

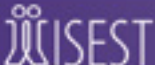


STEM @ Home Guide Special Vaccine Edition

Here at WISEST, we value evidence-based decision making, and we want to make sure that the next generation of STEM leaders, like yourselves, are equipped with the resources and tools necessary to make well informed decisions for your life but also for your career. As the pandemic continues to create a landscape of uncertainty, we want to make sure that you're getting the right information. Vaccines have played a key role when it comes to combating diseases and viruses, so we want to give you a list of resources that can help you understand vaccines, their development and the impact they've had in the past and present. If this resource has been helpful to you, please help us by sharing it with others!

Chez WISEST, nous estimons la prise de décisions fondées sur les faits et nous voulons faire certaine que la prochaine génération des chefs en STIM, comme vous, sont préparés avec les ressources et outils nécessaires pour prendre des décisions bien informées pour vos vies et vos carrières. Pendant que la pandémie continue de créer un paysage d'incertitude, nous voulons faire certaine que vous avez l'information correcte. Les vaccins ont joué un rôle essentiel dans la lutte contre les bactéries et les virus, donc nous voulions vous donner une liste de ressources qui peut vous aider à comprendre les vaccins, leurs développements, et leurs impacts sur l'histoire et le présent. Si cette ressource est utile pour vous, s'il-vous-plaît partagez-le avec d'autres

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General Resources

Vaccines: Power to Protect

cdc.gov/vaccines | Teachers, parents

This infographic highlights the importance of getting children caught up on well-child visits and routine childhood vaccinations. The infographic is available to download and print.



How Vaccines Work

youtube.com/playlist | Grades K-12, teachers, parents

Videos that explain how vaccinating a baby according to CDC's recommended immunization schedule can help protect a baby from 14 vaccine-preventable diseases by age two.

Immunization Schedules

cdc.gov/vaccines | Teachers, parents

Child and adolescent immunization schedules are provided in a parent-friendly format.



HPV Iceberg Infographic

cdc.gov/HPV | Grades 3-6, teachers, parents

Infographic explaining how 11-12 year olds can be protected against 6 types of cancer with need doses of the HPV vaccine.



The Women Who Made Vaccines Work

gavi.org/vaccineswork | Grades 3-12, teachers, parents

The Vaccine Alliance recalls five remarkable women who helped lay the foundations for modern immunisation and pushed forward the frontiers of science.



Pearl Kendrick, Grace Eldering, and the Pertussis Vaccine

nchi.nlm.nih.gov/pmc | Grades 9-12, teachers, parents

The paper documents how Dr. Kendrick and Eldering combined pertussis vaccine with diphtheria and tetanus to create the DDP shot, which is still administered to this day.



Brought to you by IISEST

CDC – Vaccines and Immunizations

cdc.gov/vaccines | Teachers, parents

The Center for Disease Control (CDC) has put together a page on vaccines and immunizations, which includes six things people need to know about vaccines, why immunization is important, the basics of immunization, and common questions about vaccinating. They also provide many resources for immunization education and training. Some of these materials appeal more to parents than others, but there are a few fact sheets on diseases and the vaccines that prevent them and answers to common questions asked by preteens and teens that educators may want to make use of.



Why Vaccinate

historyofvaccines.org/content/ | Grades K-12, teachers, parents

The History of Vaccines provides a brief article on why people should vaccinate. Through reading this article, students will understand the most important benefits of vaccination, which include individual immunity and herd immunity.



TED Talks



Laurie Garrett: Lessons from the 1918 flu

ted.com/talks/garrett | Grade 9-up, Teachers, parents

In 2007, as the world worried about a possible avian flu epidemic, Laurie Garrett, author of “The Coming Plague,” gave this powerful talk to a small TED University audience. Her insights from past pandemics are suddenly more relevant than ever.

Seth Berkley : HIV and flu — the vaccine strategy

ted.com/talks/berkley | Grade 9-up, Teachers, parents

Seth Berkley explains how smart advances in vaccine design, production and distribution are bringing us closer than ever to eliminating a host of global threats — from AIDS to malaria to flu pandemics.

“Romina Libster: The power of herd immunity

ted.com/talks/libster | Grade 9-up, Teachers, parents

How do vaccines prevent disease — even among people too young to get vaccinated? It’s a concept called “herd immunity,” and it relies on a critical mass of people getting their shots to break the chain of infection. Health researcher Romina Libster shows how herd immunity contained a deadly outbreak of H1N1 in her hometown. (In Spanish with English subtitles)



Teacher and Parent Resources

Vaccine Makers' Lesson Plans

vaccinemakers.org/lessons/elementary/meet-germs | Grade K-12

The Vaccine Makers Project (VMP) has developed a variety of school-based curricula to educate about the immune system and how it works, diseases and their causes, and vaccines and the science behind them. These materials can also be used to achieve additional goals of helping youth understand the history and methods related to scientific progress and discovery and to develop skills that will position them to critically evaluate science-based topics.



Using Vaccines to Fight Outbreaks

sciencebuddies.org | Grade 6-12

Science Buddies explore questions such as: What exactly is a vaccine? Can vaccines prevent outbreaks? How effective does a vaccine need to be to help a population during an outbreak?, and more in this lesson plan by first learning the biology behind vaccines. They will then use SimPandemic, a free online tool, to model different vaccine parameters to understand how vaccines affect both individuals and populations during a COVID-19 outbreak.



The History of Vaccines

historyofvaccines.org/content/educators | Grade 9-12

Catering for high school students, these lesson plans cover using the history of vaccines in the classroom, how vaccines work, viruses and evolution, and the scientific method in vaccine history provided. The can be used to teach specific standards-based topics: the scientific method, the immune system and how vaccines interact with it, and viral evolution.



The Vaccine War | The Growing Debate Over Vaccine Safety

pbslearningmedia.org | Grades 6-12

PBS Learning Media provides a classroom activity on the growing debate over childhood vaccines.



KS4 Vaccinations

e-bug.eu | Grade 6-12

e-Bug's lesson plan on vaccinations teaches students about immunity and vaccinations and explores common misconceptions about vaccines.



Diseases, Injuries, and Conditions Lesson Plan: Raising Health Awareness

BrainPOP Educators

educators.brainpop.com | Grade 3-12

In this lesson plan, students take part in a hands-on activity to explore the difference between diseases, injuries, and conditions and how they can be prevented or treated. Students then select a disease, injury, or condition that they or someone they know has been affected by and research prevention and treatment methods.

Invent ways to help get your community vaccinated



pbs.org/newshour | Grade 9-12

Equipped with knowledge of how the vaccine works and why it is important, students can research challenges to vaccine distribution in their own communities and invent ways to get vaccines to community members who may face obstacles to vaccination.

Activities

Vax Pack Hero

vaxpackhero.com | Grade 6 +

A program designed for elementary-aged children that features a web-based video game, physical trading cards, and an educational website. The program introduces 50 heroes important to the development and success of vaccines. The heroes help players battle 21 different vaccine-preventable diseases in a quest to return patients to health.

My Vaccine Activity Book



media.chop.edu/data/files/pdfs/vaccine-activity-book.pdf | Grade 5-9

The Vaccine Education Center at CHOP, presents the science of vaccines with fun images to color and activities to complete. This 16-page booklet is sure to provide children with a way to learn about vaccines and how they work, as well as some of the scientists who helped to develop them.

THE VACCINE WAR: The Growing Debate Over Vaccine Safety



www-tc.pbs.org/wgbh/pages/frontline/teach/vaccine/vaccine.pdf | Grade 8 +

The activity examines the debate among public health officials, doctors and parents around vaccine safety and hear differing perspectives on the benefits and risks of vaccination.



Brought to you by IISEST

The Scientific Method

historyofvaccines.org/content/scientific-method | Grade 6 +

The activity immerses students in a disease outbreak by applying the scientific method in an epidemiological setting to pinpoint the source of the illness.

THE HISTORY OF
VACCINES

The History of Vaccines

historyofvaccines.org/content/educators | Grade K-12

The online activities include simulations, multimedia timelines, articles, and lesson plans on using the history of vaccines in the classroom, how vaccines work, viruses and evolution, and the scientific method in vaccine history provided.

THE HISTORY OF
VACCINES

Our Heroic Bodies

immunology.org | Grade 3-12

The collection of drawings celebrates the unexpected beauty of our body at a tiny scale, starting with blood cells, including our protective heroic white blood cells, and some of the bacteria and viruses that can make us unwell. The collection includes celebrating how an unexpected finding by Edward Jenner in 1798 led to one of the greatest discoveries in medicine to help protect us from illness.



Podcasts for Elementary Students

A super special shot: All about coronavirus vaccines

podcasts.apple.com

Brains On! Science podcast for kids along with New York Times science journalist Apoorva Mandavilli explain what scientists have found out about how long immunity lasts to this new coronavirus.

Coronavirus: A Book For Children

podcasts.apple.com

Two podcasts host narrate a bedtime story that answers questions children might have about Coronavirus and all the changes that have come about because of the virus.



Brought to you by IISEST

Vaccines, Masks and Handwashing: A Coronavirus Update

vpr.org/programs/2020-08-14/

In this podcast episode, Dr. Krutika Kuppalli, assistant clinical professor of infectious diseases at the Medical University of South Carolina, answers questions about the things we can do to keep ourselves and those around us safe. And we'll learn about what vaccines are, how they're developed and the accelerated process for developing a coronavirus vaccine.

Ladies & Germs Meet The Supervillain Superbugs!

tinkercast.com/podcasts/

Almost 100 years ago Alexander Fleming discovered what would go on to become the world's first antibiotic. Nearly a century later, the bugs these antibiotics once treated are making a comeback! Join Guy Raz and Mindy Thomas as they delve into the Who, What, When, Where, Why, How, and Wow in the World of battling SUPERBUGS!

Podcasts for Junior High Students

Star Talk Radio: Vaccines – Let's Make America Smart Again

startalkradio.net/all-access/


Astrophysicist Neil deGrasse Tyson talks vaccine science with American science journalist and author Laurie Garrett in this episode, Vaccines – Let's Make America Smart Again. The episode title is a bit sassy, but there is a lot of good information inside. Laurie answers parents' vaccination questions directly and patiently, and shares touching stories about near and dear ones she has lost to diseases that are now vaccine-preventable.

The Coronavirus Vaccine Race

radiopublic.com/tumble-science

How did scientists develop coronavirus vaccines in record time? New York Times science reporter Carl Zimmer is our guide to the coronavirus vaccine race - from the starting line, to the point when several teams are racing to the finish line. This podcast out how science gave the competitors a turbo boost that could save hundreds of millions of lives



Brought to you by  IASEST

Hit Me With Your Best (Polio) Shot

thispodcastwillkillyou.com/2018/02/10/

This episode explains polio, explores the long history of the disease and delves into the development of polio vaccines, including the origins of the oral polio vaccine developed by the late Dr. Albert B. Sabin.

Podcasts for High Schoolers

Doc Doc Goose: Measles, Myths, and Rumors

ddgpodcast.com | Grade 9 +

In this light-hearted podcast, a family medicine doctor (doc), a physical therapist (doc) and an architect (goose) help the general population understand healthcare topics. In the episode Measles, Myths, and Rumors, pediatrician Dr. Brian Liddell joins the group to answer questions about vaccines. The episode explores several aspects of vaccines to help parents gain a better knowledge of what they are and why the medical community uses them.

Science Vs: Vaccines – Are They Safe?

gimletmedia.com | Grade 9 +

Want some straight talk based on research? In each episode of Science Vs, science journalist Wendy Zukerman pits facts against fads, trends and rumors. Like a good scientist, she's doesn't make assumptions or sugar coat the truth – and as a bonus, her Australian accent is fun to listen to. In the episode Vaccines - Are They Safe?, Wendy digs into vaccine concerns and presents unbiased conclusions based on the evidence. This episode is from 2017, but the issues covered are just as relevant today. Make sure you listen all the way to the end.

27 Reasons Why You Should Get a Flu Shot

stitcher.com/podcast/sawbones-podcast/ | Grade 9 +

Dr. Sydnee and Justin find why people haven't gotten a flu shot and now they're taking 27 (yes, 27) of the most common excuses and blowing them to smithereens.



Herd Immunity

[stitcher.com/show/sawbones/episode/](https://www.stitcher.com/show/sawbones/episode/) | Grade 9 +

There's been a lot of discussion about herd immunity in the face of COVID-19, explore that truth and so much more with this of Sawbones.

Measles: The Worst Souvenir

thispodcastwillkillyou.com | Grade 9 +

Did you know measles could wipe out your immune system's memory of other viruses it has encountered in the past? Unravel measles mysteries with this engaging episode, which was released while cases continued to soar in the United States in 2019.

Influenza Will Kill You

thispodcastwillkillyou.com | Grade 9 +

This one is a great primer about all things influenza. The bottom line? We should be really scared of the flu.

Measeles

[stitcher.com/podcast/](https://www.stitcher.com/podcast/) | Grade 9 +


Dr. Sydnee McElroy and her husband Justin McElroy (one of the McElroy brothers), dedicate each episode of Sawbones to a different, often strange, way humans have approached medicine throughout history. Their episode on Measles asks – what is measles? What's the deal with this measles vaccine, anyway? This episode is from 2015, but their (extreme) frustration about vaccine hesitancy is even more topical today.

Mumps

[stitcher.com/podcast/sawbones-podcast/](https://www.stitcher.com/podcast/sawbones-podcast/) | Grade 9 +

Sawbones return to the MMR vaccine, specifically the "mumps" part. We'll also meet the brilliant mind behind the vaccine and the tragic reason he never gets the credit he's due.



Brought to you by  IASEST

Rubella

[stitcher.com/show/sawbones/episode/](https://www.stitcher.com/show/sawbones/episode/) | Grade 9 +

Sawbones complete their series on the MMR vaccine as they make you an honorary Rubella Fighter.

Books

Immunize Canada: Children's Books

immunize.ca/childrens-books | Grade K-6

Immunize Canada curated a list of children's books focused on the history of immunization and vaccines for different age groups! Check it out for recommendations for your next library trip!

Celebrate Picture Books: Children's Books about Vaccine

celebratepicturebook.com/vaccines | Grade K-4

Celebrate Picture Books put together a list of books that helps kids understand vaccines better.

Vaccines: Explained!

languagelizard.com | Grade 6-9

Vaccines Explained describes how vaccines work, their history, and why they are important. The author, a public health expert who studied cellular and molecular biomedical sciences, uses simple text to help the reader understand this topic.

The Saturday Shot

<https://www.goodreads.com/book/> | Grades K-5

The Saturday Shot tells the story of a young girl going to the doctor's office for a check-up and vaccine. Written by a child for children, this book provides a child's perspective on getting immunized.



“Vaccinators” in The Book of Gutsy Women

[ws.catalog.lionlibraries.org/](https://www.ws.catalog.lionlibraries.org/) | Grade 9 +

In this chapter, Hillary Clinton and Chelsea Clinton explore how globally dedicated vaccine workers do the work of administering vaccines often in dangerous and precarious situations, are women and what challenges they face as they create a stronger, safer and healthier community.

Mobi vs. The Shield: Community Immunity Saves the Day

store.bookbaby.com | Grade K-5

The book follows Mobi, a pesky measles virus, who has a goal of infecting everyone in Townsville. However, a superhero vaccine named Victor quickly throws a wrench in Mobi's plans. The reader is taken on an exciting adventure with Mobi and Victor as they explore several different situations about community immunity together.

Movies

Vaccination From The Misinformation Virus

themisinformationvirus.com/ | Grade 9 +


In a project that started in 2017, long before the COVID-19 Pandemic, a new documentary looks to address the effectiveness of vaccines and why some are hesitant to take them.

The Polio Crusade

pbs.org/wgbh | Grade K-4

Filmmaker Sarah Colt (Geronimo, RFK) documents interweaves the personal accounts of polio survivors with the story of an ardent crusader who tirelessly fought on their behalf while scientists raced to eradicate this dreaded disease



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Organizations

Government of Canada

canada.ca/en/public-health/services/

The Canadian Immunization Guide is a comprehensive resource on immunization. It was developed based on recommendations and statements of expert advisory committees, including the National Advisory Committee on Immunizations (NACI) and Committee to Advise on Tropical Medicine and Travel (CATMAT).



Vaccine Makers Project

vaccinemakers.org/

The Vaccine Makers Project (VMP) is committed to public education about vaccine science via scientifically supported, historically accurate and emotionally compelling content. To this end, the VMP has developed a variety of school-based curricula to educate students about how the immune system works, how diseases develop and how vaccines work to prevent them.



Gavi, the Vaccine Alliance

gavi.org/

Gavi, the Vaccine Alliance helps vaccinate almost half of the world's children against deadly and debilitating infectious diseases. Gavi saves lives and protect people's health by increasing equitable and sustainable use of vaccines as part of its mission.



Bill and Melinda Gates Foundation

gatesfoundation.org/

Bill and Melinda Gates Foundation is a non-profit fighting poverty, disease, and inequity in the world.



WHO

who.int/

WHO leads global efforts to expand universal health coverage. They direct and coordinate the world's response to health emergencies. And we promote healthier lives – from pregnancy care through old age.



Vaccines4Life

vaccines4life.com/

Vaccines4Life is a program of work aimed to mobilize knowledge on the importance of a life course approach to vaccination, developed and led by the International Federation on Ageing.



CANVax

canvax.ca/

The Canadian Vaccination Evidence Resource and Exchange Centre (CANVax) is an online database of curated resources to support immunization program planning and promotional activities to improve vaccine acceptance and uptake in Canada. As an online resource centre, CANVax aims to increase access to evidence-based products, resources, and tools to inform public health professionals in immunization program planning and promotion.




Kids Boost Immunity

kidsboostimmunity.com/

Kids Boost Immunity (KBI) is a non-profit Canadian education initiative made possible through a partnership between the Public Health Agency of Canada, the BC Ministry of Health, the Public Health Association of British Columbia, and the BC Centre for Disease Control. They are a small group of experienced classroom teachers, health professionals, and research experts, passionate about education and student engagement.



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People to Follow

Austin Chiang, MD

austinchiang.com/

Dr. Austin Chiang is a triple board-certified, dual ivy-league (Harvard, Columbia) educated and trained gastroenterologist and advanced endoscopist. In October 2021, he became the first Chief Medical Officer of the gastrointestinal business for Medtronic, the world's leading medical device company responsible for products including Barrx radiofrequency ablation devices, Pillcam capsule endoscopy products, EndoFLIP, Bravo, Sharkcore, and GI Genius the first-to-market AI-assisted polyp detection device to help endoscopists better prevent colon cancer.

Uché Blackstock, MD

jnj.com/health-equity-innovation-challenge/

Dr. Uché Blackstock is a physician and thought leader on bias and racism in healthcare. She is the Founder and CEO of Advancing Health Equity, which partners with healthcare and related organizations to address racism in healthcare and to eradicate racial health inequities, through trainings and consulting services relevant today.

Timothy Caulfield

ualberta.ca/law/faculty-and-research/health-law-institute/

Timothy Caulfield is a Canada Research Chair in Health Law and Policy, a Professor in the Faculty of Law and the School of Public Health, and Research Director of the Health Law Institute at the University of Alberta. His interdisciplinary research on topics like stem cells, genetics, research ethics, the public representations of science and public health policy has allowed him to publish over 350 academic articles.

Dr. Stan Kutcher

sencanada.ca/en/senators/kutcher-stan/

Dr. Stan Kutcher is a leading psychiatrist and professor who has helped young people successfully manage major mental illnesses and Senator for Nova Scotia. His appointment to the Senate allows him to put his decades of medical, academic and policy expertise at the service of all Canadians.



Samantha Yammine

samanthayammine.com |

Samantha Yammine is a Neuroscientist and popular Science Communicator better known as Science Sam. She earned her PhD from the University of Toronto studying how stem cells build and maintain the brain, and then went on to found Science Sam Media, a science-based digital production agency. She is passionate about empowering people to explore science by making it more familiar, accessible, and inclusive.

Laurel Bristow

hopeclinic.emory.edu/about/staff/bristow-laurel.html |

Bristow is an infectious disease specialist who started making informal videos last March, explaining the science around the pandemic. One year later, she's unwittingly fostered a fandom of over 360,000 followers hungry for simple, straightforward scientific information about COVID-19.

Dr. Katelyn Jetelina

yourlocalepidemiologist.substack.com |


Dr. Katelyn Jetelina is an Assistant Professor at UTHealth where her research lab resides. She is the author of "Your Local Epidemiologist," a blog that aims to "close the communication loop" by providing a direct line of science. Her posts are 100% data-driven and backed by the most recent scientific evidence. Some of these are her own analyses, some of these are based on other brilliant scientists peer reviewed studies, and some are science-driven resources.

Dr. Katherine Wallace

epidemiologistkat.com/ |

Dr. Wallace holds a Ph.D. in Epidemiology and has 15+ years of professional research experience in epidemiology, research design, pharmacoepidemiology, health economics, outcomes research, and biostatistics. A vaccine advocate, she serves as a member of "Team Halo" (United Nations Verified Initiative), Project FIDES (World Health Organization) and was chosen as a "vaccine luminary" for the 2021 G7 Vaccine Confidence Summit.



Brought to you by 

Alex Dainis

[linkedin.com/in/alexdainis](https://www.linkedin.com/in/alexdainis)

Alex is a science communicator with a PhD in genetics. Her work uses digital video to make science accessible and engaging to broad audiences.

Darien Sutton

linktr.ee/doctor.darien


Dr. Darien Sutton is an emergency medicine physician in New York City—one of the only Black physicians in the entire emergency department at his hospital. Follow his social media accounts and Linktree for information on COVID-19, COVID-19 vaccinations, herd immunity and much more!

Akilah Jefferson Shah

nmqf.org/40-under-40-awardees/2021/akilah-jefferson-shah

Dr. Jefferson Shah is a researcher in the ACRI asthma research program where her research focuses on asthma, health disparities, health policy, and ethics. She has a special interest in novel approaches to health policy and social determinants related to disparate asthma health outcomes. During the COVID-19 pandemic Dr. Jefferson Shah has immersed herself into issues related to health disparities and ethics, engaging through invited lectures, publications, and popular media outlets such as the Huffington Post and NPR.



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Ressources en français

Pour les médias sociaux

Immuniza Canada - Immuisation Canada

<https://www.facebook.com/immunizedotca/>

Immuisation Canada est une coalition nationale dont la mission est de promouvoir la compréhension et l'usage des vaccins tels que recommandés par le Comité consultatif national de l'immuisation.



Majeurs et vaccinés

<https://www.instagram.com/majeursetvaccines/>

Tu aussi, tu te poses des vaccins sur le immuisations?



Santé Canada Vaccins

<https://twitter.com/SanteCanVaccins>

Ici à Santé Canada, nous nous soucions de votre bien-être et nous voulons que votre vie quotidienne soit saine.



JE Suis Vacciné

<https://twitter.com/JSuisvaccine>

Germes? Les enfants en trouvent en plein. Apprendre les faits à propos des immuisations et comment protéger vos enfants contre les maladies infectieuses.



Infographiques

Les vaccins fonctionnent

<https://www.canada.ca/content/dam/phac-aspc/>

Cette infographie a été créée par le Gouvernement du Canada à propos de l'efficacité des vaccins.



Brought to you by IISEST

Site Web

Démystifier les croyances sur les risques de la vaccination

<https://www.quebec.ca/sante/conseils-et-prevention> |

Un site web créé par le Gouvernement du Québec qui répond à des mythes à propos des vaccins.



Les vaccins expliqués

<https://www.who.int/fr/emergencies/diseases/> | Grades: 7e-12e

Diverses ressources expliquent comment les vaccins sont créés et comment ils fonctionnent.



Maj - Coronavirus

<https://ici.radio-canada.ca/jeunesse/maj/> | Grades: 7e-9e

Ici à Santé Canada, nous nous soucions de votre bien-être et nous voulons que votre vie quotidienne soit saine.



Les femmes scientifiques qui font évoluer la situation pendant la pandémie

<https://www.unwomen.org/fr/news/stories/2021/> | Grades: 10-12e

Des articles à propos des femmes tout autour du monde qui ont fait une différence pendant la pandémie.



Le vrai du faux sur les vaccins

<https://www.curieux.live/2020/09/18/> | Grades: 7e-12e

Des bandes dessinées à propos des vaccins.



Pour les enseignants

La vaccination

https://carrefour-education.qc.ca/guides_thematiques/ | Grades: 1e-4e

L'histoire, les ressources et les activités pour aider les enseignants à informer leurs élèves à propos des vaccins.




Trousse pédagogique pour intégrer l'enseignement sur l'immunisation dans le curriculum de 6e année

<https://cliniquedesoinsinfirmiers.com/app/uploads/2018/04/> | Grades: 6e

Des plans de cours et activités pour les élèves en 6e année à propos des immunisations.



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