3.5 Great Scientists

Warming up!

Chit-Chat
• What would you like to learn about in your Science period?
• Have you ever tried to do an experiment on your own?
• If yes, tell me about it.
• If no, tell me why you've never tried.
• What would you like to learn about in your English classes? .

Ans. Yes I like subject of science and I have done some experiments in lab also I like to learn English grammar in my English classes

Inventions
(a) Think of as many examples of the following as you can within five minutes and write them in the appropriate column.

Type of machine	Examples(Ans)
Simple machines that are operated by hand	Screw driver, pincers, auger chisel, drill machine, spanner, etc.
Machines that run on electricity	electric motor, fan, air conditioner, hair drier, geyser, mixer, oven, etc.
Electronic devices	Mobile phones, tablets, laptops computer, speaker, etc.

(b) Write as many uses of the following as you can. Form groups of four. Compare your lists. Make a long list by putting together the lists of all members.

Ans. (a) a cloth bag: to carry things, for keeping clothes, shopping, using instead of paper bags, etc.
(b) a wicker basket: for keeping fruits, grains, carrying and selling vegetables, fruits, fish, etc.
(c) a glass bottle or jar*: for keeping jam, liquids, juice, pickles*, water for drinking, for medicine, kerosene, storing liquids, etc. S
(d) a steel bowl: to keep eatables while eating, for drinking medicine, while serving curry, dal, shrikhand, aamras, etc.
(e) a thick string or rope: to tie things, to play, to hold things together, used in adventure sports like trekking, mountaineering, etc., to tether cattle.

ENGLISH WORKSHOP

1. Write what is implied in the following sentences.
(a) But few know his inspirational life story, which is all about courage and fighting.

against the odds. (What does it tell you about Faraday's life?)
Ans. Faraday was born in a poverty-stricken family, suffered from a speech defect as a child, had to start working at the age of thirteen. Poor Faraday had to struggle hard against all odds because he had no social status, no money and no education. Even then he toiled hard and achieved a great success after all his difficulties.

(b) Even then Davy did not have much hope for Faraday. (What do the words 'even then' suggest?)
Ans. Faraday wanted to be a great scientist. But Davy dismissed all his aspirations in the field of science. He made Faraday his secretary then his lab assistant. Faraday worked day and night and learnt about Davy's experiments. Even after doing such hard work and getting knowledge and experience Davy was not hopeful about Faraday's scientific career, because of his social status and education.

(c) People started telling Davy that of all his discoveries, the best was Faraday himself. (What does it suggest about Davy's work?)
Ans. Humphry Davy was a renowned chemist who made many discoveries about chemicals and electrical lighting. Faraday wanted Davy to become his mentor but Davy never believed in Faraday's ability and always tried to keep him away from the experiments he was doing. Davy became jealous of Faraday when he became a celebrity scientist overnight. But Faraday did not receive recognition for his success from Davy. So people started telling Davy that Faraday himself was his best discovery.

2. Break the passage into convenient smaller sections. Give sub-headings or titles to each section.
Ans. (1) Passage: Michael Faraday is regarded as.....produce the first consistent light bulb.
Title: Faraday's childhood and his work as a bookbinder.

(2) Passage: That day in 1812 Faraday .....to see some Davy's leading experiments.
Title: Faraday's association with Davy.

(3) Passage: Even then Davy did not have much ..... born out of mockery directed at Faraday.
Title: Faraday discovered the 'induction motor'

(4) Passage: Faraday became a celebrity scientist .... inspire him during difficult times.
Title: Davy's jealousy and Faraday's failure!

(5) Passage: In 1829, Davy died and Faraday .....concept called polarization.go
Title: (1) Faraday becomes head of Davy's
laboratory.
(2) Finds concept of polarization.

(6) Passage He then took the age-old experiment.....'It does not matter who you are'.
Title: (1) Fortune favours Faraday!
(2) Association with Maxwell and Maxwell's equations creates revolution!

3. List the different gadgets and instruments mentioned in the passage. Find more information about at least 3 of them, using the internet.
Ans. Gadgets and instruments from the lesson: fans, air, conditioning, sewing machines, photographs, power tools, cars, telescopes, microscopes, electrical generators, dynamos, Electronics and communication system, etc.

(b) Information about 3 gadgets/instruments

(1) Telescopes:
A telescope is an optical instrument that aids the observation of remote objects by collecting electromagnetic radiation (such as visible light). The first known practical telescope was invented in Netherlands at the beginning of the 17th century, by using glass lenses. It has use in both terrestrial applications and astronomy. There are many types of telescopes, for example, radio telescope, X-ray telescope, optical telescope, etc. They are generally made up of two lenses placed at a fixed distance to enlarge far away images.

(2) Fan:
A fan is a machine used to create flow within a fluid, typically a gas such as air. The fan consists of a rotating arrangement of blades which act on the fluid. The rotating assembly of blades and hub is known as rotor. A fan concentrates the airflow in the required direction. The punkah fan was used in India about 500 BC. It was a handheld fan made of bamboo strips and other plant fibre. This evolved over the years to the modern fans we see in our rooms daily now.

(3) Sewing machine:
It is a machine used to stitch fabric and other material together with a thread. Sewing machines were invented during the Industrial Revolution to decrease the amount of manual sewing work. In a modern sewing machine the fabric easily glides in and out without the inconvenience of needles and thimbles but the earlier sewing machines were partially manual and helped the tailor do the stitching faster saving his time.

4. Find out more about the following scientists with the help of the internet.
(a) Michael Faraday
(b) Humphry Davy
(c) Thomas Edison
(d) James Maxwell
Ans. Do it your own.

5. Find the following matter in the passage and copy the missing words.
(1) When he was twelve, **his mother was forced to take him out of** school.
(2) One day he came across a book on **electricity which had been sent to his master for binding.**
(3) Faraday decided that **day that he wanted to be a great** scientist.
(4) Davy never believed **Faraday could do anything in the field of** science.
(5) People started telling Davy that **of all his discoveries, the best was Faraday himself, this made him even more jealous.**

(6) He handed him a piece of Bavarian glass, which **was used in the lenses in telescopes and** microscopes, **and asked him to reverse engineer it.**
(7) He went on to prove **that these patterns were not a property of the iron** filings.

(8) It was Maxwell who **translated Faraday's idea into a set of equations that are now called Maxwell's** equations.

6. Now complete the following sentences using your own words.
Ans. Do it your own