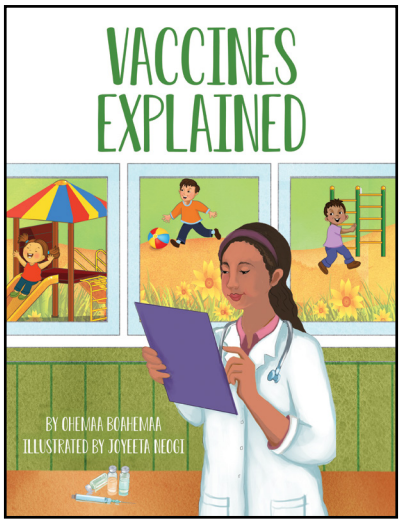
UNDERSTANDING VACCINES

Lesson Plan Using the Multicultural Book *Vaccines Explained* by Ohemaa Boahemaa



Grade Level: Kindergarten – 3rd Grade *
(* Note that higher-order extension activities and discussion topics are also offered for older grade levels in this lesson. These activities and topics are denoted with an asterisk.)

Time Frame: 30-40 minutes

Goals: Recognize, understand, and describe the purpose of vaccines, the way in which they work, and their importance.
Identify, appreciate, and discuss issues surrounding access to vaccines for people from different parts of the world and for people from disadvantaged backgrounds, as well as civil liberties debates about the mandating of vaccines. *
(Based on higher-order extension activities and discussion topics for older grade levels.)*

Objectives:

Knowledge:

- Understand and remember the purpose of vaccines, the way in which they work, and their importance.
- Understand that cultural, national, and socioeconomic variance exists in access to and attitudes towards vaccines. *

Skills:

- Identify, define, and use the new vocabulary in the text.
- Extend comprehension strategies by responding to literal, inferential, and evaluative questioning.
- Explore alternative languages of the text for similarities and differences.
- Correctly describe the purpose of vaccines, the way in which they work, and the importance of their role.
- Engage in open and respectful debate on various issues related to vaccines. *

Attitudes:

- Recognize and value the triumph of science in developing vaccines for certain illnesses.
- Realize the important role that vaccines play in keeping the world healthy.
- Acknowledge and appreciate that cultural, national, and socioeconomic variance exists in access to and attitudes towards vaccines. *

Essential Questions:

- What do vaccines do?
- How do vaccines work?
- Why are vaccines important?
- What issues exist surrounding access to vaccines for people from varying parts of the world and for people from disadvantaged backgrounds? *
  (Based on higher-order extension activities and discussion topics for older grade levels.)*

Materials & Resources:

- The book *Vaccines Explained* by Ohemaa Boahemaa
  This book is available in English and in many bilingual editions with text in English and one other language. Please visit Language Lizard (www.LanguageLizard.com) to see a full list of available languages.
- New vocabulary flashcards and pictures
- Talking object (e.g. ball, soft toy) to signify whose turn it is to talk during discussion

Linkage and Integrations Across Subject Areas:

Language Arts:

- Engaging with the literature.
- Vocabulary development (see Appendix B).
- Comprehension skills.

Social Studies (History):

- Exploring the history of vaccines and disease eradication (see resources in Appendix C).*

Social Studies (Anthropology/Sociology):

- Exploring international, cultural, and socioeconomic differences in attitudes towards and access to vaccines (see resources in Appendix C). *
  (Based on higher-order extension activities and discussion topics for older grade levels.)*

Vocabulary to be Developed in Lesson:

Key Vocabulary		
• medicine • viruses • cells • immune • pharmacy	• vaccine • bacteria • factory • scientist • illness	• germs • infect • destroy • injection

Procedure:

Engagement:

1. Begin the lesson by encouraging all students to sit on the floor for a circle time discussion. Inform them that they will be told a story about a child who hurt himself while riding a bike (specific details, such as the name and gender of child, may be changed at the facilitator's discretion):

   Tom was an eight-year-old boy who lived on the outskirts of a small town with his mother and older sister, Taylor. One warm summer day, Tom and Taylor took their bikes from the garage as they wanted to go cycling around the neighborhood. Although Tom could not find his helmet, he decided to go anyway. After just five minutes, they reached the top of a steep hill. Tom thought it would be great fun to race Taylor to the bottom. Taylor excitedly counted down from three and the two siblings set off. Tom was cycling so quickly that he could feel his eyes begin to water.

   All of a sudden, Tom became distracted by a bird and did not notice a hole in the road. He rapidly swerved to avoid it, but it was too late and he ended up crashing into the sidewalk. The next thing he knew, Tom was sitting in pain on the sidewalk with an inch-long cut on the back of his head. Taylor hurriedly ran over and rushed him back to their mother on the back of her bike. While their mother was not impressed that Tom had gone biking without a helmet, his mother lovingly cleaned the wound and carefully placed a bandage around his head to cover the injury. Thankfully, Tom's cut healed after a few weeks and he never went cycling without a helmet again. However, the incident could have been so much worse.

Prompt the children to share some of the potentially more harmful outcomes of the child's cycling crash (responses may include requirement of stiches, permanent scarring, brain damage). Discuss each.

Next, ask the children what measures could have been taken in order to prevent the injury in the first place (responses may include wearing a helmet, cycling less quickly, paying closer attention). Discuss each.

Then, ask the children if they know of any similar preventative measures for illnesses like the flu and COVID-19 (responses may include wearing a mask, coughing/sneezing into elbow, washing hands). Discuss each.

Finally, introduce vaccines as something which prevent people from getting illnesses like the flu and COVID-19.

Prior Knowledge:

2. After this, elicit the children's prior knowledge on vaccines. Ensure that an open and accepting atmosphere is created which is respectful of a diversity of opinions. It may be useful to record these responses on a whiteboard / chart with older students.

3. Show children the cover of the book *Vaccines Explained*. Elicit their predictions about and connections with the book using guiding questions:
   - Connections may be text-to-text (what does the child notice from one book to another book), text-to-self (what does the child notice from the book in relation to their own lived experiences), or text-to-wider-world (what does the child notice from the book in relation to real-world historical or current contexts). Read the blurb at the back of the book to help shape their predictions.
   - Children may also be encouraged to identify the book as an informative/non-fiction text.

Input:

4. Engage in vocabulary development with the children using the list of words above or any additional words as deemed appropriate. Using flashcards, pictures, or interactive whiteboard slides, invite the children to identify, say, use, and count syllables in the words. It is effective to provide children with an age-appropriate definition and offer

an example of the word in context, before encouraging them to use the word in context themselves. The "vo-back-ulary" game may be useful for consolidation (see Appendix D for explanation).

Development:

5. Read the book with the children as they remain seated in their circle time positions in order to show them the pictures while reading. This can be done by conducting a read-aloud, getting the children to read sections after the facilitator (echo reading), all reading it together (choral reading), or reading a sentence each between facilitator and child (see-saw reading). Read with appropriate tone, pace, inflection, and enthusiasm to engage the children as much as possible. If there are children who speak the language of the dual language book, here would be a nice opportunity to get them to read/translate a section if they would like, or to identify some words they can recognize in the print.

6. Invite the children to share anything they enjoyed, connected with, didn't understand, or wanted to question through the use of a talking object. This can be passed around the circle. Only the child who has the talking object may speak, encouraging careful listening and turn-taking skills.

7. Ask a range of literal, inferential, and evaluative questions to gauge comprehension of the text (select at the discretion of the facilitator):
   - Literal Questions:
     - *What do medicines do?*
     - *What do vaccines do?*
     - *What types of germs enter our bodies when we get sick?*
     - *How do vaccines work?*
     - *What name is used to describe a vaccinated person who cannot be made sick by certain germs?*
     - *One of the first vaccines to be used all around the world was for which disease?*
     - *What other diseases have vaccines helped to get rid of?*
     - *Most vaccines are given in what way?*
   - Inferential Questions:
     - *In what way are cells that are infected with viruses comparable to factories?*
     - *Why are scientists constantly working to develop new vaccines?*
     - *Why do vaccines exist for animals?*
   - Evaluative Questions:
     - *Why are vaccines an important way of keeping the world healthy?*
     - *Do you think vaccine research is something that should be given a lot of funding? Why?**

Assessment:

8. "Thumbs-up / thumbs-down" activity: Students respond to the following statements from the facilitator with either a thumbs-up if true or a thumbs-down if false.
   - *Most medicines are used to help the body get better when a person is sick.* [TRUE]
   - *Vaccines are a type of medicine that help the body to not get sick of a certain disease.* [TRUE]
   - *Germs, such as viruses or bad bacteria, make us sick when they enter our bodies.* [TRUE]
   - *Viruses help to keep our bodies' cells alive.* [FALSE]
   - *Vaccines help to teach our bodies to fight certain germs.* [TRUE]
   - *If someone is immune to a certain sickness, it means that they are more likely to get it.* [FALSE]
   - *In 1953, a scientist named Jonas Salk created a vaccine for measles.* [FALSE]
   - *The vaccine for polio was one of the first to be used all around the world.* [TRUE]
   - *Scientists are constantly working to develop vaccines for new diseases.* [TRUE]
   - *Most vaccines come in tablet form.* [FALSE]
   - *Vaccines are an important way of keeping the world healthy.* [TRUE]

9. In their circle time positions, encourage students to close their eyes for a think-pair-share activity. Prompt them to think about what they have learned about vaccines from the text, discuss their thoughts with a partner, and share these points with the group. With other students, the facilitator may again like to record these points on a white-board / chart and annotate / adjust earlier items of prior knowledge as necessary.

10. Suggested higher-order extension activities and discussion topics for older grade levels below may be incorporated at this point.

Closure:

11. Revisit the Story and Identify Key Vocabulary Words: Allow children to revisit some of the vocabulary of the story using the flashcards. For example, the students could re-read a section of the story and put up their hands as soon as they hear or see a new vocabulary word. Or they could play language/word games (e.g. charades, hangman/snowman).

12. At this point, the facilitator may want to revisit the essential questions to determine whether the children have understood the main ideas of the lesson:
    - What do vaccines do?
    - How do vaccines work?
    - Why are vaccines important?
    - What issues exist surrounding access to vaccines for people from varying parts of the world and for people from disadvantaged backgrounds? *
      (Based on higher-order extension activities and discussion topics for older grade levels.)*

Assessment:

- **Observation:** students' participation in discussions, engagement with the story, responses during "thumbs-up / thumbs-down" activity, and inputs to final discussion.
- **Questioning:** a range of lower-order and higher-order questioning during discussions.

Accommodation / Differentiation:

Differential Process:

- Ask higher-order thinking questions of the more-able students.
- For English language learners (ELLs), it may be helpful to allow the child to take home the dual language book either before or after the lesson. It can then be read at home in the home language before class engagement to promote students' confidence in talking about the book in class.
- If possible, ask the parents who speak a language other than English to record the book being read in their home language before class to promote the child's confidence in talking about the book. The book and recording can then be brought into school so that other students can see and hear some of the home languages spoken by their classmates, deepening their appreciation for language diversity.

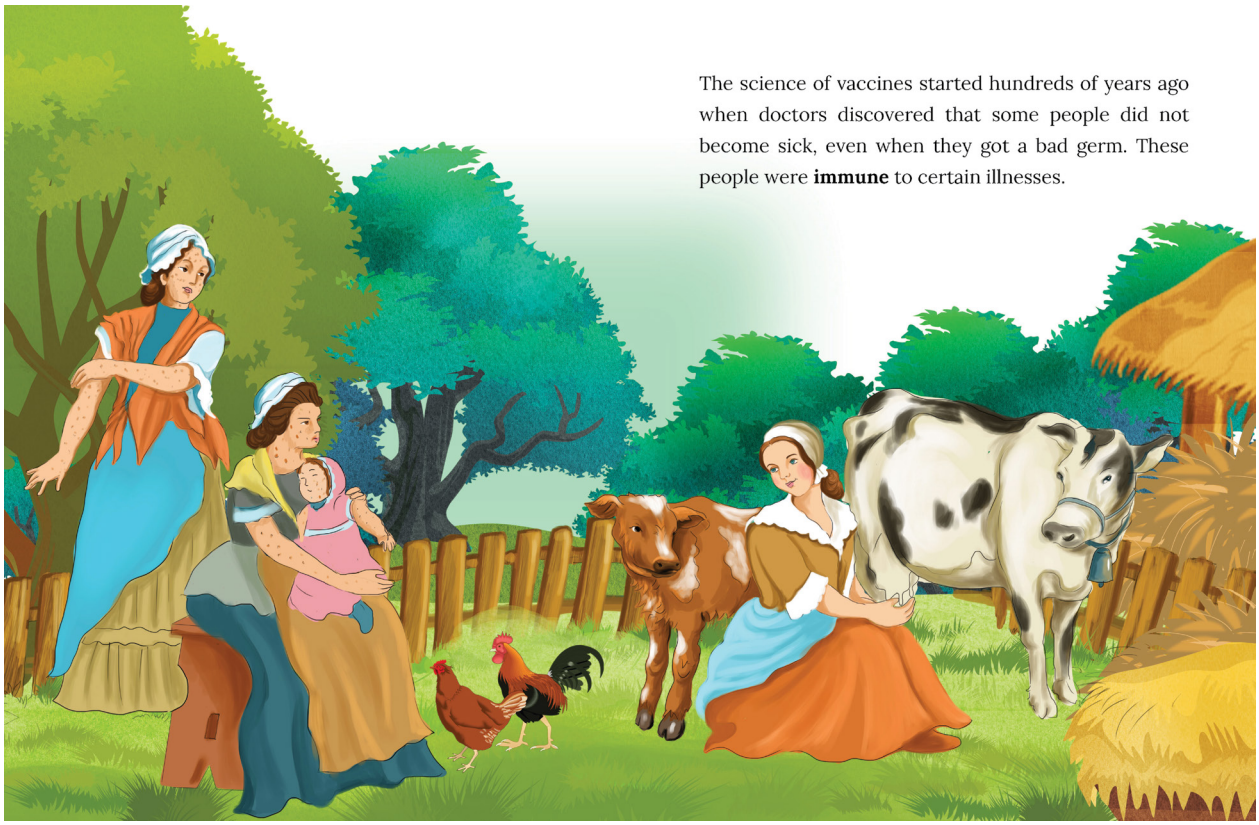
Differential Product / Response:

- Provide extra wait time and language scaffolds/supports for students who need them (e.g. showing pages from the book, sentence starters).
- All students (but especially ELLs) will benefit from pictures accompanying the vocabulary to be learned in the story.

Higher-Order Extension Activities and Discussion Topics for Older Grade Levels (see Appendix C for useful resources):

- Cultural differences exist between groups in their attitudes towards vaccines and their use. For instance, individuals in more collectivistic societies may appreciate the value of vaccinating a high percentage of their population in order to create herd immunity. By contrast, those from more individualistic societies may perceive the potential mandating of vaccines as an infringement upon their civil liberties. Facilitate a discussion around this topic, remaining acutely sensitive to differing perspectives and opinions.

- When vaccines are developed to counteract prevalent diseases, such as during pandemics, their rollout is likely to differ between developed and developing nations and regions. Facilitate a discussion on this topic and matters related to today's globalized economy.
- Similarly, socioeconomic differences are likely to exist in individuals' attitudes towards and access to vaccines. These may include their types of employment, living situation, and ability to pay for the vaccine if it is not provided free-of-charge. Facilitate a discussion around the societal tensions which exist on this topic, remaining sensitive to the backgrounds and prior experiences of the children.
- Explore the history of different vaccines with the children. A jigsaw group activity may be effective here to engage and include all learners (see Appendix E for explanation).
- Discuss the image of the milkmaids, explaining the immunity to smallpox achieved by British milkmaids who had previously contracted cowpox in the late 1700s, and their influence on the development of the smallpox vaccine (see Appendix F for additional information and explanatory videos).



Appendix A: Available Languages

Vaccines Explained **is available at www.LanguageLizard.com in English-only and in many bilingual editions with text in English and one other language. Please visit Language Lizard to find the full list of available languages.**

Appendix B: Vocabulary Flashcards for *Vaccines Explained*

medicine	vaccine	germs
viruses	bacteria	infect
cells	factory	destroy
immune	scientist	injection
pharmacy	illness	

Appendix C: Resources for Higher-Order Extension Activities and Discussion Topics for Older Grade Levels

- Is Fear of Vaccines Culturally Determined? – Psychology Today (https://www.psychologytoday.com/ie/blog/denying-the-grave/201704/is-fear-vaccines-culturally-determined)

- Ethical Issues and Vaccines (Mandating) – History of Vaccines (https://www.historyofvaccines.org/content/articles/ethical-issues-and-vaccines)

- Poor countries face long wait for vaccines despite promises – Associated Press (https://apnews.com/article/poorer-countries-coronavirus-vaccine-0980fa905b6e1ce2f14a149cd2c438cd)

- Attitudes Toward a Potential SARS-CoV-2 Vaccine – Annals of Internal Medicine (https://www.acpjournals.org/doi/10.7326/M20-3569)

- Disease Eradication – History of Vaccines (https://www.historyofvaccines.org/index.php/content/articles/disease-eradication)

Appendix D: Vo-back-ulary

Vo-back-ulary is a vocabulary-reinforcing game that your students will beg to play! Write a list of new words on the board and on index cards. Review the words and their meanings with your students, then ask for a volunteer. Tape a word card onto the volunteer's back, without revealing the word to the child. Ask the student to turn so that the class can see the card. Have the child call on classmates, one at a time, for helpful informational clues about the word. For example, if the word is gargantuan, a good clue might be "as big as a giant." When the child guesses the word correctly, it's time for the next volunteer. Or, have everyone play at once by taping a word card on each student's back. The children move about the room quietly asking for clues. When a child discovers the word, he or she sits down.
(Source: Scholastic)

Exemplar Video: https://www.youtube.com/watch?v=_C56gQo1Os0

Appendix E: Jigsaw Group Activity

- See explanation of jigsaw group activities at https://www.jigsaw.org.
- See exemplar video at https://www.youtube.com/watch?v=Dvi0ZvOhZs0.

Appendix F: Smallpox Vaccine

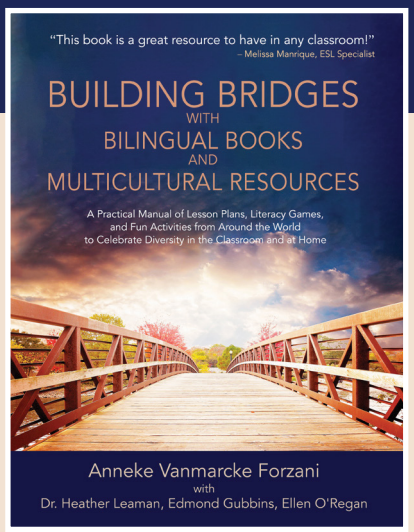
- See overview of the milkmaid story at https://www.telegraph.co.uk/only-in-britain/edward-jenner-discovers-the-smallpox-vaccine/.

- See explanatory videos (accessible for children) at:
  https://www.youtube.com/watch?v=D0T65o22Gx8
  https://www.youtube.com/watch?v=vkEZiHBTXyY.

"This is an amazing resource! . . . This book will be so useful to so many!"
– Caia Schlessinger, President of NJTESOL/NJBE

"A tremendous resource that is practical and contains relevant literacy lessons rooted in best practice."
– Lisa Gordon, Adjunct Professor, Department of Literacy, West Chester University

"This book is a celebration of diversity in a global age."
– Laura Harrison, Elementary School Teacher



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Building Bridges with Bilingual Books and Multicultural Resources is available now at www.LanguageLizard.com/Bridges, bookstores, and ebook distributors worldwide.

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