Possible topic: Cell theory

Biographical Letter: The Boy from the Isle of Wight

Hi, my name is Robert, and I want to tell you about my life as a scientist. I am not as famous as some other scientists, and there are no existing portraits of me. My enemies destroyed the ones that were painted and tried to have me ignored in the history books. So, thank you for letting me tell you of my life and contributions to science.

I was born in 1635 on the Isle of Wight in England. I was a sickly child and was not expected to survive. My parents home-schooled me until I was seven, instead of investing in my education. I kept to myself, walking the nearby cliffs and contemplating the sea. I used to imagine the way the land undulates beneath the waves and, as a seaside boy, I collected fossils. I also loved to build toy ships with ropes, masts, and miniature guns aboard.

My father died when I was 13 years old. He left me 40 pounds, all his books, and a chest to carry them. Before my father died, I was sent to London during the English Civil War, which lasted six years. In London, I was an apprentice to a Dutch painter, and then at the age of 13, entered Westminster School. I went to Oxford University on a choral scholarship, which lowered my tuition fees. At Oxford, I studied astronomy, but never earned a degree. I spent this time assisting the top English scientist of the time, Robert Boyle. I even designed a pump for him that helped him deduce a famous gas law. In 1662, I was named the curator of experiments for the Royal Society of London; as part of my duties I was required to demonstrate three or four experiments at every meeting. At the same time, I became professor of geometry at Gresham College, London, where I lived until my last days in a dormitory-like room. Unfortunately, I found myself promising too much to too many people in too many projects. As a result, I left tasks unfulfilled, problems half-solved, and friends, clients, and patrons disappointed. However, I am proud to say that as a result of my work in microscopy, and my artistic skills, my first achievement in science was recognized worldwide with the publication of my book *Micrographia*—a collection of beautiful drawings based on my studies with my homemade compound microscope. It was a best seller! I was quite interested in looking at cork slices, and I coined the term *cell*.

In 1674, I was the first to publish the inverse square law of gravitational attraction, which Isaac Newton later took as his own. Therefore, I protested before the Royal Society, defending my rights and my reputation, and asking for Newton to at least acknowledge my contributions in the preface of his book, which was being revised for publication. Instead of receiving a just response from Newton, I was treated with anger and insolence. He absolutely denied the role of my findings in his scientific work, and I was completely removed from the official story of gravity. He even removed my name in the references of his book, *Principia,* and in total disrespect, he destroyed my portraits that hung on the Royal Society walls. Others disappointed me, such as Christian Huygens, by disregarding my knowledge as a mathematician. Huygens said that I was unable to give proof of my ideas. My dignity was ruined, and it was humiliating for me to come back to the salons, coffee houses, and dining rooms I used to visit on a daily

Tips for the teacher

- Do not reveal the name of the scientist.
- Discuss the content of the letter and its intention; ask students what they think the letter is about.
- Have students speculate about its creator and recipient; ask students when they think the letter was written.
- Have students take turns reading the letter aloud.
- Ask students if they know the last name of the scientist.
- Refer back to Science as a Human Endeavor: Relate the scientific activity to the work students do in the classroom/lab.

basis. What a frustration to have been let down by those whom I considered to be my friends! No one supported me; no one came publicly to my defense.

Now you know why no true physical descriptions of me are available. But if you are curious about what I looked like, you may want to read the description written by my colleague Richard Waller:

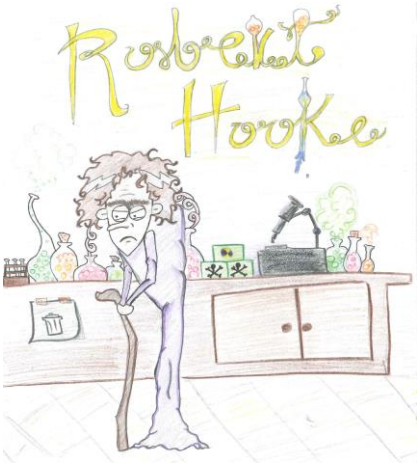
A despicable person, He was always very pale and lean, and laterly nothing but Skin and Bone, with a meagre aspect, his eyes grey and full, with a sharp ingenious Look whilst younger; his nose but thin, of a moderate height and length; his mouth meanly wise, and upper lip thin; his chin sharp, and Forehead large; his Head of a middle size. He wore his own hair of a dark Brown colour, very long and hanging neglected over his Face uncut and lank... (Jardine 2005, p. 16).

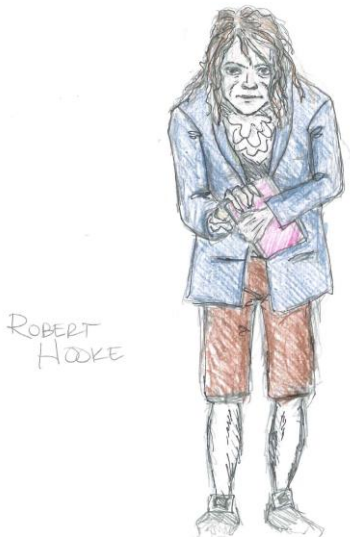
Students use this description to produce a portrait of Robert Hook.

Jardine, L. 2004. *The curious life of Robert Hooke: The man who measured London.* New York: HarperCollins.

—Fold here to hide pictures; reveal after students present their portraits of Hooke—

Portraits believed to be of Robert Hooke.





Students' renditions of Robert Hooke.

Using the Biographical Letter

Here are some suggested prompts you may want to use after reading each paragraph of Hooke's biographical letter:

Paragraph 1

Invite students to:

1. Rephrase the purpose of the letter.
2. Share their preferred outdoor (and indoor) activities.
3. Identify the name of the scientist in the story.

Paragraph 2

1. What topics/subjects interest you?
2. What career would you like to pursue after graduating from high school?
3. Do you know the meaning of the following terms? *Scholar, tuition, apprentice*
4. What content have you learned on your own?
5. Do you know the last name of the scientist in the story?

Paragraph 3

1. Do you think Robert's personality impacted his work as a scientist?
2. In which areas was he skilled?
3. Do you prefer working alone or in collaboration with other students?
4. Do you know the meaning of the following terms? *Curator, patrons, compound microscope*
5. Do you know the name of the scientist in the story?

Paragraph 4

1. What caused the disagreement between Isaac Newton and Robert?
2. Do you think these disputes are frequent in the scientific community?
3. Have you ever been involved in disagreements with classmates, siblings, and friends over the authorship of an idea? How do you react?
4. Do you think Robert received an unfair treatment from his colleagues and friends?
5. In your opinion, what personal skills determine the success of a career in science?
6. Do you know the meaning of the following terms? *Acknowledge, preface, findings*
7. Do you know the name of the scientist in the story?

Paragraph 5

1. Do you know the name of the scientist?
2. Try to depict what Robert looked like using the description provided in this paragraph.