



4.6 A Brave Heart Dedicated to Science & Humanity

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Warming Up!

Chit-Chat

1) Have you ever participated in or visited a science exhibition?

Ans: Yes, I have visited the District level science exhibition in Deshikendra Vidyalaya, Latur.

2) Did you observe/learn any new things there? What are those?

Ans: Yes, I learned new things in the science exhibition. I came across various innovations, various inventions, and models of budding scientists. I observed the enthusiasm of the budding scientists.

3) Scientists have to work very hard and make many sacrifices for years, to achieve success in their experiments. Why?

Ans: Because making inventions is not simple work. It requires hard work and patience. It requires a lot of effort. Experiments do not become successful in a day or in an effort.

4)What is the difference between a discovery and an invention?

Ans: Discovery is an active process of finding something that has been existed but unknown to all. An invention is an act or process of inventing that is totally new.

1. Discuss in pairs/groups about the precautions one has to take while working in a science laboratory. Write them in the form of Do's and Don'ts

Do's

- Handle test tubes and other glass apparatus with care.
- Wear appropriate safety attire in the lab.
- Do clean up after using any glassware or equipment.
- Perform the experiments precisely as directed by the instructor.
- Report immediately any spills, accidents or injuries to your instructor.

Don'ts

- Don't touch chemicals with bare hands.
- Don't wear open-toed shoes in the lab.
- Do not engage in practical jokes or boisterous conduct in the laboratory.
- Don't run in the laboratory. Do not sit on laboratory benches.

2. Now say whether the Predicate in the following sentences

Adverbial contains an Object or Complement after the verb.

(a) He looked upwards.

Adverbial

(b) My brother is injured.

(c) We scored a goal.

Object

(d) We beat the opponents.

Object

(e) She answered perfectly.

Adverbial

(f) The guests arrived early. -

Adverbial

(g) I shall be happy.

Complement

(h) You wrote the address. -

Object

Margin Questions for Discussion:

(1) What qualities do great achievers Great possess?

Ans: Great achievers possess courage, dedication, commitment, determination, singleness of purpose and an indomitable spirit.

(2) What information do you get about Marie's early life?

Ans: Marie was born in Warsaw, Poland on 7 1867. Her childhood dream was to study science in Paris but her father could not afford the expense for this.

(3) What are the signs of poverty suffered by the young couple?

Ans:

a) The couple took a flat in Paris with scarcely any furniture in it except their books, a lamp, a white wooden table, and two chairs.

b) They set up a laboratory in a wooden shed near their flat. It had a leaky skylight and earthen floor.

(4) Why were the two new substances named Polonium and Radium?

Ans: One substance was called Polonium in honour of Marie's country Poland. Other was called Radium because it is the most powerful of the radio-active elements.

(5) What proves Marie's will power?

Ans: Marie's overwork, her determination to discover the mystery of radium, her facing miseries of a life of poverty and carrying on with her research along with her husband proves Marie's will power.

(6) Which gift did she receive from the emperor of Austria? Why was it the most precious for them?

Ans: She received a gift of a ton of Pitchblende from the emperor of Austria. It was the most precious for them because they needed it badly. It was useful for their further invention.

(7) Describe how the Curies first sighted Radium? What was its colour?

Ans: In the dark laboratory the curies first sighted rays of soft, bluish purple, light coming from the small glass covered bowls.

(8) How is radium used in the medical field?

Ans: The benefits of radium in the world of medicine. Are incalculable. Radium has been used with great effect in the treatment of cancer. The bacteria of such diseases as typhus, chole and anthrax can also be killed by radium.

(9) How did Pierre meet with an early death?

Ans: In 1906, Pierre was knocked down and killed by a horse-drawn wagon.

10) What makes Marie Curie an exceptional scientist?

Ans: Marie Curie had given her life for the cause of science and humanity. She had pursued her life's goal with great courage, endurance, dedication and strength of character.

English Workshop:

1. Write in one sentence each, why the following years were landmarks in the lives

of Pierre and Marie Curie.

Ans:

1895: Pierree and Marie Curie were married.

1902: Pierree and Marie Curie discovered Radium.

1903: The Curies along with Henry Becquesel were awarded the Nobel prize for Physics for the discovery of Radium and Polonium.

1906: Pierree was knocked down and killed by a horse-drawn wagon.

1911: Marie was awarded the Nobel prize for the second time and this was for chemistry.

2. Fill in the complete web diagram with the qualities of Madame Curie.

Ans:

Qualities of Madame Curie:

- determination
- courage
- singleness of purpose
- endurance
- commitment
- dedication
- indomitable spirit
- strength of character

3. Name the following.

(a) Two discoverers of new lands

Ans:

1. Columbus
2. Vasco de Gama

(b) Two conquerers of the peak of Mt. Everest

Ans:

1. Hillary
2. Tenzing

(c) Original name of Madame Curie

Ans: Marja Sklowdaska

(d) Her place of birth

Ans: Warsaw, Poland

(e) Subjects Marie majored in, at the University of Paris

Ans: Physics and Mathematics

(f) Nationality of her husband Pierre

Ans: French

(g) Scientist who discovered the properties of uranium

Ans: Henri Becquerel

(h) Two radioactive elements discovered by Curies

Ans: Polonium and Radium

4. Read the text carefully and match the incidents occurred in Madam Curie's life given in table A with the years in table B.

Table A

Table B

- | | |
|---|--------|
| 1. Henri Becquerel discovered that uranium had the property where radioactive elements can give off rays which can penetrate substances that are opaque to light. | • 1896 |
| 2. Marie was born at Marja Sklowdaska in Warsaw. | • 1867 |
| 3. Marie was awarded Nobel Prize. | • 1911 |
| 4. Curie couple discovered radium. | • 1902 |
| 5. Marie passed away. | • 1934 |

5. Think and answer in your own words.

(a) What common characteristics did Marie and Pierre share, as students?

Ans: Both Marie and Pieree were brilliant and poor. They began to work in shabby laboratory.

(b) Which of the two scientists was greater than the other? Say why?

Ans: Marie was greater than Pieree because she did a lot of hard work. She got the Nobel prize for two times. She felt that her discovery of radium belonged to the people.

(c) Why was the gift of a ton pitchblende, a great stroke of luck, to the Curies?

Ans: The gift of a ton Pitchblende was a great stroke of luck to the Curies because they were looking for the Same gift. It was a very useful gift for their research. This gift led them to the discovery of radium.

(d) Besides the uses of radium and polonium mentioned in the text, in what other way, do you think, it is used in the field of medicine?

Ans: I think that radium and polonium are useful in diagnosing different diseases. They are useful in the treatment of those diseases.

(e) What proves that Marie Curie was a true lover of humanity and not a wealth?

Ans: When someone asked her why she did not make money by her discoveries. She replied that she was working for science. Radium belonged to the people and not to her. This reply shows that Marie Curie was a true lover of humanity and not a wealth.

6. Find words/phrases from the text that are synonyms of the word 'brave'

Ans: Courage, endurance, strength, determination, indomitable

7. Read and understand the following words. Find out/search for proverbs/ thoughts/quotes/slogans that are related to each of them.

(a) Courage -

- Courage means presence of mind.
- “Success is not final, failure is not fatal It is the courage to continue that counts.”

(b) Strength of character

- When wealth is lost, nothing is lost.
- When health is lost, something is lost.
- When character is lost, everything is lost.

(c) Determination -

- The key to all things is determination.
- Don't underestimate the determination of quiet person.

(d) Hard-work

- Hard work beats talent when talent doesn't work hard.
- Work is worship.
- Without labour nothing prospers.
- No pains, No gains.

8. Match the branches of Science with what fields they study:

A **B (Answers)**

- (a) Ecology (iv) Study of living organisms and environment
(b) Geology (vii) Study of solid earth and Rocks
(c) Meteorology (i) Study of Atmosphere
(d) Anatomy (vi) Study of structure and functions of the body
(e) Botany (ii) Study of Plant - life
(f) Psychology (v) Study of human mind and Emotions
(g) Cosmology (iii) Study of the Universe

9. Imagine that your school needs some Scientific equipment, apparatus and formulae charts to the laboratory. Being the in charge of Science Committee, write a letter to the Headmaster of your school suggesting him some Scientific and equipment apparatus required for Standard X Science practical. Take help of the below information given to complete your letter.

Ans:

Sanjay Sharma

In charge of

New Science Committee,

English Highschool,

Akola January, 2018

To,

The Headmaster,

New English Highschool, Akola.

Subject: About the need of science equipment and apparatus in our laboratory.

Sir Madam,

I am Sanjay Sharma. I am a student in the 10th class. I am in charge of the science committee of our school. would like to draw your kind attention to the need for scientific equipment and apparatus in our laboratory. There are various experiments included in the standard X syllabus. It is necessary to do all experiments in a science laboratory. There are

some equipment and apparatus in our laboratory. They fall short of an increasing number of students. However, they are old. It is difficult to handle them properly. Our laboratory needs the following scientific apparatus and equipment

Sr.No.	Name of apparatus	Quantity
1.	Electric ceramic hot plate	5
2.	Dissection forceps sharp	5
3.	Dissection needles	10
4.	Dynamic trolley	5
5.	Dynamo working model	5
6.	Ebonite Rod	5
7.	Electrode plates	5
8.	Physics formulae sheet	10

We need the above apparatus. Those apparatuses are very useful for all experiments. The students will carry out all experiments with the help of these apparatuses.

Please make the availability of all those apparatus in our laboratory.

Thank you,

Yours obediently,

Sanjay Sharma.

10. 'There is no short - cut to success'.

Expand this maxim with a suitable introduction, body with examples, and conclusion. Write it in your notebook in about 20 lines.

Ans:

There is no short-cut to success

Shortcuts mean avoiding doing what is required or a Particular task or target. There is no shortcut to success means that without hard work success is impossible. Success is not a one-day matter. It is not possible to get success in one day. So, it would help if you had the qualities like determination, endurance, devotion, dedication revision, and practice to

achieve success in life. These are the proper ways of getting success in life. If we do not follow these ways, we will face an inevitable failure. People who are tempted to follow shortcuts on the way to success, face failure in their life. We like to play and watch cricket. Sachin Tendulkar is the most successful cricketer. He has spent 24 years of his life being called a successful player. The other players, who followed the shortcut of match-fixing, are out of the cricket world. The students who work hard, get brilliant success in the examination. The copy cats reach the average level. So, shortcuts cut the way to success. It is wise to avoid shortcuts to get success. Let us work hard and be successful in our life.

Language Study

1. Pick out the Prefixes and Suffixes from the following words and find the root word:

Word	Prefix	Suffix	Root Word
1. unattainable	un	able	attain
2. indomitable	in	able	—
3. disheartening	dis	ing	hearten
4. incalculable	in	—	calculable
5. disconsolate	dis	ate	console
6. ensuring	en	ing	Sure

2. (A) Say whether the Predicates in the sentences below contain Objects/Complements/Adverbials.

(a) Madame Curie discovered radium. **(Object)**

(b) Pierre was knocked down. **(Adverbial)**

(c) Pitchblende was expensive. **(Complement)**

(d) The couple took a flat. **(Object)**

(e) They moved cautiously, and success came finally. **(Adverbial)**

(B) Pick out the Conjunctions in the following sentences and say whether they are Subordinators or Co - ordinations.

(a) **There are women who show extreme courage.**

Ans: who = subordinator

(b) Pitchblende was an extremely expensive substance, so they could not afford to buy.

Ans: so = subordinator

(c) After her daily household work Marie settled down to study.

Ans: after - subordinator

(d) Marie wanted to study in Paris but her father could not afford it.

Ans: but = co-ordinator

(e) History is full of chapters that tell of extraordinary people!

Ans: that = subordinator

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Marie Curie | Std.10th

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