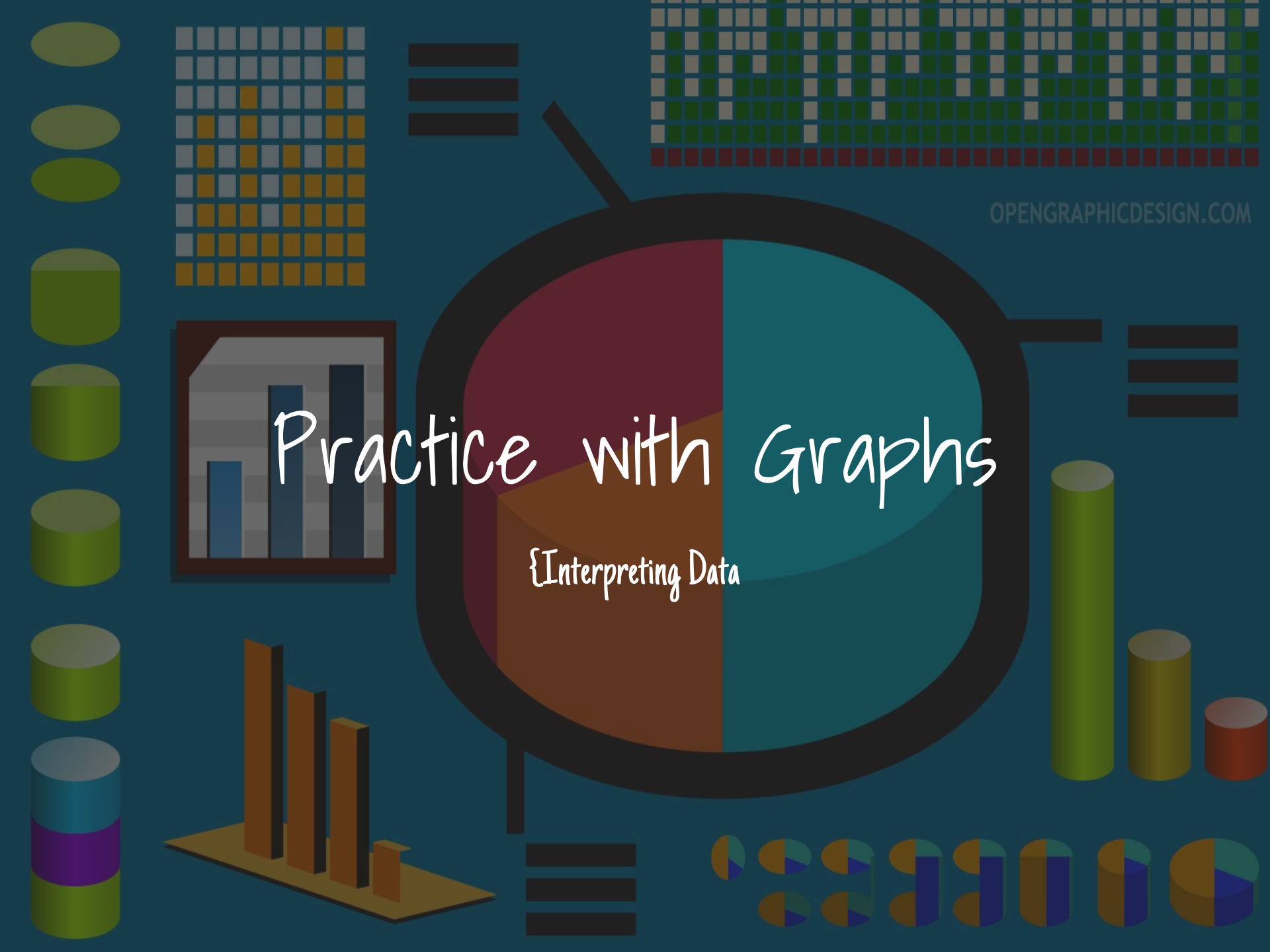
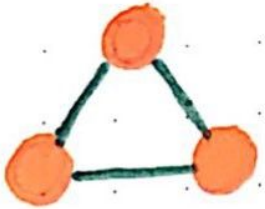


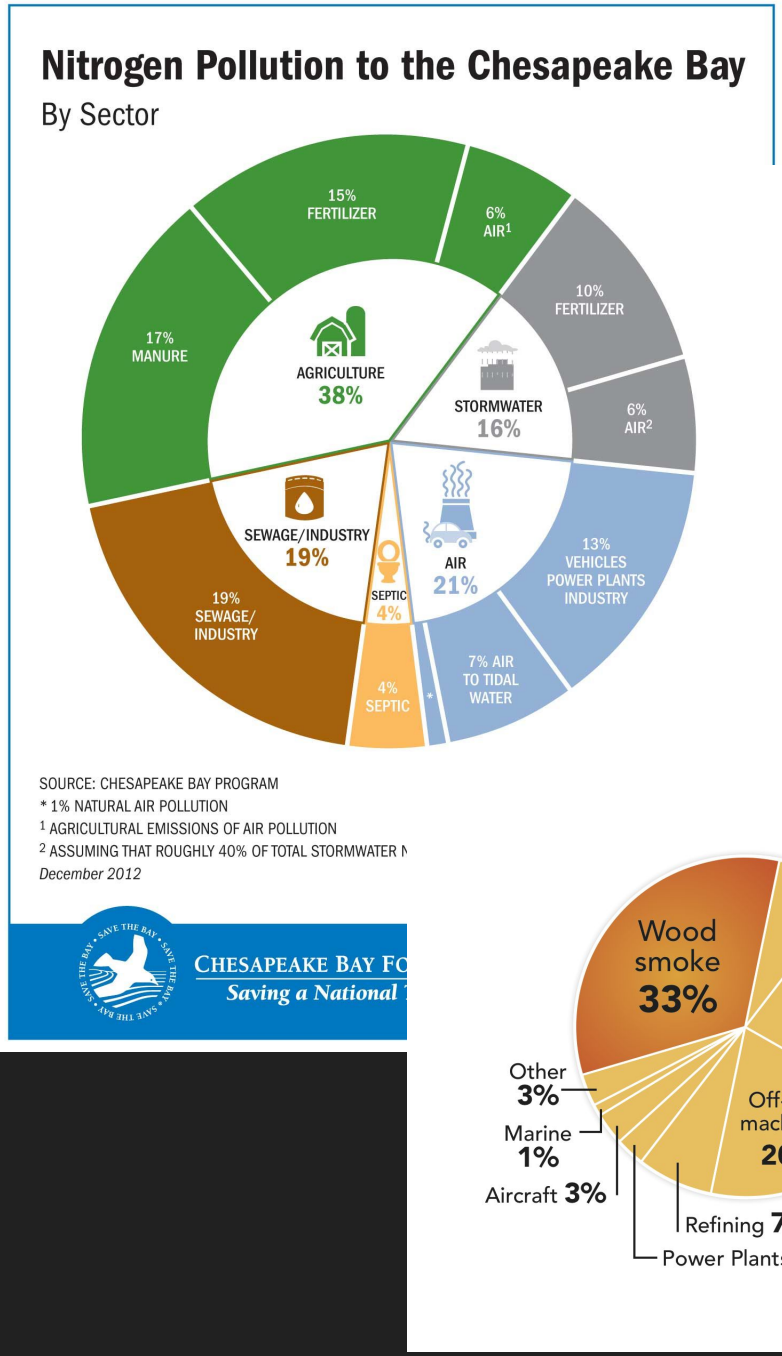
Practice with Graphs

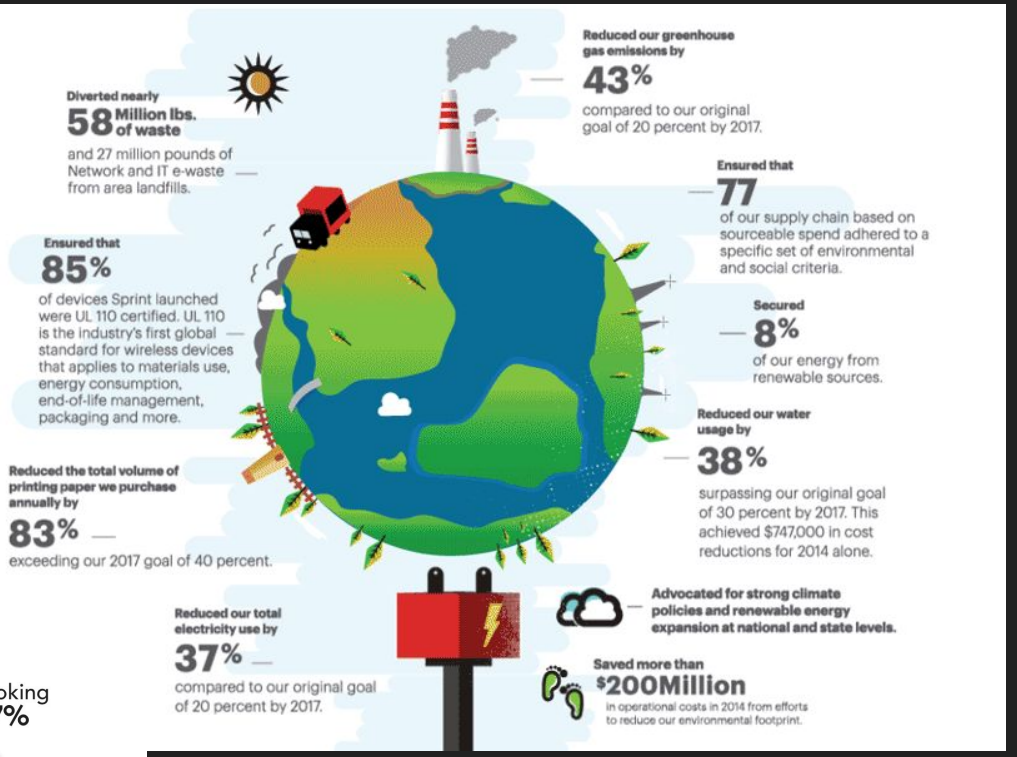
{Interpreting Data

From theory to practice: Representing Graphs



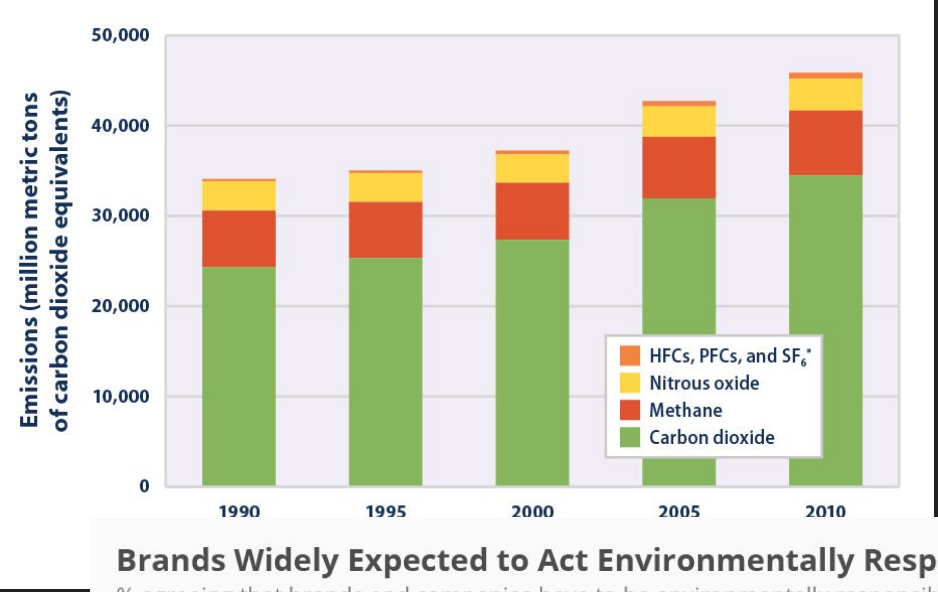
Pie Charts

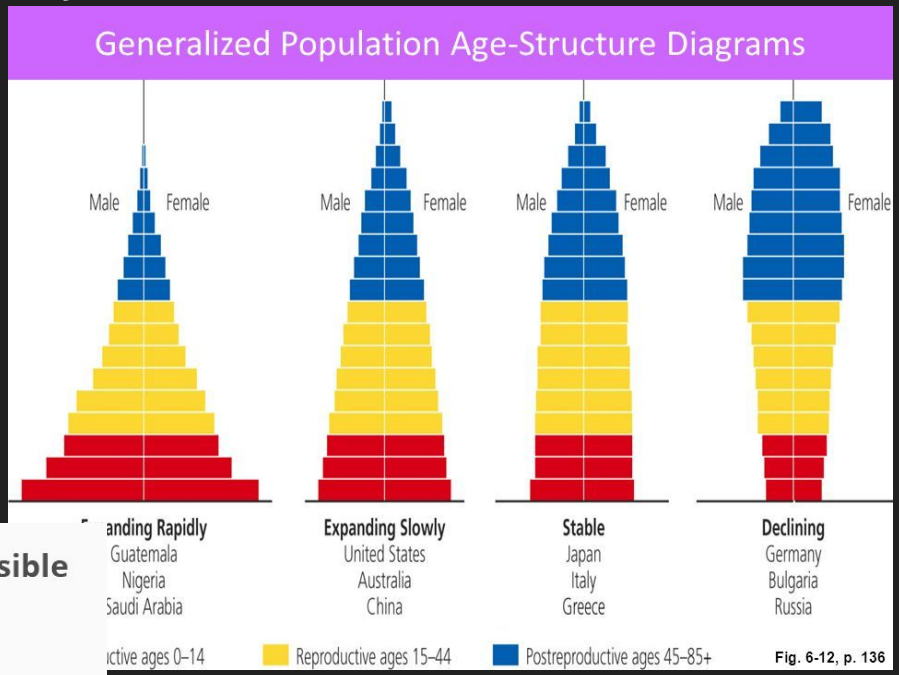

Nitrogen Pollution to the Chesapeake Bay
By Sector
15% FERTILIZER
6% AIR1
10% FERTILIZER
6% AIR2
17% MANURE
AGRICULTURE 38%
STORMWATER 16%
SEWAGE/INDUSTRY 19%
AIR 21%
13% VEHICLES POWER PLANTS INDUSTRY
19% SEWAGE/ INDUSTRY
SEPTIC 4%
4% SEPTIC
7% AIR TO TIDAL WATER
SOURCE: CHESAPEAKE BAY PROGRAM
* 1% NATURAL AIR POLLUTION
1 AGRICULTURAL EMISSIONS OF AIR POLLUTION
2 ASSUMING THAT ROUGHLY 40% OF TOTAL STORMWATER N
December 2012
CHESAPEAKE BAY FO
Saving a National

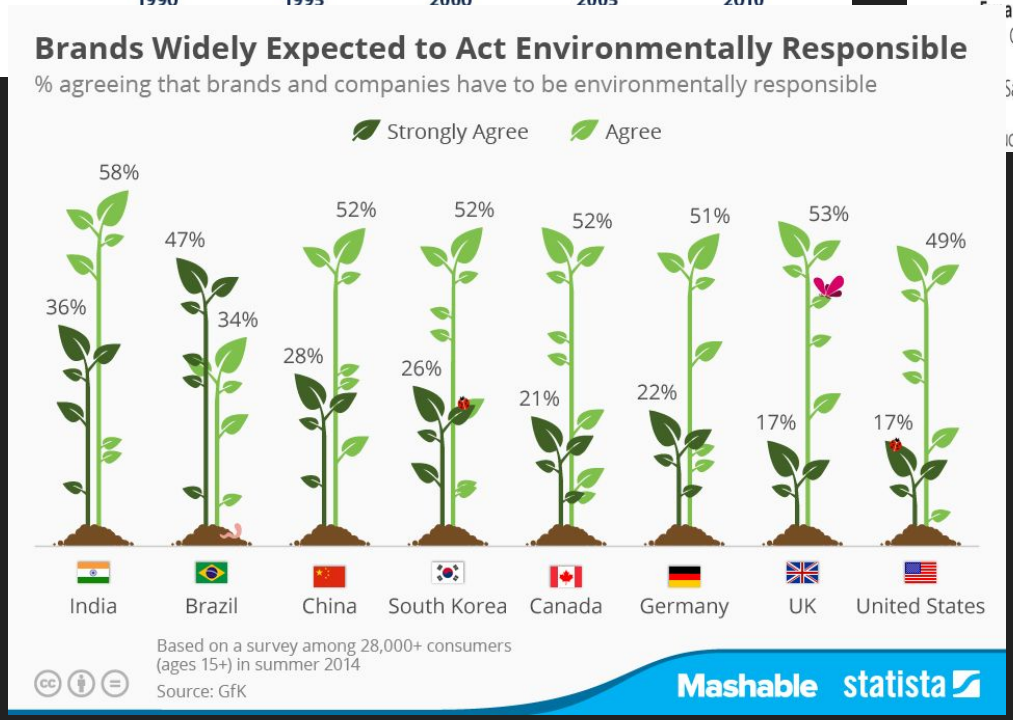

Diverted nearly 58 Million lbs. of waste
and 27 million pounds of Network and IT e-waste from area landfills.
Reduced our greenhouse gas emissions by 43%
compared to our original goal of 20 percent by 2017.
Ensured that 77
of our supply chain based on sourceable spend adhered to a specific set of environmental and social criteria.
Ensured that 85%
of devices Sprint launched were UL 110 certified. UL 110 is the industry's first global standard for wireless devices that applies to materials use, energy consumption, end-of-life management, packaging and more.
Secured 8%
of our energy from renewable sources.
Reduced our water usage by 38%
surpassing our original goal of 30 percent by 2017. This achieved $747,000 in cost reductions for 2014 alone.
Reduced the total volume of printing paper we purchase annually by 83%
exceeding our 2017 goal of 40 percent.
Advocated for strong climate policies and renewable energy expansion at national and state levels.
Reduced our total electricity use by 37%
compared to our original goal of 20 percent by 2017.
Saved more than $200Million
in operational costs in 2014 from efforts to reduce our environmental footprint.

Cooking 7%
Wood smoke 33%
On-road vehicles 23%
Other 3%
Off-road machinery 20%
Marine 1%
Aircraft 3%
Refining 7%
Power Plants 3%

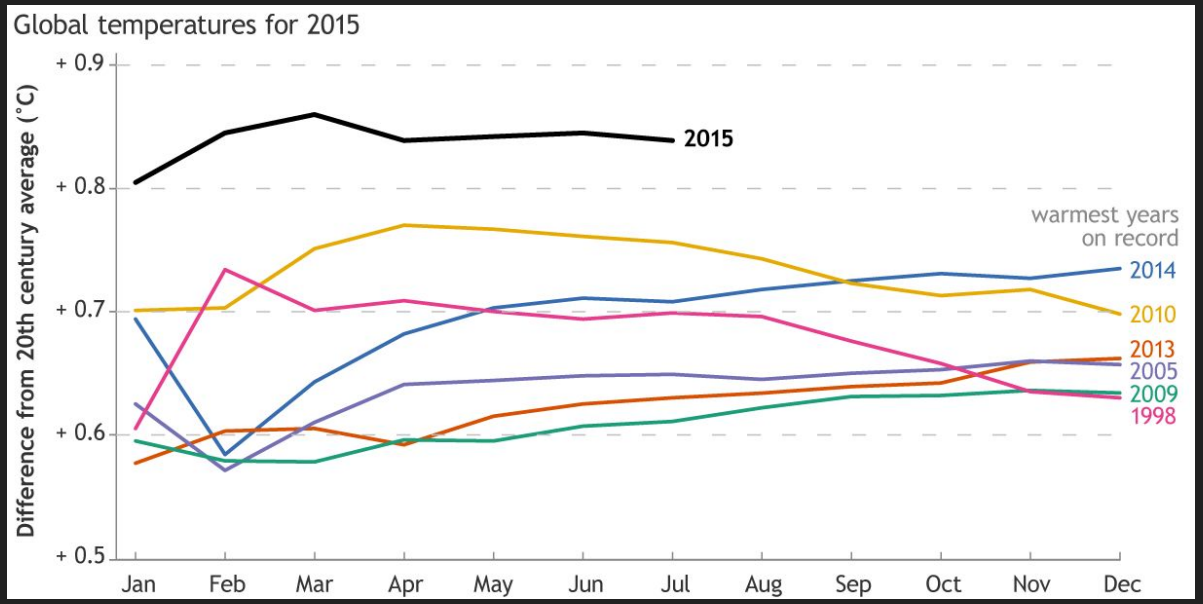
Bar Graphs

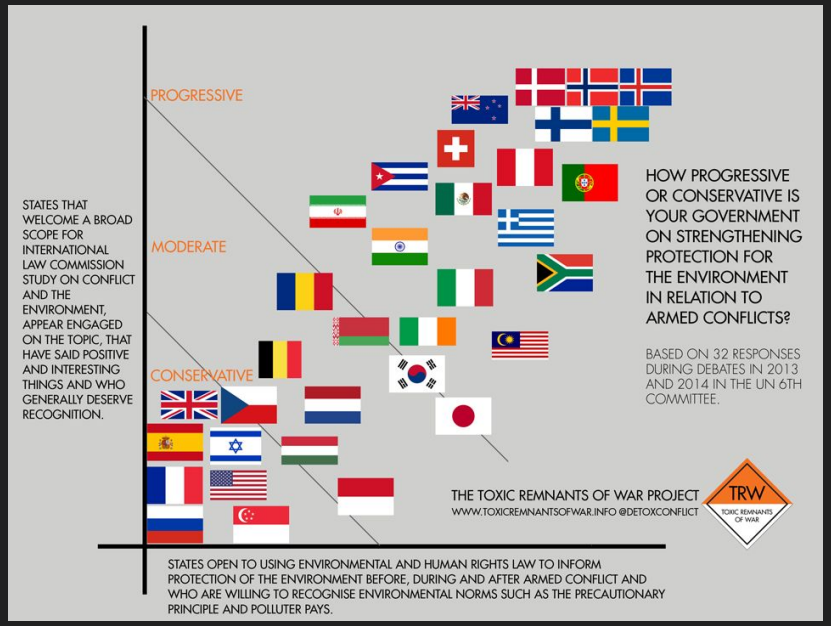

Emissions (million metric tons of carbon dioxide equivalents)
50,000
40,000
30,000
20,000
10,000
0
1990
1995
2000
2005
2010
HFCs, PFCs, and SF6*
Nitrous oxide
Methane
Carbon dioxide


Generalized Population Age-Structure Diagrams
Male
Female
anding Rapidly
Guatemala
Nigeria
Saudi Arabia
Expanding Slowly
United States
Australia
China
Stable
Japan
Italy
Greece
Declining
Germany
Bulgaria
Russia
ctive ages 0–14
Reproductive ages 15–44
Postreproductive ages 45–85+
Fig. 6-12, p. 136

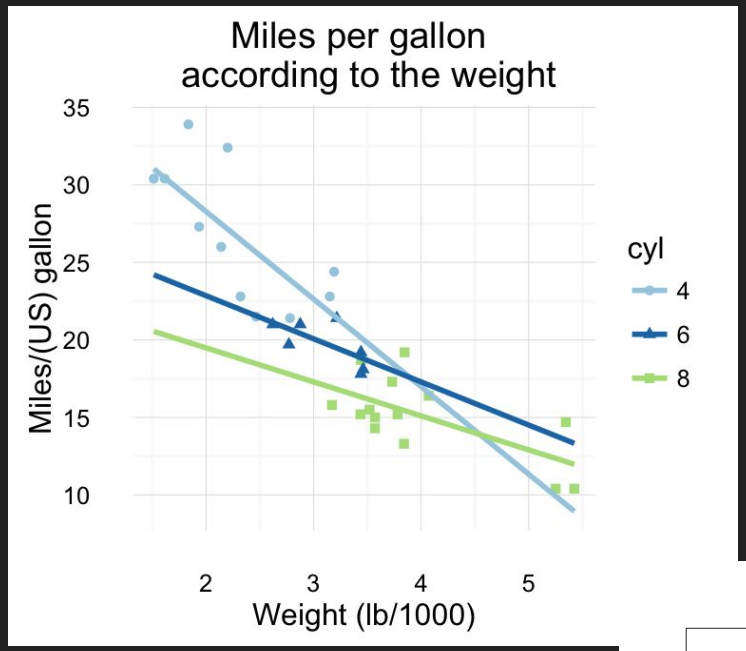

Brands Widely Expected to Act Environmentally Responsible
% agreeing that brands and companies have to be environmentally responsible
Strongly Agree
Agree
58%
36%
47%
34%
28%
52%
26%
52%
21%
52%
22%
51%
17%
53%
17%
49%
India
Brazil
China
South Korea
Canada
Germany
UK
United States
Based on a survey among 28,000+ consumers (ages 15+) in summer 2014
Source: GfK
Mashable
statista

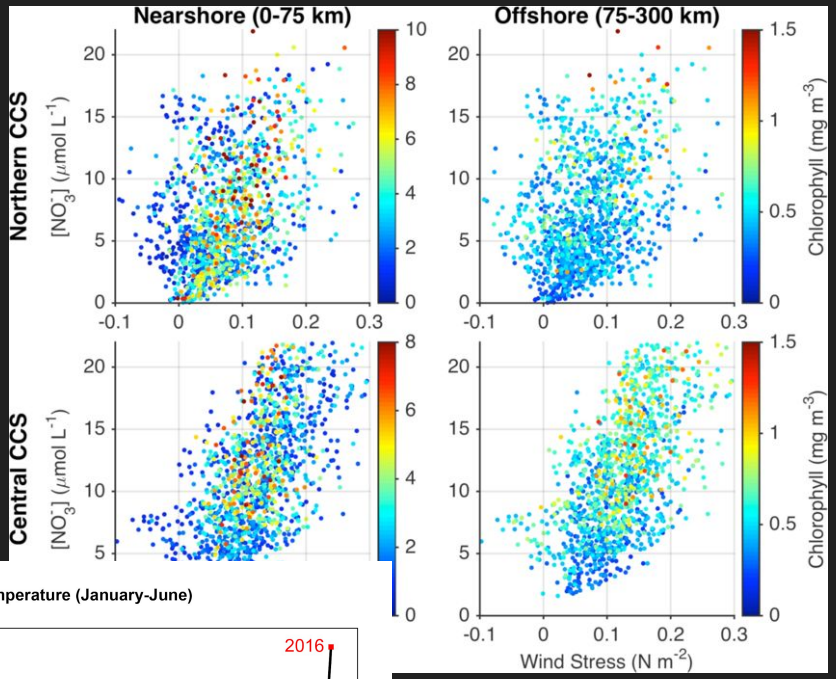
Line Graphs

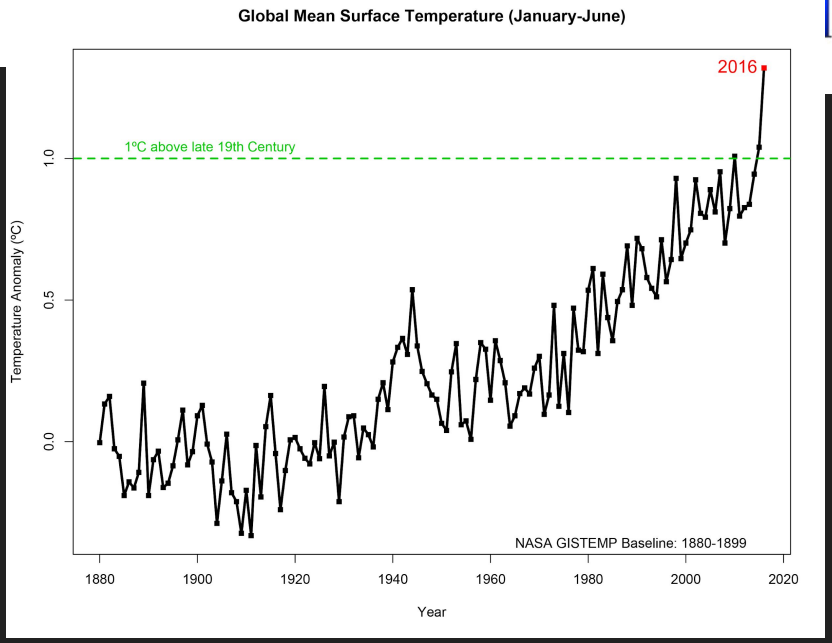

Global temperatures for 2015
Difference from 20th century average (°C)
+ 0.9
+ 0.8
+ 0.7
+ 0.6
+ 0.5
2015
warmest years on record
2014
2010
2013
2005
2009
1998
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec


PROGRESSIVE
MODERATE
CONSERVATIVE
STATES THAT WELCOME A BROAD SCOPE FOR INTERNATIONAL LAW COMMISSION STUDY ON CONFLICT AND THE ENVIRONMENT, APPEAR ENGAGED ON THE TOPIC, THAT HAVE SAID POSITIVE AND INTERESTING THINGS AND WHO GENERALLY DESERVE RECOGNITION.
HOW PROGRESSIVE OR CONSERVATIVE IS YOUR GOVERNMENT ON STRENGTHENING PROTECTION FOR THE ENVIRONMENT IN RELATION TO ARMED CONFLICTS?
BASED ON 32 RESPONSES DURING DEBATES IN 2013 AND 2014 IN THE UN 6TH COMMITTEE.
THE TOXIC REMNANTS OF WAR PROJECT
WWW.TOXICREMNANTSOFWAR.INFO @DETOXCONFLICT
TRW
TOXIC REMNANTS OF WAR
STATES OPEN TO USING ENVIRONMENTAL AND HUMAN RIGHTS LAW TO INFORM PROTECTION OF THE ENVIRONMENT BEFORE, DURING AND AFTER ARMED CONFLICT AND WHO ARE WILLING TO RECOGNISE ENVIRONMENTAL NORMS SUCH AS THE PRECAUTIONARY PRINCIPLE AND POLLUTER PAYS.

Scatter Plots





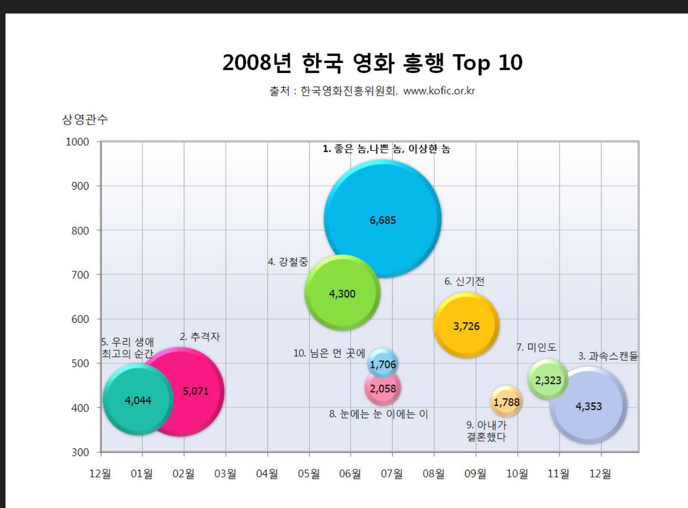


Less Common

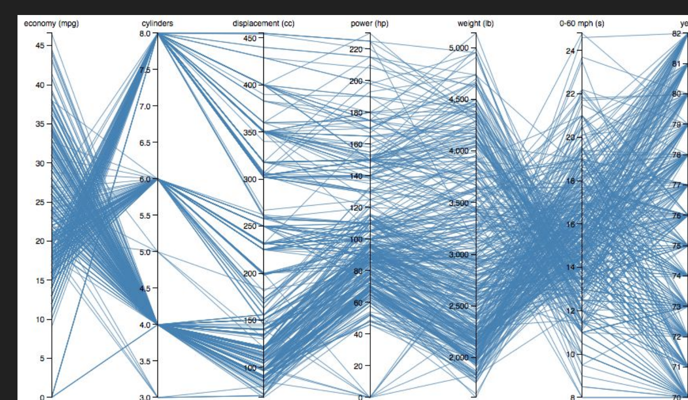
Bubble Cloud

Tree Map

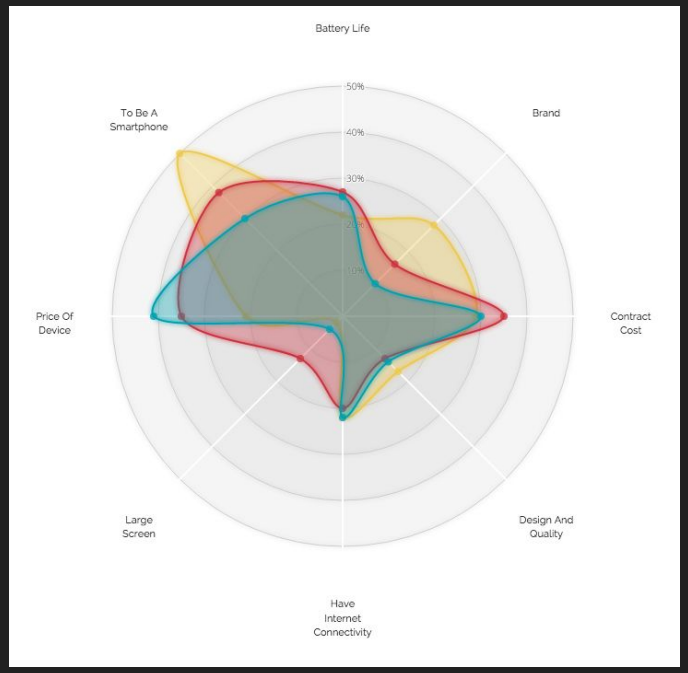
Bubble Chart



Parallel Graph

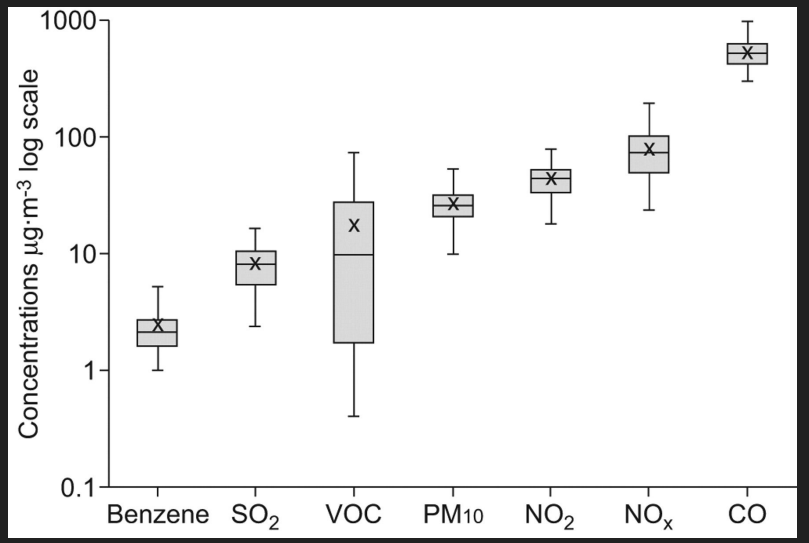


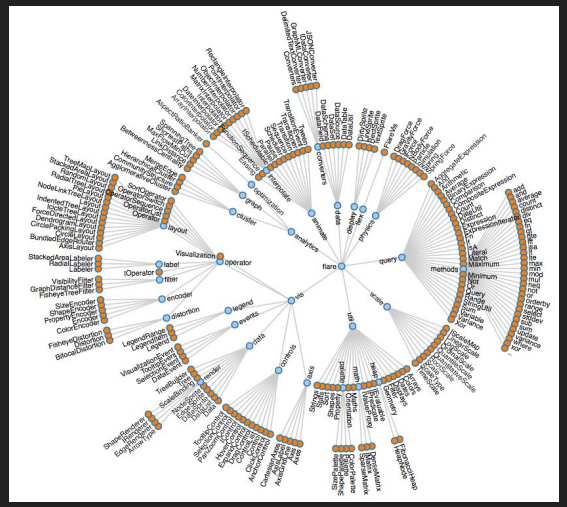
Less Common



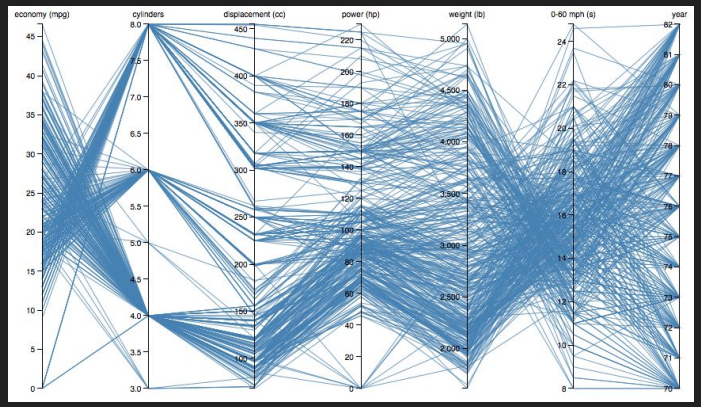
Radial/Spider Graph

Box and Whisker Plot





Radial Tree



dependency

Choosing the right graph

(Make sure you write this down!)

- Line graphs are especially helpful for showing how something changes over time.
- Scatter Plots are similar, and good for showing trends in data. They show how much one variable is affected by another.
- Bar graphs are used to compare two or more categories of things.
- Line, bar, and scatter plot graphs all have a dependent variable that is measured and plotted on the y-axis.
- Line graphs are preferred for showing changes over time because they better represent a continuum of data. Information presented in a bar graph is divided into categories.
- Pie charts show proportions and always add to 100%.

Pie Graphs

Steps for making a pie chart:

1. Collect the data and organize them in a table with column and row headings (see Table 1). Remember, pie charts are used to display percentages and the total of all categories always adds up to 100%.
2. Calculate the proportions and circle degrees for each item in the table (for younger students, calculating circle degrees is not necessary; estimating and drawing the proportions will suffice).
3. Draw a circle to represent a pie chart.
4. Transfer the data to the graph by drawing segments in the chart. Distinguishing sections by color is the standard way to tell them apart.
5. Decide on a title for the pie chart. The title should go at the top and summarize the variables studied.
6. Create a key to identify the sections of the pie chart.

Pie Graphs

Make a pie graph with this information collected from class.

What is your favorite off period?

____ Period 1
____ Period 2
____ Period 3
____ Period 4
____ Period 5a
____ Period 5b
____ Period 6
____ Period 7

_____ Number of students

Line Graph

1. Collect the data and organize them in a table with column and row headings (see Table 2).
2. Draw a right angle on the board to represent the graph axes.
3. Label the x and y axes of the graph. Lay out the scales for each axis (for the example below: height in inches, 0–60, age in years, 1–10).
4. Transfer the data to the graph by adding data points and drawing a line through them.
5. Decide on a title for the graph. The title should go at the top and describe the relationship between the variables represented.

Line Graph

Create a Line Graph using this information.

Kerry's height since age one	
Age (in years)	**Height (in inches)**
1	27
2	32
3	37
4	40
5	42
6	45
7	48
8	50
8	52
10	54

Table 2: Table of student's growth

Scatter Plot

Scatter plots are best for showing whether two variables are correlated. Examples to graph: the number of hours that students spent studying for an exam versus the grade received.

Steps for making a line graph:

1. Collect the data and organize them in a table with column and row headings.
2. Draw the outline of a graph (a right angle) on the board to represent the graph axes.
3. Label the x and y axes of the graph. Lay out the scales for each axis.
4. Transfer the data to the graph by adding data points.
5. You may choose to draw a best-fit line through the points if they seem to be correlated. (This has not been done in the sample, but it appears there is a positive correlation between time spent studying and test score.)
6. Decide on a title for the graph. The title should go at the top and describe the relationship between the variables represented.

Scatter Plot

Create a Scatter Plot Graph using this information.

Student	Hours spent studying	Test score
1	3	80
2	5	90
3	2	75
4	6	80
5	7	84
6	1	55
7	2	64
8	0.5	48
9	1	42
10	7	100
11	1.5	81
12	2.5	82
13	3.5	82
14	4	91
15	1.5	61

Table 3: Table of study time and associated test score

Bar Graph

Steps for making a bar graph:

1. Collect the data and organize them in a table with column and row headings (.
2. Draw a right angle on the board to represent the axes of the graph.
3. Label the x and y axes for the graph. Lay out the scales for the y-axis and the categories for the x-axis.
4. Transfer data to the graph by drawing bars on the graph.
5. Decide on a title for the graph. The title should go at the top and describe what the graph is about.

Bar Graph

Create a Bar Graph using this information.

Kind of Pet	Number of Students who have at least one of this kind of Pet
Dog	6
Cat	7
Fish	8
Rodents	5
Others	3

Table 4: Pets owned by students

Now create a less common graph...

On the back of your paper: You must create a "less common" graph using at least 2 data points from your terrarium data weekly sheet. It can not be one of the graphs you have already done.

Kahoot Quiz

https://create.kahoot.it/details/bar-graphs/b0b86a76-196b-4de2-aa32-2ab819ac7ab9