Secondary Education: Year One

Theme: Inventions and discoveries

Aims of the unit: By the end of the unit pupils should be able:

**1-** To develop awareness on the importance of the inventions and discoveries in the improvement of human life in different sectors.

**2-** To report the historical timeline (evolution) of some inventions and the changes undergone.

**3**- To develop social skills like tactics summary for product presentation and service.

# 4- To write short accounts on some famous inventors and discoverers

# 5- To defend an opinion (agreement or disagreement) on an invention

# Project workshop: Making a profile of an invention

# Selecting an invention

# Writing about the evolution of the invention

# Make a brief presentation of the invention (main characteristics)

# Write a timeline of all the inventors involved in the invention

# (Short biographies of famous inventors/ their contributions to the improvement of the invention).

**Unit 05:** Eureka  **Theme**: inventions and discoveries  **Lesson:** preview/ project

**Aims of the lesson**: To introduce the theme of the unit and highlight the main points of the project.

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| **Tasks/ aims** | **Teacher’s work** | **Learner’s work** | **T** |
| **1-About the unit :**  **Aim**: To activate learners’ prior knowledge and introduce the theme of the unit. | * T. interacts with his pupils to elicit information related to the title of the unit. * While introducing the topic, T. have his pps look at picture p.138, explore it to elicit the main ideas and vocabulary. | * Pupils respond orally to T’s questions. * Pps study the picture on p.2 and say what it signifies for them. | 15 mn |
| **2**- **project workshop**  **Aim**: To brainstorm the main ideas of the project and scheme its work plan. | * T. links his pps with a real situation to elicit information concerning the targeted project. * While interacting with his pps, T. jots down the main steps of the project in a form of map tree. | * Pupils guess discuss, interpret and deduce what will be the content of the project in accordance with the overall purpose * Pupils communicate the content and classify them according to their importance. * Pps take notes | 20 mn |
| **3-** **Group division**  **Aim:** To make pps feel responsibility towards their assignment without feeling arbitrariness. | * T. asks pps to form their groups according to their affinity * T. reminds his pps that each member within the group should participate and communicate something (collecting photos, drawing, communicating a piece of information, copying, giving one’s point of view, writing the draft, evaluating…) * T. reminds his pps to feel free to ask their T. for any help in order to put into practice their project works. * T. reminds his pps that ready-made or ‘copy pasting’ works are totally rejected by the teacher. * T. sets the deadline for project restitution. * T. reminds pps that the best article will be published on the next school wall magazine to encourage readership. | * Pps form their groups and write down their names in a sheet of paper * Pps copy down the work plan of the project. | 15 mn |

**About the unit:  Brainstorming**

**TT**: Today, we will get in touch with the fourth unit entitled **‘Eureka!’/*ju r̀i:k3*/.** What can you say about the word ‘Eureka’? Is it an English word?

**PP:** No. It’s a Greek one.

**TT**: Do you know who said this? Just to help you it is a famous Greek **scientist**( physicist and mathematician).

**PP:** Archimedes.

**TT**: Now, do you know what does it mean in English?

**PP:** yes/ no / ‘I have found it!’

**TT**: What did Archimedes find /discover?

**PP:** The law of floatation/buoyancy (a body immersed in a liquid is buoyed upward with a force equal to the weight of the volume it displaces.

**TT:** Do you know how did he discover it? (The story of the discovery)

**PP:** While having a bath in a filled tub, he noticed that his body is buoyed up from the bottom. Then he got out of the tub running and crying ‘Eureka! Eureka!’

**TT:** Can you list some famous inventors and discoverers?

**PP:** Alexander Fleming, Isaac Newton, Alexander Graham Bell, Alfred Nobel, Thomas Edison...

**TT:** Were the inventions or discoveries of these famous scientists developed through time?

**PP:** Yes.

**TT:** Why?

**PP:** Because problems with the inventions or the discoveries themselves occur.

**TT:** Let’s take the example of the telecommunications. Man used face -to- face communication in the past? Did he find a problem with this form of communication?

**PP:** Yes. He couldn’t communicate over long distances.

**TT:** Did he solve the problem then?

**PP:** Yes. He invented the first telephone.

**TT:** Did he find another problem with the invention itself?

**PP:** Yes.

**TT:** Can you imagine life without technology?

**PP:** No**.** Life can be very hard. Man will face many problems. So, thanks the progress of science, human life is rendered easier and comfortable.

**About the Project workshop:**

Now, suppose you are asked to make a profile of an invention. Which invention will you choose? Why?

**PP: different answers**

**PP:** Making a presentation of the different models of the invention: size, shape, dimensions, how it works... (On the board)

**TT:** What are the next steps?

**PP:** Writing about the evolution of the invention. (On the board)

# PP: **Writing a timeline of all the inventors involved in the invention**

(Short biographies of famous inventors/ their contributions to the improvement of the invention). (On the board)

**Unit 04:** Eureka **Theme** Inventions and discoveries **Lesson:** Listening / Speaking

**Aims of the lesson**: - To develop the listening and the speaking skills. -To make the learners aware of the importance of the progress of technology in making man’s life easier and more comfortable.

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| **Tasks/ aims** | **Teacher’s work** | **Learner’s work** | **T** |
| **1-Anticipate :**  **Aim**: To activate learners’ prior knowledge, introduce the topic and prepare them to the listening stage.  **2**- **Consider /predict:**  **Aim**: To set a purpose for listening. | * T. interacts with his pupils to elicit information related to the previous session. * T. instructs his pps look at pictures p.110 and tell what it represents for them. * T. interacts with pps to elicit the related voc and answer the qqs below the picture. * Now T. invites pps to use the words in the blue box above the picture. * T. should not correct his pps at this stage) | * Pupils respond orally to T’s questions. * Pps study the picture on p.110 and respond to T’s qqs | 10 mn |
| **3-Listen and check 1**:  **Aim**: To check answers. | * T. instructs pps to listen to the interview which will be simulated by their T. and check their predictions in the rubric anticipate. | * pps listen and check their predictions | 10 mn |
| **4- Listen and answer qqs**  **Aim:** To check detailed understanding of the listening passage | * T. invites pps to predict the possible consequences of the global warming (tick the information it the table). * Now. instructs pps to listen again and check their answers) | * Pps tick in the right boxes. * Pps listen to T. again and check their answers) | 10 mn |
| **5- Listen and answer comprehension qqs**  **Aim:** To check a more detailed understanding of the passage. | * T. invites pps to study the pictures in p.111 * Now T. asks pps to listen to the teacher again and answer the comprehension qqs next to the pictures (task 2p.111). | * pps to study the pictures in p.111 * pps listen to the teacher again and answer the comprehension qqs next to the pictures. | 10 mn |
| **5- Listen and fill in the blanks**  **Aim:** To check a more detailed understanding of the passage. | * T. invites pps to listen to the T. again and fill in the gaps with information from the listening passage.   T. reads the listening passage. | * pps to study listen to their T. again and fill in the table * Volunteers to communicate their answers to the class. | 10 mn |
| **After listening**  **Aim**: To be able to make a brief presentation of the invention in a piece of writing. | * T. invites pps to use the information in   the previous task and make a brief presentation of the invention in a piece  of writing.  If time doesn’t allow, T can assign the task as homework. | * pps use the information in   the previous task and make a brief presentation of the invention in a piece of  writing. |  |

**1-ANTICIPATE:**

**TT**: Last session we talked about inventions and discoveries. Can you remind me some of them?

**PP:** TV, the computer, the telephone, the vaccine against tuberculosis, the law of relativity, the law of floatation....

**TT**: Is the progress of technology beneficial to man?

**PP:** yes.

**TT**: Can you explain how?

**PP:** Thanks to the development of technology man’s life has been improved in all fields. His life has become more comfortable.

**TT**: Can you give me an example?

**PP:** Thanks to the development of the telephone, man can communicate remote friends in a fast way. So the distance in communication is shortened.

**TT**: Well, what means did people use to wash their clothes in the past?

**PP:** Their hands, a stone, a beater... (traditional ways)

**TT:** Well, have a look at picture p.110 in your book. What do you see?

**PP**: A group of women.

**TT**: Where do you think the women are, in the town or in the countryside?

**PP**: in the countryside.

**\* T continues the interaction with pps as far as the questions in the ‘anticipate rubric’ is concerned.**

**Task 2:** Listen to the first part of a short presentation of an invention and check your answers to questions c, d and e in task one.

**Keys to Anricipate:**  C- washboard - a clothes beater D- to remove the dirt from the clothes. E- I don’t think it’s the right way of doing so because it’s a hard work, it’s time and it damages the clothes.

**Task 2 p.111: Keys:** A- The manual washing machine B- The electric washing machine D- b

**Keys to task 3 p.111:** the problem: it took a long time to clean the clothes **the original solution**: washing clothes by hands; washboard, brushes, stones, a clothes beater **The problems**: clothes damaged, hard work, it took a long time **Innovation**: 1851, James King invented the first washing machine powered by hand. 1909, it was improved by a company in USA. It worked with electricity. **Conclusion**: Almost every home has one.

**Post listening:** Using the information in task 3p.111, write the profile of the washing machine.

Start like this: In the past, people used their hands, stones...

**A sample paragraph**:

In the past, people used their hands, stones, washboards and clothes beaters to clean their clothes. However, there were three main problems with the solution: it was a hard work, it took a long time to do so and the clothes were damaged. In 1851, James King invented a washing machine powered by hand. But this was still a hard work. Therefore, in 1909, an American company produced an electric device which every home today uses.

**Unit 05:** Eureka **Theme** Inventions and Discoveries **Lesson:** Say It Loud and Clear/ Say It in Writing

**Aims of the lesson**: - To develop the listening and the speaking skills. -To practise intonation and word stress.

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| **Tasks/ aims** | **Teacher’s work** | **Learner’s work** | **T** |
| **1-Anticipate :**  **Aim**: To activate learners’ prior knowledge. | * T. interacts with his pupils to elicit information related to the previous session. | * Pupils respond orally to T’s questions. | 5  mn |
| **3-Consider/Listen and check 1**  **Aim**: To practise intonation with ‘wh’ questions and indirect ‘yes /no’ questions. | * T. invites pps to read the example situations on the board with the right intonation. * T. instructs pps to listen to their T. reading the examples and check their intonation. * T. interacts with pps to draw conclusions. * T. jots down the rules on the board. * T. invites volunteers to use the cues on the board to ask their partners indirect questions and ‘wh’ ones paying attention intonation. | * Volunteers to read the examples on the board with the right intonation.   Pps listen to their T. reading the examples and check their intonation   * pps listen and check their predictions/ pps draw conclusions * Volunteers to use the cues on the board to ask their partners   indirect questions and ‘wh’ ones paying attention intonation. | 15 mn |
| **4- Consider/Listen and check 2**  **Aim:** To practise word stress in polysyllabic nouns and adjectives. | * T. invites pps to consider the examples on the board paying attention to the stress of the underlined words. * T. Now. Instructs pps to listen to their T. and check their stress. * T. interacts with pps to draw conclusions * Now, T. invites volunteers to read the words in the table (task 4) paying attention to their primary stress. * T. instructs pps to listen of their T. and check the pronunciation of the words paying   attention to their stress.   * T. invites pps to give examples of words ending in ’gy’ and ‘ical’ paying attention to their stress | * Pps consider the examples on the board paying attention to the stress of the underlined words. * Pps listen to their T. and check their stress. * PPs draw conclusions * Volunteers to read the words in the table (task 3) paying attention to their primary stress. * Pps listen of their T. and check the pronunciation of the words paying attention to their stress. * Volunteers to give examples of words ending in suffixes ‘gy’ /   ‘ical’ paying attention to their stress. | 10mn |
| **The hidden message**  **Aim**: - To train learners to transform phonemes into morphemes. | * T. asks pps to decipher the message in the last task of p.142 * T. instructs a volunteer to write the message on the board. | * Pps do the activity. * A volunteer to the board to report the message. | 5 mn |
| **Say It in Writing:**  **Aim**: - To write about famous people’s biographies | * T asks pps to list some inventors and discoverers. * Now, T. invites pps to match the pictures and the names of the scientists below the pictures of task one p.113.Then match them with their inventions or discoveries. Later, write four sentences. * Now T asks pps to choose one of the scientists to write his biography using the information in the previous task * T. asks pps to exchange drafts with their partners. Then communicate their drafts to the class | * Pps list some inventors and discoverers. * pps match the pictures and the names of the scientists below the pictures of task one p.113.Then match them with their inventions or discoveries. Later, write four sentences. * Pps choose one of the scientists to write his biography using the information in the previous task * PPs exchange drafts with their partners. Then communicate their drafts to the class | 15 mn |

**1-ANTICIPATE:**

**TT**: Last session we talked about inventions and discoveries. Can you remind me some of them?

**PP:** TV, the computer, the telephone, the vaccine against tuberculosis, the law of relativity, the law of floatation....

**TT**: Is the progress of technology beneficial to man?

**PP:** yes.

**TT**: Can you explain how?

**PP:** Thanks to the development of technology man’s life has been improved in all fields. His life has become more comfortable.

**TT**: Well who invented the telephone? Or

Can you tell me who invented the telephone? (On the board)

**PP:** Alexander Graham Bell.

**TT**: Consider the example situations on the board. What category of sentence are they?

**PP:** They are questions.

**TT**: Are they the same in meaning?

**PP:** Yes.

**TT:** Do they have the same structure?

**PP:** No. The first one is a ‘wh’ question. The second one is an indirect one.

**TT:** Can a volunteer read the two questions paying attention to their intonation?

**TT:** Now listen to your T. reading them and check your intonaytion the intonation (the voice goes up or down).

## \* Together with pps, the teacher jots down the rule on the board.

**In ‘Wh’ qqs, the intonation always goes down. However if it is an indirect yes /no question, the tone goes up.**

## Oral drills: 1-Here are some cues. Ask your partner ‘wh’ questions paying attention to the intonation.

a- Who/the law of floatation/discover?

b- When/ Graham Bell /invent the telephone?

c- What /the problems/ man /to face with face-to-face communication?

**2-Here are some cues. Ask your partner ‘wh’ questions paying attention to the intonation.**

a- you /to know / to discover/ penicillin?

b- you/ to get the idea /where Louis Pastor/ be born?

c- you tell me / to invent the light bulb?

**Rules for polysyllabic nouns and adjectives**:

## \*Polysyllabic nouns ending in suffixes ‘gy’ and ‘phy’ and adjectives ending ‘al’ or ‘ical’ take stress on the third syllable starting from the end.

**Unit 04:** Eureka **Theme** Inventions and discoveries **Lesson:** Reading/ Writing

**Aims of the lesson**: - To develop the reading and the writing skills. -To make the learners aware of the importance of the progress of technology in making man’s life easier and more comfortable.

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| --- | --- | --- | --- |
| **Tasks/ aims** | **Teacher’s work** | **Learner’s work** | **T** |
| **1-Anticipate :**  **Aim**: To activate learners’ prior knowledge, introduce the topic and prepare them to the reading stage.  **2**- **Consider /predict:**  **Aim**: To set a purpose for reading. | * T. interacts with his pupils to elicit information related to the previous session. * T. instructs his pps look at pictures p.114 and tell what it represents for them. * T. interacts with pps to elicit the related voc and answer the qqs below the picture. * T. should not correct his pps at this stage | * Pupils respond orally to T’s questions. * Pps study the picture on p.114 and respond to T’s qqs | 10 mn |
| **3-Read and check**:  **Aim**: To check answers. | * T. instructs pps to read (skim) the passage p.115 and check their predictions in the rubric anticipate (task 2/3). | * pps read(skim) and check their predictions to task 2/3 | 10 mn |
| **4- Read and answer qqs(task3 p.115)**  **Aim:** To check detailed understanding of the reading passage | * T. invites pps to reread the passage and answer the questions in task 3 p.115 * T sets a time limit * T. asks volunteers to communicate their answers to the class. (Volunteers to the board). | * pps reread the passage and answer the questions in task 3 p.115 * Volunteers to communicate their answers to the class. (Volunteers to the board). | 10 mn |
| **5- Read and fill in the table**  **Aim:** To check a more detailed understanding of the passage. –To reconstruct the timeline and the evolution of the invention. | * T. invites pps to reread the text again and fill in the table with information from the passage. * T. sets a time limit * T. invites pps to communicate their answers to the class. (Volunteers to the board). | * pps reread the text again / fill in the table with information from the passage. * Volunteers to communicate their answers to the class. | 10 mn |
| **After reading**  **Aim**: To be able reconstruct the evolution of telecommunications through a piece of writing. | * T. invites pps to use the information in the table of the previous task to write a short summary on the evolution of telecommunications. * T. sets a time limit. * T. asks pps to exchange drafts with their partners for error checking. * T. asks some volunteers to communicate their paragraphs to the class to be assessed by their classmates. * If time doesn’t allow, T can assign it as homework.   I | * pps use the information in the table of the previous task to write a short summary on the evolution of telecommunications. * pps exchange drafts with their partners for error checking. * Volunteers communicate their paragraphs to the class to be assessed by their classmates. | 15 mn |

**1-ANTICIPATE:**

**TT**: Last session we talked about inventions and discoveries. Can you remind me some of them?

**PP:** TV, the computer, the telephone, the vaccine against tuberculosis, the law of relativity...

**TT**: Can you tell me what do the primitive men(ancient people) use to communicate?

**PP:** Face-to-face communication.

**TT**: What other classical means did they use? Help yourself from the pictures on the board? A- Horn B- Whistle C- Hands D- Drum

**PP:** horn, drum

**TT:** Well, did they have problems with these traditional means of communication?

**PP**: Yes.

**TT**: What did they do then?

**PP**: They tried to find out a solution (invent).

**TT**: Well, have a look at the pictures p.114 and tell me which invention replaced the traditional means of communication? First name them.

**PP**: different answers

**TT**: Well, according to you what do all the items represented in the pictures refer to? Justify your answer.

**PP**: different answers **(the correct answer is B)**

**TT**: Well, have a look at task 3 and try to guess the period of each item

**PP**: different answers (**The right answer is as follows: drums (ancient times) telephone (1876) telegraph (1890) satellite (mid twentieth century)**

**TT**: Well, do you think this is the right chronological order of these items?

**PP**: different answers

**TT**: Well, skim through the text p.115 and check your answers to task 2 and 3.

**TT**: Well, why was man not satisfied with the new inventions in communication?

**PP**: different answers (The right answer: because he always finds problems with the new invention).

**Task 2:** Now scan through the text and answer this question while answering the comprehension questions in task 3 p.115.

**Keys to task 3p.115:** A- The ancestor of the radio was the wireless telegraph. B- The problem with long distance voice was that the system was impracticable over the sea. C- The solution to the problem was the satellite system.

**TT**: Well, have telecommunications known changes through time?

**PP**: different answers

**TT**: Let’s reconstruct its timeline and evolution.

**Consolidation task**: Now, read the passage again and fill in the table with information from the text.

|  |  |
| --- | --- |
| The evolution of telecommunications | |
| The problem | Humans have wanted to communicate through space. |
| Initial solution | Men .............................................................................. |
| Problems with the initial solution. | Communication.............................................................. |
| Invention | ........................................................................................ |
| Problems with the invention | The system......................................................... |
| Solution | .......................................................................... |
| conclusion | Today, man uses sophisticated satellites to communicate instantly. |

**Keys to the table**: - Men used drums to send and receive messages.

- Communication through drums was not satisfactory over long distances.

- In 1876, Bell invented the telephone. - The system was impracticable over the sea.

- In 1945, C. Clark proposed a system of communication satellites.

**Post reading**: Using the information in the table, write a short summary on the evolution of telecommunications.

Start like this: Humans have wanted to communicate through space. At the beginning, ancient people used ...............................