

Global Health & Science Education: What Does It Take To Eradicate Disease?



A RESOURCE PACKET FOR EDUCATORS

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Global Classroom Teacher's Workshop

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Using This Resource Guide

NOTE: Many of these descriptions were excerpted directly from the source website



Recommended Resource



Visual Media



Lesson Plan



Audio



English/Language Arts



Charts and Graphs



Fast Fact/Did You Know?

**GLOBAL CLASSROOM WANTS TO KNOW HOW
YOU HAVE USED THIS RESOURCE PACKET IN
YOUR CLASSROOM!**

EMAIL GC@WORLD-AFFAIRS.ORG

AND TELL US YOUR STORY.



Source: VentureBeat

A Note on Learning Standards Presented in this Packet:

Three sets of standards have been linked to each of the learning objectives in this packet. The **Washington State K-12 Social Studies Learning Standards** and the accompanying Grade Level Requirements are the social studies standards for WA State.

The **College, Career, & Civic Life C3 Framework for Social Studies State Standards** are the standards published by the National Council for the Social Studies. Guiding the packet as a whole is the Framework for Global Learning created by the Asia Society and the Council of Chief State School Officers titled *Educating for Global Competence: Preparing Our Youth to Engage the World* (2011).

Cross-objective standards are listed at the beginning of the packet, and content-specific standards can be found after each learning objective.

The standards provided have been selected for relevance, but are not exclusive: many other standards, such as Common Core, may be applicable to the resources and learning objectives identified in this packet. The intention for this packet's organization is to provide educators with an idea of resources available and possible uses for resources. Users should feel free to create their own learning objectives and to select resources according to the specific needs of their classrooms.

WASHINGTON STATE K-12 SOCIAL STUDIES LEARNING STANDARDS

There are five EALRs in Social Studies, one for each of the discipline areas: civics, economics, geography, and history, and a fifth for social studies skills.



(1) Social Studies EALR 1: CIVICS

The student understands and applies knowledge of government, law, politics, and the nation's fundamental documents to make decisions about local, national, and international issues and to demonstrate thoughtful, participatory citizenship.

(2) Social Studies EALR 2: ECONOMICS

The student applies understanding of economic concepts and systems to analyze decision-making and the interactions between individuals, households, businesses, governments, and societies.

(3) Social Studies EALR 3: GEOGRAPHY

The student uses a spatial perspective to make reasoned decisions by applying the concepts of location, region, and movement and demonstrating knowledge of how geographic features and human cultures impact environments.

(4) Social Studies EALR 4: HISTORY

The student understands and applies knowledge of historical thinking, chronology, eras, turning points, major ideas, individuals, and themes on local, Washington State, tribal, United States, and world history in order to evaluate how history shapes the present and future.

(5) Social Studies EALR 5: SOCIAL STUDIES SKILLS

The student understands and applies reasoning skills to conduct research, deliberate, and form and evaluate positions through the processes of reading, writing, and communicating.

COLLEGE, CAREER, & CIVIC LIFE C3 FRAMEWORK FOR SOCIAL STUDIES STATE STANDARDS

The C3 Framework is organized into the four Dimensions, which support a robust social studies program rooted in inquiry.

The four Dimensions are as follows:

- (1) Developing questions and planning inquiries;
- (2) Applying disciplinary concepts and tools;
- (3) Evaluating sources and using evidence;
- (4) Communicating conclusions and taking informed action

C3 Framework Organization

DIMENSION 1: DEVELOPING QUESTIONS AND PLANNING INQUIRIES	DIMENSION 2: APPLYING DISCIPLINARY TOOLS AND CONCEPTS	DIMENSION 3: EVALUATING SOURCES AND USING EVIDENCE	DIMENSION 4: COMMUNICATING CONCLUSIONS AND TAKING INFORMED
Developing Questions and Planning Inquiries	<ul style="list-style-type: none">• Civics• Economics• Geography• History	<ul style="list-style-type: none">• Gathering and Evaluating Sources• Developing Claims and Using Evidence	<ul style="list-style-type: none">• Communicating and Critiquing Conclusions• Taking Informed Action

Dimension 2 has four disciplinary subsections: **(1) Civics; (2) Economics; (3) Geography; (4) History**. Each disciplinary subsection has three to four additional categories, which provide an organizing mechanism for the foundational content and skills within each discipline.

Four Categories within Dimension 2

CIVICS	ECONOMICS	GEOGRAPHY	HISTORY
Civic and Political Institutions	Economic Decision Making	Geographic Representations: Special Views of the World	Change, Continuity, and Context
Participation and Deliberation: Applying Civic Virtues and Democratic Principles	Exchange and Markets	Human-Environment Interaction: Place, Religions, and Culture	Perspective
Processes, Rules, and Laws	The National Economy	Human Populations: Spatial Patterns and Movements	Historical Sources and Evidence
	The Global Economy	Global Interconnections: Changing Spatial Patterns	Causation and Argumentation

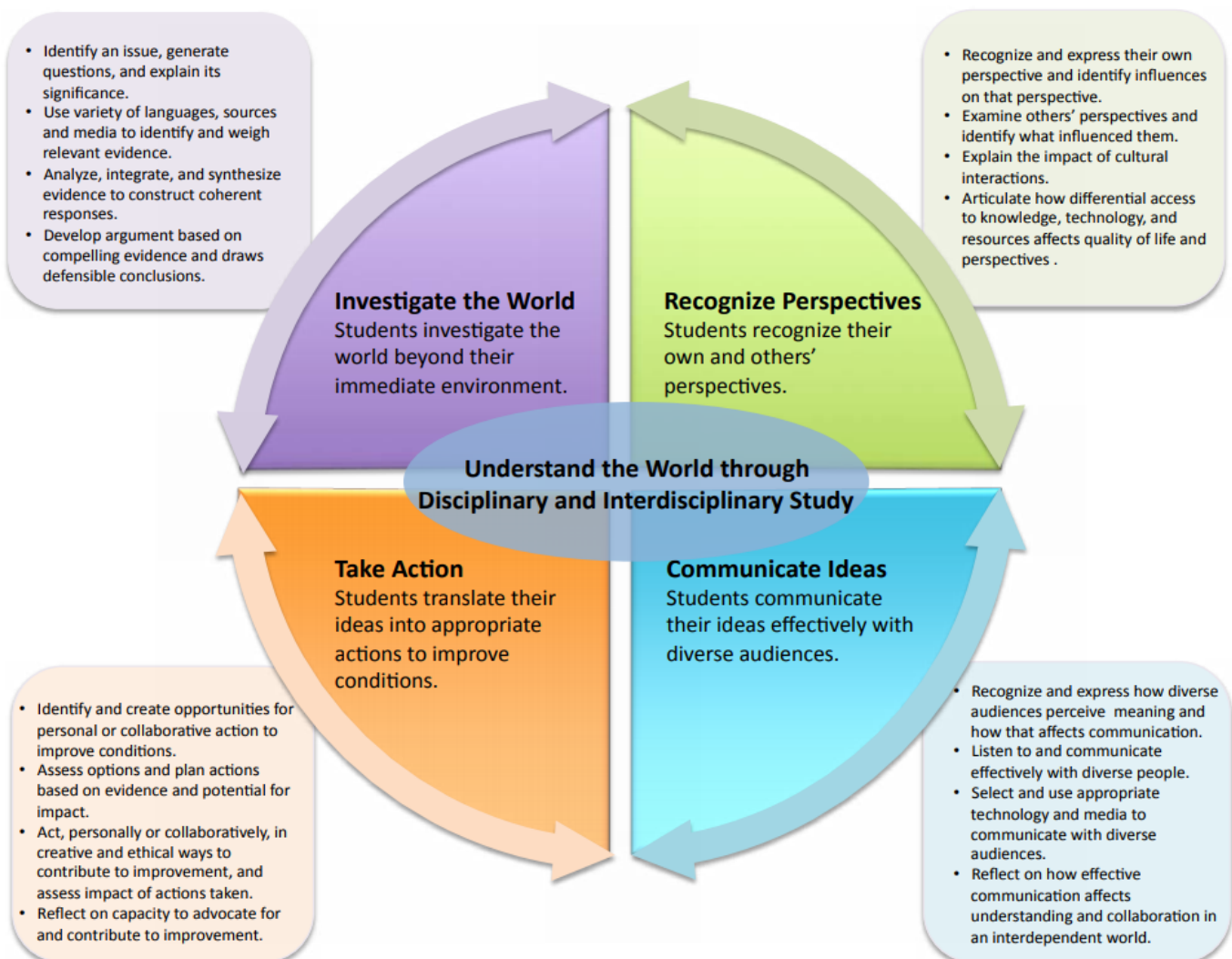
EDUCATING FOR GLOBAL COMPETENCE

Frameworks taken from *Educating for Global Competence: Preparing Our Youth to Engage the World* (Asia Society and the Council of Chief State School Officers 2011).

"Global competence is the capacity and disposition to understand and act on issues of global significance" (Chapter 2).

Globally competent students are able to perform the following four competences:

1. **Investigate the world** beyond their immediate environment, framing significant problems and conducting well-crafted and age-appropriate research.
2. **Recognize perspectives**, others' and their own, articulating and explaining such perspectives thoughtfully and respectfully.
3. **Communicate ideas** effectively with diverse audiences, bridging geographic, linguistic, ideological, and cultural barriers.
4. **Take action** to improve conditions, viewing themselves as players in the world and participating reflectively.



Learning Objectives Addressed in this Packet

Learning Objective 1: Students will be able to identify Neglected Tropical Diseases (NTDs) and explain how they impact individuals and communities around the world.

Learning Objective 2: Students will be able to explain how diseases such as Malaria, Tuberculosis, and Polio affect developing countries. In addition, students will be able to identify and analyze strategies for prevention and eradication.

Learning Objective 3: Students will be able to identify and evaluate the role of international organizations in addressing global health concerns in different regions of the world.

Learning Objective 4: Students will be able to explain the economic, social, and/or political consequences of disease (including Neglected Tropical Diseases) on societies around the world.

Learning Objective 5: Students will be able to identify personal and/or professional opportunities (locally, nationally, or globally) to address global health concerns and assess the role of individual citizens to make a positive difference in the field.



Key Terms and People

People:

Bill Gates: Gates founded Microsoft in 1976 and led the company to be one of the premier software developers in the world. His success allowed him to build a multi-billion dollar fortune and eventually become the richest man in the world. Gates, alongside his wife, used his fortune to start several charitable foundations which were eventually combined to form the Bill and Melinda Gates Foundation, the largest charitable organization in the world.

Melinda Gates: Melinda Gates worked at Microsoft for nearly a decade before marrying Bill Gates in 1994, after which she became a driving force in the charitable use of the Gates fortune. She was responsible for the restructuring of the Gates foundation into three areas of focus, based on worldwide health, worldwide development, and U.S. community and education. Both she and Bill received the Presidential Medal of Freedom in 2016.

Warren Buffett: The third richest person in the world after Bill Gates and Jeff Bezos, and a friend of Bill Gates. His donations to the Gates Foundation have reached an excess of \$30 billion, making him one of the largest philanthropists alive.

Jonas Edward Salk: An American medical researcher and virologist that discovered and developed one of the first successful polio vaccines.

Terms and Organizations:

WHO: The World Health Organization is a sector of the United Nations that is committed to improving international public health. WHO creates international regulations for health codes, provides health aid to countries when necessary, and conducts research to create new drugs and vaccines to combat disease.

UNICEF: United Nations International Children's Fund is another entity of the UN and is focused specifically on the improvement of childhood development and maternal health.

Water, Sanitation, and Hygiene (WASH): This acronym is a general term used by many global health organizations to refer to sanitation issues.

PATH: Program for Appropriate Technology in Health is an international non-profit organization which focuses on five different topics: vaccines, drugs, diagnostics, devices, and systems. They are heavily involved in global health development, with over \$300 billion in revenue as of 2016.

GAVI: The Global Alliance for vaccines and immunizations is public-private global health partnership that focuses on providing immunizations to underdeveloped countries.

TB Alliance: A nonprofit focused on creating more efficient and affordable medications for tuberculosis and distributing them to underserved populations.

NTDs: Neglected Tropical Diseases or NTDs are a diverse group of communicable diseases that are most commonly seen in tropical and subtropical conditions. They are especially prevalent in populations living in poverty and in close contact with animals and livestock. These diseases are considered 'neglected' because their lack of prevalence in first world countries has led to a lack of funding and awareness for treatment and prevention relative to other diseases.

Disease Eradication and Elimination: When a disease stops circulating in a region, it is considered eliminated in that region. If a particular disease is eliminated worldwide, it is considered eradicated. To date, the only infectious disease that has been considered eradicated is smallpox. Guinea Worm (Dracunculiasis) has also been nearly eradicated, with only 25 reported cases in 2016.

Bill and Melinda Gates Profiles



Bill Gates

Bill Gates was born October 1955, in Seattle, Washington. Gates attended Lakeside private school, and was introduced to computers and programming during his time there. In 1973, Gates was admitted to Harvard, and continued studying computer science and mathematics. But, Gates dropped out of Harvard when the opportunity to create his own business was presented.

Gates founded Microsoft in 1976 when a contract was formed with MITS to develop operating systems. Microsoft took off in 1980, when IBM approached Gates about a new BASIC operating system. Although IBM was leading the PC industry by a wide margin, many other competitors were beginning to emerge at that time. Microsoft capitalized on the opportunity to sell their software to these emerging PC producers. This software included programs like Microsoft Word and Excel (now the standard in Office programs).

In 1990, Microsoft produced the first graphical (rather than simply text) user interface, and by 1995 had set the standard for all future operating systems. After 2000, Microsoft began diversifying to include the web browser Internet Explorer and the gaming system Xbox.

Microsoft continues to be a dominant presence in the computing world, despite losing some market share to competitors such as Google and Apple. As of 2017, Bill Gates is worth \$86 billion (according to Forbes). Gates and his wife have used their vast fortune to donate upwards of \$30 billion to charitable causes via their foundation.

<https://www.biographyonline.net/business/bill-gates.html>



Melinda Gates

Melinda Gates was born on August 15, 1964, in Dallas, Texas. She developed an early interest in computers studying computer science in a Catholic academy. She went on to earn a bachelors degree at Duke University in computer science in 1986.

By 1987 she had taken a position at Microsoft as a product manager as a developer of multimedia products. In her nine years of working for Microsoft, Gates worked up to becoming a general manager of information products. In her time in this position she developed products such as Expedia, Cinemania, and Encarta.

After she began dating and later married Bill in 1994, she chose to focus on their family and on their growing philanthropic aspirations, becoming involved in the foundations that preceded the current Foundation.. By 1996 their first child was born, adding further impetus to her decision to leave Microsoft.

The Bill and Melinda Gates foundation was originally focused on placing computers in United States libraries, but Melinda Gates slowly broadened the foundation's perspective to include poverty and global health issues. Eventually she restructured the foundation into three areas of focus: worldwide health, global development, and U.S. community and education. In 2016 both Bill and Melinda Gates were recognized with the Presidential Medal of Freedom by Obama for their worth through the foundation.

<https://www.biography.com/people/melinda-gates-507408>

History of the Bill and Melinda Gates Foundation



<http://innovation-village.com/bill-melinda-gates-foundation-seeks-to-fund-solutions-that-address-specific-challenges/>

Pre Bill and Melinda Gates Foundation History

<http://www.fundinguniverse.com/company-histories/bill-melinda-gates-foundation-history/>

Focuses on the pre-1999 (the year the combined foundation began) history of the Gates' philanthropy. Provides an in depth look at the motives of Bill and Melinda Gates, and how their previous philanthropy work eventually evolved into the Bill and Melinda Gates Foundation.



William H Gates Sr.

<https://www.law.washington.edu/gatesscholar/about.aspx>

Timeline of the Gates Foundation

<http://history.hackeducation.com/2017/07/18/gates-foundation>

This timeline is more focused on the educational goals of the Gates Foundation as opposed to the global health work, but still provides valuable insight into the history of the foundation.

Gates Foundation 1994-2011

<https://docs.gatesfoundation.org/Documents/foundation-timeline.pdf>

While this timeline also includes a history of the Gates Foundation prior to its founding, it continues its account through 2011.

Lesson Plan Idea!

Every year Bill Gates shares his annual letter, highlighting the work being done to help the world's poorest people. What goals do you think we should set to help improve the world for the next generation? What's your hope for 2030?

View the video: [My Hope for 2030](#)

Discuss different ways in which changes can be made globally, locally, and individually. Then, in small groups or as a class, work together to come up with your own list of goals for the future.



Fast Fact

The Bill and Melinda Gates Foundation was the result of the William H Gates Foundation and the Gates Learning Foundation merging into one entity. The William H Gates Foundation was primarily focused on advancing global health, while the Gates Learning Foundation was initially focused on improving internet access to public libraries and low-income families in North America.

Gates Foundation Funding

2016 Funding Areas

For the Year ended December 31, 2016. Amounts in thousands of U.S. dollars.

2016 Funding Areas

For the year ended December 31, 2016
Amounts in thousands of U.S. dollars*

Global Development \$2,211,000

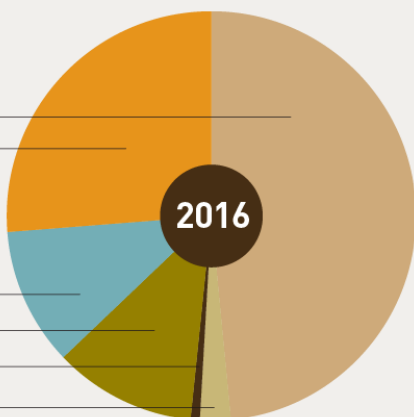
Global Health \$1,197,000

United States Program \$496,000

Global Policy & Advocacy \$513,000

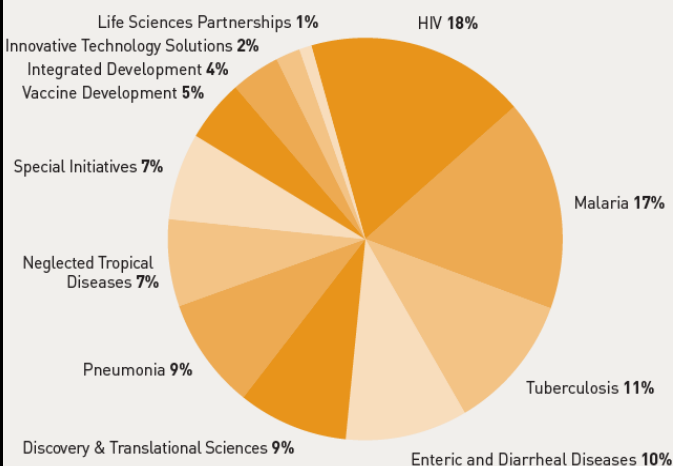
Communications \$33,000

Other Charitable Programs \$111,000



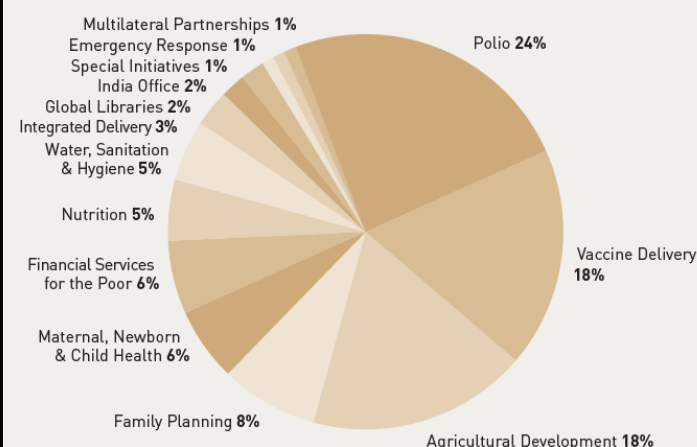
GLOBAL HEALTH

\$1,197,000*



GLOBAL DEVELOPMENT

\$2,211,000*



Data showing what percentage of the funding for the Gates Foundation was allocated where for 2016

<https://www.gatesfoundation.org/Who-We-Are/Resources-and-Media/Annual-Reports/Annual-Report-2016>

Warren Buffett

<https://www.gatesfoundation.org/Who-We-Are/General-Information/Leadership/Executive-Leadership-Team/Warren-Buffett>

The Gates Foundation page describing Warren Buffett's contribution to the foundation. It explains that Buffett is a foundation trustee and as the second richest man alive, has pledged to donate most of his fortune to the Gates Foundation. Dose not provide specific numbers however.

Warren Buffett Gives it Away

http://archive.fortune.com/magazines/fortune/fortune_archive/2006/07/10/8380864/index.htm

Article produced by Fortune Magazine explaining what the 2006 donation plan from Warren Buffett looks like and the amount of money to be given to the Gates Foundation. The author of this article has included a transcript of an interview she had with Buffett.

How the Gates Foundation Works

<https://www.gatesfoundation.org/How-We-Work>

This page goes into more detail about how the Gates Foundation awards grants, how they are structured, and how the Gates Foundation makes their investments.

How Gates Gives Away His Money

<https://www.recode.net/2017/10/27/16554126/happy-birthday-bill-gates-foundation-richest-man-world-spends-money-philanthropy>

This article provides a numerical dollar value to the different areas where grants were given by the Gates Foundation. While the graphs to the left are very useful for visualizing how the money is allocated, the diagram in this article will show exact dollar values.

Bill Gates, Richest Man in the World

<https://www.forbes.com/>

Forbes has ranked Bill Gates as the richest man in the world for the fourth year in a row, and has been for 18 of the last 23 years.



Countdown to Zero: Defeating Disease in the 21st Century

What if we could put an end to a painful or deadly disease?

Countdown to Zero: Defeating Disease highlights diseases that are on track for global eradication or elimination—including Guinea worm disease and polio, which could become the second human disease in history to be eradicated.

Learn how the global community is working together to eliminate disease, and how you can spread the word and help us in the efforts to reach the last mile.

Counting disease down to zero is not just an idea—it's happening.

This exhibition is presented by the American Museum of Natural History in collaboration with The Carter Center and the Bill & Melinda Gates Foundation.

Explore the online exhibition and see it in person with your students by requesting a free guided tour online.

Online Exhibition:

<https://www.amnh.org/explore/science-topics/disease-and-eradication/countdown-to-zero>

Exhibition on view at the Bill & Melinda Gates Foundation Discovery Center

March 1-August 18, 2018

Gates Foundation Discovery Tours:

Scheduling a guided tour of the Discovery Center is simple and free. Here are steps to schedule your next visit with your group.

1. Go to DiscoverGates.org
2. Fill out a tour application
3. You will hear back in 2-3 business days

Please schedule at least two weeks in advance. Bus subsidies are available upon request for schools who qualify.

Questions? Email discoverycenter@gatesfoundation.org

The Discovery Center is located next to Seattle Center.
[440 5th Ave. N, Seattle, WA 98109](http://440.5thAve.N.Seattle.WA.98109)

Hours: Tuesday–Saturday, 10am–5pm

Extend the conversation and explore activities and lessons within the American Museum of Natural History's *Countdown to Zero* curriculum guide; Politics and Pathogens.

Curriculum Guide: <https://www.amnh.org/explore/curriculum-collections/politics-and-pathogens/>



Additional Resources from the Gates Foundation:

Virtual Reality Films-

Elephantiasis: https://www.youtube.com/watch?time_continue=4&v=1_owfcO7jDA

River Blindness: https://www.youtube.com/watch?v=jxBG7Ra78_o

Sleeping Sickness: <https://www.youtube.com/watch?v=5sPQaAlbNXA>

Short Films

Record Breaking Generosity

Highlighting the Guinness record for donations in a 24-hour period. Text and music highlights the efforts/progress around the 2012 declaration 5 years later.

<https://www.youtube.com/watch?v=lgmjZh7wZc8&feature=youtu.be>

Neglected Tropical Diseases

Bill Gates talks about some of the world's oldest and most horrifying diseases that continue to afflict the world's poorest people.

<https://www.youtube.com/watch?v=sEHmXUvpHA4>

Can You Pronounce These Diseases

These shocking diseases are unimaginable and often unpronounceable, but it should be easy to see why everyone should care about ending them.

<https://youtu.be/uHUM22Q-2X8>

Leadership at a Community Level in the fight against Neglected Tropical Diseases

Three stories filmed in Uganda and Ethiopia about the lives of three remarkable individuals who are bringing about big change in their communities in the battle against Neglected Tropical Diseases. Intestinal worms, lymphatic filariasis and trachoma are just three of the many diseases that hold communities back. Through partnerships and empowerment at a local village level, the mass distribution of drugs and sensitisation of the population is working.

<https://youtu.be/C8FBouR5hHw>



Eradication of Polio



Polio: Strategy Overview

<https://www.gatesfoundation.org/What-We-Do/Global-Development/Polio>

The Gates Foundation page on their work eradicating the last cases of Polio in the world. Though there has been remarkable progress in ending polio with only 40 cases were reported in 2016 (as opposed to 350,000 in 1988), polio is highly contagious and must be completely eradicated .



Oral Polio Vaccine being given to a child



Global Polio Eradication Initiative

<http://polioeradication.org/>

The Initiative that organized five key organizations dedicated to the mission of eradicating polio. Those partners include WHO, Rotary, U.S. Center for disease control and Prevention, UNICEF, and the Gates Foundation. As of June, 2017, The 2013 to 2020 funding goal is only short \$300 million of the \$7 billion dollar goal. This type of large scale money is key in the fight to completely eradicating polio.



Polio vaccination teams pick up supplies at a railway station in the state of Bihar in northern India.



10 Facts on Polio Eradication

<http://www.who.int/features/factfiles/polio/en/>

Produced by the World Health Organization (WHO), these are ten interesting facts regarding the progress the world has made to end polio altogether. WHO is also heavily involved with aiding in the eradication of Polio, and is a member of the Global Polio Eradication Initiative along side the Gates Foundation.



Polio Eradication: A Unique vaccine story: https://www.youtube.com/watch?v=SVVxnV_8Two

In this video, you will hear different vaccination stories, the efforts of WHO, and the role vaccinations play in eradicating different diseases.

Disease Eradication

When a disease stops circulating in a region, it is considered eliminated in that region. Polio, for example, was eliminated in the United States by 1979 after widespread vaccination efforts. If a particular disease is eliminated worldwide, it is considered *eradicated*. To date, only one infectious disease that affects humans has been eradicated. In 1980, after decades of efforts by the World Health Organization, the World Health Assembly endorsed a statement declaring smallpox eradicated.

Excerpted from History of Vaccines

History of Vaccines: <https://www.historyofvaccines.org/content/articles/disease-eradication>

This website has numerous short articles about eradication, vaccine history, and disease timelines. In addition, each article has a short quiz at the end that could be used to check reading comprehension.



The Fight to End Polio

COUNTRIES HAVE NEVER STOPPED POLIO

3



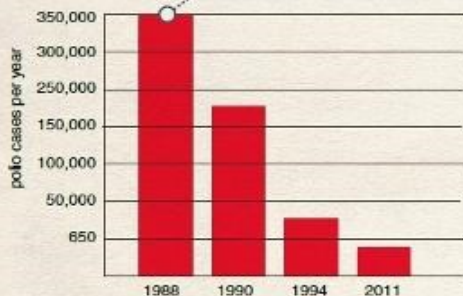
NIGERIA



AFGHANISTAN



PAKISTAN



People that contracted polio in 1988 when the fight to end this disease began.

\$.60

60 cents is the cost of protecting one child from polio.

Reaching the final 1% of children is the most difficult because polio still exists in some of the most challenging parts of Africa and Asia.

99%

Polio is **99%** of the way to being **eradicated!**

2.5
Billion

Children immunized globally since 1988. That is an average of 3.3 children a second!

5

The majority of children that contract this crippling disease are under the age of 5.

\$40–\$50
Billion

The estimated amount of money polio eradication will save the world over the next 20 years.

After more than 25 years we are "this close" to making history by eradicating polio. With this historic achievement, polio will be only the second human disease in history -after smallpox- to be eradicated worldwide.

1%

Learn more about ending polio and take action at www.endpolionow.org



WWW.ENDPOLIONOW.ORG



**TOP 5 REASONS
TO ERADICATE
POLIO**

1. THE HUMAN COST: If we choose to control polio rather than eradicate it, polio could rebound to 10 million cases in the next 40 years.

2. IT'S ACHIEVABLE: We have the tools to end polio and the means to reach all children. The new, bivalent vaccine successfully targets the two remaining strains of polio in one dose.

3. IT'S A GOOD INVESTMENT: An independent study published in the medical journal Vaccine estimates the \$9 billion global investment in a polio-free world will net an economic benefit of \$40 to \$50 billion over the next 20 years.

4. IT STRENGTHENS THE SYSTEM: Our polio eradication efforts have established an active disease surveillance network in all countries that is being used for other health interventions such as measles vaccinations, deworming tablets, and mosquito bed nets.

5. IT SETS THE STAGE: The ability to reach all children with the polio vaccine is proof of concept that we can succeed on our next major global health initiative.

Malaria



Malaria: Strategy Overview

<https://www.gatesfoundation.org/What-We-Do/Global-Health/Malaria>

The Gates Foundation page on their plan for malaria.



Malaria No More

<https://www.malarianomore.org/>

Supported by the Gates Foundation (and others), this non-profit organization is committed to ending malaria and providing treatment in the mean time. Their data shows that their work has saved approximately seven million people, and prevented approximately one billion cases.



10 Facts on Malaria

<http://www.who.int/features/factfiles/malaria/en/>

Produced by the World Health Organization (WHO), these are ten interesting facts regarding the progress the world has made to combat malaria and the disease itself. WHO itself is a very large contributor to combating malaria. In 2015, the world's first malaria vaccine was approved by WHO for trial



Gains Made in Fight Against Malaria

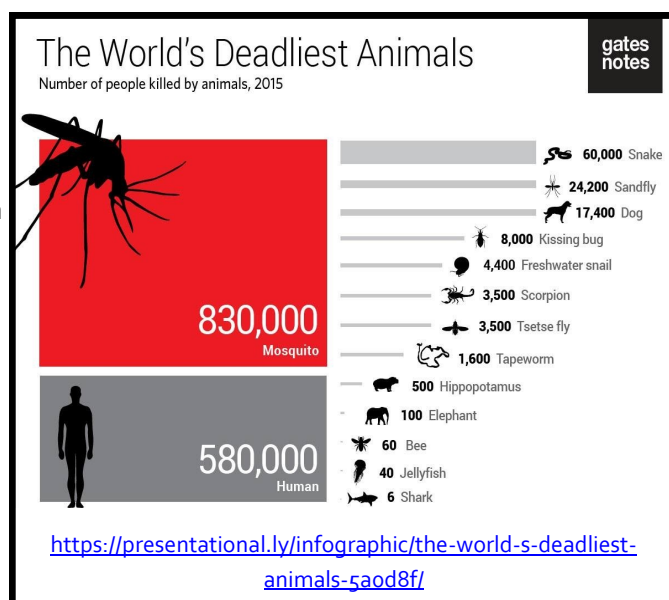
<http://www.un.org/africarenewal/magazine/december-2016-march-2017/gains-made-fight-against-malaria>

Audio and transcription made by the UN's Africa Renewal, explains the massive progress made to combat Malaria.



An entomologist examines dead mosquitoes extracted from a window trap in a village.

<https://www.gatesfoundation.org/What-We-Do/Global-Health/Malaria>



BBC Malaria Documentary: Return to Fever Road

Part 1: <https://www.youtube.com/watch?v=dGbgYe4soSQ&list=PLQNNuutb6htXOTgunvwqoVJQIXfjgopK4>

This is a BBC documentary that is broken into 9 short parts that reveals the harsh realities of malaria within a rural Kenyan village community named Kiagware.



Lesson Plan Idea!

Malaria: Overview and Teacher Notes: <http://www.columbuschoolforgirls.net/olpc/Malaria%20Teacher%20Notes.pdf>

This PDF document provides nine lesson plan ideas developed by the Columbus School For Girls, that can be used in the classroom. Each lesson focuses on a different aspect of Malaria, ranging from common geography to identifying symptoms. The diversity of the lesson plans means a teacher can pick which specific topic they want to engage their students in studying.

Neglected Tropical Diseases (NTDs)



In Ghana, aggressive public health efforts led to the 2011 eradication of guinea worm disease, which is spread by a water-borne parasite.

<https://www.gatesfoundation.org/What-We-Do/Global-Health/Neglected-Tropical-Diseases>



Neglected Tropical Diseases: Strategy Overview

<https://www.gatesfoundation.org/What-We-Do/Global-Health/Neglected-Tropical-Diseases>



Uniting to Combat NTDs: Fourth Progress Report

<http://unitingtocombatntds.org/report/fourth-report-reaching-unreached>

Uniting to Combat NTDs is a coalition of NGOs non-profits, governments, and other entities created to target ten specific NTDs to be eliminated or controlled by 2020. It was created by the London Declaration (2012) which was spearheaded by WHO and the Gates Foundation. This page provides excellent graphs and video on the progress made so far.

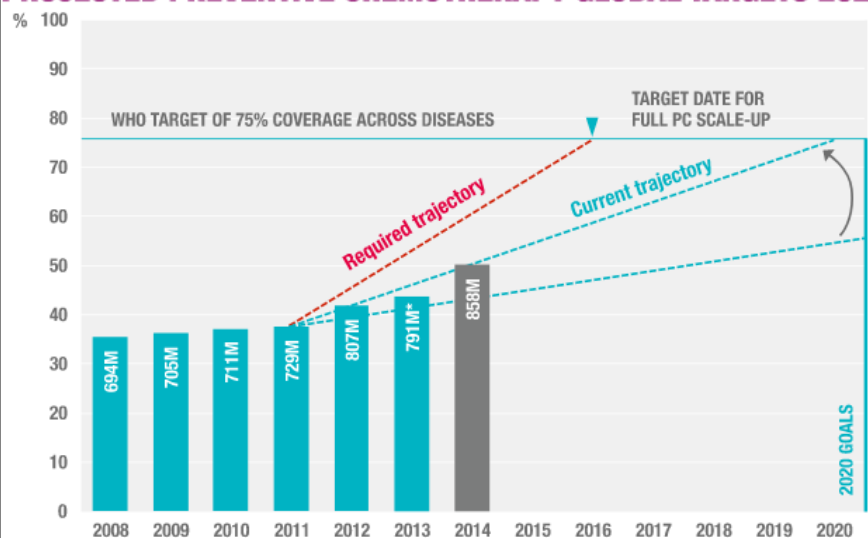


10 Facts on Tackling NTDs with WASH

<http://www.who.int/features/factfiles/wash-ntds/facts/en/index4.html>

These facts give some insight into what NTDs are, and the best way we can fight and/or treat those affected by NTDs. Access to clean water, sanitation, and hygiene (WASH) is the fastest answer to aid countries where these diseases are seen.

PROJECTED PREVENTIVE CHEMOTHERAPY GLOBAL TARGETS 2020



<http://unitingtocombatntds.org/report/fourth-report-reaching-unreached>

Lesson Plan Idea!

Have students form small groups in class (2-4 people per group). Once in groups, ask them to find a disease that qualifies as a "Neglected Tropical Disease," and create a short five minute presentation on the disease. Ensure no two groups end up researching the same disease. This rule can be used to explain that there are at least twenty different diseases which are not prevalent enough in wealthier countries for them to be common knowledge, but are indeed posing a threat to those in poor living conditions. The following link may be useful to provide students with a visual aid of where these diseases are effecting people:

Visit: <http://apps.who.int/gho/cabinet/pc.jsp>



Neglected Tropical Diseases (NTDs)

These are three examples of Neglected Tropical Diseases (NTDs) that be integratged into your curriculum. The videos provided are the videos that were shown at the event explaining in greater detail Elephantiasis, Sleeping Sickness, and River Blindness. Again, these are only three of the many diseases classified as an NTD and three of ten target diseases focused on by the Gates Foundation.



Elephantiasis:

https://www.youtube.com/watchtime_continue=4&v=1_owfcO7jDA

Elephantiasis is the product of the disease Lymphatic Filariasis. This disease is caused by three types of roundworm parasites, and is transmitted via mosquitos. When a mosquito bites an infected host, the immature larvae in the hosts blood will mature in the mosquito. The mosquito will then deposited mature parasite larvae on to the skin of the new host. There, the larvae will enter the body and begin circulating in the blood stream. Elephantiasis is the result of Lymphatic Filariasis developing into a chronic condition.

<http://www.who.int/mediacentre/factsheets/fs102/>



<https://www.omicsonline.org/sweden/anisakiasis-peer-reviewed-pdf-ppt-articles/>

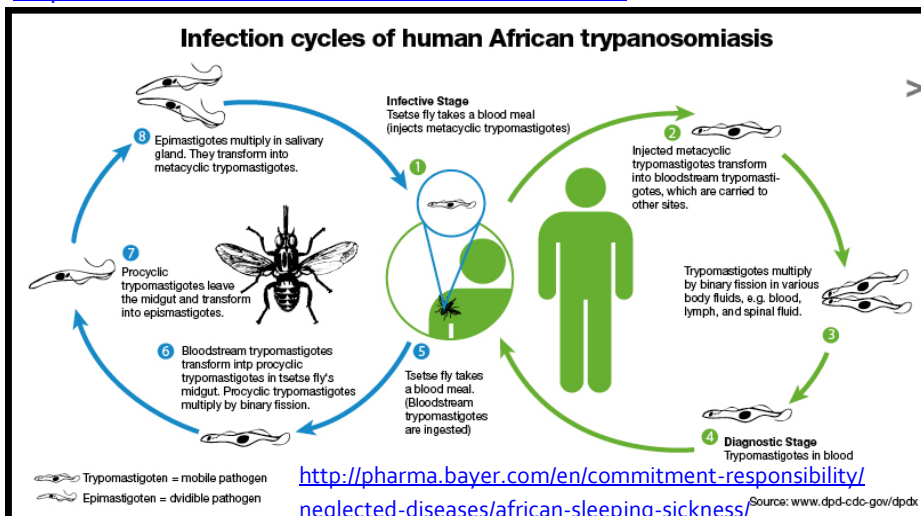


Sleeping Sickness:

<https://www.youtube.com/watch?v=5sPOaAlbNXA>

Human African trypanosomiasis, or sleeping sickness, is a parasitic disease transmitted by the tsetse fly. Infection can also occur from mother to child. The disease gets its name due to a symptom that causes infected people's sleep cycles to be disturbed. Without treatment, sleeping sickness is considered fatal.

<http://www.who.int/mediacentre/factsheets/fs259/en/>



<http://pharma.bayer.com/en/commitment-responsibility/neglected-diseases/african-sleeping-sickness/> Source: www.dpd-cdc.gov/dpdx



River Blinness:

<https://www.youtube.com/watch?v=jxBG7Ra78o>

Onchocerciasis is an eye and skin disease caused by the parasitic microfilariae (a worm). It is transmitted through the bite of the black-fly. The waste left behind when these worms die is toxic and causes damage to the eyes and skin of the host. This causes lesions on the skin and blindness, giving the disease its name.

http://www.who.int/blindness/partnerships/onchocerciasis_disease_information/en/



<http://blogs.plos.org/thestudentblog/2015/08/30/ntdsama/>

Neglected Tropical Diseases (NTDs)

Guinea Worm (dracunculiasis)

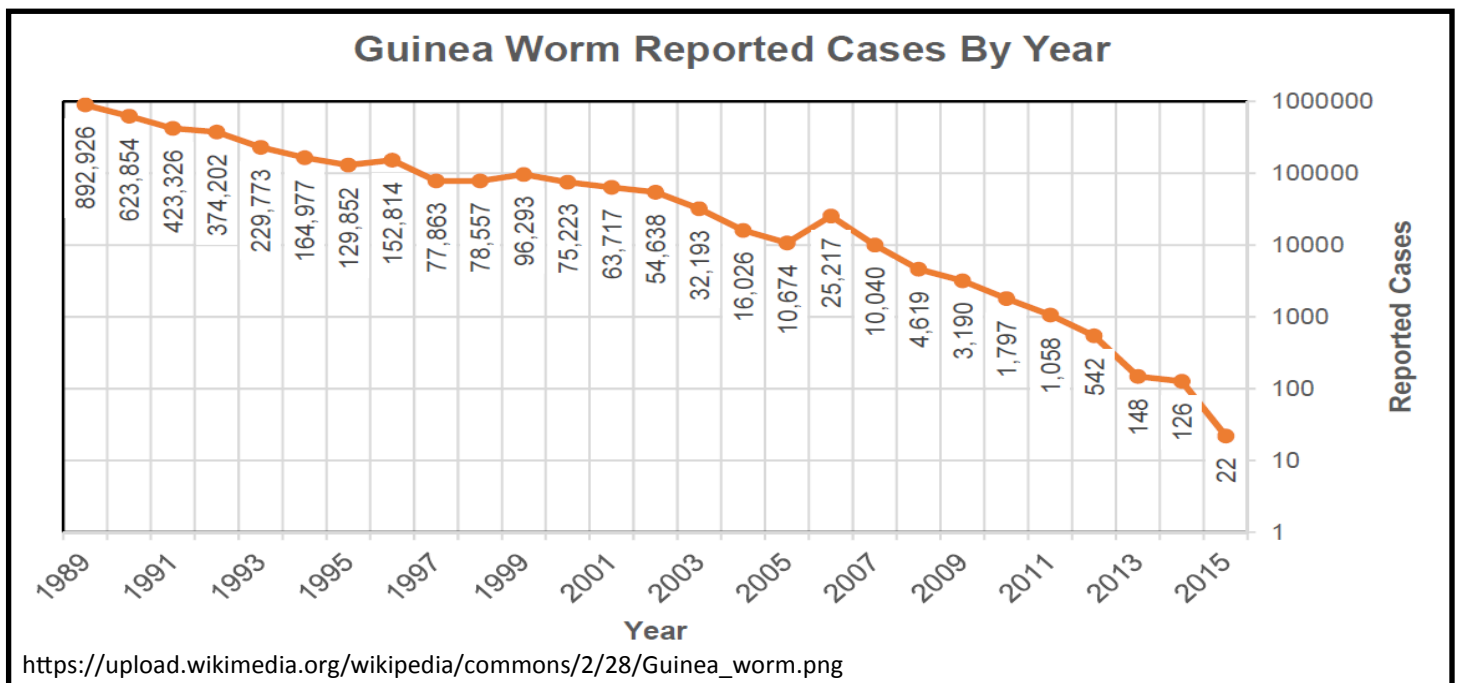
Considered a neglected tropical disease, Guinea worm disease (dracunculiasis) is a parasitic infection caused by the nematode roundworm parasite *Dracunculus medinensis*. It is contracted when people consume water from stagnant sources contaminated with Guinea worm larvae. Inside a human's abdomen, Guinea worm larvae mate and female worms mature and grow. After about a year of incubation, the female Guinea worm, one meter long, creates an agonizingly painful lesion on the skin and slowly emerges from the body. Guinea worm sufferers may try to seek relief from the burning sensation caused by the emerging worm and immerse their limbs in water sources, but this contact with water stimulates the emerging worm to release its larvae into the water and begin the cycle of infection all over again.

Although there is no known curative medicine or vaccine to prevent Guinea Worm, the efforts of the Carter Center in tandem with the WHO, UNICEF, and others, to spread awareness on preventative measures to keep the disease from spreading have been massively successful. In 2016 only 25 cases of Guinea Worm were reported, and it is expected that the disease will be entirely eliminated before long. Guinea Worm will be the second human disease to be entirely eradicated, and the first parasitic disease. It will also be the first disease to be eradicated without the use of medicine or vaccines.

https://www.cartercenter.org/health/guinea_worm/



<http://www.who.int/dracunculiasis/en/>



WHO plan to accelerate work for 2020

http://apps.who.int/iris/bitstream/10665/70809/1/WHO_HTM_NTD_2012.1_eng.pdf


In 2003 the WHO shifted focus from specific disease to treating the health needs of poor communities. In 2007 the first Global Partners Meeting aimed at NTDs was convened, and significant progress began to be made towards eliminating many NTDs. This 2011 report illustrates gains made since 2007, and outlines a plan to make even greater progress by 2020.



Pneumococcal AMC

 <https://www.youtube.com/watch?v=KTsPMtAyARY>

A video from GAVI: The Vaccine Alliance explaining the Advance Market Commitment (AMC) model for producing vaccines and making them affordable for the developing world.

 **International Vaccine Access Center, Johns Hopkins: Pneumonia and Diarrhea Progress Report**

<https://www.jhsph.edu/research/centers-and-institutes/ivac/resources/IVAC-2017-Pneumonia-Diarrhea-Progress-Report.pdf>

This progress report compares the results of the work being done to combat both pneumonia and diarrheal diseases between the countries most affected by these diseases.

Pneumonia



Pneumonia: Strategy Overview

<https://www.gatesfoundation.org/What-We-Do/Global-Health/Pneumonia>

Explains the Gates Foundation strategy regarding pneumonia vaccination and treatment dispersion in underdeveloped areas. In particular, children of age five or younger are the focus of this program.



UNICEF: Pneumonia

https://www.unicef.org/health/index_43828.html

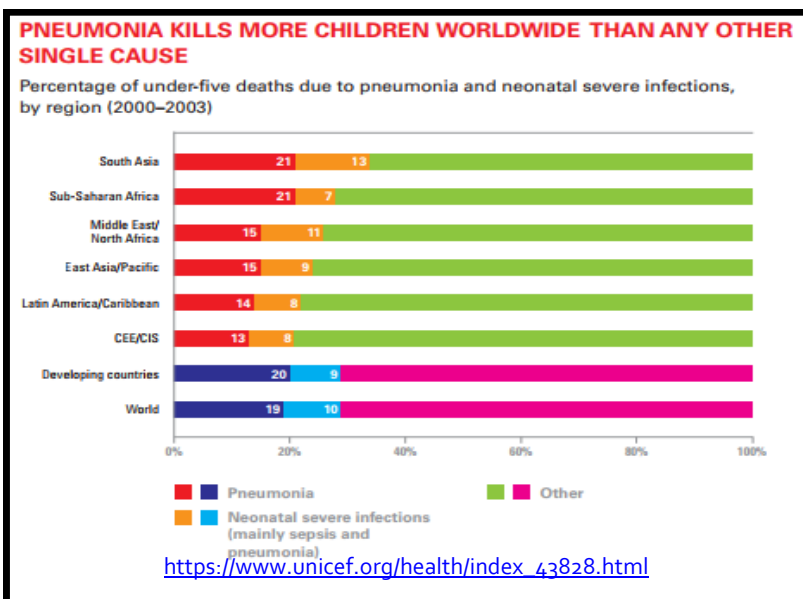
Provides a numerical account of the amount of children, specifically under five, that die at the hands of pneumonia. Additionally, this webpage shows how UNICEF and WHO have been working toward improving the vaccine distribution on treatment in under developed countries.



Global Coalition Against Child Pneumonia

https://www.jhsph.edu/research/centers-and-institutes/ivac/resources/isppd8/L_Privor-Dumm-Global_Coalition_Against_Child_Pneumonia-Solutions_Actions_Sustainability.pdf

With over 140 companies, organizations, and governmental agencies pledging their help to the cause, work to improve access and treatment to those affected by pneumonia can be much more effective. There is also a focus on changing policy and lobbying to improve knowledge and further improve the logistics of moving vaccines and treatments.





A technician explains how the GeneXpert machine diagnoses TB using DNA in Jakarta, Indonesia.

<https://www.gatesfoundation.org/What-We-Do/Global-Health/Tuberculosis>



10 Facts on Tuberculosis

<http://who.int/features/factfiles/tuberculosis/en/>

Another 10 interesting facts from the WHO page. This page differs from the previous ten fact videos because there is seemingly less good news regarding the progression of stopping TB. This link will show the massive number of people effected by the disease and high death toll faced by those living in more remote communities.

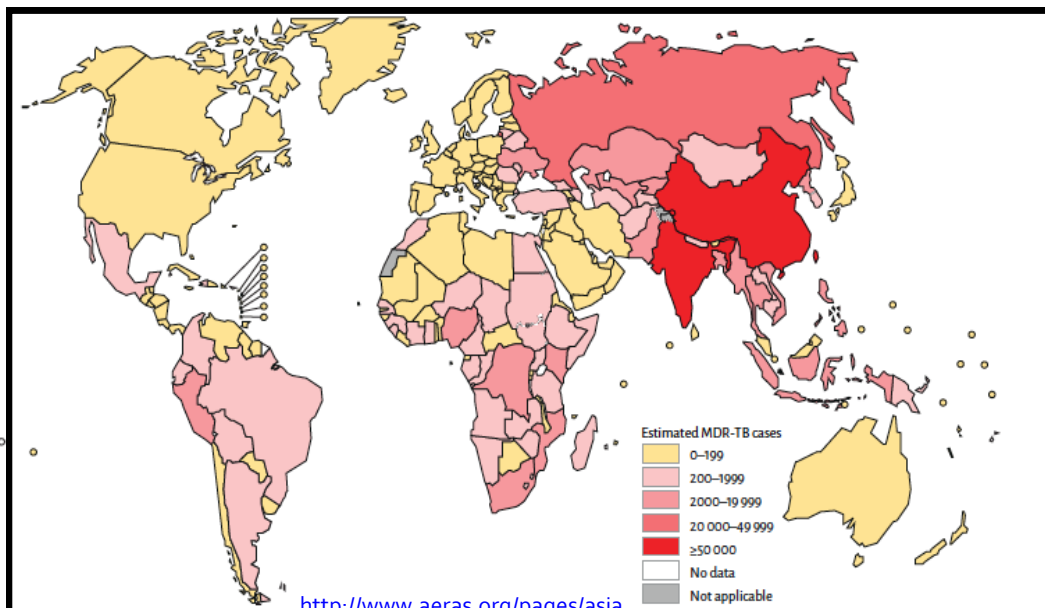


TB Alliance: PaMZ

<https://www.tballiance.org/portfolio/regimen/pamz>

PaMZ is a new drug to treat TB that the TB Alliance (a non-profit drug developer focused on providing TB drugs), that has to date been successful in treating patients who have TB and drug resistant strains of TB. Additionally, PaMZ has been effective at treating those that have TB and are infected with HIV. The Gates Foundation is also a large donor to the TB Alliance.

Number of MDR-TB cases estimated to occur among notified pulmonary TB cases, 2014



<http://www.aeras.org/pages/asia>

Tuberculosis



Tuberculosis: Strategy Overview

<https://www.gatesfoundation.org/What-We-Do/Global-Health/Tuberculosis>

Shows the Gates Foundation's actions against the leading cause of death from infectious disease, TB. The focus is on developing a better vaccination to prevent infection, and also increasing access to treatment world-wide.



WHO: End TB

<http://www.who.int/tb/en/>

This is the general site for WHO's End TB campaign. It provides interesting numbers from 2000-2016 and also projection numbers regarding their 2030 goals for the halting of Tuberculosis. Includes links to WHO fact sheets and reports on the progress made thus far.



Directly Observed Treatment: Short-Course (DOTS)

<http://www.who.int/tb/dots/whatisdots/en/>

The five point plan created by WHO to combat Tuberculosis in any given location of the world. These steps consider political problems that may arise, standardized treatments, and providing effective drug supplies as some forms of TB are resistant to antibiotics.

Reduction of HIV Infection and AIDS



A medical field worker explaining a clinical trial for microbicides to residents outside Durban, South Africa.

<https://www.gatesfoundation.org/What-We-Do/Global-Health/HIV>



HIV: Strategy Overview

<https://www.gatesfoundation.org/What-We-Do/Global-Health/HIV>

The Gates Foundation page explaining the focuses of the Gates Foundation concerning the HIV virus. This is mainly focused on expanding and simplifying treatment to those with HIV, and fighting the spread of HIV.



10 Facts on HIV

<http://www.who.int/features/factfiles/hiv/en/>

The facts presented by WHO in this series are more in depth than those presented in the previous "10 facts" on other diseases in this packet. The facts include everything from general numbers to prevention to the science



UNAIDS

<https://www.youtube.com/watch?v=Zm7kgP2t-ak>

<https://www.youtube.com/watch?v=oO4fhdyOt14>

Two videos from the UNAIDS organization explaining the geography and the amount of access those affected have to treatment. The first link breaks down the geography and the second presents some of the numbers and percentages revolving around people diagnosed with HIV. Both videos are less than a minute long.



A Journey of Motherhood

<https://www.youtube.com/watch?v=k3GRxFEIToo>

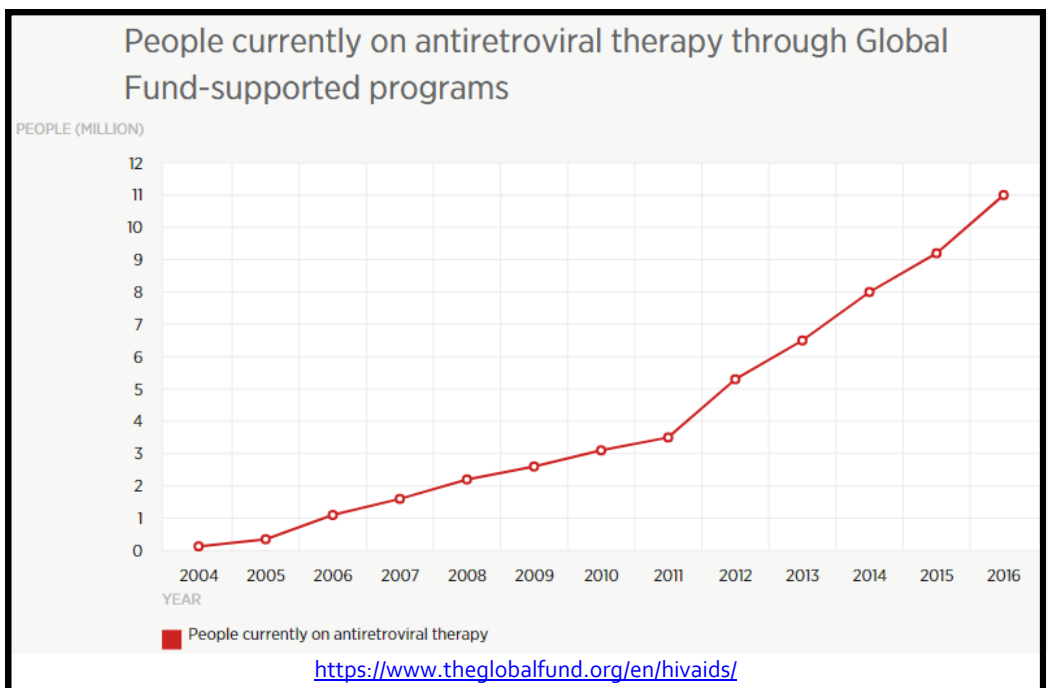
The Global Fund and UNICEF produced a video following the story of six South African women's pregnancies with HIV. Provides insight into why education plays such a vital role in preventing the spread of HIV.



ONE: HIV/AIDS

<https://www.one.org/international/issues/infectious-diseases/hiv-aids/>

This page from the ONE organization shows the progress that has been made since the start of the HIV/AIDS epidemic. Specifically showing the amount of people with access to treatment, and the number of deaths that have been averted since treatments have become more readily available.



Enteric and Diarrheal Diseases



A baby in Sudan receives a dose of rotavirus vaccine.

<https://www.gatesfoundation.org/What-We-Do/Global-Health/Enteric-and-Diarrheal-Diseases>



Enteric and Diarrheal Diseases: Strategy Overview

<https://www.gatesfoundation.org/What-We-Do/Global-Health/Enteric-and-Diarrheal-Diseases>

The Gates Foundation page showing their actions to combat intestinal disease, focusing on child infections. These diseases kill approximately 500,000 people a year, and approximately 159,000,000 children face stunted growth as result of these diseases. The Gates Foundation is focused on providing new vaccines and improving delivery of treatments



Why is Diarrhea Dangerous?

http://www.defeatdd.org/sites/default/files/node-images/CVIA_DDD_ETEC_vo4_rev29%20%28002%29.pdf

This PDF gives an easy to follow explanation of the causes and preventative measures that can be taken to address diarrhea. Produced by Defeat DD, an international organization created by PATH, which is committed to increasing access to solving the problems that cause diarrheal diseases.



Preventing and Controlling Infectious Diseases After Natural Disasters

<https://unu.edu/publications/articles/preventing-and-controlling-infectious-diseases-after-natural-disasters.html#info>

An article from the United Nations University describing the increase in communicable diseases in the aftermath of a natural disaster. This is particularly true when considering natural disasters in underdeveloped areas of the world, and diarrheal diseases are particularly dangerous in these cases.



DefeatDD Video Series

[Video 1](#), [Video 2](#), [Video 3](#)

Each video is approximately three minutes, and deals with a slightly different topic regarding diarrheal disease. Provides a good context for the living conditions of people in the poorer regions of India.

Risk factors and onset of communicable diseases following natural disasters



<https://unu.edu/publications/articles/preventing-and-controlling-infectious-diseases-after-natural-disasters.html#info>

Vaccine Delivery



Children at a launch ceremony for a new meningitis vaccine in Ouagadougou, Burkina Faso. (Photo © PATH / Gabriel Bienczycki)

<https://www.gatesfoundation.org/What-We-Do/Global-Development/Vaccine-Delivery>



Vaccine Delivery: Strategy Overview

<https://www.gatesfoundation.org/What-We-Do/Global-Development/Vaccine-Delivery>

Provides an overview of the Gates Foundation goal to prevent deaths, disabilities, and illnesses by 2020 through high, equitable, and sustainable vaccine coverage and support. The foundation focuses on country programs, immunization, vaccines, market dynamics, and advocacy.



Improving Vaccine Delivery

<https://www.path.org/power-of-vaccines/improving-delivery.php>

This article dives into the research and development at PATH that goes into discovering ways to safely and effectively distribute, store, and administer vaccines in places with weak health and transportation infrastructure, among other issues.



Vaccination: rattling the supply chain

<http://www.who.int/bulletin/volumes/89/5/11-030511/en/>

This article goes into more detail surrounding introducing new vaccines and how to expand immunization globally and how this reality is putting a strain on current supply chains.



GAVI: The Vaccine Alliance

<http://www.gavi.org/about/>

The Global Alliance for Vaccines and Immunizations (GAVI) is an organization whose main focus is making vaccines more accessible to developing countries. This is done through the help of many donors, including the Gates Foundation. Link includes a 2:45 video giving a short explanation of the work GAVI does, and some of the data revolving around their contribution to the cause.

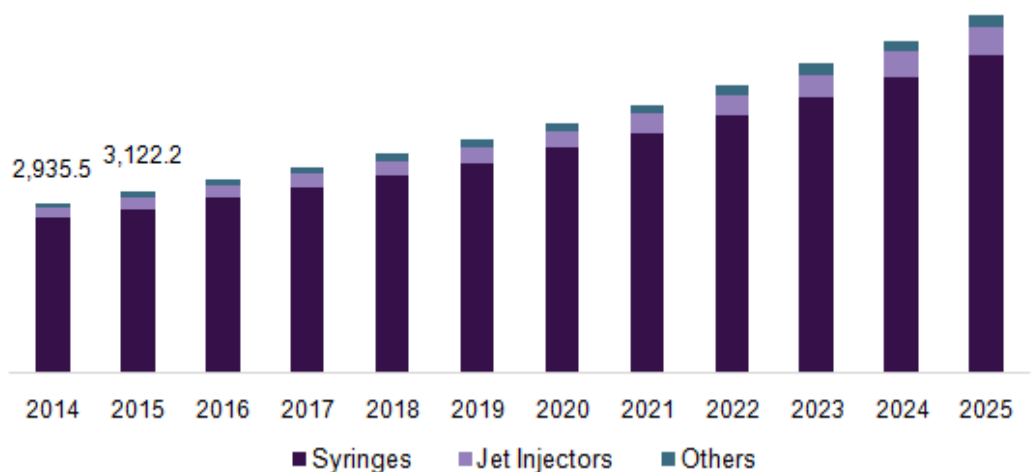


Bill Gates: Vaccines Save Lives

<https://www.youtube.com/watch?v=JZvpF6gaGH4>

Bill Gates discusses the importance of vaccines and the need to be persistent with the giving access to vaccines in this 2011 video. Though the video focuses on the polio vaccine, the point is made clear that if vaccines are not continually distributed, diseases like polio will rebound and spread drastically.

Vaccine delivery devices market, by device, 2014 - 2025 (USD Million)

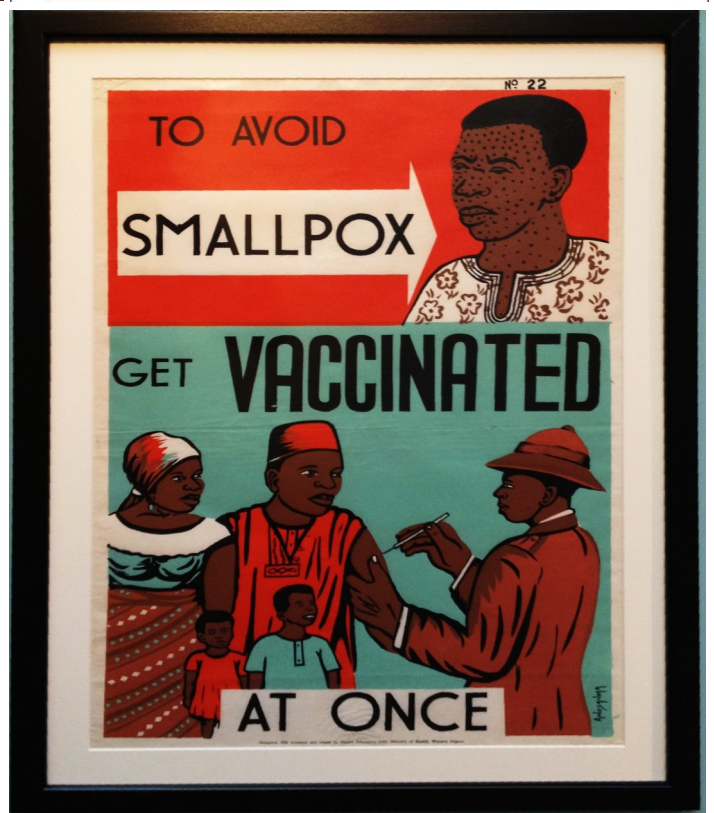
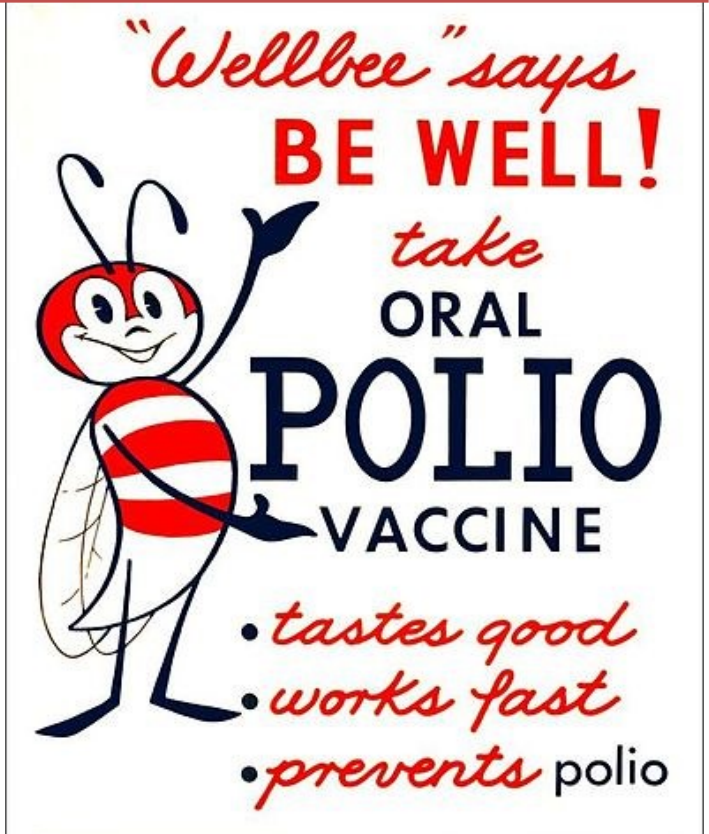
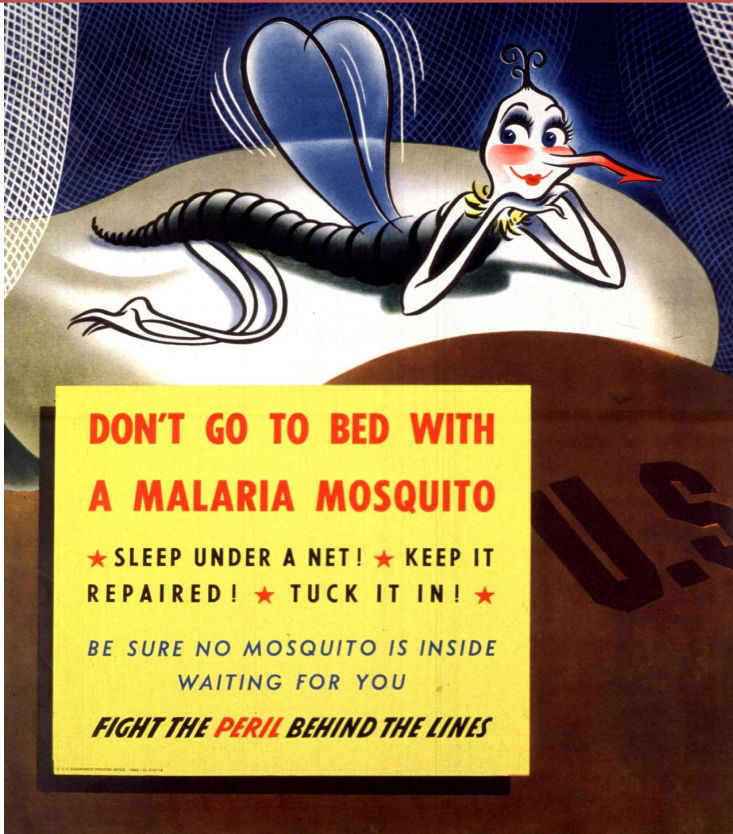


<http://www.grandviewresearch.com/industry-analysis/vaccine-delivery-devices-market>

Lesson Plan Idea!



Posters help raise awareness and provide necessary information to the public. Ask students what health facts they have learned through posters they have seen in school and other places. Ask them if they were impactful, why or why not? Discuss these old posters below. Then, have your students collaborate on making their own poster to bring awareness to one of the diseases discussed in this packet.



Integrated Delivery



A family planning consultation at the Virangana Avanti Bai Hospital in Lucknow, India.



Integrated Delivery: Strategy Overview

<https://www.gatesfoundation.org/What-We-Do/Global-Development/Integrated-Delivery>

The overview of the Gates Foundation's plan to implement more sustainable logistical operations. This page outlines the challenges involved with improving logistical access to vaccines.



Challenges in Global Healthcare Delivery

<https://www.youtube.com/watch?v=uCVzwg98ok8>

This video discusses how to make healthcare more efficient and effective, as well as examining the challenges that need to be addressed. (13:41)



Management Sciences for Health (MSH)

<http://www.msh.org/our-work/health-areas/malaria/health-systems-strengthening-capacity-building>

Working in partnership with the Gates Foundation, MSH works specifically to improve access to vaccines and resources in developing countries. They do this by influencing and creating strong local and national leaders in countries affected by preventable diseases.



Global Healthcare Revolutionary: Vanessa Kerry:

<https://www.youtube.com/watch?v=5hYlgWfloa4>

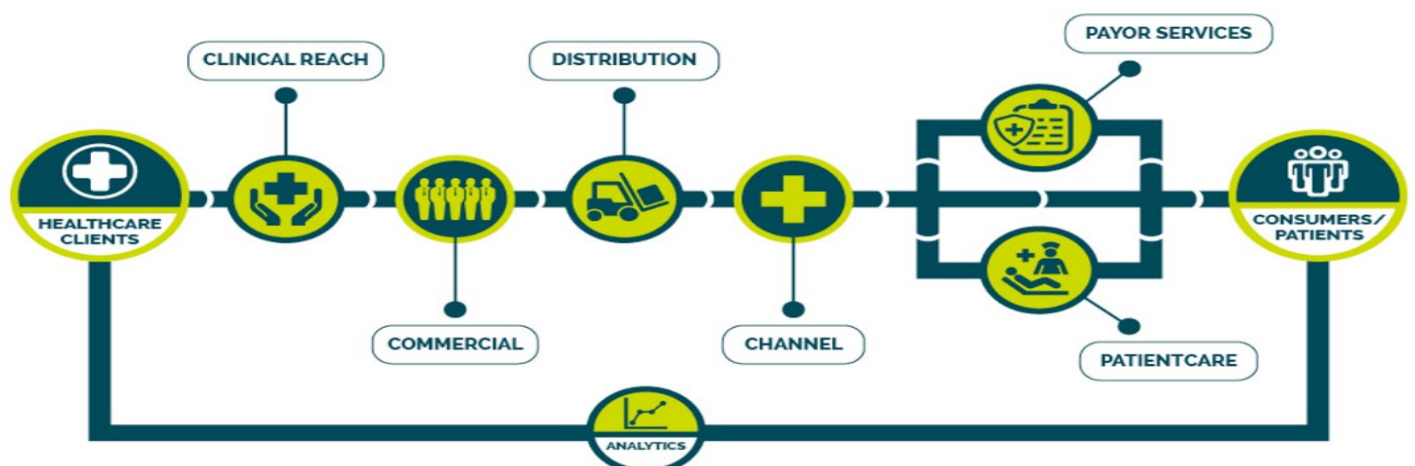
Vanessa Kerry discusses how we can overcome challenges to global health and poverty. With all the investments made in global health over the last decade, why are we still struggling to deliver care? Do we in fact have the model right? She examines this question, brings up additional ones, and poses a solution that could result in more people being cured. (14:43)



Zuellig Pharma: Integrated Approach

<https://www.zuelligpharma.com/integrated-approach>

The central mission for Zuellig Pharma is to make healthcare more accessible in Asia. One way they do this is by streamlining delivery systems. The image below was taken from their site (linked above) and is an interactive diagram providing more information on each titled subject.



Gates Foundation approach to Integrated Delivery

Community health worker programs

We provide funding, technical assistance, and performance evaluation tools to country community health worker programs to improve their quality, reach, and impact.

Supply chains

We help countries design more effective supply chains.

Information and communications technology

We invest in ICT systems that can help strengthen the

Behavior change

We are exploring what more the foundation can contribute on the "demand side" to motivate healthier behaviors and increase the use of life-saving tools and technologies.

Data systems

We invest in data systems that improve primary care systems, delivery measurement and accountability, and performance management of health systems.



Another feeds oral rehydration solution to her child in Dhaka, Bangladesh.



An outreach worker uses a cell phone to register a mother and child near Accra, Ghana.



A health extension worker in Ethiopia teaches about nutrition, breastfeeding, and vaccinations.

Family planning



A mother and son at a health center in Dakar, Senegal.

<https://www.gatesfoundation.org/What-We-Do/Global-Development/Family-Planning>



Family Planning: Strategy Overview

<https://www.gatesfoundation.org/What-We-Do/Global-Development/Family-Planning>

The Gates Foundation page regarding their achievements and their plans moving forward to improve family planning.



Unmet Need for Contraception in Developing Countries: Examining Women's Reasons for Not Using a Method

<https://www.guttmacher.org/report/unmet-need-for-contraception-in-developing-countries>

Guttmacher Institute's mission is focused on advancing sexual and reproductive global health rights. This particular link provides a plethora of information regarding the lack of contraception use in developing countries. It touches on the reasons why this is the case, the effects it has on the populations of the developing countries, the lack of family planning, and more. While this article provides a lot of information the key points are pointed out on the top of the article for ease of use.



Engaging Men As Partners in Reproductive Health

<https://www.engenderhealth.org/our-work/gender/index.php>

Engender Health is a partner organization with the Gates Foundation that focuses specifically on family planning and family health. While Engender Health is involved in all steps to improve family planning, this particular link explains the importance of getting the men in the families educated and aware of reproductive issues.



Family Planning Case Study: Senegal

<http://www.globalgoals.org/goalkeepers/datareport/case->

"Achieving the family planning goal makes it more likely that we'll achieve virtually every other Sustainable Development Goal." This quote demonstrates the importance of this step in the SDGs, and the Senegalese have focused on it. Fatimata Sy discusses how Senegal became a model in family planning for the region. The interviewer in the video meets with individuals who helped the processes.

MODERN CONTRACEPTIVE PREVALENCE RATE IN SENEGAL



Sustainability: Where We Are Now



Goalkeepers: The Stories Behind the Data

<http://www.globalgoals.org/goalkeepers/datareport/>



This link contains many easy to understand graphs that show the progress being made toward each specific Sustainable Development Goal. The data to produce the graphs was compiled by the Gates Foundation in partnership with the Institute for Health Metrics and Evaluation at the University of Washington .



We're on a course to miss 2030 development goals for health and poverty

<https://qz.com/1075983/bill-and-melinda-gates-were-on-a-course-to-miss-2030-sustainable-development-goals-around-public-health-and-poverty/>

This article was written in reference to the Goalkeepers report linked to the left. It provides some deeper analysis of the graphs used in the report, and attaches some commentary from Bill and Melinda Gates regarding the data. In a short summary, given our current projections, we will miss many of the SDGs by 2030.



How We Can Make the World a Better Place by 2030: Michael Green (TED Talks)

<https://www.youtube.com/watch?v=oo8ykAqLOxk>

This video examines how the sustainable development goals agreed upon at the UN can be achieved. How can we end hunger and poverty? Achieve global health and well-being standards? Michael Green attempts to address these and more.

Lesson Plan Idea!

First, watch the [World's Largest Lesson](#). Then, use this website which contains individual lessons plans to help teach each of the 17 SDGs. This site also includes ideas for individual projects to motivate students and/or collaborative work with other schools through Skype to combine the efforts of multiple classrooms.

<http://worldslargestlesson.globalgoals.org/>



Source: www.un.org



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SEVEN IDEAS TO BRING THE GLOBAL GOALS TO YOUR SCHOOL

WHAT?

CONNECT LEARNING
TO ACTIONS THAT
HELPED THE WORLD
ACHIEVE THE
GLOBAL GOALS!

WHY?

EMPOWER ALL
TEACHERS AND
STUDENTS TO
DISCOVER THEIR
PURPOSE AND
BE AGENTS OF
CHANGE.

