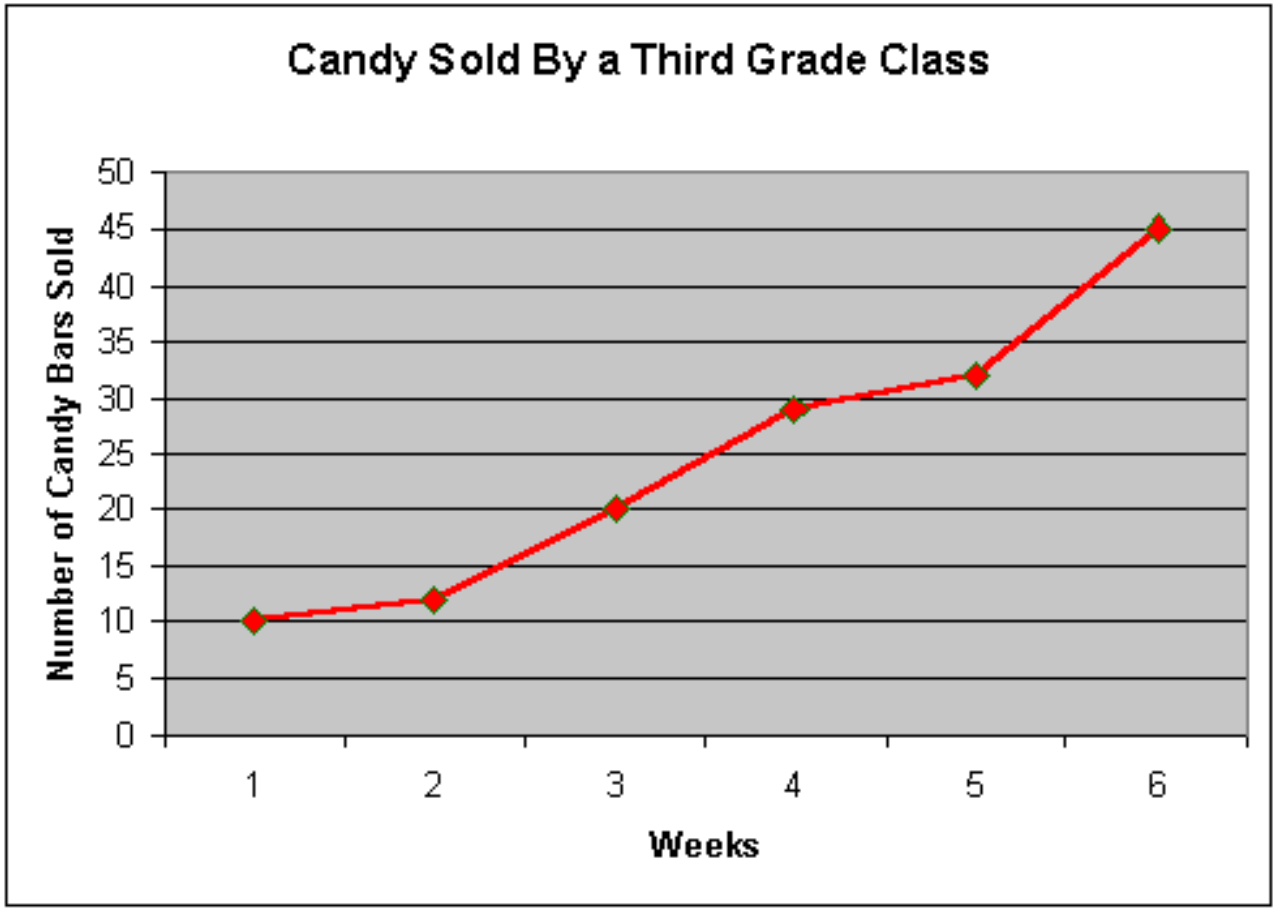
Our Project: How far up in the atmosphere can we still get cellphone signals?

To find out, we'll use a high-altitude balloon.
What is that?
View to find out: High-Altitude Balloon Launch from WY Space Grant:
https://youtu.be/sSYQw0mr6Eg



How do we read data?





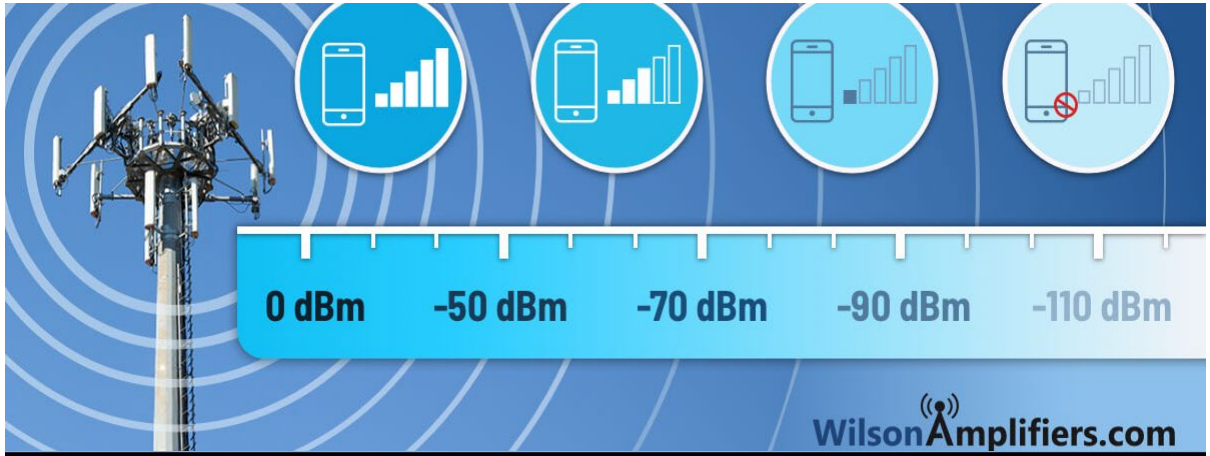
Let's Practice

- Label the parts.

Graph it!

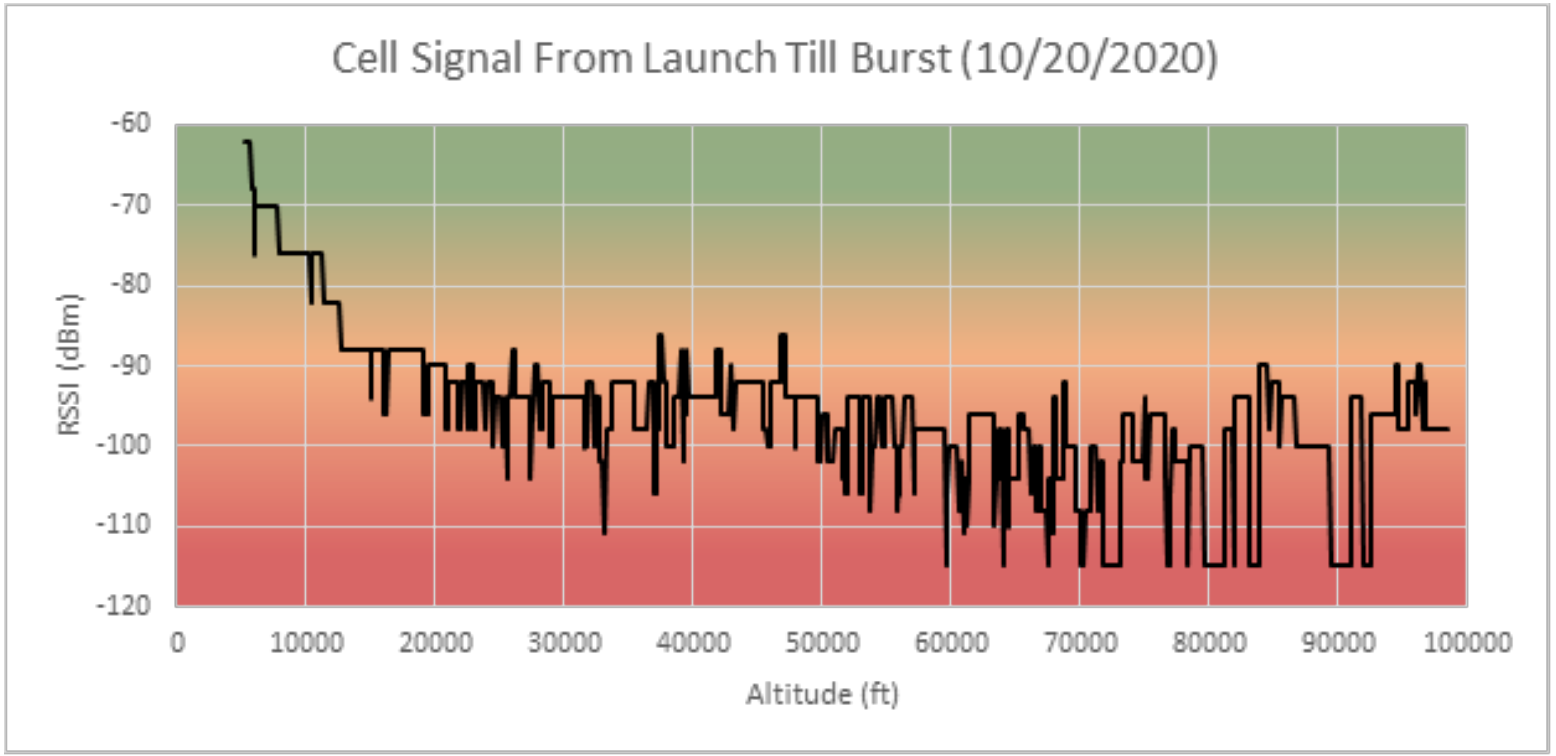
- Using the data you collected, graph it!
- Decide which graph is most appropriate
  - Bar graph
  - Line graph
  - Circle graph/Pie Chart
- Make sure to label your axes
- Title your graph
- Do any questions emerge based on your data?

Measuring Cellphone Signals



RSSI	Signal Strength
> -70 dBm	Excellent
-70 dBm to -85 dBm	Good
-86 dBm to -100 dBm	Fair
< -100 dBm	Poor
-110 dBm	No signal

Our Data


Cell Signal From Launch Till Burst (10/20/2020)
RSSI (dBm)
-60
-70
-80
-90
-100
-110
-120
0
10000
20000
30000
40000
50000
60000
70000
80000
90000
100000
Altitude (ft)

What questions do we have?

- **Where do the fluctuations in signal come from?**
- **How would the data look different on a day with bad weather?**
- **Would the data look different if we were transmitting signal rather than receiving signal?**
- **What are our next steps?**