## Objective(s)

I will be able to identify bias within various studies.

I will be able to effectively collect data for later use.

## Essential Question(s)

How do I spot bad statistics online & on social media?

How can I efficiently collect & organize data?

Join Google Classroom:
n3bjeym   ~OR~   *click here*

# How To Spot Bad Statistics
## online & on social media

**1**

### Why did you click?

Ask yourself what made you click on the story or image. Are you hoping it's true? Does it say something you already believe?
Do you feel a strong emotion?

This is called Confirmation Bias. We are more likely to click on something that appears to agree with what we already believe. If that's what made you click be careful to control your own bias.

Look for the words "promoted" or "sponsored". They mean someone paid money for you to get the post in your feed.

### Why is it showing up in your feed?

Check to see where the post came from originally. Is it from a well known scientific organization, an established educational institution, or a respected scientist?

**2**

# How To Spot Bad Statistics
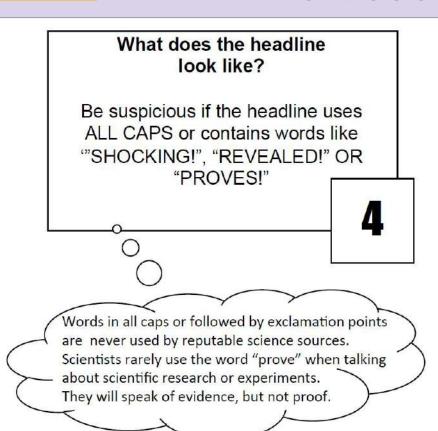## online & on social media

**3**

**What does the domain name or URL tell you?**

Click through to the site. Domain names that end with "lo" are often biased. URLs that end with "com.co" should be seen as suspicious.

URLs ending with .edu are associated with schools or universities and are often trustworthy sources for accurate science information but sometimes schools get research money from companies who profit if the experiment turns out to be good news for their product. Always consider the source of the research funding.

# How To Spot Bad Statistics
## online & on social media

**What does the headline look like?**

Be suspicious if the headline uses ALL CAPS or contains words like '"SHOCKING!", "REVEALED!" OR "PROVES!"

**4**

Words in all caps or followed by exclamation points are never used by reputable science sources. Scientists rarely use the word "prove" when talking about scientific research or experiments. They will speak of evidence, but not proof.

If there is no "About" section **be extremely suspicious** about the accuracy of the information. Reputable sources aren't afraid to tell you about themselves.

**5**

**Is there an "About" link?**

If so, read it to learn if the source has the scientific credentials to be trustworthy. Be wary of political, religious, or business sources because they may be biased. Be wary of groups that have a "cause".

**6**

### How about the pictures?

Did the author(s) use photographs lifted from the internet? Use a site like www.tineye.com to find the original source of the photos.

Reputable sources use photographs they own or will cite the photographer in a caption. If photos have no source, or the original photo was used without permission or in a misleading way, the website or social media post shouldn't be considered reliable.

This is the opposite of real science. Real scientists share their results and their methods. They don't claim to be the only person or group who knows the "truth" or has "the facts". They don't brag. They share credit.

### Is an unusual claim made?

Fake science sources often claim to be sharing secrets or information that **only** they know or that others want to hide from you. If it sounds like a conspiracy theory it's not good science.

**7**

# How To Spot Bad Statistics
## online & on social media

**8**

### Are facts and data shown?

If the information is related to an experiment, is the data included or are there links to the scientific data or additional facts?

Look for language like "may result" or has an effect "up to"... Those are vague promises. If there is no data, don't trust the truth of the claim.

If you see exaggerated language like a claim that new data "destroyed" previous ideas -
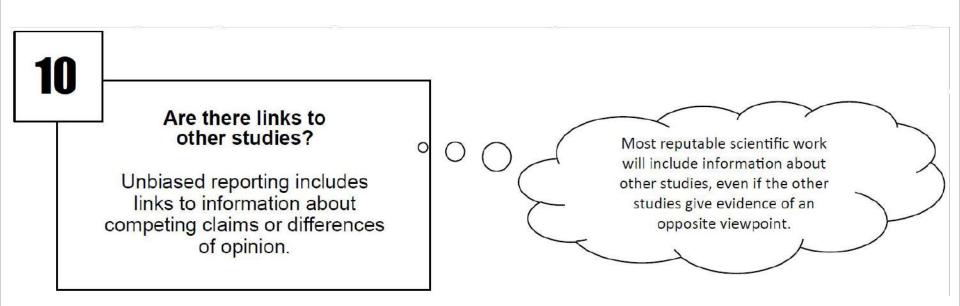**it's bad science.**
Reliable scientists would just say that their results are different, or that the evidence they found raises questions about previous ideas.

### Is the language precise ?

Good science is described with very careful and precise language. It doesn't have to be difficult to understand but it won't exaggerate claims or use emotional language.

**9**

**10**

**Are there links to other studies?**

Unbiased reporting includes links to information about competing claims or differences of opinion.

Most reputable scientific work will include information about other studies, even if the other studies give evidence of an opposite viewpoint.

# Algebra Skills Needed

1. Working with Inequalities & Wording
2. Linear Equations (using & interpreting them)
   *writing them will be the job of the technology*
3. Basic Set Theory
4. Working with Square Root Equations
   *also working with log & natural log, but we will review/re-learn that more when it's time*
5. Basic Level Statistics & Probability

For some in depth examples of these items, navigate to my notes on the following slide.

You will try some out in your first assignment.

*Remember, your ability to read, analyze, reason, support, and explain will be more important than your ability to perform computations. Knowing "what to do when" will be a theme.*

# To My Future Forgetful Self

## AP Statistics Summer Tasks

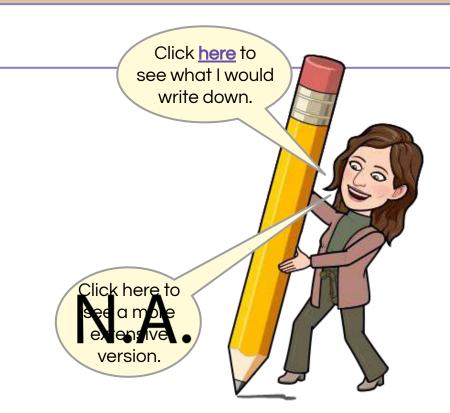### How to Spot Bad Statistics

### Algebra Skills Review
- inequalities
- linear equations
- basic set theory
- working with square roots
- basic level statistics & probability

Click **here** to see what I would write down.

Click here to see a more extensive version.

N.A.

**Something to Take Care Of...**

**#001 Part 1: Spot Bad Statistics
& Algebra Check**

*(google form - click here)*

SAVE YOUR WORK & A COPY OF
YOUR RESPONSES IN YOUR EMAIL

Join Google Classroom:
n3bjeym  ~OR~  *click here*

## #001 Part 2: Data Collection Details

**a.** Safely survey at least 50 PEOPLE & record the data.

    **i.** What is your… birth date, including year? age? gender?

    **ii.** Were you born earlier than expected, later, or on time?

       Are they unsure? Decide if you want them to make a best guess or if you want to include an 'unsure' option.

    **iii.** How many times do you wash your hair in 1 week?

    **iv.** For a 3-course meal of appetizer, entree, & dessert, which course is typically your favorite?

    **v.** 1-2 topic question(s) of your choice that may lead into a future passion project. Click here for ideas. Record your ?s.

**b.** Attach your data to the #001 assignment post in google classroom. *However you want to do this is fine.*

**c.** Submit the assignment in google classroom.
(need to join?  n3bjeym  ~OR~  *click here* )

note: up to date deadline information can be found on google classroom

## Items to Submit...

Office Hours: Mon. - Thu., 2:30 - 2:50 PM

### How well do I understand?

**#001 Part 1: Spot Bad Statistics & Algebra Check**

*click the paper to redirect to the directions slide*

*(google form - click here)*

**#001 Part 2: Data Collection**

*(on your own - attach to classroom)*

**See you soon!**

**4** Stellar
*I can do this & explain it to someone.*

**3** Just About
*I can do this myself. I understand.*

**2** Somewhat
*I'll be able to do it, but I need more practice.*

**1** Nope
*I need more help understanding this.*

Looking for additional opportunities? Click here!