5.1 Robert Hooke

Robert Hooke was one of England’s early scientific geniuses. He is remembered for his experiments across many fields of science. His book, Micrographia, gave everyday people their first view of life under a microscope.

Early years

Robert Hooke, an English scientist, was born on the Isle of Wight along the southern coast of England in 1635. His father, a minister in the local church, noticed that his son learned things quickly. Robert also had a remarkable ability to fix things and build useful tools. His father taught him school subjects at home and planned for him to become an artist.

When Robert was 13, his father died. He had very little money and went to work for Sir Peter Lely, a famous artist in London who painted landscapes and portraits.

Most of his life, Hooke’s health was poor. He suffered from smallpox, which left scars on his face. His spine was crooked, perhaps from scoliosis or from an injury. He complained that artists’ paint and varnishes made it hard for him to breathe. So, soon after arriving in London to study art, he changed his mind and enrolled at Westminster School to prepare for college.

England’s Leonardo Da Vinci

Hooke did well at his studies. He learned Greek and Latin. He impressed his teachers by learning six old books on mathematics, called Euclid’s Elements, in only one week. He even designed flying machines in his spare time! Because of his inventions and experiments, some people have called Hooke England’s Leonardo Da Vinci.

University life

At age 18, Hooke started college at Oxford University in England. At the university, he met other people doing important scientific research. One of his first jobs was to design an air pump (without electricity!) to produce a vacuum for Robert Boyle who was studying gases. With Boyle and other English scientists like Isaac Newton, Edmond Halley, and Christopher Wren, Hooke helped to start the Royal Society in London which still exists today.

Microscopic world made known

Hooke is most well-known for his book, Micrographia, published in 1665. The book was printed in English so that scientists and non-scientists could appreciate his observations using a compound microscope.

His book contains a large collection of beautiful and accurate illustrations of tiny, everyday organisms; a flea, the compound eyes of insects, mold, the honeycomb-like structure of cork which he said was made up of “cells” like a monastery, and many other drawings.

Hooke’s law

Students of physics and chemistry use Hooke’s law. This law describes the force between two objects joined by a spring. It is used to solve problems about mechanical objects and to describe bonds between atoms in molecules.

Hooke worked on projects in many scientific fields throughout his life. In 1664, he became a professor of geometry. From 1662 until his death in 1703, he was also Curator of Experiments for the Royal Society. He demonstrated up to four experiments a week to the Society. He showed how a pendulum is used to measure gravity. He made major improvements to the compound microscope. He published a book about astronomy, Cometa, in 1666. He formulated a wave theory of light that led to a longstanding rivalry with Isaac Newton. Hooke also had an argument with Christiaan Huygens, a famous Dutch-born physicist, over his invention of the spring-balanced watch.

A genius worth remembering

Hooke’s work is sometimes overlooked because many important scientists made discoveries in his lifetime. But his accomplishments make him one of the seventeenth century’s greatest thinkers.
Reading Reflection – Please highlight each question in a different color and then highlight where you found that answer with the same color highlighter in the reading.

Answer these questions in a COMPLETE SENTENCES, STAND-ALONE SENTENCE.

*This is also on Google classroom if you prefer to type.

1. What did Robert Hooke’s father notice about him as a young boy?

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2. How did Hooke’s brief training in art become useful later in life?

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3. What special abilities would it take to do a job like Hooke’s—designing and presenting different experiments each week?

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4. Describe one of Hooke’s discoveries that is useful in two different fields of science.

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5. Give an example of a technology we use today that did not exist at the time of Robert Hooke. One example is given in the reading.

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