

Reading Selection

Reading Selection Comprehension Checklist

Whether or not you agree with the ideas presented in the reading selection below, make sure to:

- briefly scan the entire selection.
- look at the questions for the selection before reading it.
- carefully read the selection.
- understand the purpose or reason the selection was written.
- understand the main idea and the details that support it.

Complete the Multiple-choice and Written Answers that follow this reading selection.

1 Risky Business: Alfred Nobel's Blasting Powder

by Jack Booth

An Italian scientist named Ascanio Sobrero made an explosive called nitroglycerine in 1846 and promptly wanted everyone to forget about his discovery. It was too dangerous, too unpredictable. Nitroglycerine, a pale yellow oil that could easily explode, didn't need a flame to set it off like gunpowder did. Nitroglycerine (short form: nitro) exploded upon impact. A whole building could be blown up if one small bottle was dropped. But a 13-year-old boy named Alfred Nobel could not forget.

As he grew up, he wanted to find a way to control the size and timing of nitro explosions. In 1863, Alfred Nobel invented the blasting cap. The blasting cap would ignite the nitro with a small explosion of gunpowder. But people were still afraid of his idea. He got permission to start making his new invention of nitro with a blasting cap. But he had to do it on a barge in the middle of a lake in Sweden!

Alfred always had a small workshop in his house. He was still experimenting. But the blasting cap idea wasn't working well yet. In 1864, a horrible explosion blew up his workshop. Alfred's younger brother was killed. His father's health was ruined. But Alfred Nobel kept working.

Soon people around the world were using his invention. But there were huge problems — terrible accidents. A change in temperature, a little knock or bump, could cause the dangerous oil to explode. During the California gold rush in 1849, the miners wanted this new explosive called "nitro." They knew it was risky, and they really didn't know how to use it correctly. They were using it for everything — they polished their boots with it; they used it to burn in their lamps; they used it to grease their wagon wheels. (Usually only once!)

Meanwhile, Alfred Nobel was still working out the kinks. In a five-year period, his factory in Germany was destroyed by explosions twice!

Nobel knew that he had to find a way to make nitro less dangerous. It had to be safe to move from one place to another. But it still had to have the big bang! He searched; he asked; he found a special kind of dirt in northern Germany that might help. It would soak up the nitro so it wasn't a liquid anymore. But it would still explode. Alfred Nobel made this mix of dirt and nitro into sticks. It was 1867. He called his new safety blasting powder dynamite.

Nobel knew this was a big thing. He hurried to get the patents so he could make and sell his dynamite in all the countries of Europe. But many governments said, "No thanks! That stuff is too dangerous!"

Nobel knew everybody was afraid of his invention. So he built a factory on the west coast of Scotland. He chose a spot where nobody lived. When he manufactured the dynamite, he had to move it by horse and cart. The railways wouldn't carry it. In fact they wouldn't carry it until 20 years later.

Alfred Nobel built his own steamships to carry his dynamite to customers around the world.

Before long, everybody wanted to use Alfred Nobel's invention. By 1896, there were 93 factories around the world making dynamite. People used dynamite for peaceful reasons; they used it for war, as well. Explosions can be used in many ways.

Alfred Nobel died in Paris, France, in 1896 a very rich man. He left a four-page will. He left orders about how to use his fortune — each year, prizes of money should be given to those people who had done the best things to help all the people of the world: a prize for physics; a prize for chemistry; a prize for medicine; a prize for

literature; finally, a prize for the person who did the most for world peace.

The first "Nobel Prizes" were given in 1900. Today, a "Nobel Prize" is a great honour — the highest international achievement.

The Nobel Prizes are given out every year on December 10 — the day of Alfred Nobel's death. The world will always remember Alfred Nobel.

The list of Canadian Nobel Prize winners since the prize was first awarded includes:

1999 Economics

Robert Mundell, a native of Kingston, Ontario, earned the prize for his analysis of exchange rates and how they affect monetary policies. The theories of Mundell helped create a common currency for the European Union.

1997 Economics

Myron Scholes, born in Timmins, Ontario, was co-winner of the prize for devising a formula for pricing derivatives such as stock options. Scholes received his undergraduate degree in economics from McMaster University in Hamilton in 1962 and an honorary Doctor of Laws in 1990. He earned a PhD in economics at the University of Chicago in 1969.

1996 Economics

William S. Vickrey was born in Victoria, B.C., in 1914. He then worked for the National Resources Planning Board in Washington and the Division of Tax Research in the U.S. Treasury Department.

1994 Physics

Bertram Brockhouse, of McMaster University in Hamilton earned the prize for pioneering contributions to the development of neutron scattering techniques for studies of matter. The scientists made their contributions to the first nuclear reactors in Canada and the United States in the 1940s and '50s.

1993 Chemistry

Michael Smith, a British-born Canadian citizen and director of the Biotechnology Laboratory at the University of British Columbia in Vancouver, won for his work on a method for altering DNA to determine its function.

1992 Chemistry

Montreal-born Rudolph Marcus won for his contributions to the theory of how sub-atomic particles known as electrons are transferred between molecules. He was educated at McGill University.

1990 Physics

Richard Taylor, a native of Medicine Hat, Alberta, earned a Nobel Prize for finding the first evidence of quarks, now believed to be basic building blocks of matter.

1989 Chemistry

Yale University professor Sidney Altman from Montreal earned the prize for the discovery of catalytic properties of the genetic material RNA.

1986 Chemistry

German-born John Polanyi, of the University of Toronto, won for showing how basic chemical reactions take place.

1983 Chemistry

Saskatoon-born Henry Taub, received the prize for studies in the transfer of electrons in metals. He was a graduate of the University of Saskatchewan.

1981 Physics

University of Toronto PhD Arthur Schawlow won for the development of spectrometers, basic tools for studying atomic structure.

1981 Medicine

Dr. David Hubel, a native of Niagara Falls, Ontario, earned a prize for information processing in the visual system. He graduated from McGill University in Montreal.

1976 Literature

Saul Bellow was born in Lachine, a suburb of Montreal, in 1915. He attended the University of Chicago, received his bachelor's degree from Northwestern University in 1937, with honours in sociology and anthropology.

1971 Chemistry

German-born Gerhard Herzberg won for work with "free radicals" — molecular fragments which take part in chemical reactions. He taught at the University of Saskatchewan from 1935-45 and in 1948 went to the National Research Council in Ottawa.

1966 Medicine

Charles Brenton Huggins, a Halifax native, a graduate of Acadia University in Wolfville, Nova Scotia, earned the Nobel Prize for research into role of hormones in the control of human cancer.

1957 Peace

Lester B. Pearson, before becoming prime minister, became a Nobel Prize winner for proposing a United Nations peacekeeping force as a means for easing the British and French out of Egypt.

1949 Chemistry

William Giaquque, a native of Niagara Falls, Ontario, received a prize for investigating the properties of matter under extremely low temperatures.

1923 Medicine

Sir Frederick Banting and J.R. McLeod shared a prize for the development of insulin, used in the treatment of diabetes, at the University of Toronto.

Multiple-choice

Multiple-choice Instructions

On the actual test, these questions will be on a sheet of paper separate from your test booklet and will be marked by a computer. Make sure to completely fill in the circle of the answer you choose.

IMPORTANT: Do NOT use an "X", check mark, half circle fill, nor a partial circle fill.

- A B C D  Correct form
 X ✓ ◐ ◑  Incorrect form

Choose the best or most correct answer. To indicate your answer fill in the circle completely.

2.1 Nitroglycerine was first made by

- A Alfred Nobel.
B Ascanio Sobrero.
C Michael Smith.
D Lester B. Pearson.

A B C D

2.2 Alfred Nobel had to experiment on his new invention on a barge in the middle of a lake because

- A nitroglycerine explodes on land.
B nitroglycerine does not explode on water.
C nitroglycerine must be kept wet.
D nitroglycerine explodes easily.

A B C D

2.3 What is the best meaning of the word, "barge" in the third paragraph?

- A to enter without permission
B island
C boat
D dock

A B C D

2.4 Alfred Nobel's brother

- A died on the barge in the lake.
B died in the workshop.
C worked in the factory in Germany.
D died in the factory in Germany.

A B C D

2.5 Nobel made nitroglycerine less dangerous by

- A inventing the blasting cap.
B mixing it with a special dirt.
C making it in Scotland.
D carrying it in steamships.

A B C D

2.6 Nobel died

- A rich.
B in Paris, France.
C on December 10, 1896.
D all of the above.

A B C D

2.7 More Canadians won the Nobel Prize for

- A economics.
B chemistry.
C physics.
D medicine.

A B C D

Written Answers

Written Answer Checklist

Your written answer should:

- be on-topic, specific, and relevant to the reading selection.
- refer to specific examples in the reading selection.
- be clear, well-organized and use correct spelling, punctuation, and grammar.
- be approximately as long as the space you are given on the lines.
- be written legibly using a blue or black pen or pencil.

1. Describe the difficulties Alfred Nobel had to overcome in order to market his blasting powder dynamite.

2. In your opinion, why might Nobel have created a prize for persons who did the most for world peace? Use information from this selection to support your answer.

Rough Notes

Use the space below for rough notes. Nothing you write in this space will be scored.