

1. fill in planner
2. Have your Global Studies packet out
3. make "Water/Health" packet

**Activator: What types of water issues do we have in Northern Nevada?**

Go to page 4. At the top of the page write "Compelling Question" and underline it. Next, answer the question to the best of your ability.

## Compelling Question?

**How is availability of clean water a global problem?**

**Water is an essential resource for life on Earth. Considering how vital and precious water is, it is almost unbelievable that it can be used so carelessly.**

**Sewage, toxic chemicals, fertilizers, pesticides, oil, metals, and solid trash pollute the water in lakes, streams, and oceans around the world.**

## HOW IS POLLUTION THREATENING WATER QUALITY AROUND THE WORLD?

Water covers two-thirds of Earth's surface. As a result, we do not have to worry about wasting it, right? Wrong! About 97 percent of the world's water is saline, or salty. That means that only about 3 percent is good for drinking and growing crops. Two percent of this freshwater is frozen in polar ice or trapped in underground rock layers called aquifers. Yet even freshwater cannot be used if it is polluted. If we want to preserve what little water we have, we have to keep it clean.



# Question Formulation Technique (QFT)

- Turn to the back page of your packet and read the steps of the QFT.
- Open to the QFT area.
- From the video produce as many questions as you can.
- We normally do this with a text or an image but today I am challenging you to do this with a video.

# **Question Formulation Technique (QFT)**

- **After producing your questions... number the questions and then place a "C" for closed or an "O" for open next to each question**
- **Change one closed-ended question into an open-ended question**
- **Choose the two most important questions from your list**
- **Mark them with an "X" or highlight them.**
- **What are the numbers of your "X" Qs**



Go back to the page where you wrote the Compelling Question (page 4). Under the answer to your Compelling question write "Supporting Question #1" and underline it. Next, answer the question to the best of your ability.

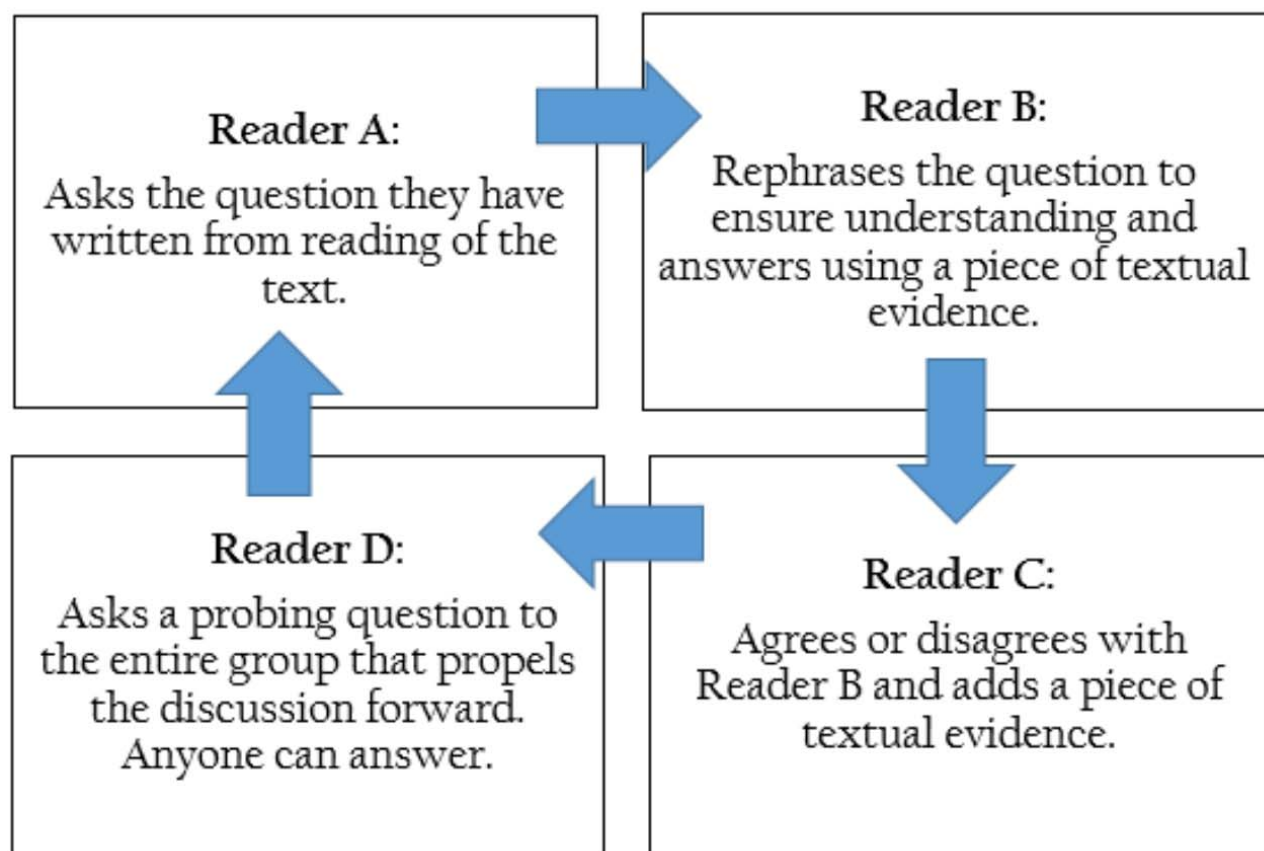
**Supporting Question #1:**  
**How does consumerism affect clean water supplies?**

# Question Formulation Technique - QFT

- Get into groups of 4. If only 3 in your group, cut the Reader C position for that group (so A,B,D).
- Group has a set of the Question Stem cards, the Probing Questions, and the Rotation Protocol
- We will do Questions Quads for each of the 3 images and associated text.
- READER A - write your question on the document
- The source text goes with respective image
  - Image 1 = Source text 1
  - Image 2 = Source text 2
  - Image 3 = Source text 3



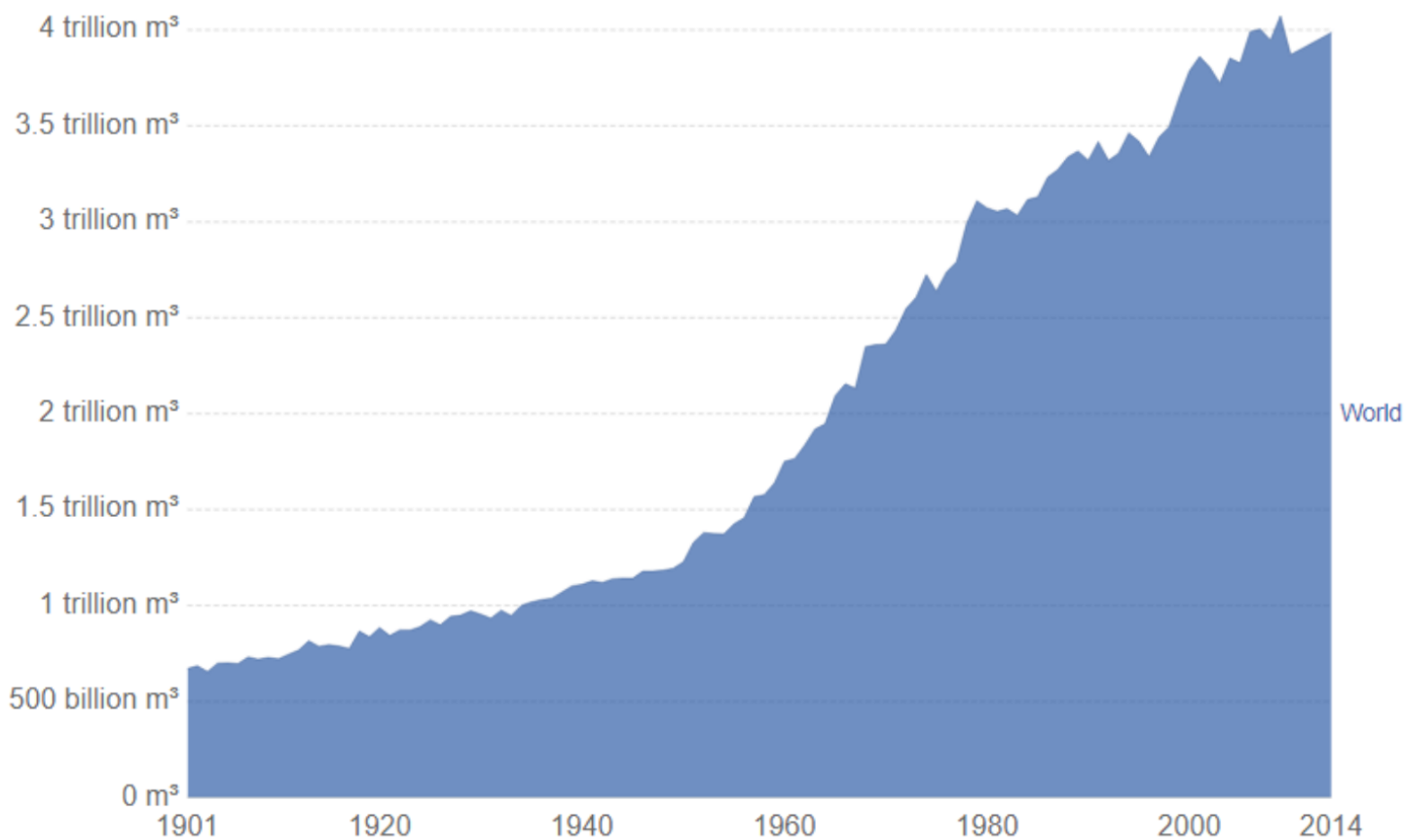
There is no cross talk as Readers A-C go through the protocol. Repeat the protocol (clockwise) so that each reader gets to ask a question. Note: During the probing question section (Reader D), everyone can speak. Crosstalk is allowed during this section. There is a 90 second limit to this part of the conversation. If only 3, cut the Reader C.



## Global freshwater use over the long-run

Global freshwater withdrawals for agriculture, industry and domestic uses since 1900, measured in cubic metres (m<sup>3</sup>) per year.

OurWorld  
in Data

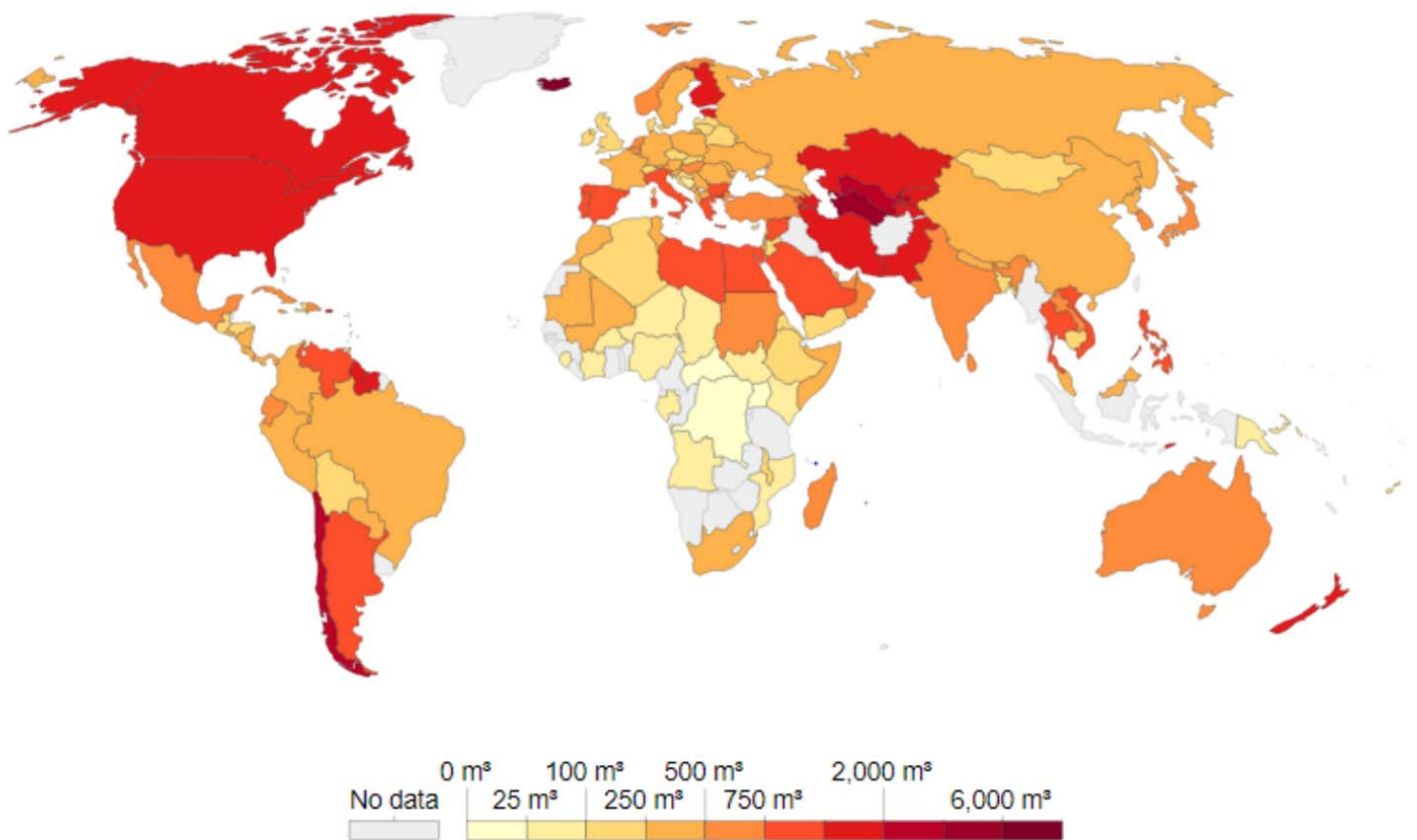


Source: Global International Geosphere-Biosphere Programme (IGB)

[OurWorldInData.org/water-access-resources-sanitation/](http://OurWorldInData.org/water-access-resources-sanitation/) • CC BY-SA

## Water withdrawals per capita, 2010

Total water withdrawals from agricultural, industrial and municipal purposes per capita, measured in cubic metres (m<sup>3</sup>) per year.



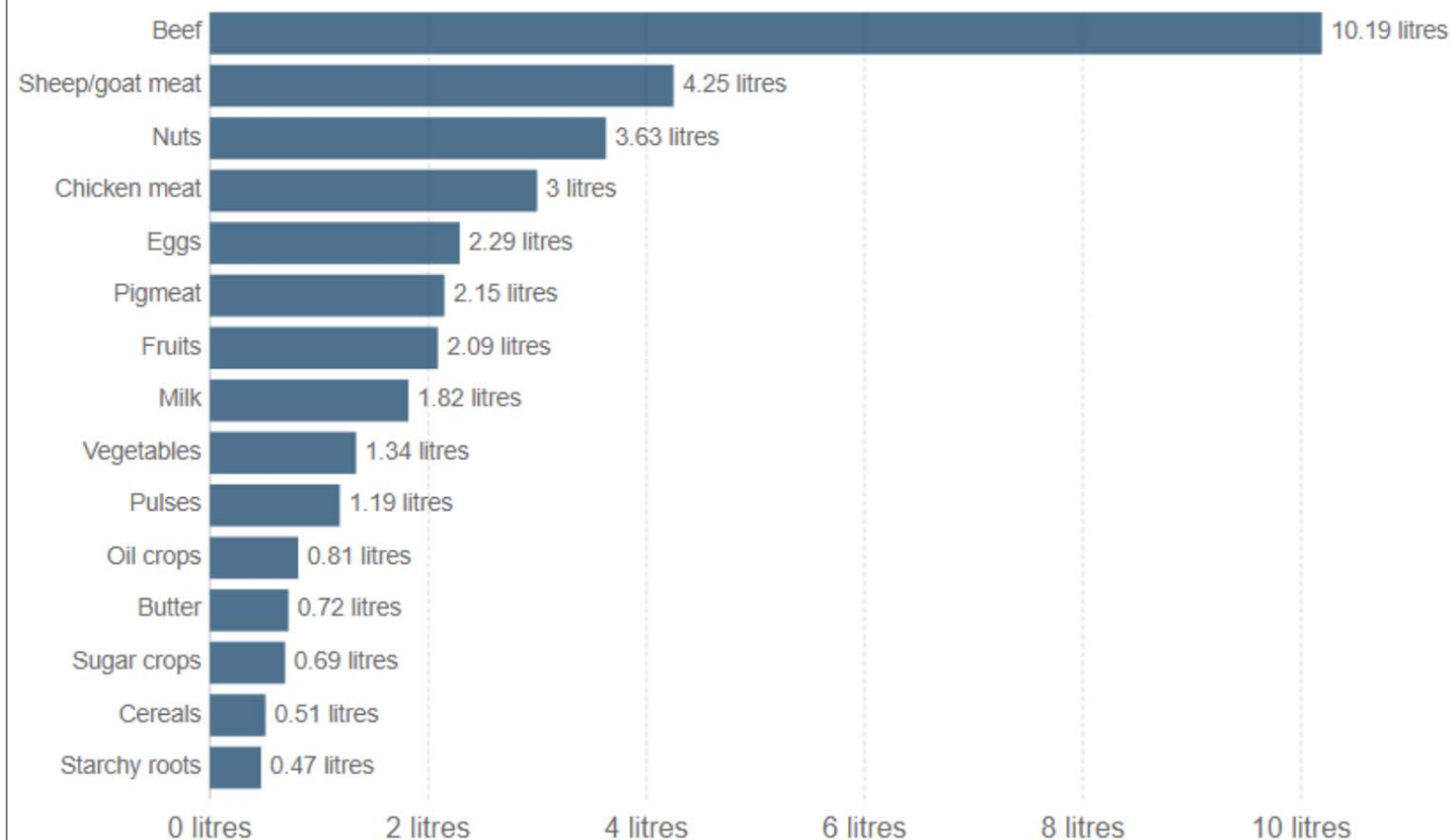
Source: UN Food and Agricultural Organization (FAO) AQUASTAT

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# Water requirement per kilocalorie

Our World  
in Data

Global average water footprint of food production per kilocalorie, which includes water requirements across its full supply chain and the quantity of freshwater pollution as a result of production.



Source: Mekonnen, M.M. and Hoekstra, A.Y. (2012)

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## Annotate the text - Q1 Source C

**\*\* Identify words that you are struggling with (circle them)**

? "huh, what?"  
! next to "aha's"  
> have a connection

## Use the QUESTION MATRIX

Generate 4 different questions, using a different question stem for each of their 4 questions (i.e. you can only ask one "what is" question).

QUESTION MATRIX

Ask better questions...

	IS? DOES? PRESENT	HAS? DID? WAS? PAST	CAN? POSSIBILITY	SHOULD? OPINION	WOULD? COULD? PROBABILITY	WILL? PREDICTION	MIGHT? IMAGINATION
WHAT? EVENT							
WHERE? PLACE							
WHEN? TIME							
WHICH? CHOICE							
WHO? PERSON							
WHY? REASON							
HOW?							

The general level of difficulty of question increases... A "What is?" question is normally easier to create and answer than a "How might?" question.



**Write a one-paragraph answer to Supporting Question 1:**

**How does consumerism affect clean water supplies?**

**\*CREAD - Claim, reasoning, evidence, accuracy, and depth**

Go back to the page where you wrote the Compelling Question. Under the answer to your Compelling question write "Supporting Question #2" and underline it. Next, answer the question to the best of your ability.

**Supporting Question #2:**  
**How do global food needs affect clean water supplies?**

# **Reading: Q2 - Source A & B Stolen Harvest & Beef Stats**

- **Annotate the text**
- **See next page for instructions**

- Work in partners/groups to complete the QCQ page (15 min)
- Rotate to another partner/group (5 min.)
- Class discussion

NAME _____		Period _____
<b>QCQ Independent Reading &amp; Text Analysis</b>		
<p><b>2 QUESTIONS</b></p> <p><small>This space is for your questions concerning the reading. Please write two questions. Reference the line(s) that prompted your questions. The teacher/feedback section will allow me a chance to answer or send you to a source that can.</small></p> <p>Question:</p>  <p>Teacher Feedback:</p>  <p>Question:</p>  <p>Teacher Feedback:</p>	<p><b>2 COMMENTS</b></p> <p><small>This space is provided for you to comment on any of the following: a) inferences you make from the text, b) themes that relate to text studies, c) the author's point of view or use of specific use of words &amp; phrases, d) evaluation of an author's style and validity of evidence.</small></p> <p>Your brief text citation (page/paragraph or line number) should be followed by your interesting commentary.</p>  <p>Your brief text citation (page/paragraph or line number) should be followed by your interesting commentary.</p>	<p><b>2 QUOTES</b></p> <p><small>Please choose two quotes from the reading that stand out to you for any reason. Copy them in the boxes below and describe why you chose these quotes. Be detailed in your reasoning. (Don't just put down the line numbers.)</small></p> <p>Chosen quote and reasoning:</p>  <p>Chosen quote and reasoning:</p>
<small>Angela Orr <a href="http://www.theworksbooksite.com">www.theworksbooksite.com</a></small>		

# Reading: Q2 - Source C

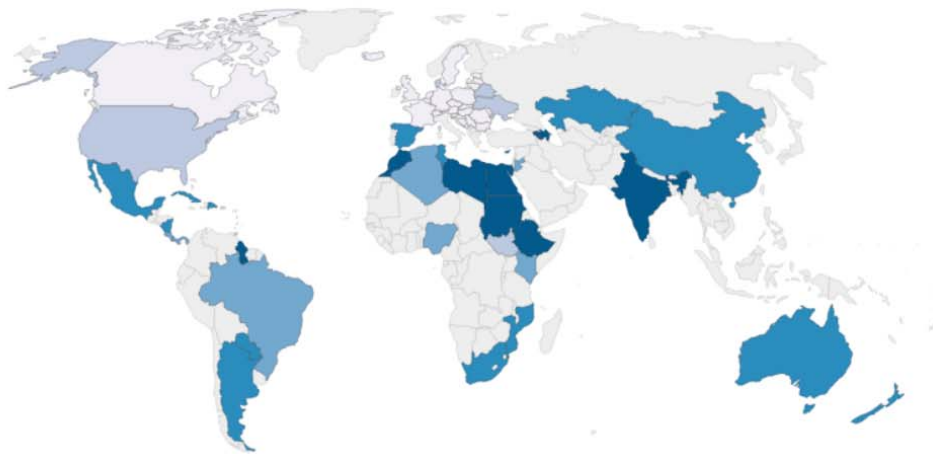
## Analyze the Map

## Class Questions & Comments

### Agricultural water as a share of total water withdrawals, 2015

Agricultural water withdrawals as a percentage of total water withdrawals (which is the sum of water used for agriculture, industry and domestic purposes). Agricultural water is defined as the annual quantity of self-supplied water withdrawn for irrigation, livestock and aquaculture purposes.

Our World  
in Data



No data 0% 20% 40% 60% 80% 100%

Source: World Bank

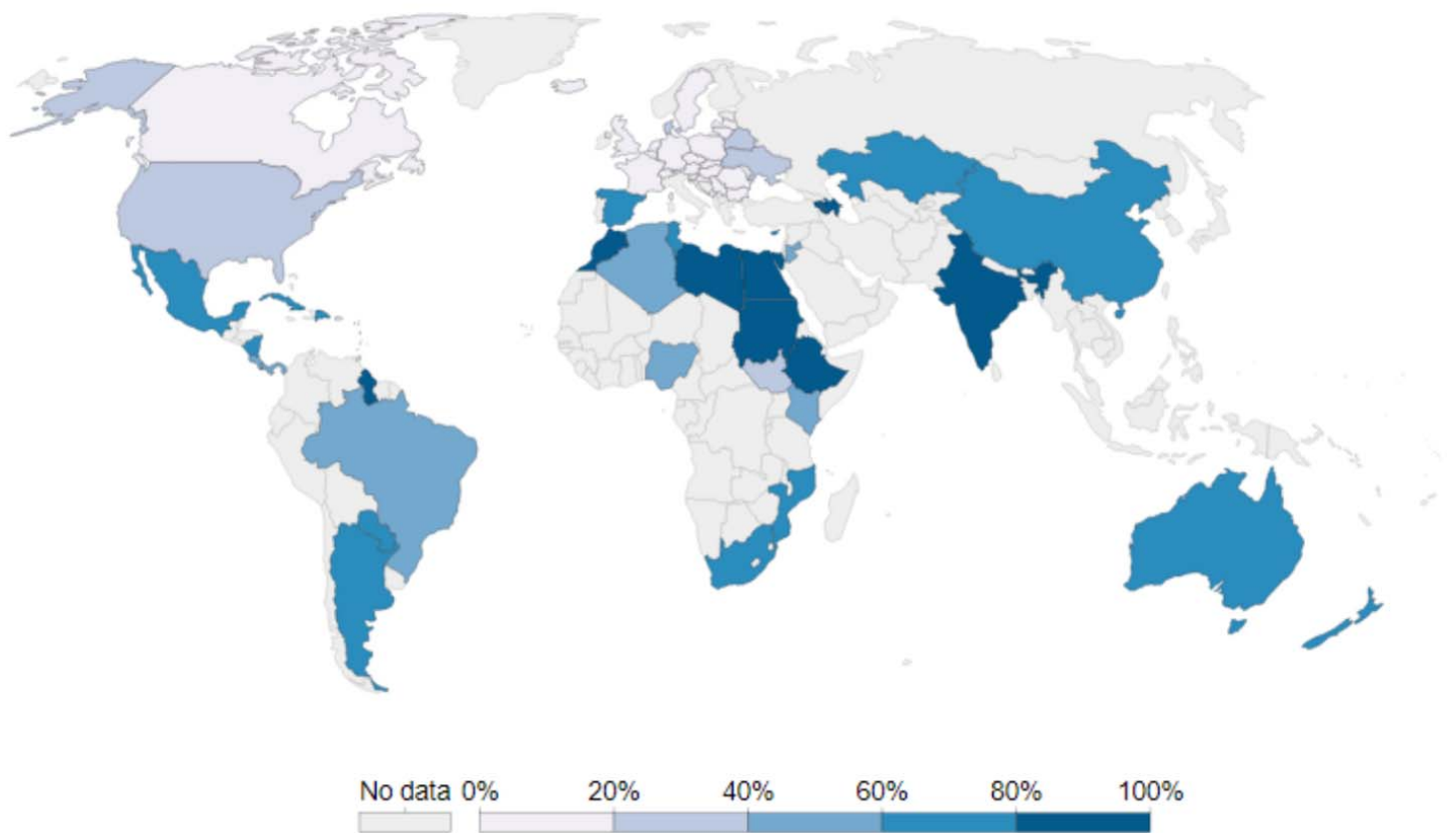
OurWorldInData.org/water-access-resources-sanitation/ • CC BY-SA



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Our World  
in Data

Agricultural water withdrawals as a percentage of total water withdrawals (which is the sum of water used for agriculture, industry and domestic purposes). Agricultural water is defined as the annual quantity of self-supplied water withdrawn for irrigation, livestock and aquaculture purposes.



Source: World Bank

[OurWorldInData.org/water-access-resources-sanitation/](https://OurWorldInData.org/water-access-resources-sanitation/) • CC BY-SA

# Use the Power Sentences strategy to create claims about the map

## Power Sentences

Every sentence has a job. A sentence's job should be clear. If a sentence isn't doing its job, it needs to be fired or retrained.

Power Sentences are clear, concise, and specific.

- ✓ **Clarity:** there is no question about the meaning of your words; you address the question, topic, claim, etc. without going on tangents.
- ✓ **Concision:** all "unnecessary" words and phrases are removed; long sentences are fine if written with concision. Remove pieces of the sentence if they are unnecessary to the meaning ~~reasoning~~. Try not to be repetitive (e.g. Many uneducated citizens ~~who have never attended school~~ continue to vote for better schools; "true fact," "twelve noon," "I saw it with my own eyes"). Use the shortest, clearest way to say something (e.g. period of five days v. five days, in spite of the fact that v. although).
- ✓ **Specificity:** when appropriate, all words and ideas are definable (or have a clear antecedent) - e.g. not "thing," "they," "some people," "in history," "over time," "factor," "situation," etc. Use the correct academic vocabulary instead of general language (e.g. Senate v. government, elect v. choose).

### Checklist for Argument Power Sentences:

- ☐ Is this either a claim/reasoning sentence or an evidence/reasoning sentence? Underline the aspects of this sentence and annotate (C, R, or E)
- ☐ Can you tell, from the sentence alone, what the question or topic is? If not, change the sentence to make it clear.
- ☐ Edit any words or phrases that could be edited to make the sentence more concise.
- ☐ Change vague or general words to more specific words. Add important vocabulary.



**Exit ticket: On your index card write your best claim sentence.**

# **The Rich Roll Podcast, Episode 353**

## ***GMOs and Glyphosate in our Food & Water Supply***

### **VOCABULARY**

***Hubris:*** excessive pride

***GMO:*** genetically-modified organism

***Glyphosate:*** one of the chemical compounds in Roundup herbicide

***Shikimate pathway:*** process used by plants to synthesize amino acids

**<https://www.richroll.com/podcast/zach-bush-353/>**

**<https://www.ispot.tv/ad/7nkq/roundup-weed-and-grass-killer-sharp-shooter>**

- Determine Partner roles - they remain the same throughout the Podcast
- Listen to the first segment (3min). Each person gets 1 minute to go through talk tasks.
- Move to second segment (3 min)...
- Repeat for all segments.

### GMOs and Glyphosate in our Food & Water Supply

The Rich Roll Podcast, Episode 353, March 2018

Host: Rich Roll

Guest: Zach Bush, MD

Background Information: In 1996, Monsanto (sold off to Bayer in 2018) was allowed to use "Roundup Ready" seeds for the first time, which allowed fields to be coated in Roundup; weeds were killed but the new GMO seeds were not killed by the Roundup.

Introduction: 9:10 - 9:48

Time	Partner A	Partner B	Partner C
Farming in the 1880's and 1890's  9:48 - 12:00	When do farming technologies begin to change in the United States?	Identify 2 changes that Dr. Bush mentions.	Restate what Partner B says and discuss what you think is the most important change mentioned.
After World War II  16:24 - 17:44	How is petroleum repurposed to serve farmers?	Restate what Partner A says.	How might spraying pesticides be good for farming? Bad for farming?
The Green Revolution of the 1960's  17:44 - 22:19	What does glyphosate do to our plant foods that is problematic?	Add more information to Partner A's comment.	Create a question about glyphosate using the Question Matrix.
Glyphosate in air and water  22:19 - 26:37	Why will a water-soluble toxin be such a problem?	Where does 99.9% of glyphosate end up?	Based on Dr. Bush's last "hopeful" comment, why do you think we don't stop using Roundup?
Homeowner responsibility  26:37 - 28:41	Why are homeowners at fault?	Agree or disagree with Partner A. [Why?]	What might be some potential health and environmental effects of glyphosate in our water?
Summary	Summarize your learning on this topic in 2 - 3 sentences.	Summarize your learning on this topic in 2 - 3 sentences.	Summarize your learning on this topic in 2 - 3 sentences.

Summary of learning: \_\_\_\_\_



# Read and annotate: Can we feed 10 billion people on organic farming alone? from

## 1 Can we feed 10 billion people on organic farming alone?

2 Organic farming creates more profit and yields healthier produce. It's time it played the role it  
3 deserves in feeding a rapidly growing world population

4 In 1971, then US Secretary of Agriculture Earl Butz uttered these unsympathetic words: "Before we  
5 go back to organic agriculture in this country, somebody must decide which 50 million Americans  
6 we are going to let starve or go hungry." Since then, critics have continued to argue that organic  
7 agriculture is inefficient, requiring more land than conventional agriculture to yield the same  
8 amount of food. Proponents have countered that increasing research could reduce the yield gap,  
9 and organic agriculture generates environmental, health and socioeconomic benefits that can't be  
10 found with conventional farming.

11 Organic agriculture occupies only 1% of global agricultural land, making it a relatively untapped  
12 resource for one of the greatest challenges facing humanity: producing enough food for a  
13 population that could reach 10 billion by 2050, without the extensive deforestation and harm to the  
14 wider environment.

15 That's the conclusion my doctoral student Jonathan Wachter and I reached in reviewing 40 years of  
16 science and hundreds of scientific studies comparing the long term prospects of organic and  
17 conventional farming. The study, *Organic Agriculture in the 21st Century*, published in *Nature*  
18 *Plants*, is the first to compare organic and conventional agriculture across the four main metrics of  
19 sustainability identified by the US National Academy of Sciences: be productive, economically  
20 profitable, environmentally sound and socially just. Like a chair, for a farm to be sustainable, it  
21 needs to be stable, with all four legs being managed so they are in balance.

22 We found that although organic farming systems produce yields that average 10-20% less than  
23 conventional agriculture, they are more profitable and environmentally friendly. Historically,  
24 conventional agriculture has focused on increasing yields at the expense of the other three  
25 sustainability metrics.



- Generate your own quiz for Supporting Question 2.
- Using the Question Matrix, generate 4 questions.
- Similar to an earlier activity in the unit, they will get up and ask a partner one of their questions, listen to the answer, write down the answer given
- Reverse roles.
- Rotate through 4 rounds -all questions
- Write a summary statement about what you learned from the Supporting Question 2 source material.

Ask better questions...

QUESTION MATRIX	IS? DOES? PRESENT	HAS? DID? WAS? PAST	CAN? POSSIBILITY	SHOULD? OPINION	WOULD? COULD? PROBABILITY	WILL? PREDICTION	MIGHT? IMAGINATION
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The general level of difficulty of question increases... A "What is?" question is normally easier to create and answer than a "How might?" question.

**Flow: For the Love of Water**

