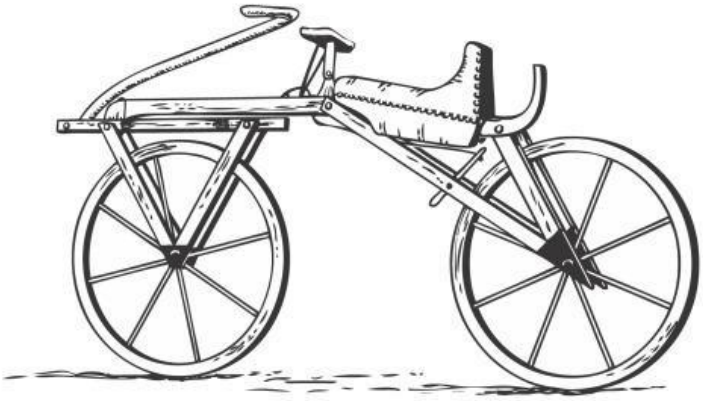
Read the article "Bicycles, Then and Now" before answering Numbers 1 through 5.



Bicycles, Then and Now

Sometimes, today's modern products have a very remarkable resemblance to earlier inventions. Today's balance bikes for children look like an early model by Baron Karl von Drais Sauerbrun. Bicycles began with this German inventor. A biography of him reveals that he was born in 1785. He worked for his uncle and was given the title of professor of mechanics. In 1817, he made a bicycle-like contraption. It had two wheels and was made of wood. It had a seat but no pedals. To move, the rider had to use his legs to push the machine forward. It weighed about 50 pounds! It must have been like riding a very heavy scooter.

Drais exhibited his running machine in 1818. He was given a patent for it the same year. In Germany, it was called the *Draisine*. In France, it became the *Draisienne*. And in England, it was called a hobby horse. For a number of reasons, this early bicycle was popular for only a short time. Riders' boots wore out too quickly. It was hard to steer. There were very few evenly paved streets. Many roads were rutted, sunken, and full of holes at this time in history. Therefore, it was even more difficult to balance on these new inventions. Riders who decided to use sidewalks instead were crashing into pedestrians and causing injuries.

The history of bicycles shows the chronological order of events as inventors kept improving the design. A Scottish blacksmith named Kirkpatrick Macmillan is believed to have invented the foot pedal for a bicycle in 1840. In the 1860s, the *velocipede*, which means "fast feet," first appeared. It had pedals, two wooden wheels, and an iron frame.

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Next came a British bicycle maker named James Starley. He made improvements in both the bicycle and the tricycle, a three-wheeled rider. His nephew John Kemp Starley worked for him. The younger man had extraordinary mechanical skills. He built the Rover in 1885. It is often described as the first modern bicycle. It had two 26-inch wheels, ball bearings, and rubber tires. It had a chain drive, as well. The chain drive had been used before on other machines but not on bicycles. The chain transfers power from one part of the machine to another. On bicycles, it distributes power between the two wheels.

In the United States, an amazing number of bicycles were produced in the late 1800s. This spectacular growth led to more inventions. During the 1900s, the wooden wheels were replaced with air-filled rubber tires. These wheels made for a much more comfortable ride. Other improvements followed. The invention of two-speed and three-speed bicycles improved efficiency, for example.

The market for bicycles decreased with the rising popularity of cars and motorcycles. These motorized vehicles became a faster and more convenient way to get around. As a result, in the 1920s through the 1950s, children became the primary target market for bicycle manufacturers. So, many bicycles were designed to appeal to America's youth. In the 1960s and 1970s, adults grew more interested in fitness and preserving the environment. Then the industry began growing again.

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Now answer Numbers 1 through 5. Base your answers on "Bicycles, Then and Now."

1 Read the sentence from the article.

A biography of him reveals that he was born in 1785.

The word biography comes from two Greek roots, *bio* and *graph*. The root *bio* means "life." The root *graph* can mean "write." What does biography mean?

(A) a made-up story

(B) the author of a book

(C) a story about someone's life

(D) the time it takes to write a book

2 This question has two parts. First, answer part A. Then, answer part B.

Part A: How does the author show that bicycles have gotten better through the years?

(A) by contrasting just two types of bicycles

(B) by telling the sequence of improvements

(C) by comparing bicycles with other inventions

(D) by explaining what caused people to start using cars

Part B: Which sentence from the article supports your answer in part A?

(A) "It must have been like riding a very heavy scooter."

(B) "For a number of reasons, this early bicycle was popular for only a short time."

(C) "Riders who decided to use sidewalks instead were crashing into pedestrians and causing injuries."

(D) "The history of bicycles shows the chronological order of events as inventors kept improving the design."

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3 This question has two parts. First, answer part A. Then, answer part B.

Part A: The root of chronological is *chron*, which means "time." What does chronological have to do with?

(A) why things happen

(B) how things happen

(C) when things happen

(D) where things happen

Part B: Which phrase from the article **best** describes what chronological means?

(A) "these new inventions"

(B) "order of events"

(C) "improving the design"

(D) "believed to have invented"

4 Which event made the bicycle more popular in the 1960s and 1970s?

(A) People became interested in fitness.

(B) Bicycles were built with chain drives.

(C) Rubber tires replaced wooden ones.

(D) Cars became a good way to get around.

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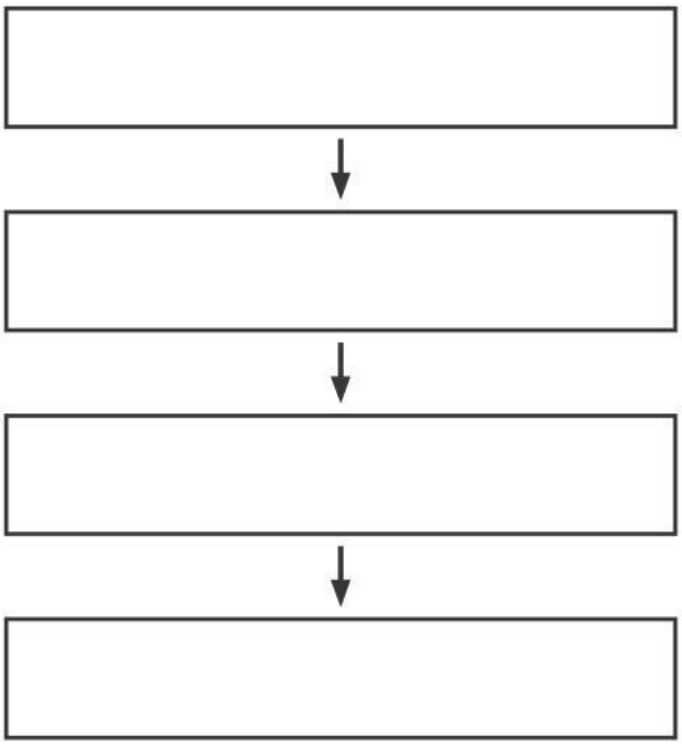
5 Look at the events in the box. Write the events in order in the chart.



Events:
The chain drive was added to the bicycle.
Macmillan invented the pedal for the bike.
Children became the main market for bicycles.
Drais received a patent for his running machine.

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