

Paths of Exploration Junior

Replacement Assignments for *Leonardo and the Flying Boy*

Instructions

Leonardo and the Flying Boy has gone out of print and been replaced by *Neo Leo: The Ageless Ideas of Leonardo da Vinci* (ISBN 978-1250079602) by Gene Barretta.

Please use the text that follows as a substitute for the text in your book. You may want to mark each section in your book with a pencil to make it easier to know when to refer to this alternate text.

★ UNIT 2: JAMESTOWN ★

Lesson 4: Part 1B

pages 143-144:

Note: There are no page numbers in this book. Lightly number the pages for ease of use, beginning with page 1 at the beginning of the text (“Leonardo da Vinci was fascinated...”).

Introduce the new reader, *Neo Leo: The Ageless Ideas of Leonardo da Vinci*, to the student:

Here is our new reader about a man named Leonardo. Do you see his name on the cover? Do you see his picture on the cover? What does he look like? What is he doing? Leonardo da Vinci was born in Italy in 1452—the year after Columbus was born—and he died in 1519, about 90 years before Jamestown was founded. Da Vinci was an artist, but he was also so much more. He loved to learn. He loved to find out how things worked. He loved to invent new things. He liked to build, write, draw, paint, study, observe, and think. And he loved to imagine things that seemed impossible. Maybe you have seen one of da Vinci's most famous paintings, the Mona Lisa. But maybe you did not know that he wrote over 20,000 pages of notes, sketching things he was interested in and imagining new inventions or that he drew plans for a submarine, a diving suit, and a helicopter, which was amazing because no human had ever flown in a flying machine before! One of the last things Leonardo da Vinci did before his death was to make a mechanical lion that could walk and open its chest to reveal a bouquet of lilies inside. Today, we will begin reading a story of this famous and intriguing man. Do you think this story is fact or fiction? This is a story based on fact. Leonardo da Vinci was a man who really lived. You can see copies of some of his writings and drawings in our book. You will notice that some of the words on the pages look very strange and are hard to read. Read the Author's Note at the beginning of the book to find out why...

Read together *Neo Leo: The Ageless Ideas of Leonardo da Vinci*, Junior Reader, beginning with the Author's Note and continuing through page 5 (“...he passionately studied.”)..

Choose from the following questions those that are appropriate for your student:

- *What do you think of Leonardo da Vinci so far? What is interesting about him?*
- *What things fascinated Leonardo? (watching animals and people, exploring nature) Do you enjoy doing any of those things?*

PATHS OF EXPLORATION JUNIOR

- *What was strange about da Vinci's notebooks?* (They were written back to front and could only be read in a mirror.) *Why do historians think he wrote backwards?* (Possibly because he was left-handed.) *Can you read his writing on page 5?*
- *Who were the first people to build the aircraft that Leonardo had envisioned?* (the Wright brothers in 1903)
- *To learn more about the Wright Brothers and their airplane, watch a video, such as "The Wright Brothers, Orville and Wilbur" by Muffin Stories on YouTube, <https://www.youtube.com/watch?v=fZyZxDWjkZ0>*

Lesson 4: Part 2B

page 146:

Read together *Neo Leo: The Ageless Ideas of Leonardo da Vinci*, page 6 ("1891-Otto Lilienthal...") through page 9 ("...through a lens.").

Choose from the following questions those that are appropriate for your student:

- *What did Otto Lilienthal see that inspired him to develop a hang glider?* (Leonardo's drawings of an ornithopter) *Do you think you would like to fly on a hang glider?*
- *What was funny about the way Adolf Fick tested his contact lenses?* (He tested them on animals.) *Have you ever noticed that looking at things through water changes how they appear? Try this out now if you haven't and see if you can tell how Leonardo got his idea for a contact lens.*
- *To learn more about Thomas Edison, watch a video, such as "Thomas Alva Edison" by Muffin Stories on YouTube, <https://www.youtube.com/watch?v=s46C19QWSGY>*

Lesson 4: Part 3B

page 149:

Read together *Neo Leo: The Ageless Ideas of Leonardo da Vinci*, page 10 ("1781-Thomas Paine...") through page 13 ("...catapult, among others.").

Choose from the following questions those that are appropriate for your student:

- *What idea did Leonardo get from watching a turtle?* (the idea for a tank) *What things do you think he thought about while he was watching the turtle?*
- *Have your student design his own bridge or tank using household materials. Let him think about things he could use. These may include things like craft sticks, toothpicks, straws, pencils, toilet paper rolls, etc.*

Lesson 4: Part 4B

page 152:

Read together *Neo Leo: The Ageless Ideas of Leonardo da Vinci*, page 14 (“1870-James Starley...”) through page 17 (“...prevented real flight.”).

Choose from the following questions those that are appropriate for your student:

- *What kind of knowledge or learning did Leonardo have to have to be able to design some of these inventions?* (knowledge of machines, air, wind, water, weight, gravity, etc.)
- *What reasons do you think da Vinci had for wanting to invent some of these things?* (to help people, to make life easier, to make a better way of doing something, maybe just because he loved to think of interesting ideas)
- *Find out “10 Cool Things About Bicycles” at this link from National Geographic Kids:* <https://kids.nationalgeographic.com/explore/history/ten-fun-facts-about-bikes/>

Lesson 5: Part 1B

pages 157-158:

Read together *Neo Leo: The Ageless Ideas of Leonardo da Vinci*, page 18 (“Modern boats have...”) through page 21 (“...formation in the blood.”).

If the vocabulary in the reader is too difficult for your child, here are a few suggestions you could try.

- Read the majority of the selection to your student, but pause occasionally for him to read sentences that he can decode.
- Highlight, lightly mark, or copy on a separate piece of paper some sentences from the reader that the student will read and read them with him before you begin reading the selection. Help him decode any unfamiliar words and practice his sentence(s). When you come to the marked sentences in the reading, he will be prepared to read them himself.
- Read the whole selection to the student, having him follow along with his eyes, while you track with your finger. Complete the comprehension questions below to check understanding of the passage. Then go back and read the selection a second time, pausing at key words to let the student fill in the missing word from memory or using decoding clues such as beginning sounds, context or picture cues.

Choose from the following questions those that are appropriate for your student:

- *Why is a double hull on a boat important and helpful?* (If the outer hull is damaged, the boat will not sink if it has an inner hull as well.)
- *Look at the pictures of the diving equipment on pages 18 and 19. How does it appear the equipment has improved from Leonardo’s first design? Look at the picture of the fish on page 19. How is the shape of a fish perfect for traveling through water?*
- *See how the heart works by watching a video such as “Exploring the Heart—The Circulatory System” from AboutKidsHealth on YouTube:* <https://www.youtube.com/watch?v=-s5iCoCaofc>

Lesson 5: Part 2B

page 161:

Read together *Neo Leo: The Ageless Ideas of Leonardo da Vinci*, page 22 (“What do a steam...”) through page 25 (“...powered and controlled them.”).

Choose from the following questions those that are appropriate for your student:

- *Look at the diagram of Leonardo’s rotisserie on page 23 and see if you can figure out how it works.*
- *What do you think people thought of Leonardo’s ideas and inventions such as robots? Do you think he shared his ideas with a lot of people or just a few close friends? What would you do? Why?*
- *See a video of “Electro the Smoking Robot at the 1939 World’s Fair” by The Historical Archive on YouTube: <https://www.youtube.com/watch?v=AuyTRbj8QSA>*

Lesson 5: Part 3B

page 164:

Read together *Neo Leo: The Ageless Ideas of Leonardo da Vinci*, page 26 (“1785-Jean Pierre Blanchard...”) through page 29 (“...this incredible inventor.”).

Choose from the following questions those that are appropriate for your student:

- *Look at the inventions on pages 28 and 29 that came from Leonardo da Vinci’s ideas. Can you think of ways each one is helpful to people? How does this relate to our Step for Thinking for this lesson? (“Explorers and inventors show their creativity by the way they solve problems.”)*
- *Would you like to be an inventor? Can you think of a problem to solve or a way you would like to make something easier to use?*
- *Learn more about parachutes by watching a video such as “Playtime with Parachutes/Physics for Kids” by SciShow Kids on YouTube: https://www.youtube.com/watch?v=Ab_g5sLoXoY*

Lesson 5: Part 4B

page 167:

Help the student design a page about Leonardo da Vinci to add to the Student Notebook. He may want to use colored or patterned paper and decorate it as desired. Here are some ideas for things he could include on the page:

- An interesting and eye-catching title (written backwards in mirror writing?)
- A picture of Leonardo da Vinci
- A sketch or description of the invention of da Vinci’s that he found most interesting
- A picture of the Mona Lisa, painted by da Vinci
- A few interesting facts learned about the artist/inventor
- Ways the student is or is not like da Vinci
- An idea for an invention of the student’s own design

This notebook project can be completed during the Writing portion of today’s lesson or in Part 5.

Lesson 6: Part 3F

page 175:

Use the Reading Roundup page in the Student Notebook to review either *The True Story of Pocahontas* or *Neo Leo: The Ageless Ideas of Leonardo da Vinci*.

★ UNIT 6: TRAILS WEST ★

Lesson 2: Part 5D

pages 462:

Points of Review (Choose as appropriate for your student):

- Review the vocabulary from this week's Junior reader: *sagebrush, corral, river current, leather, moccasins, cornmeal, steep, tragedy, risky*.
- Re-read the Junior readers, *The Story of Pocahontas* and *Neo Leo: The Ageless Ideas of Leonardo da Vinci*.
- Practice "The Vertebrate Rap."

Lesson 3: Part 4B

pages 474:

Re-read the Junior Reader, *Neo Leo: The Ageless Ideas of Leonardo da Vinci*. As you read together, consider the personality and character of many of the explorers you have studied. Do any characters in this book have things in common with an explorer? In what ways are they the same or different?