

*A Common Core & Next Generation
Science Standards-Aligned
Discussion/Activity Guide for Grades 3–7*

A Sporting Chance: How Ludwig Guttman Created the Paralympic Games

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Dedicating his life to helping patients labeled “incurables,” Ludwig Guttman fought for the rights of paraplegics to live a full life. The young doctor believed—and eventually proved—that physical movement is key to healing, a discovery that led him to create the first Paralympic Games.

Told with moving text and lively illustrations, and featuring the life stories of athletes from the Paralympic Games Ludwig helped create, this story of the man who saved lives through sports will inspire readers of all backgrounds.

Guide created by
Debbie Gonzales, MFA



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Discussion Questions

Ludwig asked about the next steps for the young miner’s recovery. But sadly, there were none. “Just watch him – you will see and learn” (pg. 13).

- What does Ludwig’s desire to volunteer in service of his country in WWI after graduating from high school reveal about his character as an individual?
- Ludwig’s volunteer duties involved moving patients from place to place, emptying bedpans, and performing jobs required strong stomachs to complete. Even though he felt ill at the sight of blood, Ludwig continued to be led by his desire to care for others. Certainly, there were other jobs that he could fill as a volunteer. Why did he stay at the hospital?
- Consider Ludwig’s age at the time he was encouraged to observe the deterioration of the miner’s physical condition. Explain how this experience might have served as a defining moment for his future.

A new government, the Nazi Party, had taken over Germany. Its leader, Adolph Hitler, was a persuasive speaker...His plan included ridding the country of all Jewish people, people of color, people with disabilities, lesbians and gay men, and other groups of non-German heritage. Hitler believed these individuals were inferior, and they would not be part of his strategy to build a “master race” (pgs. 23-24).

- Ludwig was a young married man and promising Jewish doctor at the time Hitler rose to lead the Nazi Party. Determine how this, and other events in history, affected Ludwig’s career in medicine.
- Define the term “master race.” Discuss why the term is highly problematic, especially about Ludwig’s life and medical practice.
- Even though Jewish physicians and surgeons could no longer be referred to as doctors, Ludwig and his family remained in Germany. What does his desire to remain in his homeland reveal about his character as an individual? What does her willingness to support her husband’s plan to stay in Germany suggest about Else’s character, as well?



Ludwig quickly learned that his staff was not prepared to care for the wounded soldier... “the view generally held was the sooner they died the better for all concerned” (pg. 42).

- The term *incurable* means deadly, fatal, hopeless, and terminal. The patients of Stoke Mandeville’s Ward X were labeled as incurable, and yet Ludwig believed differently about their prognosis. Imagine how Ludwig’s unwillingness to surrender to this type of thinking might have been received by the staff, as well as the patients.
- Ludwig’s early work to help paraplegic individuals could ultimately live productive and respectable lives took place during WWII, when Hitler’s “master race” philosophies were battled. Identify how this historic event may have served to inspire Ludwig’s dedication to care for paraplegics with hope and respect.
- Ludwig instructed his secretary to survey patients regarding their hopes, hobbies, and skills they would like to acquire. Discuss how instilling hope for patients to live a full life, despite their limitations, affected their prognosis.
- Can possessing hope serve as a vessel of healing? Explain your answer.

Ludwig’s budget was still small, so everyone had to pitch in. Events were run by nurses and physical therapists. Ludwig’s children help remove arrows from archery targets. His wife served snacks at a big party after the last event (pg. 64).

- Just a handful of years prior to the first Stoke Mandeville Games, paraplegic individuals were deadly, fatal, hopeless, and terminal. Examine how quickly Ludwig’s beliefs in the fullness of life became evident. Identify reasons why this took place.
- Most medical professionals rely on tests and diagnostics to guide a patient’s diagnosis. While Ludwig followed sound medical reasoning when treating his patients, he also trusted his intuition based on observation. Identify situations in which Ludwig let the patients’ needs and desires influence their diagnosis.



Perhaps Ludwig was motivated in small part by the Olympic Creed, which fit hand in hand with his own beliefs: The most important thing in the Olympic Games is not to win but to take part, just as the most important thing in life is not the triumph but the struggle. The essential thing is not to have conquered but to have fought well (pg. 68).

- Analyze the phrases that comprise the Olympic Creed. Tell how the creed fits “hand in hand” with Ludwig’s beliefs. Explain why life’s struggle is more important than triumph. Explore the meaning of this phrase in the light of a paraplegic athlete.
- Why is fighting well more important than conquering? How does this relate to Ludwig’s belief in his patients’ well-being?
- Discuss how the acts of conquering and fighting well reflect Ludwig’s life story.

In 1967, at age of sixty-seven, Ludwig retired from his position at the hospital. Before his retirement, he published a research paper about the first three thousand spinal injury patients admitted to Stoke Mandeville (pg. 81).

- Ludwig’s research findings state that 11% of his patients died from their injuries as compared to 80% of paraplegic patients who died before WWII. Discuss reasons for Ludwig’s success. How did it happen?
- Ludwig’s report stated that 85% of his patients “...were employed in full- and part-time jobs such as teaching, working in shops and factories, or other professions” (pg. 82). Analyze the impact of struggle and triumph as it relates to developing employable skills.
- Describe the ground-breaking impact Ludwig’s philosophies had upon empowering paraplegic individuals to live full and productive lives.



The Spinal Cord

He learned that injuries near the top of the spine were most serious and often led to death. Damage to the lower spine affected breathing, movement of the arms and legs, and control of the bladder and bowel. Damage to the lowest region of the spine might affect only the legs and bladder (pg. 4).

Objective: To use a model to describe how different sections of the spine process and respond to injury in different ways.

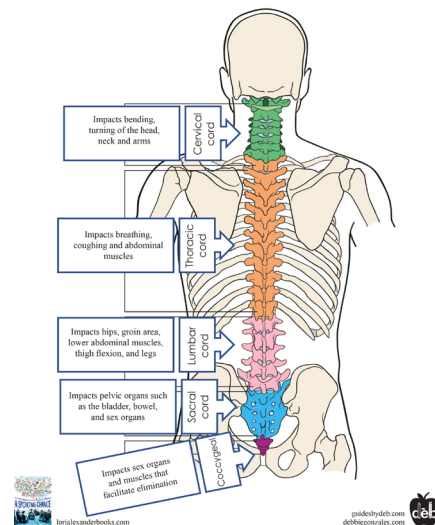
Materials:

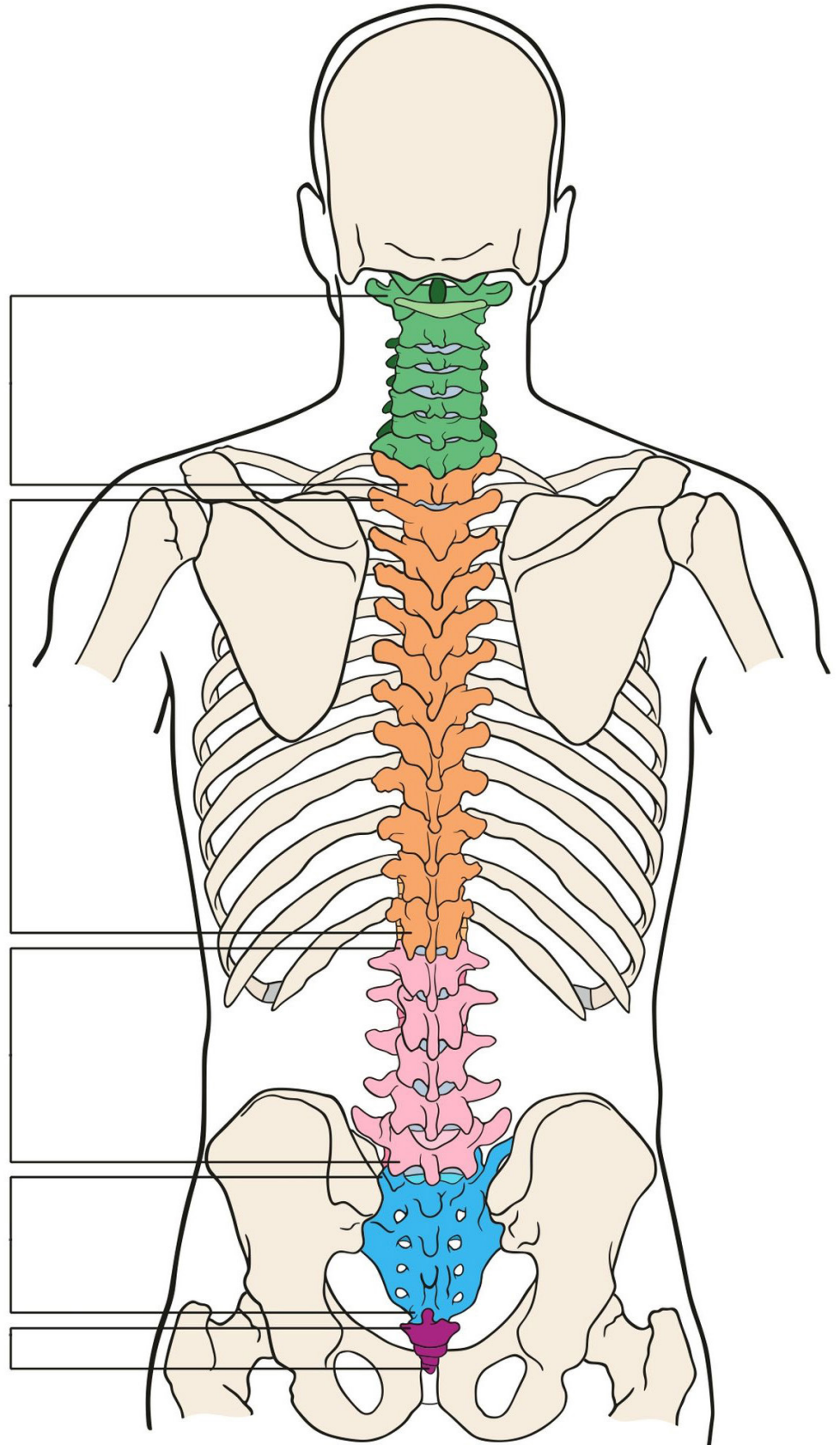
- A SPORTING CHANCE: HOW LUDWIG GUTTMANN CREATED THE PARALYMPIC GAMES, the book
- The Spinal Cord Template (Guide, pg. 7)
- The Spinal Cord Labels (Guide, pg. 8)
- The Spinal Cord Matching Answer Guide (Guide, pg. 9)
- Cardstock
- Scissors
- Writing materials

Procedure:

- Print the Spinal Cord Template and Labels on cardstock.
- Use scissors to trim around the borders of the Spinal Cord Labels.
- Match the labels in the correct sequencing on the Spinal Cord Template.
- Check your work using the Spinal Cord Matching Answer Guide.
- Write an essay associating Guttman's early explorations of the affects of spinal injuries as they relate to the specific areas of the spinal cord. Explore the notion that he believed that individuals with spinal injuries could, and should, live a full life. Explore the impact of injuries to specific areas of the spine. Which might allow for more range of movement? Why?
- Share your work with the class.

The Spinal Cord Matching Answer Guide





The Spinal Cord Labels

Impacts pelvic organs such as the bladder, bowel, and sex organs

Sacral
cord



Impacts hips, groin area, lower abdominal muscles, thigh flexion, and legs

Lumbar
cord



Impacts breathing, coughing and abdominal muscles

Thoracic
cord



Impacts bending, turning of the head, neck and arms

Cervical
cord

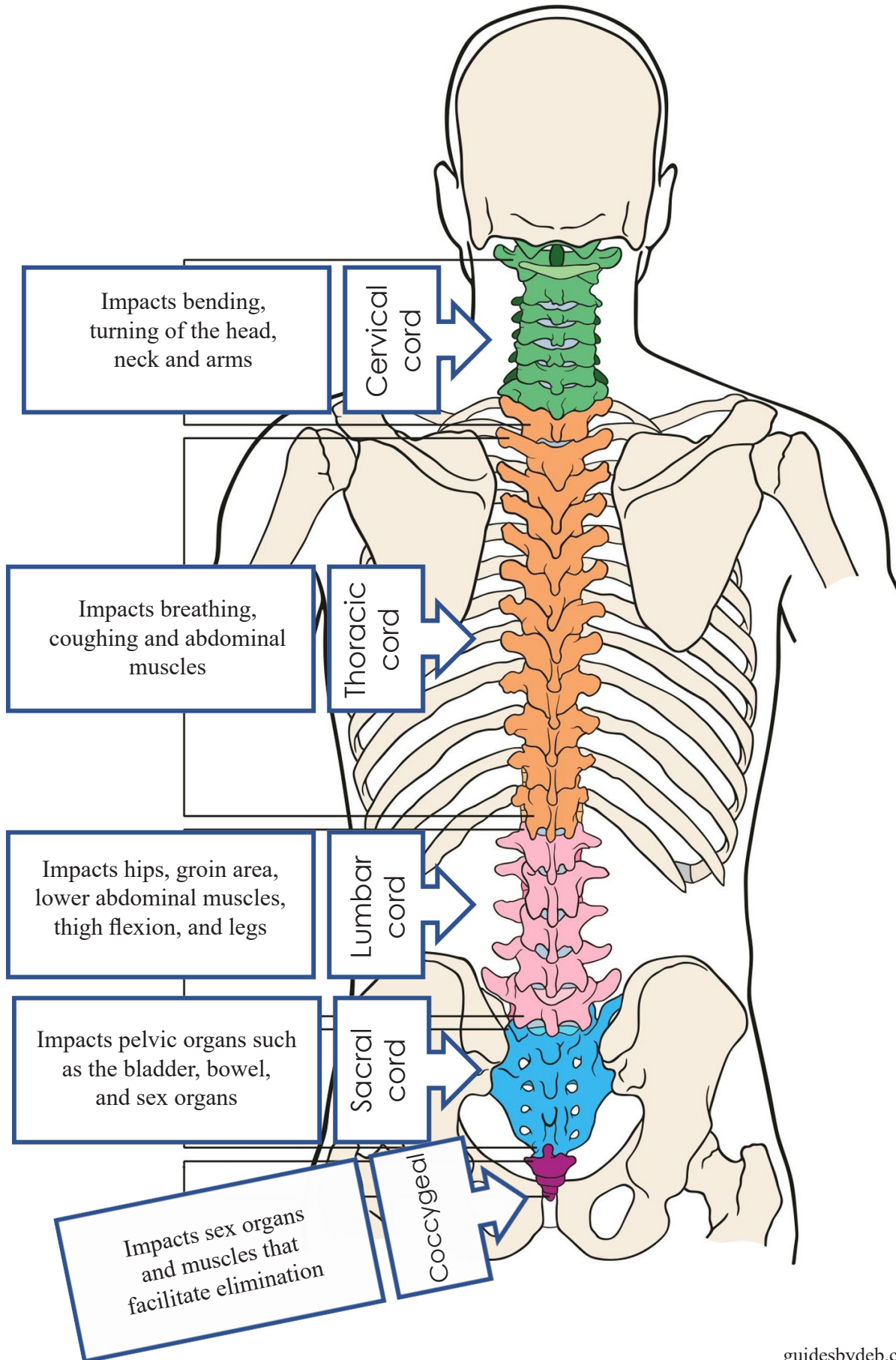


Impacts sex organs and muscles that facilitate elimination

Coccygeal




The Spinal Cord Matching Answer Guide



Historic Timeline

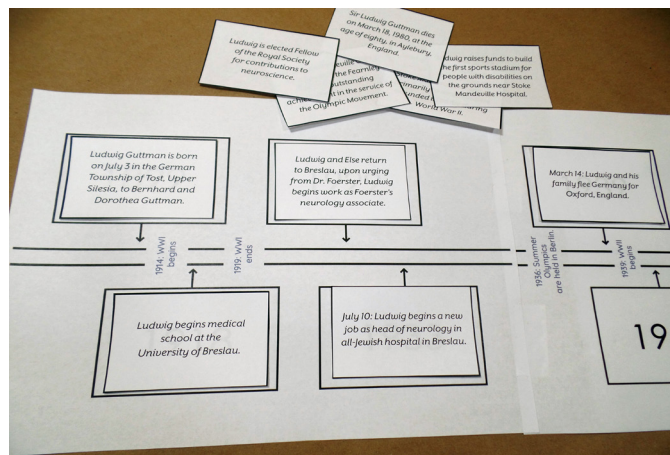
Objective: To integrate visual information with information in text.

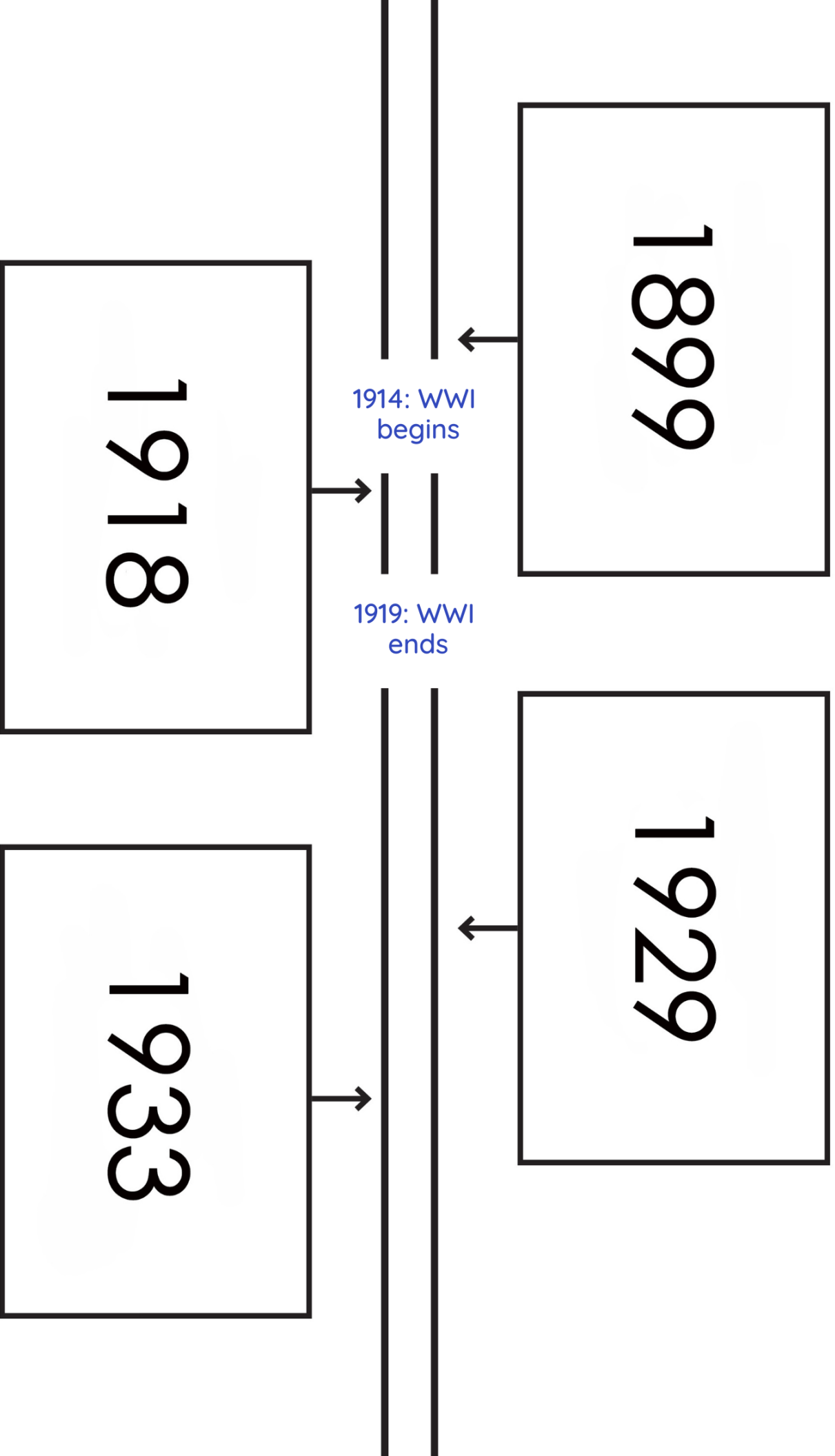
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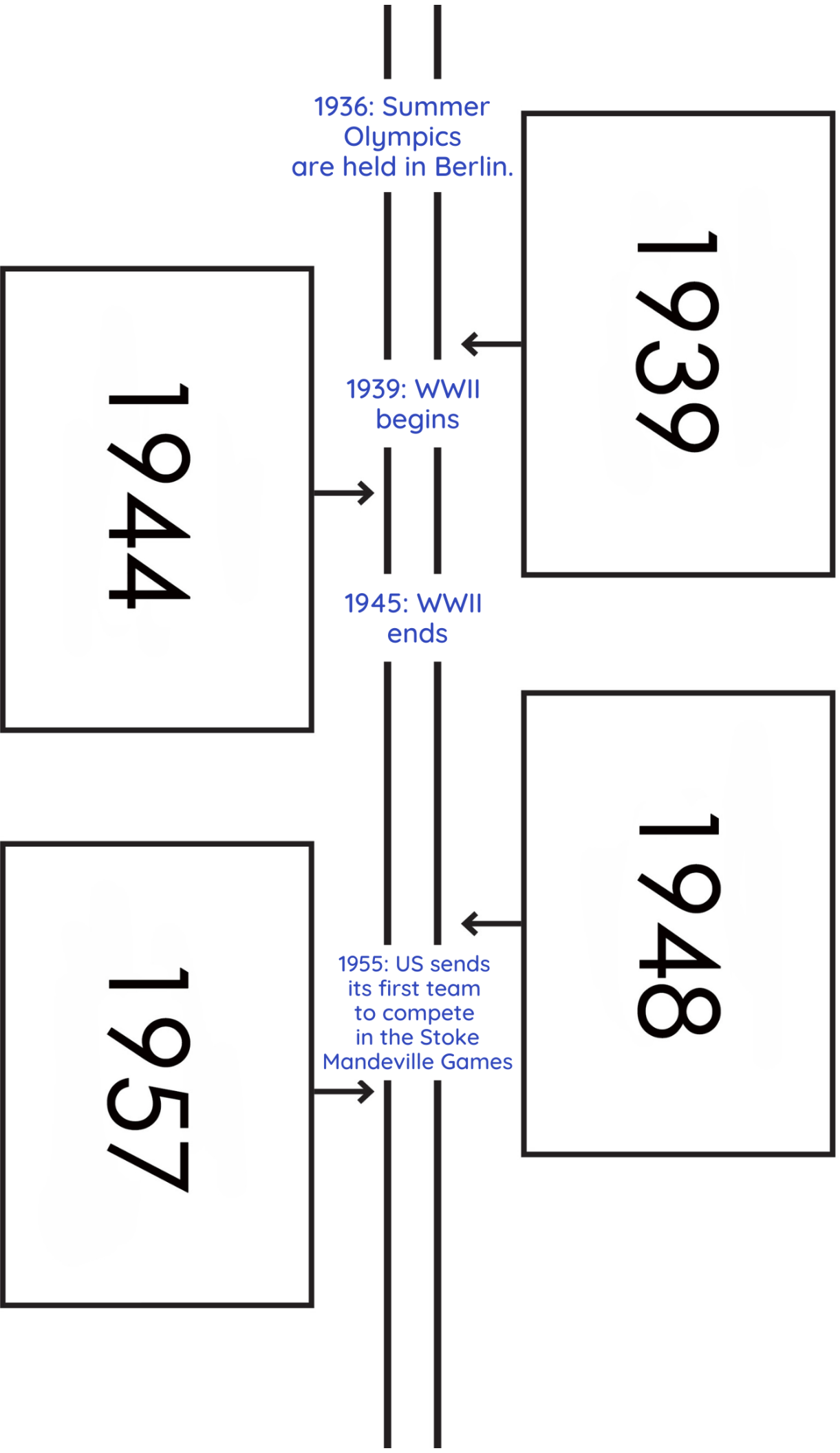
- A SPORTING CHANCE: HOW LUDWIG GUTTMANN CREATED THE PARALYMPIC GAMES, the book
- Timeline Template (Guide, pgs. 11-13)
- Historical Timeline Cards (Guide, pgs. 14-15)
- Historical Timeline Cards Answers (Guide, pgs. 16-17)
- Cardstock
- Scissors
- Tape

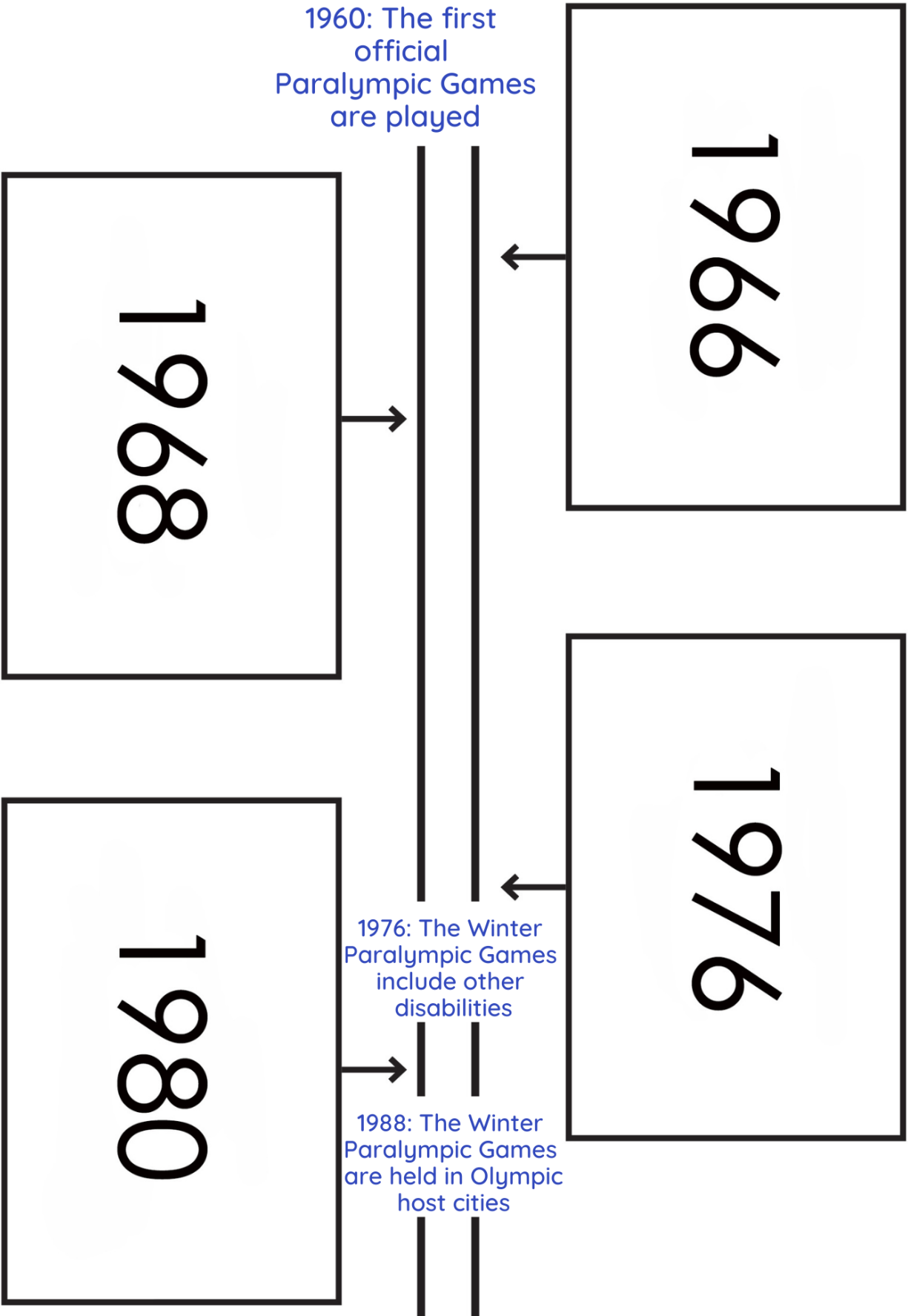
Procedure:

- Print the Timeline Template and the Historical Timeline Cards on cardstock.
- Tape the Timeline Templates in chronological sequencing.
- Use scissors to trim around the Historical Timeline Cards.
- Using the Timeline of Events section in the book (pgs. 96-100) as reference, place Historical Timeline Cards in the corresponding dated grid on the Timeline.
- Use the Historical Timeline Cards Answers to check your work.
- Analyze the sequence of events represented on the cards.
 - Consider how Ludwig's life experiences prepared him for each opportunity presented to him.
 - Determine how historical event effected Ludwig's contributions to history.
 - Identify which of Ludwig's contributions served as ground-breaking moments in history.
- Encourage students to identify an event that intrigues, inspires, or interests them. Instruct them to write an essay exploring the historical relevance of that event.
- Share the essay with the class.









1960: The first official Paralympic Games are played

1976: The Winter Paralympic Games include other disabilities

1988: The Winter Paralympic Games are held in Olympic host cities

2016: More than 4,000 athletes from 159 countries complete in the Paralympic Games in Brazil.

Historic Timeline Cards

Ludwig Guttman is born on July 3 in the German Township of Tost, Upper Silesia, to Bernhard and Dorothea Guttman.

Ludwig begins medical school at the University of Breslau.

Ludwig and Else return to Breslau, upon urging from Dr. Foerster, Ludwig begins work as Foerster's neurology associate.

July 10: Ludwig begins a new job as head of neurology in all-Jewish hospital in Breslau.

March 14: Ludwig and his family flee Germany for Oxford, England.

March 1: Ludwig opens the Spinal Injuries Center at Stoke Mandeville Hospital, primarily to serve soldiers wounded in battle during World War II.

July 29: The first Stoke Mandeville Games are held on the front lawn of the hospital.

The Stoke Mandeville Games are awarded the Fearnley Cup for outstanding achievement in the service of the Olympic Movement.



Ludwig is knighted by Queen Elizabeth for his services to people with disabilities. His title becomes Sir Ludwig Guttman.

Ludwig raises funds to build the first sports stadium for people with disabilities on the grounds near Stoke Mandeville Hospital.

Ludwig is elected Fellow of the Royal Society for contributions to neuroscience.

Sir Ludwig Guttman dies on March 18, 1980, at the age of eighty, in Aylebury, England.



Historic Timeline Cards Answers

1899

Ludwig Guttman is born on July 3 in the German Township of Tost, Upper Silesia, to Bernhard and Dorothea Guttman.

1918

Ludwig begins medical school at the University of Breslau.

1929

Ludwig and Else return to Breslau, upon urging from Dr. Foerster, Ludwig begins work as Foerster's neurology associate.

1933

July 10: Ludwig begins a new job as head of neurology in all-Jewish hospital in Breslau.

1939

March 14: Ludwig and his family flee Germany for Oxford, England.

1944

March 1: Ludwig opens the Spinal Injuries Center at Stoke Mandeville Hospital, primarily to serve soldiers wounded in battle during World War II.

1948

July 29: The first Stoke Mandevill Games are held on the front lawn of the hospital.

1957

The Stoke Mandeville Games are awarded the Fearnley Cup for outstanding achievement in the service of the Olympic Movement.



1966

Ludwig is knighted by Queen Elizabeth for his services to people with disabilities. His title become Sir Ludwig Guttman.

1968

Ludwig raises funds to build the first sports stadium for people with disabilities on the grounds near Stoke Mandeville Hospital.

1976

Ludwig is elected Fellow of the Royal Society for contributions to neuroscience.

1980

Sir Ludwig Guttman dies on March 18, 1980, at the age of eighty, in Aylebury, England.



Constructing an Argument

He was convinced that exercise could help “develop new tricks for making muscles move parts of the body formerly moved by other muscles” (pg. 56).

Objective: To write an argument by supporting claims with clear reasons and relevant evidence.

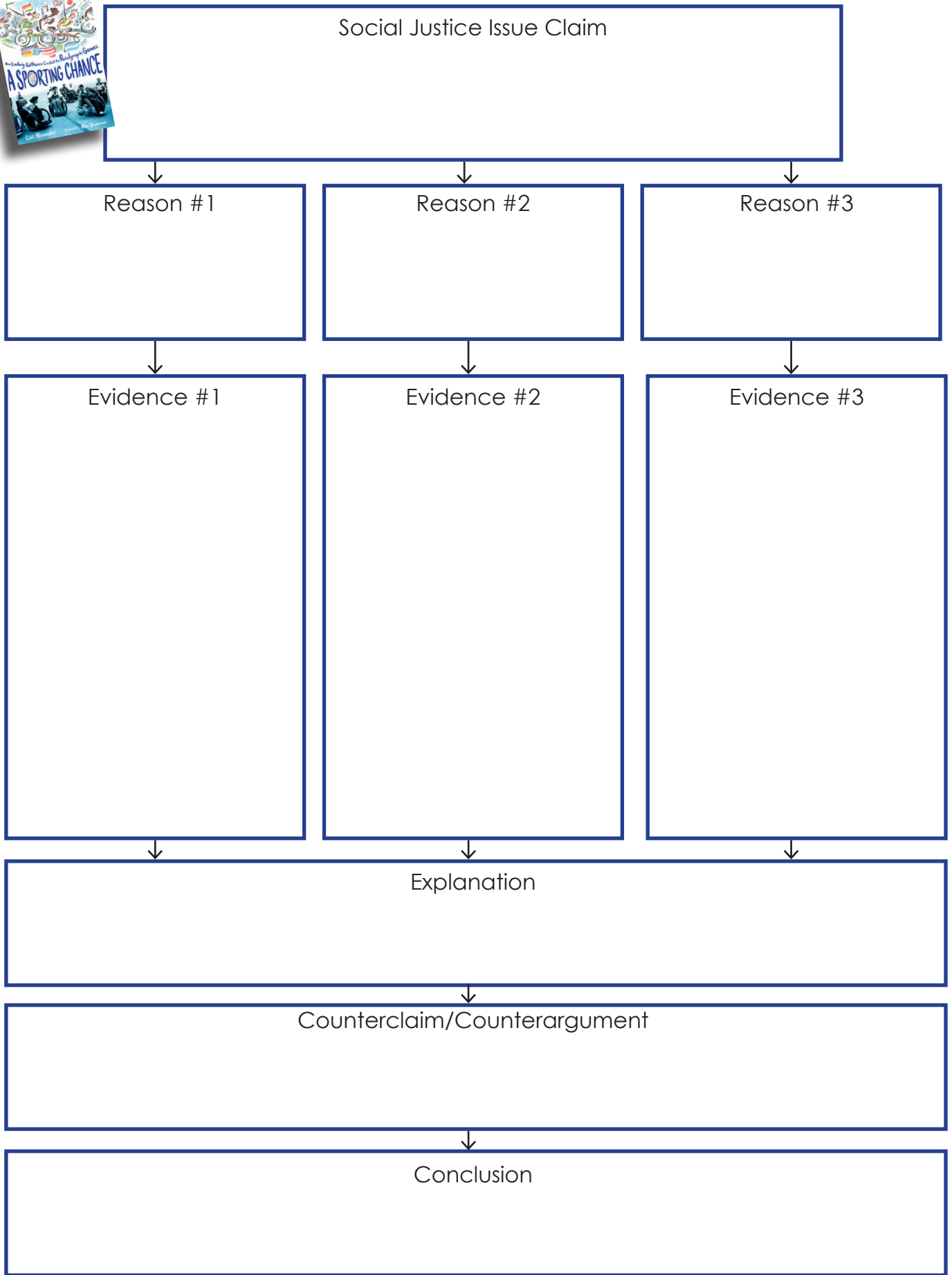
Materials:

- A SPORTING CHANCE: HOW LUDWIG GUTTMANN CREATED THE PARALYMPIC GAMES, the book
- Social Justice Issue Claim template (Guide, pg. 19)
- Research materials
- Writing materials

Procedure:

- Explore the notion that A SPORTING CHANCE: HOW LUDWIG GUTTMANN CREATED THE PARALYMPIC GAMES is the story of one man’s firm belief that all people deserve the right to love a full and vibrant life. Ludwig believed that physically disabled individuals are capable of remarkable things, if given the opportunity to do so. In short, he believed in social justice as it relates to the disabled. Social justice is a philosophical concept centered around equality among people along various social dimensions ([Investopedia](#)). Not only was Ludwig a dedicated physician, he was skilled in defending his argument of social justice for the disabled.
- Identify arguments Ludwig had to defend in efforts to establish the Paralympics – both medical and political. Reference the text to describe how defended the rights the disabled. Show how Ludwig established a well-researched, fact-filled plan of action.
- Encourage the students to explore issues that they feel are worthy of defending. Instruct them to use the Social Justice Issue Claim template to develop a persuasive argument, one that could clarify a plan to make a difference in the lives of others.
- Using the grid as a guide, follow the steps defined below to clarify a message.
 - Step 1: Social Justice Issue Claim – Identify the issue that you feel most passionate about exploring.
 - Step 2: Reasons – State three reasons why this issue needs to be addressed.
 - Step 3: Evidence – Research facts and state proof that this issue needs to be addressed.
 - Step 4: Explanation – Clearly state your position regarding this issue. Clarify why it needs to be addressed and how you suggest it be done.
 - Step 5: Counterclaim/Counterargument – State reasons why others might believe that the issue is just.
 - Step 6: Conclusion – Refute the counterclaims and establish a plan of action.
- Instruct students to write an essay in defense of their arguments. Share their work with the class.





Common Core State Standards Alignment

English Language Arts Standards » Reading: Informational Text		Discussion	Spinal Cord	Timeline	Argument
CCSS.ELA-LITERACY.RI.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	•	•	•	•
CCSS.ELA-LITERACY.RI.3.2	Determine the main idea of a text; recount the key details and explain how they support the main idea.	•	•	•	•
CCSS.ELA-LITERACY.RI.3.3	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.	•		•	•
CCSS.ELA-LITERACY.RI.3.5	Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.	•			•
CCSS.ELA-LITERACY.RI.3.7	Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).	•	•	•	•
CCSS.ELA-LITERACY.RI.3.9	Compare and contrast the most important points and key details presented in two texts on the same topic.	•			•
CCSS.ELA-LITERACY.RI.3.10	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2-3 text complexity band independently and proficiently.	•	•	•	•
CCSS.ELA-LITERACY.RI.4.1	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.	•		•	•
CCSS.ELA-LITERACY.RI.4.2	Determine the main idea of a text and explain how it is supported by key details; summarize the text.	•		•	•
CCSS.ELA-LITERACY.RI.4.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.	•	•	•	•
CCSS.ELA-LITERACY.RI.4.5	Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.	•		•	•
CCSS.ELA-LITERACY.RI.4.7	Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.	•	•	•	•
CCSS.ELA-LITERACY.RI.4.10	By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range.	•	•	•	•
CCSS.ELA-LITERACY.RI.5.1	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.	•		•	•
CCSS.ELA-LITERACY.RI.5.2	Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.	•		•	•
CCSS.ELA-LITERACY.RI.5.3	Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.	•		•	•
CCSS.ELA-LITERACY.RI.5.5	Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.	•		•	•
CCSS.ELA-LITERACY.RI.5.7	Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.	•		•	•
CCSS.ELA-LITERACY.RI.5.10	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4-5 text complexity band independently and proficiently.	•	•	•	•
CCSS.ELA-LITERACY.RI.6.1	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	•		•	•



		Discussion	Spinal Cord	Timeline	Argument
English Language Arts Standards » Reading: Informational Text					
CCSS.ELA-LITERACY.RI.6.2	Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.	•		•	•
CCSS.ELA-LITERACY.RI.6.7	Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.	•	•	•	•
CCSS.ELA-LITERACY.RI.6.8	Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.	•		•	•
CCSS.ELA-LITERACY.RI.6.10	By the end of the year, read and comprehend literary nonfiction in the grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.	•	•	•	•
CCSS.ELA-LITERACY.RI.7.1	Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	•	•	•	•
CCSS.ELA-LITERACY.RI.7.2	Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.	•	•	•	•
CCSS.ELA-LITERACY.RI.7.3	Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).	•		•	•
CCSS.ELA-LITERACY.RI.7.8	Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.	•		•	•
CCSS.ELA-LITERACY.RI.7.10	By the end of the year, read and comprehend literary nonfiction in the grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.	•	•	•	•
English Language Arts Standards » Writing					
CCSS.ELA-LITERACY.W.3.1	Write opinion pieces on topics or texts, supporting a point of view with reasons.		•	•	•
CCSS.ELA-LITERACY.W.3.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.		•	•	•
CCSS.ELA-LITERACY.W.3.4	With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.		•	•	•
CCSS.ELA-LITERACY.W.4.1	Write opinion pieces on topics or texts, supporting a point of view with reasons and information.		•	•	•
CCSS.ELA-LITERACY.W.4.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.		•	•	•
CCSS.ELA-LITERACY.W.4.7	Conduct short research projects that build knowledge through investigation of different aspects of a topic.		•	•	•
CCSS.ELA-LITERACY.W.5.1	Write opinion pieces on topics or texts, supporting a point of view with reasons and information.		•	•	•
CCSS.ELA-LITERACY.W.5.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.		•	•	•
CCSS.ELA-LITERACY.W.5.8	Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.		•	•	•
CCSS.ELA-LITERACY.W.6.1	Write arguments to support claims with clear reasons and relevant evidence.		•	•	•
CCSS.ELA-LITERACY.W.6.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.		•	•	•



		Discussion	Spinal Cord	Timeline	Argument
English Language Arts Standards » Writing					
CCSS.ELA-LITERACY.W.6.8	Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.		•	•	•
CCSS.ELA-LITERACY.W.7.1	Write arguments to support claims with clear reasons and relevant evidence.		•	•	•
CCSS.ELA-LITERACY.W.7.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.		•	•	•
CCSS.ELA-LITERACY.W.7.7	Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.		•	•	•
English Language Arts Standards » Speaking & Listening					
CCSS.ELA-LITERACY.SL.3.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 3 topics and texts</i> , building on others' ideas and expressing their own clearly.	•	•	•	•
CCSS.ELA-LITERACY.SL.3.2	Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	•	•	•	•
CCSS.ELA-LITERACY.SL.3.4	Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.	•	•	•	•
CCSS.ELA-LITERACY.SL.4.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 4 topics and texts</i> , building on others' ideas and expressing their own clearly.	•	•	•	•
CCSS.ELA-LITERACY.SL.4.4	Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	•	•	•	•
CCSS.ELA-LITERACY.SL.5.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 5 topics and texts</i> , building on others' ideas and expressing their own clearly.	•	•	•	•
CCSS.ELA-LITERACY.SL.5.2	Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	•	•	•	•
CCSS.ELA-LITERACY.SL.5.4	Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	•	•	•	•
CCSS.ELA-LITERACY.SL.6.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.	•	•	•	•
CCSS.ELA-LITERACY.SL.6.2	Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.	•	•	•	•
CCSS.ELA-LITERACY.SL.6.4	Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.	•	•	•	•
CCSS.ELA-LITERACY.SL.7.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.	•	•	•	•
CCSS.ELA-LITERACY.SL.7.2	Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.	•	•	•	•



		Discussion	Spinal Cord	Timeline	Argument
English Language Arts Standards » Speaking & Listening					
CCSS.ELA-LITERACY.SL.7.5	Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.	•	•	•	•

Next Generation Science Standards Alignment

		Discussion	Spinal Cord	Timeline	Argument
K-LS1-1 From Molecules to Organisms: Structures and Processes					
	Use observations to describe patterns of what plants and animals (including humans) need to survive.	•	•		
Analyzing and Interpreting Data	Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.	•	•		
MS-LS4-3 Biological Evolution: Unity and Diversity					
	Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.	•	•		
Analyzing and Interpreting Data	Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis.	•	•		
Patterns	Graphs, charts, and images can be used to identify patterns in data.	•	•		

