

Student Name:

Class:

Immunizations: Part 1

Expert Pack: Grades 9-10



Polio vaccination started in Sweden in 1957.

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The Table of Contents lists of the texts *in order of their suggested reading*, including text complexity information and a brief synopsis of the text.

A note on complexity analysis: The expert packs were created using both quantitative and qualitative considerations. The Reading Maturity Metric was used to calculate the quantitative analysis, including the CCSS grade band ratings. The CCSSO rubric for informational texts was used to conduct the qualitative assessments and ratings align to the CCSSO rubric.

- Reading Maturity Metric: <http://www.readingmaturity.com/rmm-web/#/>
- CCSSO Rubric: included at the end of the Table of Contents

Text	Complexity information	Brief Synopsis
Text 1: Why Vaccinations Work Author: Genre: Video Cost/Access: \$0.00 Link: https://www.youtube.com/watch?v=3aNhZLUL2ys	Quantitative: N/A Qualitative- Structure: Moderately complex. Video is chronologically sequenced and graphics support understanding. Language Features: Very complex. Some of the vocabulary is complex but the video provides meaning to complex content specific words. Purpose: Moderately complex: Content is implied but easy to understand. Knowledge demands: Very complex. Because this is the first piece included in the set the knowledge may be new to students.	This is a YouTube video that students can watch to spark their interest about vaccinations. This video will give students a clear picture of how vaccination work, why they were created, and how they have benefitted the US.

<p>Text 2: Just What the Doctor Ordered Author: N/A Genre: Non-fiction article from readworks.org Cost/Access: \$0.00 PDF</p>	<p>Quantitative: RMM: 8 CCSS: 6-8 Dale Chall: 10.48 Flesch-Kincaid: 6.1 Qualitative - Text Structure: Moderately Complex. The structure of this text is simple with headings but the shift from narrative to informative from beginning to end makes this more challenging.</p> <p>Language Features: Moderately Complex. The vocabulary in this text is content and discipline specific.</p> <p>Purpose: Moderately Complex. This text has more than one purpose but it is easy to identify based on the content and the organization.</p> <p>Knowledge Demands: Moderately complex. Some discipline specific content and mix of simple to complex content.</p>	<p>This text is written about a girl that grew up with Polio (narrative like text) and changes into an information text that explains how the invention of the Polio vaccine is saving lives.</p>
<p>Text 3: Jenner Tests Smallpox Vaccine Author: History.com Genre: Non-fiction from history.com Cost/Access: \$0.00 Link: http://www.history.com/this-day-in-history/jenner-tests-smallpox-vaccine</p>	<p>Quantitative: RMM: 10.7 CCSS: 9 - CCR Dale Chall: 11.73 Flesh – Kincaid: 10.4 Qualitative- Text Structure: Slightly Complex. This is a short text which clear connections between ideas.</p> <p>Language Features: Moderately Complex. Mostly conventional with some domain specific language included.</p> <p>Purpose: Moderately complex. There is one purpose (not stated) and it's easy to identify within this text.</p> <p>Knowledge Demands: Moderately Complex.</p>	<p>This text is used to introduce Edward Jenner and how he created the first vaccination from cowpox.</p>

	Some discipline – specific vocabulary and a mix of simple and complex content.	
Text 4: Understanding Vaccines Author: NIAID Science Education Genre: Non-fiction Cost/Access: \$0.00 Link: http://www.niaid.nih.gov/topics/vaccines/documents/undvacc.pdf	<p>Quantitative: RMM: 9 CCSS: 9 - CCR Dale Chall: 10.11 Flesh – Kincaid: 11</p> <p>Qualitative - Text Structure: Moderately Complex: Text is a pamphlet and is structured with headings and information in a sequential order.</p> <p>Language: Very Complex. Language is domain specific tier 3. Sometimes vocabulary can be solved within the context of the sentence but some other words are not as easily determined through the text.</p> <p>Purpose: Moderately Complex. This text is multi purposed but the structure of the text helps to identify the purpose.</p> <p>Knowledge Demands: Very Complex. This text builds in complexity and domain content knowledge.</p>	This text is a pamphlet that is used to explain what vaccinations are and how they are beneficial to the community.
Text 5: Differences between Vaccinations and Immunizations Author: Genre: Non-fiction Cost/Access: \$0.00 Link: http://www.differencebetween.net/science/health/difference-between-vaccination-and-immunization/	<p>Quantitative: RMM: 10.8 CCSS: 9 - CCR Dale Chall: 8.95 Flesh – Kincaid: 12.9</p> <p>Qualitative - Text Structure: Moderately Complex. Connections are consistent between paragraphs and ideas build logically.</p> <p>Language Features: Very Complex. There is some tier 3 language making the text more academic.</p> <p>Purpose: Very Complex. The distinction between immunity and vaccine is difficult to draw and relies on significant knowledge and language.</p>	This text explains the difference between the terms immunization and vaccination. This understanding will help students clarify meaning through the remainder of the set.

	Knowledge Demands: Moderately complex. Text is discipline specific and builds knowledge logically.	
Text 6: Immunizations Author: PKIDS online Genre: informational text Cost/Access: \$0.00 Link: http://www.pkids.org/immunizations.html	Quantitative: RMM: 10.8 CCGB: 9-CCR Dale Chall: 11.24 Flesh – Kincaid: 12 Qualitative: Text Structure: Slightly Complex. Ideas build logically and the structure is straight forward. Language Features: Very complex. The language is technical and content specific although some words can be solved within context. Purpose: Moderately complex. There are two purposes in this text that are not directly stated but are easily implied. Knowledge Demands: Moderately complex. Background knowledge is key to understanding text.	This last text wraps up the set by explaining why some diseases do not have vaccines that can protect humans.

Text Complexity: Qualitative Measures Rubric

INFORMATIONAL TEXTS

Text Title _____

Text Author _____

	Exceedingly Complex	Very Complex	Moderately Complex	Slightly Complex
TEXT STRUCTURE	<ul style="list-style-type: none"> ○ Organization: Connections between an extensive range of ideas, processes or events are deep, intricate and often ambiguous; organization is intricate or discipline-specific ○ Text Features: If used, are essential in understanding content ○ Use of Graphics: If used, intricate, extensive graphics, tables, charts, etc., are extensive are integral to making meaning of the text; may provide information not otherwise conveyed in the text 	<ul style="list-style-type: none"> ○ Organization: Connections between an expanded range ideas, processes or events are often implicit or subtle; organization may contain multiple pathways or exhibit some discipline-specific traits ○ Text Features: If used, directly enhance the reader's understanding of content ○ Use of Graphics: If used, graphics, tables, charts, etc. support or are integral to understanding the text 	<ul style="list-style-type: none"> ○ Organization: Connections between some ideas or events are implicit or subtle; organization is evident and generally sequential or chronological ○ Text Features: If used, enhance the reader's understanding of content ○ Use of Graphics: If used, graphic, pictures, tables, and charts, etc. are mostly supplementary to understanding the text 	<ul style="list-style-type: none"> ○ Organization: Connections between ideas, processes or events are explicit and clear; organization of text is chronological, sequential or easy to predict ○ Text Features: If used, help the reader navigate and understand content but are not essential to understanding content. ○ Use of Graphics: If used, graphic, pictures, tables, and charts, etc. are simple and unnecessary to understanding the text but they may support and assist readers in understanding the written text
LANGUAGE FEATURES	<ul style="list-style-type: none"> ○ Conventionality: Dense and complex; contains considerable abstract, ironic, and/or figurative language ○ Vocabulary: Complex, generally unfamiliar, archaic, subject-specific, or overly academic language; may be ambiguous or purposefully misleading ○ Sentence Structure: Mainly complex sentences with several subordinate clauses or phrases and transition words; sentences often contains multiple concepts 	<ul style="list-style-type: none"> ○ Conventionality: Fairly complex; contains some abstract, ironic, and/or figurative language ○ Vocabulary: Fairly complex language that is sometimes unfamiliar, archaic, subject-specific, or overly academic ○ Sentence Structure: Many complex sentences with several subordinate phrases or clauses and transition words 	<ul style="list-style-type: none"> ○ Conventionality: Largely explicit and easy to understand with some occasions for more complex meaning ○ Vocabulary: Mostly contemporary, familiar, conversational; rarely overly academic ○ Sentence Structure: Primarily simple and compound sentences, with some complex constructions 	<ul style="list-style-type: none"> ○ Conventionality: Explicit, literal, straightforward, easy to understand ○ Vocabulary: Contemporary, familiar, conversational language ○ Sentence Structure: Mainly simple sentences
PURPOSE	<ul style="list-style-type: none"> ○ Purpose: Subtle and intricate, difficult to determine; includes many theoretical or abstract elements 	<ul style="list-style-type: none"> ○ Purpose: Implicit or subtle but fairly easy to infer; more theoretical or abstract than concrete 	<ul style="list-style-type: none"> ○ Purpose: Implied but easy to identify based upon context or source 	<ul style="list-style-type: none"> ○ Purpose: Explicitly stated, clear, concrete, narrowly focused
KNOWLEDGE DEMANDS	<ul style="list-style-type: none"> ○ Subject Matter Knowledge: Relies on extensive levels of discipline-specific or theoretical knowledge; includes a range of challenging abstract concepts ○ Intertextuality: Many references or allusions to other texts or outside ideas, theories, etc. 	<ul style="list-style-type: none"> ○ Subject Matter Knowledge: Relies on moderate levels of discipline-specific or theoretical knowledge; includes a mix of recognizable ideas and challenging abstract concepts ○ Intertextuality: Some references or allusions to other texts or outside ideas, theories, etc. 	<ul style="list-style-type: none"> ○ Subject Matter Knowledge: Relies on common practical knowledge and some discipline-specific content knowledge; includes a mix of simple and more complicated, abstract ideas ○ Intertextuality: Few references or allusions to other texts or outside ideas, theories, etc 	<ul style="list-style-type: none"> ○ Subject Matter Knowledge: Relies on everyday, practical knowledge; includes simple, concrete ideas ○ Intertextuality: No references or allusions to other texts, or outside ideas, theories, etc.

GLE ALIGNMENT:

- Discuss mechanisms of disease transmission and processes of infection (LS-H-G2) (LS-H-G4)
- Compare the functions of the basic components of the human immune system (LS-H-G3) 40.
Determine the relationship between vaccination and immunity (LS-H-G3)
- Describe causes, symptoms, treatments, and preventions of major communicable and non-communicable diseases (LS-H-G4)
- Summarize the uses of selected technological developments related to the prevention, diagnosis, and treatment of diseases or disorders (LS-H-G5)

Rationale and suggested sequence for reading:

This first set on vaccinations is the first set in a series of 2 on vaccinations. This first set is created to build students' understanding of vaccinations and immunizations. This set is more technical and will build students' domain and tier 3 vocabulary. It's also important to note that this set highlights the pro vaccination side of the argument through building knowledge of vaccines. This set should be paired with the second set on vaccinations which highlights the arguments for and against vaccinations.

To start the text, students will watch a video on YouTube that will visually help students build background knowledge on vaccinations and immunizations while also engaging them in the topic. The video starts with a brief animation on scurvy to help students understand how diseases are spread amongst a group of people and the video develops into how vaccinations were created. The video is 7:22 seconds long and will keep students engaged.

The next text in this set is, *Just What the Doctor Ordered*. This is non-fiction text that starts by engaging readers with a true story of a child that developed Polio at a young age and her experiences living with the disease. The text then shifts into an information text that provides readers with information about the disease and the vaccinations that now exist.

In order for students to continue to build their knowledge on vaccinations, it is important that students are introduced to Edward Jenner, the doctor who created the smallpox vaccine. This history.com article, *Jenner Tests Smallpox Vaccine*, explains how 20th century vaccines are still created from the model that Jenner introduced in 1796.

The PDF titled, *Understanding Vaccines*, is a pamphlet-style read that teaches readers how vaccinations work with the human immune system. This text includes some tier 3 vocabulary but this text should be used to build a better understanding of how vaccinations work and how they are used to protect communities. Students should only read pages 2-5 as part of this text set.

Although the terms vaccinations and immunizations are often used interchangeable, there is a difference between them. This next reading, *Differences Between Vaccinations and Immunizations*, will help readers understand this difference.

Lastly, the set finishes with an informational text that explains why not all diseases (like the common cold and HIV) can be prevented or eradicated through the use of vaccinations.

After finishing this text set readers will have built their knowledge and vocabulary around the topic of vaccinations. The second set will include texts and other media that build an argument for both sides allowing readers to make their own opinions about this controversial topic.

The Common Core Shifts for ELA/Literacy:

1. Regular practice with complex text and its academic language
2. Reading, writing and speaking grounded in evidence from text, both literary and informational
3. *Building knowledge through content-rich nonfiction*

Though use of these expert packs will enhance student proficiency with most or all of the Common Core Standards, they focus primarily on Shift 3, and the highlighted portions of the standards below.

College and Career Readiness Anchor Standards for Reading Literary and/or Informational Texts *(the darkened sections of the standards are the focus of the Expert Pack learning for students):*

1. ***Read closely to determine what the text says explicitly and to make logical inferences from it;*** cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. ***Determine central ideas or themes of a text and analyze their development;*** summarize the key supporting details and ideas.
3. **Read and comprehend complex literary and informational texts independently and proficiently**

Text #1

Why Vaccinations Work

YouTube Video

<https://www.youtube.com/watch?v=3aNhZLUL2ys>



This video will give you a clear picture of how vaccination work, why they were created, and how they have benefitted the United States.

Text #2

Just What the Doctor Ordered

ReadWorks.org



AFP

Jonas Salk invented the vaccine that has almost wiped out polio.

When Carol-Ann Normandin was almost 4 years old, a terrible disease changed her life. At first, the symptoms were ordinary: headaches, fever, chills, and stomachaches. Because those symptoms didn't go away, Carol-Ann's mother had an idea that her daughter was suffering from something more than the flu. It was 1948, and the local health department had sent notices to parents warning them about a disease that left children paralyzed and even dead. An easy test would confirm Mom's worst fear. She took Carol-Ann's head and pushed it slowly toward the girl's chest. A sharp pain usually meant the disease had taken hold.

"I screamed so loud that I raised the roof," Normandin told *Weekly Reader Senior Edition*. "Once I screamed, [my mother] called the doctor."

The disease went by the name of poliomyelitis. Carol-Ann's mother and millions of others simply called the affliction *polio*.

"[My parents] took me to the Toronto Sick Children's Hospital," Normandin said. "I don't remember much else. I remember being in an isolation ward looking out the window at my father."

Miracle Vaccine

You might not have heard of polio before. That's because 50 years ago, on April 12, 1955, the U.S. Government approved the use of a vaccine that stopped people from getting the disease. Invented by Jonas Salk, the vaccine all but eradicated polio worldwide. To commemorate the anniversary of the vaccine's approval, the Smithsonian Institution's National Museum of American History in Washington, D.C., has an exhibit called "Whatever Happened to Polio?"

Searching for a Cure

Polio has been around since ancient times. But the disease reemerged with a deadly vengeance in the 20th century. The disease is caused by a virus that attacks and destroys the nerve cells in the spinal cord and brain that control muscles in the arms, legs and stomach. Many of those who survive the disease are crippled for life.

From the early 1900s to the mid-1950s, most polio victims were children. More than 80 percent of the victims were under 5 years old. The worst year of the epidemic was 1952, David Rose of the March of Dimes told *Weekly Reader Senior Edition*. There were 57,000 cases that year, he said.

American families were scared out of their wits. Many moved to the mountains and to the deserts, thinking they would escape the illness. Parents refused to let their kids go outside to play.

The disease was so terrible that in 1938, President Franklin D. Roosevelt, whose legs had been paralyzed by polio in 1921, declared war on the disease. He urged scientists to find a cure.

By 1952, Salk had succeeded in producing an experimental vaccine. Two years later, Salk got permission to vaccinate 1.8 million kids as a test. Those who received the medicine never got polio.

Disease on Display



The Smithsonian's exhibit looks at the history of polio and Salk's development of a vaccine. Among the objects on display are the leg braces worn by Roosevelt. Although polio has disappeared from much of the world, it still threatens children in Africa and Southeast Asia. The exhibit's focus is on current efforts to immunize children in those places.

"One of the Blessed"

Carol-Ann Normandin, who is now 56 [2005], says it's important that the Smithsonian is highlighting the achievements of Salk and other scientists. "It pleases me a lot that there is an exhibit at the Smithsonian about the polio vaccine," she said. "It is good to remind people about the past so that we can appreciate the present and protect the future."

Normandin says she's "one of the blessed." She regained the use of her legs a year after becoming infected. She never used a wheelchair or wore braces. Today, though, she suffers from problems caused by the disease, such as arthritis, a bone disease.

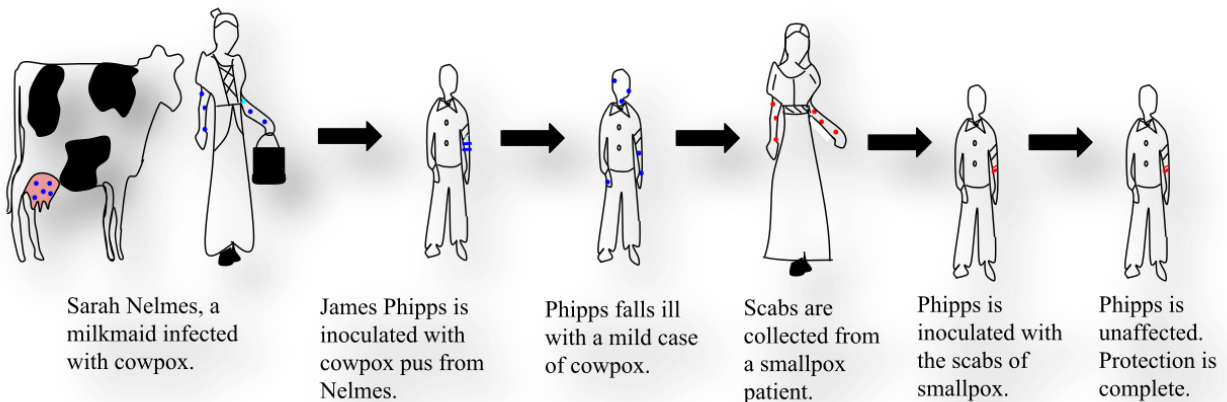
"Today, kids don't have a clue about polio," she said. "When I hear about people who don't get the vaccine, it angers me. There's no reason for people to get polio today."

Text #3

May 14, 1796: Jenner Tests Smallpox Vaccine

History.com Staff

<http://www.history.com/this-day-in-history/jenner-tests-smallpox-vaccine>



Edward Jenner, an English country doctor from Gloucestershire, administers the world's first vaccination as a preventive treatment for smallpox, a disease that had killed millions of people over the centuries.

While still a medical student, Jenner noticed that milkmaids who had contracted a disease called cowpox, which caused blistering on cow's udders, did not catch smallpox. Unlike smallpox, which caused severe skin eruptions and dangerous fevers in humans, cowpox led to few ill symptoms in these women. On May 14, 1796, Jenner took fluid from a cowpox blister and scratched it into the skin of James Phipps, an eight-year-old

boy. A single blister rose up on the spot, but James soon recovered. On July 1, Jenner inoculated the boy again, this time with smallpox matter, and no disease developed. The vaccine was a success. Doctors all over Europe soon adopted Jenner's innovative technique, leading to a drastic decline in new sufferers of the devastating disease.

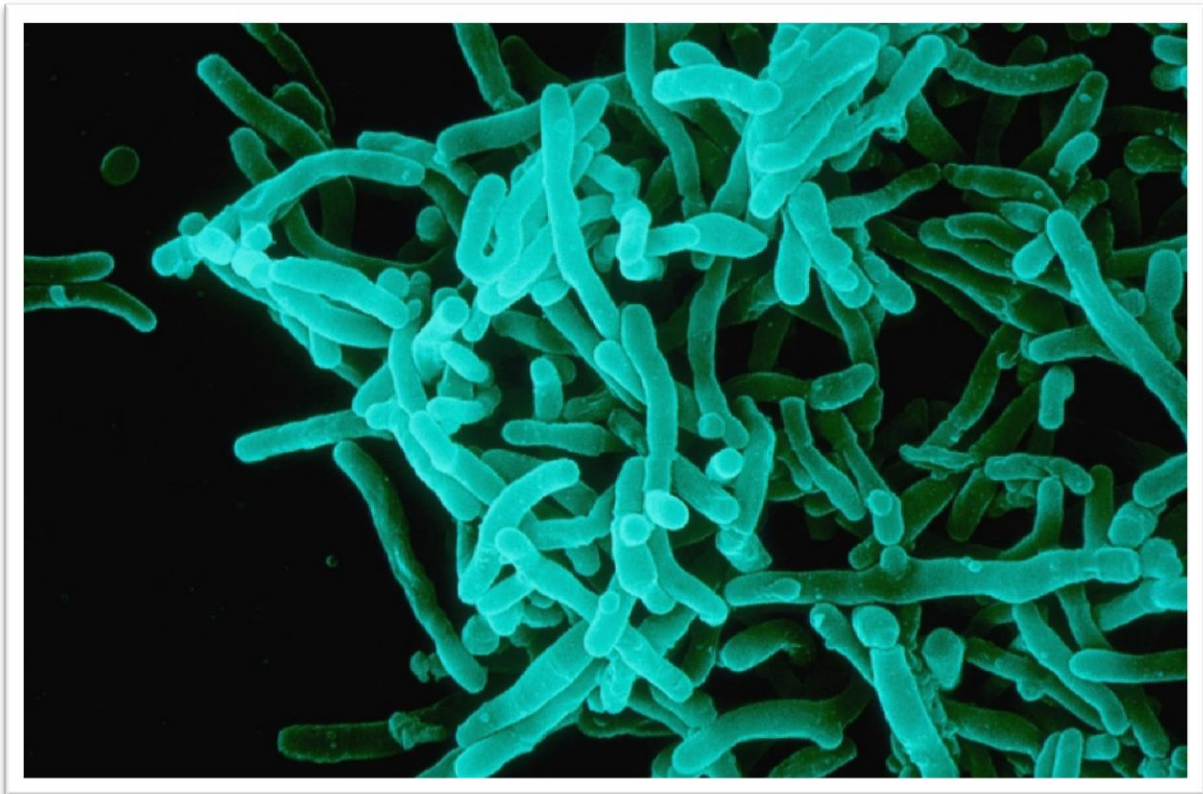
In the 19th and 20th centuries, scientists following Jenner's model developed new vaccines to fight numerous deadly diseases, including polio, whooping cough, measles, tetanus, yellow fever, typhus, and hepatitis B, and many others. More sophisticated smallpox vaccines were also developed and by 1970 international vaccination programs, such as those undertaken by the World Health Organization, had eliminated smallpox worldwide.

Text #4

Understanding Vaccines

NIAID Science Education

<http://www.niaid.nih.gov/topics/vaccines/documents/undvacc.pdf>



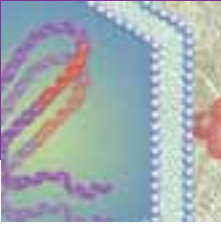
Diphtheria is caused by the toxic bacterium (*Corynebacterium*) pictured above.
In 1900, diphtheria killed more people in the United States than cancer did.

What Is a Vaccine?

Chances are you never had diphtheria. You probably don't know anyone who has suffered from this disease, either. In fact, you may not know what diphtheria is, exactly. (To find out, see "Diphtheria: Remembering an Old Disease" on page 3.) Similarly, diseases like whooping cough (**pertussis**), measles, mumps, and German measles (**rubella**) may be unfamiliar to you. In the 19th and early 20th centuries, these illnesses struck hundreds of thousands of people in the United States each year, mostly children, and tens of thousands of people died. The names of these diseases were frightening household words. Today, they are all but forgotten. That change happened largely because of vaccines.

Chances are you've been vaccinated against diphtheria. You even may have been exposed to the bacterium that causes it, but the vaccine prepared your body to fight off the disease so quickly that you were unaware of the infection.

Vaccines take advantage of your body's natural ability to learn how to eliminate almost any disease-causing germ, or **microbe**, that attacks it. What's more, your body "remembers" how to protect itself from the microbes it has encountered before. Collectively, the parts of your body that recall and repel microbes are called the **immune system**. (We'll take a closer look at the immune system in the section "How Vaccines Work" on page 11.) Without the immune system, the simplest illness—even the common cold—could quickly turn deadly. On average,



your immune system takes more than a week to learn how to fight off an unfamiliar microbe. Sometimes that isn't soon enough. Stronger microbes can spread through your body faster than the immune system can fend them off. Your body often gains the upper hand after a few weeks, but in the meantime you are sick. Certain microbes are so powerful, or **virulent**, that they can overwhelm or escape your body's natural defenses. In those situations, vaccines can make all the difference.

Traditional vaccines contain either parts of microbes or whole microbes that have been killed or weakened so that they don't cause disease. When your immune system confronts these harmless versions of the germs, it quickly clears them from your body. In other words, vaccines trick your immune system but at the same time teach your body important lessons about how to defeat its opponents.

In 1900, diphtheria killed more people in the United States than cancer did. Caused by the toxic bacterium *Corynebacterium diphtheriae*, this upper airway infection often results in a grayish, thick membrane that grows in the throat and obstructs breathing. Other symptoms include fever, hoarseness, and coughing. Most diphtheria deaths resulted not from blocked airways but from the paralyzing **toxin** the bacterium secretes, which can cause the heart or other organs to fail. During the 1990s, on average, only three diphtheria cases among U.S. residents were reported each year.

Vaccine Benefits

You and Your Community

Once your immune system is trained to resist a disease, you are said to be **immune** to it. Before vaccines, the only way to become immune to a disease was to actually get it and, with luck, survive it. This is called **naturally acquired immunity**. With naturally acquired immunity, you suffer the symptoms of the disease and also risk the complications, which can be quite serious or even deadly. In addition, during certain stages of the illness, you may be **contagious** and pass the disease to family members, friends, or others who come into contact with you.

Vaccines, which provide **artificially acquired immunity**, are an easier and less risky way to become immune. Vaccines can prevent a disease from occurring in the first place, rather than attempt a cure after the fact. It is much cheaper to prevent a disease than to treat it. According to one U.S. analysis, for every dollar spent on the measles/mumps/rubella vaccine, 21 dollars are saved.

Vaccines protect not only yourself but also others around you. If your vaccine-primed immune system stops an illness before it starts, you will be contagious for a much shorter period of time, or perhaps not at all. Similarly, when other people are vaccinated, they are less likely to give the disease to you. So vaccines protect not only individuals, but entire communities. That is why vaccines are vital to the public health goal of preventing diseases.



Community immunity: If enough people in a community are vaccinated against a particular illness, the entire group becomes less likely to get the disease, even those who are not vaccinated.

If a critical number of people within a community are vaccinated against a particular illness, the entire group becomes less likely to get the disease. This protection is called community immunity, or **herd immunity**.

On the other hand, if too many people in a community do not get vaccinations, diseases can reappear. In 1974, the Japanese government stopped vaccinating against pertussis because of public concern about the vaccine's safety and because no one had died from the disease the previous year. Five years later, a pertussis epidemic in Japan sickened 13,000 people and killed 41.

In 1989, low vaccination rates allowed a measles outbreak to occur in the United States. The outbreak resulted in more than 55,000 cases of measles and 136 measles-associated deaths.

Passive Immunity

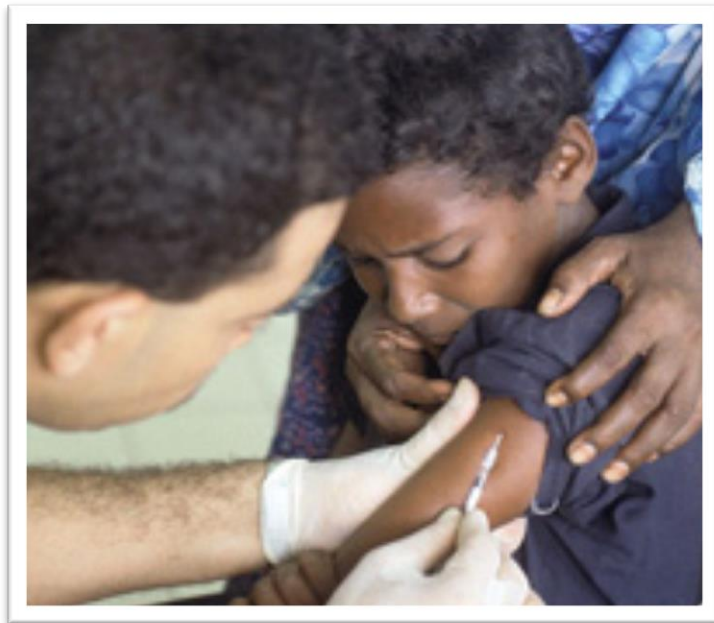
Passive immunity is another way to gain some protection against disease. It is immunity transferred from one person to another. Babies, for example, gain passive immunity to some diseases from the **antibodies** that are passed to them from their mothers before birth or through breastfeeding. This kind of immunity lasts only a few weeks or months. Another form of passive immunity is generated by giving a person purified blood serum, which contains the antibodies produced after someone successfully fights off an illness. In 2003, researchers began a clinical trial in the United States to test whether antibodies against West Nile virus can be used to treat people who suffer from the most severe form of this mosquito-borne illness. (In that trial, passive immunity is used to treat infection, rather than prevent it.)

Text #5

Differences Between Vaccinations and Immunizations

DifferenceBetween.Net Staff

<http://www.differencebetween.net/science/health/difference-between-vaccination-and-immunization/>



The regular shots you take against certain diseases may hurt you a lot. Just remember- the diseases they prevent may hurt you much more. There has been a lot of discussion about which is better- natural immunization or vaccination. If you are confused about the usage of the two terms, take a look at the section below.

Both immunizations and vaccines refer to a condition where the body is made indifferent against a disease. The difference lies in how you acquire this indifference. Immunization is the general term used for all types of indifference your body acquires towards a disease. You may acquire it naturally, by getting the disease at some stage. You may also acquire it through an artificial exposure to a controlled amount of the germs causing the disease. This is called a vaccination. In a sense, a vaccination is also a type of immunization. The only difference is that you do it artificially, in a safer manner.

Even though you may find the term being used indiscriminately, they actually mean different things. Vaccines may contain weakened or dead germs that are capable of producing a disease. However, the germs are either dead or weakened to such an extent that they are incapable of causing the illness. When these are introduced into our body as a vaccine, it develops antibodies against them. If you are wondering what antibodies are, they are nature's soldiers, fighting against any perceived 'threat' to the body. Once your body produces these antibodies, they live on. If you ever encounter the virus or germ again, these antibodies kill them off before they can harm your body.

Now, the same thing happens in an immunization. The only difference is that the process is natural. Once you get an illness and your body overcomes it, it 'stores away' this information in the form of those antibodies. As in a vaccination, those antibodies fight back if you encounter the virus or germ a second time.

Are you wondering why people get vaccinated if they can gain immunity in the natural way? This is because most diseases do not give you a chance to live beyond the first attack. Think about diseases like tetanus, small pox and diphtheria. Millions of people worldwide have died of these dreaded diseases, before the vaccines were developed. Other diseases have caused irreparable damage to the body of the surviving individual.

Would you like to take a chance losing your life or becoming disabled, just to go the 'natural way?'

Today, we have vaccines against fatal diseases like rubella, polio, tetanus and pertussis. Efforts are also on to develop the first vaccines against the dreaded swine flu. When you get a vaccine, you ensure protection against a number of diseases in a safe and secure way. It is one of the miracles of modern science. So, next time you dread the poke of that needle on your arm, think about the miseries you are avoiding – it won't hurt that bad!

Text #6

Immunizations

PKIDS Online

<http://www.pkids.org/immunizations.html>



Disease prevention requires deliberate action, such as getting adequate sleep and exercise, dressing appropriately and washing our hands. It also requires an occasional shot in the arm.

Vaccines stop disease. They have dramatically altered the quality of life in America and have prevented millions of deaths here and around the world from diseases such as hepatitis B, measles and rubella.

The Immune System vs. Germs

Without any conscious effort on our part or medical intervention, the body can create its own defense against some infectious agents.

For example, when the virus that causes chickenpox invades a body, the immune system creates antibodies that bind to the virus and neutralize or inactivate it. While this is going on, memory B cells are produced and remain ready—often for a lifetime—to mount a quick, protective immune response against subsequent infection of the chickenpox virus.

So even though the number of antibodies created to fight the chickenpox virus subside, the memory B cells remain, forever on guard for that specific virus.

A vaccine causes a similar immune response. It is made from an antigen (a foreign substance that the body's immune system identifies as potentially harmful) from the chickenpox virus. The vaccine is injected into the fatty tissue. Memory B cells respond to the antigen by producing antibodies. As happens after an actual infection, the memory B cells remain ready to mount a quick protective immune response against subsequent infection by the chickenpox virus.

Vaccines exist for all sorts of diseases, both viral and bacterial. But not all diseases can be prevented by a vaccine. To date, scientists have been unable to develop vaccines against the viruses that cause the common cold, hepatitis C and HIV.

Efforts to create a vaccine against the common cold have failed because there are so many viruses that cause colds, and they are capable of mutating or changing so rapidly, antibodies that form to fight one cold virus don't recognize the new or mutated virus and can't fight it.

The hepatitis C virus and the human immunodeficiency virus remain challenges because they change ever so slightly every time they make copies of themselves. Developing a vaccine to fight one version of the hepatitis C virus would not work with the versions that have been slightly altered by replication. The same goes for the human immunodeficiency virus.

Perhaps one day scientists will be able to design vaccines that go after the common denominators in each virus, so that no matter what the slight variations are in each version, there will be some identifiers that won't change and will therefore be susceptible to vaccines.

Influenza is another example where vaccines can only be given against specific forms of the virus. For a vaccine to be effective against a flu epidemic, it must be designed for that specific influenza strain. That is why a new vaccine is developed for each flu season. If you are exposed to a different flu virus from the one you are vaccinated for, you will still catch the flu.

APPENDICES

Appendix A.....Glossary

Appendix B.....Student Activities and Journals

Appendix C.....Other Student Activities

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APPENDIX A: GLOSSARY

Words selected for the glossary are words that either cannot be determined from context, may inhibit student understanding of the text, or are essential to deep understanding of the expert pack. **The packs are designed to have words repeat for multiple exposures; words are provided in the glossary only once.** Students should reference the glossary before beginning each new text, in order to familiarize themselves with the words.

Text Title	Words and informal definitions that explain the meaning of the word in the context of the text at hand
Text 1: Why Vaccinations Work	<p>Amnesia—Loss of memory sometimes including the memory of personal identity due to brain injury, shock, fatigue, repression, or illness.</p> <p>Antibodies—A substance produced by the body to fight disease.</p> <p>Anxiety—Fear or nervousness about what might happen.</p> <p>Ascorbic acid—Vitamin C.</p> <p>Bacteria—Microscopic living organisms, usually one-celled, that can be found everywhere. They can be dangerous, such as when they cause infection, or beneficial, as in the process of fermentation and that of decomposition.</p> <p>Clone—A plant or animal that is grown from one cell of its parent and that has exactly the same genes as its parent.</p> <p>Contagious—Able to be passed from one person or animal to another by touching.</p> <p>Empathetic—The feeling that you understand and share another person's experiences and emotions: the ability to share someone else's feelings.</p> <p>Eradicated—To remove (something) completely: to eliminate or destroy (something harmful).</p> <p>Generational—The average span of time between the birth of parents and that of their offspring.</p> <p>Herd Immunity—A reduction in the spread of infection that is held to apply to susceptible members of a population in which a significant</p>

	<p>proportion of the individuals are immune because the chance of coming in contact with an infected individual is less.</p> <p>Immunity—The power to keep yourself from being affected by a disease.</p> <p>Infect—A disease caused by germs that enter the body.</p> <p>Inoculate—To give (a person or animal) a weakened form of a disease in order to prevent infection by the disease.</p> <p>Measles— A highly contagious respiratory infection that's caused by a virus.</p> <p>Norwegian—A person born, raised, or living in Norway.</p> <p>Polio—A serious disease that affects the nerves of the spine and often makes a person permanently unable to move particular muscles.</p> <p>Scurvy— A disease that is caused by not eating enough fruits or vegetables that contain vitamin C.</p> <p>Vaccines—A substance that is usually injected into a person or animal to protect against a particular disease.</p> <p>Virus— A disease or illness caused by a virus.</p> <p>Vulnerable—Easily hurt or harmed physically, mentally, or emotionally.</p>
Text 2: Just What the Doctor Ordered	<p>Arthritis— A disease that causes the joints of the body to become swollen and painful.</p> <p>Crippled—One that is disabled or deficient in a specified manner.</p> <p>Isolation ward—The state of being in a place or situation that is separate from others in a hospital.</p> <p>Ordinary—Neither very good nor very bad : not very impressive.</p> <p>Paralyzed—To make (a person or animal) unable to move or feel all or part of the body.</p> <p>Poliomyelitis –Polio</p> <p>Reemerged—To come back: to become known or apparent again.</p>

	<p>Smithsonian—A museum.</p> <p>Symptoms—A change in the body or mind which indicates that a disease is present.</p>
Text 3: Jenner Tests Smallpox Vaccine	<p>Administer—To manage the operation of or the use of (something).</p> <p>Blistering—A raised area on the skin that contains clear liquid and that is caused by injury to the skin.</p> <p>Centuries—A period of 100 years.</p> <p>Contracted—To become affected with.</p> <p>Decline—To become lower in amount or less in number.</p> <p>Devastating—To destroy much or most of (something) : to cause great damage or harm to (something).</p> <p>Drastic—Extreme in effect or action: severe or serious.</p> <p>Eruptions—The breaking out of a rash on the skin or mucous membrane.</p> <p>Gloucestershire—A county in southwest England.</p> <p>Innovative—Introducing or using new ideas or methods.</p> <p>Milkmaid—A woman employed at a dairy farm.</p> <p>Numerous—Existing in large numbers.</p> <p>Preventive—Something that prevents; <i>especially</i>: something used to prevent disease.</p> <p>Smallpox—A serious disease that causes fever and a rash and often death.</p> <p>Sophisticated—Highly developed and complex.</p> <p>Technique—A way of doing something by using special knowledge or skill.</p>

	<p>Tetanus—A dangerous disease that is caused by bacteria that usually enter the body through a cut or wound.</p> <p>Typhus—A serious disease that is carried by small insects that live on the bodies of people and animals and that causes high fever, headache, and a dark red rash.</p> <p>Udders—The bag-shaped part of a cow, goat, etc., that hangs below the belly and produces milk.</p>
Text 4: Understanding Vaccines	<p>Bacterium—Any one of a group of very small living things that often cause disease.</p> <p>Diphtheria—A serious disease that makes breathing very difficult</p> <p>Immune—Not capable of being affected by a disease.</p> <p>Immune system—The system that protects your body from diseases and infections.</p> <p>Microbe—An extremely small living thing that can only be seen with a microscope</p> <p>Opponent— A person, team, group, etc., that is competing against another in a contest.</p> <p>Repel—To keep (something) out or away</p> <p>Virulent—Full of hate or anger.</p>
Text 5: Differences between Vaccinations and Immunizations	<p>Acquires—To get (something) : to come to own (something) : to come to have (something).</p> <p>Artificial—Not natural or real: made, produced, or done to seem like something natural.</p> <p>Condition—The state in which something exists: the physical state of something.</p> <p>Dreaded—To fear something that will or might happen.</p> <p>Encounter—To have or experience.</p> <p>Exposure—The fact or condition of being affected by something or experiencing something: the condition of being exposed to something.</p>

	<p>Fatal—Causing death.</p> <p>Incapable—Not able to do something: not capable.</p> <p>Indifferent—Not interested in or concerned about something.</p> <p>Indiscriminately—Not marked by careful distinction.</p> <p>Immunization—To give (someone) a vaccine to prevent infection by a disease.</p> <p>Perceived—To notice or become aware of (something).</p> <p>Pertussis—A disease especially of children that is caused by a bacterium and is marked by severe attacks of coughing often followed by a high-pitched gasping intake of breath.</p> <p>Vaccination—To give a dead or weakened virus.</p> <p>Whooping cough—A disease especially of children that is caused by a bacterium and is marked by severe attacks of coughing often followed by a high-pitched gasping intake of breath.</p>
Text 6: Immunizations	<p>Adequate- Enough for some need or requirement.</p> <p>Altered – Changed.</p> <p>Antibody - a substance produced by special cells of the body that combines with an antigen and counteracts its effects or those of the microscopic plant or animal on which the antigen may occur.</p> <p>Deliberate-To think about or discuss something very carefully in order to make a decision.</p> <p>Immunodeficiency - a condition in which your body cannot produce enough of the substances or cells that it would normally produce to fight infection.</p> <p>Susceptible - easily affected, influenced, or harmed by something.</p>

APPENDIX B: STUDENT ACTIVITIES AND JOURNALS

Cumulative and Singular Activities to Accompany your Expert Pack!

Cumulative Activities – The following activities should be completed and updated **after reading each resource in the set**. The purpose of these activities is to capture knowledge building from one resource to the next, and to provide a holistic snapshot of central ideas of the content covered in the expert pack. As a developing expert, you are **required** to complete the Rolling Knowledge Journal and Sensational 6 Journals.

Rolling Knowledge Journal

1. Read each selection in the set, one at a time.
2. After you read *each* resource, stop and think what the big learning was. What did you learn that was new *and important* about the topic from *this* resource? Write, draw, or list what you learned from the text about the topic.
3. Then write, draw, or list how this new resource added to what you learned from the last resource(s).
4. Include at least 2 entries per article or resource.

Please see the example on the following page.

Rolling Knowledge Journal EXAMPLE

Title	Write, Draw, or List	
Title of the text	New and important learning about the topic and quotes	How does this resource add to what I learned already?
<p>TEXT 1:</p> <p>"Incident"</p>	<ul style="list-style-type: none"> This poem is about Baltimore, which tells me that discrimination did not take place just in the South. I am surprised at the people blaming the little kids. 	<ul style="list-style-type: none"> <i>(Connect to anything else you have read or learned for THIS TEXT ONLY – all other responses must connect to the texts that came before in the series)</i> I know that part of the reason the civil rights movement got started was because people got fed up with discrimination.
<p>TEXT 2:</p> <p>"1960: Sitting Down to Take A Stand"</p>	<ul style="list-style-type: none"> Four teenagers in Greensboro, NC, sat at a countertop in a department store that was only meant for white customers. More and more people sat at the countertops in "sit-ins," which was a peaceful way to protest. Sit-ins were a new way to protest discrimination. "I felt that this could be the last day of my life" recalls Franklin McCain, now 67 and living in Charlotte, North Carolina. "But I thought that it was well worth it. Because to continue to live the way we had been living—I questioned that. It's an incomplete life. I'd made up my mind that we absolutely had no choice." 	<ul style="list-style-type: none"> This makes me think more about the text "Incident" because both the girl in the poem and the students who sat at the lunch counter experienced racism and name-calling. Both the narrator of "Incident" and the students had to wait a long time for discrimination to get better. The students in Greensboro handled discrimination differently than the narrator. The quote from this article also makes me think of "Incident" because if I had experienced what she did, I would feel that I did not have a choice either.
<p>TEXT 3:</p> <p>... and so on...</p>		<ul style="list-style-type: none"> <i>Make connections across both texts!</i>

Rolling Vocabulary: “Sensational Six”

1. Read each resource then determine the 6 words from each text that most exemplify the central idea of the text.
2. Next, use your 6 words to write about the most important idea of the text. You should have as many sentences as you do words.
3. Continue this activity with EACH selection in the Expert Pack.
4. After reading all the selections in the Expert Pack, go back and review your words.
5. *Now select the “Sensational Six” words from ALL the word lists.*
6. Use the “Sensational Six” words to summarize the most important learning from this Expert Pack.

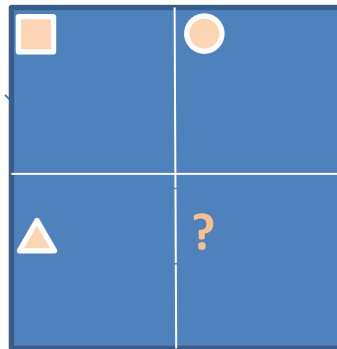
Please see the example on the following page.

EXAMPLE: Rolling Vocabulary: "Sensational Six"

Title	Six Vocabulary Words & Sentences
"1960: Sitting Down to Take A Stand"	<p>Words:</p> <ol style="list-style-type: none"> 1. Supreme Court 2. Sit-ins 3. Inspired 4. Demonstrations 5. Landmark 6. Exhibit <p>Sentences:</p> <ol style="list-style-type: none"> 1. The <u>Supreme Court</u> is the highest Federal court and set an important precedent when ruling on Brown vs The Board of Education. 2. <u>Sit-ins</u> were a form of peaceful protest that gained popularity during the civil rights movement. 3. The author describes this peaceful protest as one that <u>inspired</u> others to get involved in the movement. 4. Demonstration... (And so on...)
Sensational Six – selected from all the articles read!	<ol style="list-style-type: none"> 1. Segregation 2. Integration/Desegregation 3. Protests/(Protestors) 4. Brown vs. Board of Ed. 5. Discrimination 6. Equality
<p>Sensational Summary:</p> <p>Protests and lawsuits like <u>Brown vs. the Board of Education</u> sought to get rid of all racial <u>segregation</u>. Segregation in schools, freedom rides, and sit-ins received a lot of attention as people fought for <u>equality</u> and <u>integration</u>. The landmark decision to <u>desegregate</u> schools put many young people in the position to be courageous and be a part of the <u>protests</u> that made history even if it was dangerous and very difficult.</p> <p><i>***Please note that the Sensational Summary comes at the end of the entire expert pack –] the Sensational Six words are chosen from all of them.***</i></p>	

Singular Activities – You’ll do the following activities for at least two of your texts. The purpose of these activities is to check for understanding, capture knowledge gained, and provide a variety of ways for you to interact with each text.

Picture of Knowledge: Take a piece of paper and fold it two times: once across and once top to bottom so that it is divided into 4 quadrants, and draw in these shapes:



Then, write in each square:

Square: What one thing did you read that was interesting to you?

Triangle: What one thing did you read that taught you something new?

Circle: What did you read that made you want to learn more?

Question Mark: What is still confusing to you? What do you still wonder about?

Find at least one classmate who has read [selection] and talk to each other about what you put in each quadrant.

Quiz Maker (Recommended for [Insert Text/Resource Titles])

- Make a list of questions that would make sure another student understood the information.
- Your classmates should be able to find the answer to the question *from the resource*.
- Include answers for each question.
- Include where you can find the answer in the resource.
- Find someone to take your quiz and then go over the answers with them!

Wonderings

I'm a little confused about:	This made me wonder:
<i>On the left side, track things you don't understand from the article as you read</i>	<i>On the right side, list some things you still wonder (or wonder now) about this text OR topic</i>
EXAMPLE from "Incident": <ul style="list-style-type: none">• What does it mean to be a "Baltimorian?"	<ul style="list-style-type: none">• Was Baltimore considered the South?• Does this have a connection to the famous bus protest?• Where did that protest happen (can't recall right now!)

APPENDIX C: OTHER STUDENT ACTIVITIES

Peer Summaries:

Break students into pairs. One of them is the reporter, and the other is the interviewee. The reporter will conduct an interview about the text or texts, and take notes as the interviewee speaks. You may provide questions for them to ask, or they may generate their own. The reporter should try to ask follow-up questions.

Word and Knowledge Wall:

Create a bulletin board of a tree with no leaves. At the end of each class period, have students select a new word or piece of knowledge that they acquired from the day's reading, and they pin it to a bulletin board or wall. Over time, this will grow into a veritable tree of knowledge – and also provide a CFU into what students are pulling from the texts on a daily basis.

TED Talks

At the end of a pack, students should be given the opportunity to display their new expertise! A 2-3 minute "TED Talk" is a great way for students to collaborate on knowledge, create visuals to support their talk, and provide extra exposure to speaking and listening standards, in particular SL4.

Socratic Circles

Develop several big questions for student to discuss and debate about once they have completed the pack. Pair students up and organize chairs into two circles: pairs will sit in either the inner or outer circle. Those on the inner circle are the ones debating or speaking; those in the outer ring are taking notes and preparing. Give each student three talking chips – they "spend" a chip each time they speak and once they have spent their chips, their partner enters in their place and takes over. This ensures that everyone has the opportunity to share and speak.

APPENDIX D: FOR TEACHERS: SUGGESTIONS FOR IMPLEMENTING EXPERT PACKS

Through our wide-ranging experience supporting teachers with expert pack implementation, we've discovered a few actions that have been directly related to student success. They are recommended action steps for teachers when implementing expert packs.

Note that while students have the opportunity to select their own packs, teachers should do the following for every pack they put in front of students – teachers should “become the expert” before they ask their students to do the same.

Before Starting the Pack:

1. Read the Pack: Read the pack, first as a reader. Annotate it using your classroom strategy (see below) and write your own notes.. Begin to “become the expert.”
2. Complete the exemplar Rolling Knowledge and Sensational Six Vocabulary Journals: Read the pack again, and create your own, exemplar set of journals. This serves two important purposes: one, to ensure you know the content well in order to help your students and two, to develop the bar of what you would like to see from them in their own journals. Without this bar of excellence, it is easy to accept mediocre journal entries.
3. Select additional activities: Which additional activities may work well with specific articles in the pack? When will you do these activities?
4. Make a calendar: While students should be working at their own pace, teachers should establish some benchmarks for pace-setting. When should students be halfway through the pack? When should the pack be complete? When might it be beneficial to have a TED Talk or Socratic Circle?
5. Plan for selection and structure: How will students select their packs so that they choose based on their actual interest, rather than on what their friends pick? How can you introduce the topics in engaging ways? Many teachers develop 5 minute presentations on the packs or have students who have already completed other packs try to “sell” the packs to others! How will the room be organized for effective small group work? How will you transition in and out of expert pack time each day? Successful expert pack implementation depends upon strong organization, especially in the beginning –how will you model for students what you want to see from them?

During Expert Pack Time:

1. Teach annotation: Students should be taught a standard annotation format, and should annotate in this way, allowing the teacher to see what they are annotating and why as well as preventing the massive blocks of highlighting with no purpose. Here are our suggestions.
 - *Underline* major points, and state why you underlined it in the margin.
 - Circle keywords or phrases that are confusing, and jot down a potential definition in the margin.
 - Use a **question mark (?)** for questions that you have during the reading. Write the question in the margin.

- Use an **exclamation mark (!)** for things that surprise you, and write what surprised you or stood out to you in the margin.
 - **Draw an arrow (➔)** when you make a connection to something inside the text, or to an idea or experience outside the text, and write that connection in the margin.
 - Every 3-5 paragraphs, jot down the gist of what you just read in a sentence or two.
2. Students should work with each other - not with the teacher: Students should be working in small groups, according to the pack. When they have a question, they should first ask each other. If no one in the group can answer, only then can students ask the teacher for help.
 3. Rooms are quiet and collegiate: *Expert packs, with their focus on information, intense reading about a topic, and collection of notes and evidence, is very much an opportunity for students to practice the work and collaboration they will do in college.* Classrooms should feel like a college library – small groups of students, occasionally speaking quietly, but mostly working with their texts. Teacher should set these expectations, monitor, circulate, and offer support when necessary. That said, students should be encouraged to grapple with the information largely on their own.
 4. Students need to receive regular feedback: Students will work hard on their journals, and deserve regular feedback on them. Included in the appendix is a suggested rubric, which includes a section for self-assessment. Students should grade themselves, as well as receiving ratings from the teacher, which can open objective conversations about where to improve and grow, as well as allowing the teacher to keep careful tabs on students' knowledge and vocabulary development as they move through the pack. Remind students to focus on growth – where can they get better? How can these journals show off what they are learning in meaningful ways? Use your exemplar rubric as the bar for high expectations. Read student work carefully for copying directly from the text, as well as for ideas that range wildly away from them.

Concluding an Expert Pack:

1. Provide the opportunity for students to show off! Students need the opportunity to display their new expertise in engaging ways that are still rigorous. TED Talks, including visuals, are an excellent way to do this, but there are a myriad of other ways to allow students to teach each other, showcase their knowledge, and use their vocabulary.
2. Provide time for reflection and feedback: Give students the opportunity to reflect on their experience with the pack. What went well? What could have gone better? What do they still want to learn? Teachers should do their own self-reflection at this time, as well, thinking constantly about how to involve themselves less in the process and allow students to develop expertise and independence with each other.

APPENDIX E: GRADING RUBRIC

The suggested use of this rubric is as a tool for student reflection and goal-setting as well as a support to help teachers monitor student progress and provide feedback on student efforts. At the end of each week, students should complete the rubric on their own, assigning numerical scores on their week's work and writing and short reflection on the second page. The teacher can then look over their work and respond with her/his own scores and feedback, and students can set goals for improvement.

Annotations	<ul style="list-style-type: none"> • Using symbols correctly and effectively • Writes notes in margins when annotating symbols • Periodically writes the gist of what is being read • Writing is readable and annotations make sense with the content 	1 2 3 4 5
Rolling Knowledge	<ul style="list-style-type: none"> • Knowledge collected demonstrates new knowledge about the text • Knowledge is not randomly selected – it makes sense and shows developing thoughts about the topic • Connections to previous readings are logical and not haphazard • Knowledge is not copied from the text – it is paraphrased and, whenever possible, uses the vocabulary words! • Journal section is neatly structured and readable 	1 2 3 4 5
Sensational Six	<ul style="list-style-type: none"> • Words selected exemplify the gist and big ideas of the text • Definitions adhere to the word's meaning in context (not just looking it up in the dictionary) • Sentences are about the reading topic, not random • Journal section is neatly structured and readable 	1 2 3 4 5
Summary	<ul style="list-style-type: none"> • Summary of each article includes usage of all sensational six words, but is not limited to 6 sentences! • Summary includes direct quotes from the text if possible, but definitely includes evidence and important details • Summary includes knowledge that is included in the Rolling Knowledge journal • Journal section is neatly structured and readable 	1 2 3 4 5
Participation and Group Work	<ul style="list-style-type: none"> • Reading independently at own pace – not rushing • Asking partner or group before asking the teacher • Not wasting time and Persevering! • Journals are neat and allow you to track your new knowledge and vocabulary across the whole expert pack • Improving based on feedback each week. 	1 2 3 4 5

Weekly Feedback	<p>STUDENT SELF SCORE AND RATIONALE:</p> <ul style="list-style-type: none"> • What went well... • Action Steps for next week... <p>TEACHER SCORE AND RATIONALE:</p> <ul style="list-style-type: none"> • What went well... • Action Steps for next week...
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Name:

Class:

Date:

APPENDIX F: SUPPORTS FOR STRUGGLING STUDENTS

By design, the **gradation of complexity** within each Expert Pack is a technique that provides struggling readers the opportunity to read more complex texts. Listed below are other measures of support that can be used when necessary.

- Provide a brief **student-friendly glossary** of some of the academic vocabulary (tier 2) and domain vocabulary (tier 3) essential to understanding the text.
- Download the Wordsmyth widget to classroom computers/tablets for students to access student-friendly definitions for unknown words. <http://www.wordsmyth.net/?mode=widget>.
- Provide brief **student friendly explanations** of necessary background knowledge.
- Include **pictures or videos** related to the topic within and in addition to the set of resources in the pack.
- Select a small number of texts to **read aloud** with some discussion about vocabulary work and background knowledge.
- Provide **audio recordings** of the texts being read by a strong reader (teacher, parent, etc.)
- **Chunk the text** and provide brief questions for each chunk of text to be answered *before* students go on to the next chunk of text.
- Pre-reading activities that focus on the **structure and graphic elements** of the text.
- Provide **volunteer helpers** from the school community during Expert Pack time.
- **Expert Pack Glossary** For each TEXT a glossary has been provided based on the major words that might inhibit comprehension, or that cannot be determined from context. Please note that, while challenging words may reoccur in texts, they will not repeat in the glossary.