Captain Robert Walton is a failed writer who sets out to explore the North Pole and expand his scientific knowledge in hopes of achieving fame. During the voyage the crew spots a dog sled mastered by a gigantic figure. A few hours later, the crew rescues a nearly frozen and emaciated man named Victor Frankenstein. Frankenstein has been in pursuit of the gigantic man observed by Walton's crew. Frankenstein starts to recover from his exertion; he sees in Walton the same over-ambitiousness and recounts a story of his life's miseries to Walton as a warning.

Victor begins by telling of his childhood in 1793. Born into a wealthy family in Geneva, he is encouraged to seek a greater understanding of the world around him through science. He grows up in a safe environment, surrounded by loving family and friends. When he is a young boy, his parents adopt Elizabeth Lavenza, an orphan whose mother has just died. Victor has a possessive infatuation with Elizabeth. He has a younger brother, William.

As a young boy, Victor is obsessed with studying outdated theories of science, philosophy and alchemy that focus on achieving natural wonders. He plans to attend the University of Ingolstadt in Germany. Weeks before his planned departure, his mother dies of scarlet fever. At university, he excels at chemistry and other sciences, and develops a secret technique to imbue inanimate bodies with life with electricity.

After bringing a deceased dog back to life he decides to create a life using parts of the dead.

The details of the monster's construction are left ambiguous, but Frankenstein finds himself forced to make the creature roughly eight feet tall because of the difficulty in replicating the minute parts of the human body. After bringing his creation to life, Victor is repulsed by his work: he flees the room, and the monster disappears.

Victor becomes ill from the experience. He is nursed back to health by his childhood friend, Henry Clerval and Elizabeth. After a four-month recovery, he determines that he should return home when his brother William is found murdered. Upon arriving in Geneva, he sees the monster near the site of the murder, and becomes certain the creature is the killer. William's nanny, Justine, is hanged for the murder based on the discovery of William's locket in her pocket. Victor, though certain the monster is responsible, doubts anyone would believe him and is unable to stop the hanging.

Ravaged by his grief and self-reproach, Victor retreats into the mountains to find peace. The monster approaches him, ignoring his threats and pleading with Victor to hear his own tale. Intelligent and articulate, The Creature tells Victor of his own encounters with people, and how he had become afraid of them and spent a year living near a cottage, observing the DeLacey family living there and growing fond of them. Through observing the De Lacey family, the monster became educated and self-conscious. He also discovered a lost satchel of books and learned to read. Seeing his reflection in a pool, he believes that his physical appearance is hideous compared to the humans he watches. Though he eventually approached the family with hope of becoming their friend, they were frightened by his appearance and drove him away.

Traveling to Geneva, he met a little boy — Victor's brother William - in the woods outside the town of Plainpalais. The monster hoped the boy was too young to fear deformity, but upon his approach, William cried out. The creature grabbed the boy by the throat to silence him, and accidentally killed him. Even though this was accidental the creature took this as his first act of vengeance against his creator. He removed a locket from the boy's body and placed it in the folds of the dress of a young woman — William's nanny, Justine — who had been sleeping in a barn nearby, assuming she would be accused of the murder.

The monster concludes his story with a demand that Frankenstein create for him a female companion like himself. He argues that as a living thing, he has a right to happiness. He promises that if Victor grants his request, he and his mate will vanish into the wilderness of South America uninhabited by man, never to reappear.

Touched by the creature's tragic story Victor reluctantly agrees. Clerval tries to talk Victor out of his mission. Thanks to Clerval's lectures Victor is plagued by premonitions of what his work might wreak, particularly the idea that creating a mate for the creature might lead to the breeding of an entire race of creatures that could plague mankind. He abandons the project. Furious at the broken promise, The creature murders Clerval and leaves the corpse on a beach. Victor is imprisoned for the murder of Clerval, and becomes seriously ill, suffering another mental breakdown in prison. After being acquitted, and with his health renewed, he returns home with his father.

Once home, Victor marries Elizabeth and prepares for a fight with the monster. The creature murders Elizabeth. Grief-stricken by the deaths of William, Justine, Clerval, and now Elizabeth, Victor's father goes mad with grief. Victor vows to pursue the monster. After months of pursuit, the two end up in the Arctic Circle, near the North Pole.

After hearing Frankenstein's story, Walton relents and agrees to head for home. Frankenstein dies shortly after. Walton discovers the creature on his ship, mourning over Frankenstein's body. Walton hears the creature's misguided reasons for his vengeance as well as expressions of remorse. Frankenstein's death has not brought him peace. Rather, his crimes have increased his misery and alienation; he has found only his own emotional ruin in the destruction of his creator. He vows to kill himself on his own funeral pyre so that no others will ever know of his existence. Walton watches as they disappear into darkness.