Unit Nine

Things that Have Changed Our Life

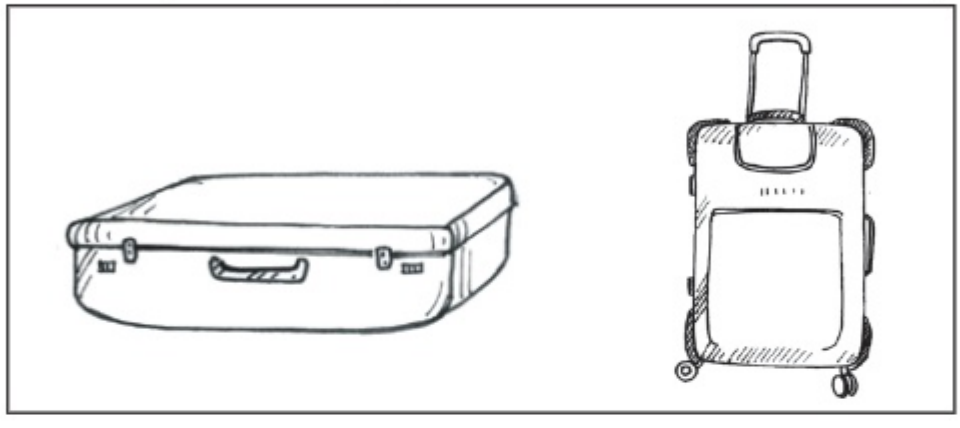
After we have studied this unit, we will be able to

- ask and answer questions
- participate in short dialogues and conversations on familiar topics
- read aloud texts with proper sounds, stress and intonation
- read and understand text materials
- write answers to questions
- write short paragraphs

Lesson 1: The Wheel

Key words: circular rotate axis propeller turbine mobility journey (v) vehicle invention civilisation

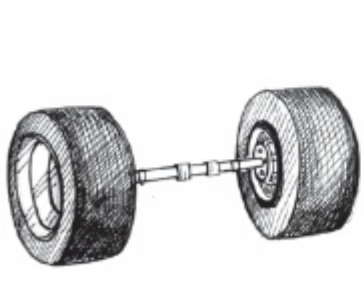
A Look at the pictures and say which one is easier to move and why.

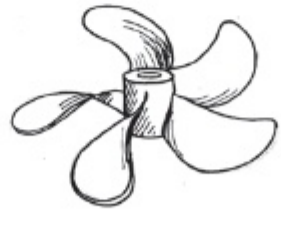


B Read the text and answer the following questions.

Human beings have invented many important things so far. They have brought great civilization to the world through these inventions. Do you know which invention is the greatest? It is 'the wheel'.

A wheel is a circular object. It can rotate around its axis and help easy movement of things across a surface.





The wheels are, in fact, everywhere. They are on our cars, trains, planes, wagons and so on. Besides, they are on most factory and farm equipment. Fans, propellers, turbines are also other types of wheels.

So the wheel is very important. We cannot imagine modern life without wheels. But do we know exactly who made the first wheel?

Questions

1 What is a wheel?
2 What can a wheel do?
3 Where can you find wheels?

C Fill in the blanks with appropriate words from the box. There are more words than necessary.

difficult much circular important heavy first

Although the wheel is a very (a) -------- invention, the history of its origin is unknown. Experts guess that the first wheel was developed from a circular object. The early man observed that a huge piece of stone could be rolled easily if it was (b) --------- in shape. Similarly, a heavy tree-trunk is (c) -------- to carry; but it can be rolled away with less effort. Even, a gigantic tree-trunk can be moved easily using other small and round trunks as rollers under it. Thus, early man took advantage of rolling objects and developed the (d) ------- wheel. Apart from its mechanical advantage, a wheel's mobility has contributed (e) ------- to the civilisation.

D Make as many correct sentences as you can using the substitution table. In the third column there are more items than necessary.

1. The wheel		a type of wheel.
2. A plain wheel	is	around its axis.
3. It	has	one of the simplest machines.
4. A propeller	rotates	wheels on vehicles and machines.
		helped in rapid progress of civilisation.

E Have you ever travelled by bus or car? Do you have any experience of what happens if one wheel falls flat. If yes, give a description of your experience. If no, imagine such a situation, and write a paragraph on it.

Lesson 2: The History of the Wheel

Key words : invent valley ancient further pioneer warfare

A Look at the following pictures of wheels. They existed in different ages in history. Discuss with your partner and put ordinal numbers under them (in spelling, such as 'first', 'second', etc.,) beginning from the ancient to the modern times.





---------- ---------- ---------- ---------- ----------

B Read the following dialogue between the English teacher, Mr Ramis and a student Rubina.

Mr Ramis : You know that the invention of the wheel has helped to create a new civilisation. But do you know who first used wheels?

Rubina : No teacher. But I guess it may be the Greeks.

Mr Ramis : The Greeks were pioneers in many things. But in this case, however, the Mesopotamians were the first. The oldest ever wheel was discovered in Mesopotamia. It was in 3,500 B.C.

Rubina : Where is Mesopotemia?

Mr Ramis : Well, Mesopotamia was in ancient Iraq. It was along the valley of the rivers Tigris and Euphrates. After the Mesopotamians, the wheel was further improved by the Egyptians. They first made wheels with spokes. Then they used them on chariots around 2000 BC.

Rubina : So the wheel travelled to Egypt from Mesopotamia?

Mr Ramis : Exactly. But it travelled eastwards too. Wheels reached the Indus valley by 3000 B.C. But chariots with spoked wheels were made in ancient India in around 1500 B.C. They were used for war, hunting and racing.

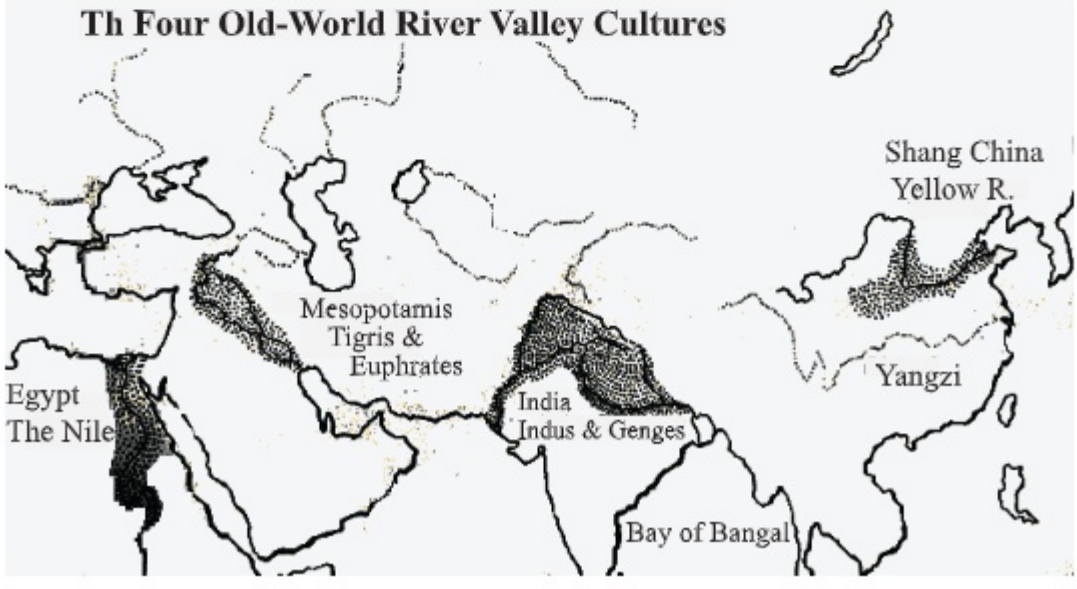
Rubina : What about the Greeks,teacher? Didn't they use wheels?

Mr Ramis : They definitely did. In 1500 BC, the Greeks too learnt the idea of wheel-making from the Egyptians. They also made further improvements on it. Later, the Romans did the same too and produced a variety of wheeled vehicles.

C Read the statements below and say whether they are True or False. If False, give the right answer.

1 The Greeks were the pioneers in developing spoked-wheels.
2 The earliest wheel was discovered in 2000 B.C.
3 The Egyptians first used wheels on chariots.
4 The Romans first used wheeled chariots for warfare.
5 The ancient Indians used wheels before the ancient Romans did.

D Look at the following map of the ancient river-valley civilisations, their locations in the map, and how they are related to wheels. Discuss with your partner.



E Listen to the teacher/CD carefully and complete the following sentences with appropriate words.

U9, L2 E
Listening text: 10

1 Shang China lies --------- the far east of India.

2 The Indus and Ganges valley is -------- the middle.

3 The Tigris and Euphrates valley lies -------- the Nile and the Indus-Ganges.

4 The Ganges flows ---------- the north of India.

5 The Bay of Bengal is ---------- the east coast of India.

F Discuss in pairs and make as many 'Wh' questions as you can from the given answers below. First one is done for you.

1 i) *Where does Mesopotamia lie?*

ii) *Which countries does Mesopotamia lie between?*

Ans. Mesopotamia lies between India and Egypt.

2 .....?

Ans. The Caspian Sea is on the north of Mesopotamia.

3 .....?

Ans. The Nile falls into the Mediterranean Sea.

4 .....?

Ans. The river Yangzi lies to the east of India.

5 .....?

Ans. The Tigris and Euphrates run on the west of Mesopotamia.

G Write a paragraph on the history of the wheel. Take your cues from the dialogue in section B.

Lesson 3: The Fastest Wheel on Earth

Key words : high-speed record-breaking network expand conventional unconventional magnetic trainset

A Look at the pictures of some of the fastest trains on earth and talk about them with your partner.

B Read the text and answer the following questions.

The TGV (*Train à Grande Vitesse*, meaning *high-speed train*) is France's high -speed rail service.

It started in the 1970s. Originally, it was powered by gas turbines. But in 1973, the TGV was changed into electric trains. The TGV service first started between Paris and Lyon in 1981. Later, the network connected other cities in France with Paris.

A TGV test train set the world record for the fastest conventional wheeled train on 3 April 2007. It reached the speed of 574.8 km/h (357.2 m/h) on the test run. But the regular TGV trains operate at the highest speed of 320 km/h (200 m/h). It is the present world record of speed of a conventional commercial train.

The Bullet Train is the network of high-speed train service in Japan. It started operation in 1964 on a limited route. But at present, most major cities of Japan come under the network.

The Bullet Train runs at a maximum speed of 300 km/h (186 m/h). It plans to increase speed up to 320 km/h (200 mph). In 2003, Japan set the world record for unconventional magnetic trainsets. In a test run, the speed was 581 km/h (361 mph). But it is not yet in regular commercial operation.

The High-speed Rail

The High-speed Rail service in China started operation on April 18, 2007. Currently China has started building a high-speed passenger rail network. It will be similar to French TGV or Japanese Bullet Trains. The usual top speed of China's conventional quick trains is 300 km/h (186 mph).

Recently China has set the world record of a speed of 487.3 km/h (303 mph). In 2011, this record was set by an unconventional magnetic *trainset* called the "Harmony Express". This is the highest speed of an unconventional magnetic *trainset* in regular commercial operation.

C Read the above text in section B again. Now discuss with your partner to fill in the blank slots in the following grid with the information about high-speed trains.

Name of the country	Name of the train/train network	Year of introduction/ start	Top speed of conventional train	Top speed of unconventional train	Holds world record for

D Discuss in groups to decide which of the above three rail services you like best and why. Finally write a paragraph and present it to the class.

E Look at the following picture of a railway station in Bangladesh. Now work in pairs.

Dhaka Airport Railway station

Name: Bangladesh Railway

- Headquarter: Dhaka
- Zones: Eastern and Western
- Numbers of stations: 459; number of engines: 284; number of passenger carriages: 1,245; number of wagons:1,2948
- Total length of railroad: 2,855 kilometres; passengers transported annually: 42 million; total number of employees: 34,168
- Nature of present operations: international (Dhaka-Kolkata); inter-city; local

F Work in pairs. Imagine your partner is a railway official and you are a reporter. You asked questions and the official gave the above information (section E) in answers. Discuss and write what the questions might be.

For example:

1 What is the official name of our rail service?
2 Where is the headquarters of Bangladesh Railway?

Now continue…

1 ……?
2 ……?
3 ……?
4 ……?
5 ……?
6 ……?

Lesson 4: Taking off

Key words: endeavor supersonic speed revolution aviation ads website neither ground (v) sky's the limit

A Look at the picture and discuss with your partner what it is and where you can find it.

B Read the text and answer the following questions.

Human beings conquered the distance on earth by discovering wheels. They endeavored further. Then on December 17, 1903, the Wright brothers in America made the first experiment of flying in a plane. In the experiment, a machine carried a man and rose above by its own power. *The machine was called 'aka airplane'*. It flew naturally in a smooth speed, and finally landed without damage. That was human being's first real take-off. And now, they have got a supersonic speed. In a supersonic speed, something travels *faster* than sound! So *the sky's the limit* now!

Modern aircraft companies are making revolutions in aviation technology. Boeing as well as Airbus is producing modern passenger airplanes. These planes fly very fast. Boeing 787 flies 950 km/h. However, Airbus 350 is expected to fly at a speed of 945 km/h.

You find attractive ads on the websites of both Boeing and Airbus planes. Both have excellent features. But in speed, neither could beat the Concorde. It is the

world's *fastest* supersonic passenger aircraft. Its normal speed was 2,170 km/h. The Concorde was a joint project by France and Britain. It started passenger flight in 1976. Unfortunately, the Concorde fleet was grounded forever in 2003 after a major accident.

Questions

1 Who made the first successful experiment in flying an airplane?

2 What was the first flying machine called?

3 What do you mean by 'supersonic'?

4 What was world's fastest passenger airplane?

5 When was Concorde fleet finally grounded?

Note: The speed of sound, which is approximately 760 miles per hour is called 1 Mach. An airplane flying less than 1 Mach or less than 760 miles per hour is travelling at subsonic speed. Faster than 1 Mach or 760 miles per hour would be a *supersonic speed.*

C Read the dialogue between the English teacher Mr Ramis and Sohan. Then do the following exercise:

Sohan : Teacher, in the last class we read about modern aircraft. There were Boeing 787s, Airbus 350s, Concorde and so on. But which one is the best? Which one can we buy for our Biman Bangladesh Airlines?

Mr Ramis : A difficult question. There are certain things to consider. If you think of speed, Concorde flies the fastest. To many, it looks the most beautiful. But it's no more in operation.

Sohan : Between the other two aircraft?

Mr Ramis : Well, if you remember, Boeing 787 travels 950 km/h. So you see, it's not as fast as Concorde. But it's faster than Airbus 350.

Sohan : Yes, teacher. I remember Airbus 350 travels 945 km/h. It's 5 km shorter than Boeing 787.

Mr Ramis : Nice calculation! But there are other factors too. Say, passenger capacity, production cost and many more. Airbus 380 now is the largest and can carry more passengers than any other aircraft. Authorities have to consider so many...

Sohan : Yes, teacher. I understand.

Complete these statements using the correct form of words in the brackets.

1 Airbus 350 is a bit ..... (slow) than Boeing 787.

2 Concorde flew the ..... (fast) among all passenger aircrafts.

3 Even sound cannot travel as ..... (fast) as Concorde.

4 In supersonic speeds, Concorde flies ..... (high) in the sky than Boeing.

5 To many, Concorde looks ..... (beautiful) than other passenger aircrafts.

6 Airbus A380 is the ……..…… (large) passanger aircraft in the world now.

7 Airbus A380 can carry ……..…… (many) passengers than Boeing 787.

D Project Work: Work in groups. Suppose, your teacher needs to buy a mobile hand set. Visit in pairs a nearby mobile phone shop. Make a list of different models of handset with their price and other features. Then discuss with your partner to compare and decide which one will be the best handset and why. Share your findings with other groups.

Lesson 5: Future Aircraft

Key words : withstand space base launch detach monitor hypersonic research melting point

A Look at the picture and say what it is. Discuss with your partner.

B Read the news report adapted from The Guardian.

The Falcon Hypersonic Technology Vehicle-2 (Falcon HTV-2) is the fastest plane ever built by human beings. It would fly from London to Sydney in less than an hour. Supersonic Concorde, by the way, could not fly at such a great speed. At the same time it would withstand temperatures of almost 2,000 degree C. This temperature is hotter than the melting point of steel.

The US Defense Agency will launch the Falcon HTV-2. First, they will set it on the back of a rocket. Then they will launch both into the space from an Air Force Base. The plan goes like this: engineers will launch the Falcon HTV-2. into the space on the back of a rocket; then they will detach the plane from the rocket; the plane Falcon will fly towards the Earth; engineers will guide and monitor its flight. The plane would fly at hypersonic speed of 13,000 mp/h. This speed is about 20 times the speed of sound.

The Falcon was born in 2003. It was born as part of a US military project. The project researched and built a special type of plane. The researchers wanted that the plane could reach any part of the world in less than an hour. They also wanted to use it for both military and civil purposes. The plane had already been tested in computer models.

The Falcon Hypersonic Technology Vehicle-2 would be mankind's dream aircraft in the days to come.

Questions

1 What is HTV-2?

2 What is the speed of HTV-2?

3 Describe the steps of HTV-2 test flight.

4 Why was the HTV-2 developed?

5 Do you think that HTV-2 will be 'mankind's dream aircraft'? Why or Why not?

C Imagine you are a TV reporter. You have come to interview the chief engineer of the HTV-2 Launch Project. What questions will you ask him/her? Design a short dialogue between yourself and the engineer, and write it. Finally act it out in pairs with proper sounds, stress and intonation.

D Listen to the teacher/CD carefully and complete the following sentences with appropriate words.

U9, L5 D
Listening text: 11

1 Thursday's flight will test another ---------- of the aircraft.
2 The plane is made of ---------- composite materials.
3 The plane will fly at ---------- speed.
4 In the flight, the body ---------- of the plane could reach 2,000 degree Celsius.
5 ---------- will melt at 2000 degree Celsius.

E The following passage is based on the information in section B. Read the text in B again. Discuss in pairs and complete the following sentences with will/would, can/could/could not.

Even Concorde ---------- fly as fast as Falcon HTV-2. The news report says: the US Defense Agency ---------- launch the Falcon Hypersonic Technology Vehicle-2 into space. Scientists expect that the Falcon HTV-2 ---------- fly at 13,000 miles per hour. The US military wishes that the Falcon ---------- bomb any part of the world in less than an hour in the future. Engineers plan that they ---------- set the Falcon on the back of a rocket to launch it into the distant space.

F Have you ever dreamt of flying to a city/country of your choice? If yes, write about your dream. If not, try to imagine you are flying to that place in a plane. Write about your experience and expectations.

If you fly westward in a supersonic plane such as Concorde, you will land several hours before you took off. Can you explain how?

Lesson 6: Paper and Wheel

Key words : record paper surface of stone bark encyclopedia wood plunk digital

A Look at the picture and say what this is. Discuss with your partner.

B Read the text and answer the following questions.

Communication of ideas is at the centre of civilisation. It needs written records. Most of our records in the modern age are on paper. Though writing was invented very early, paper is a more modern invention.

For long, people exchanged ideas through speaking and listening. Then there came the art of writing. But to record thoughts in writing was difficult. Writing materials were not available. People used the surface of stone, metal, wood, bark, leaves, etc. for writing. Those things were not easy to carry. Then for ages, people looked for easy writing materials. Finally, paper was invented in China in 105 CE.

Before the paper age, knowledge was very restricted. Can you think of that time? There were very few books in the world. Maybe, they were written on stone or on heavy wood planks or on metal sheets. Suppose, one page was a heavy stone block. So, think of a hundred-page book! In our time, you can carry the entire world of knowledge in digital form in your laptop. You can even carry a huge volume of paper encyclopedia. But who could produce and carry tons of heavy stone books and documents in those paperless days? In fact, paper has made publication and the spread of knowledge and information easy. So, you can see how paper has changed our life.

Questions:

1 How did people exchange ideas before writing was invented?

2 Why did people look for easy writing materials?

3 Why was knowledge very restricted in the pre-paper age?

4 Do you think paper has changed our life? Explain why your answer is 'yes' or 'no'.

5 Where was paper invented and when?

C Discuss with your partner and make a list of things other than paper on which we can write in pens, pencils, markers, brushes, paint/pastels etc.

D Listen to the teacher/CD carefully and complete the following sentences.

U9, L6 D
Listening text: 12

1 The person who invented paper is a ---------- man.

2 He took the bark of a mulberry tree and ---------- fibres.

3 This knowledge of ---------- was first used in China.

4 The word 'paper' is not ---------- .

5 The word 'paper' was derived from a kind of Egyptian plant called ------

E Look at the following boxes first. Listen to the teacher/CD again. Then write in the boxes the series of works Ts'ai Lun' did in making paper. First one and the last one are done for you.

1. He took the bark of mulberry tree and bamboo fibre.
2. He mixed them .....
3. He pounded .....
4. He poured the mixture .....
5. He let the water..... .
6. He let the thing dry.

F PROJECT WORK: On a weekend, observe how *ruti* or *paratha* is made in the kitchen. Carefully take notes of each step taken to make it. Then back in class, share your notes with your partner/group. Finally write how *ruti* or *paratha* is made and make a presentation in the class.

Lesson 7: Contemplation

A Look at the picture and discuss in groups the possible answers to these questions.

1 Why is the boy up in the tree?
2 What is he looking at?
3 Guess what he is thinking about.

B Read the poem and answer the following questions.

Contemplation

For days and days I've climbed a tree
A dappled yellow tree
And gazed abroad at many things
I've always wished to see.

I see the green and gentle fields
All bounded in with hedge
And shining rivers swimming through
The rushes on the edge,
And little sheep who play all day
I watch them as they run,
While far away the roofs of town
Are shining in the sun.

I think it's very nice to sit
So high and look so far----
How very large the world can be!
How many things there are!

John Carpenter

Note

dappled yellow tree - spotted yellow tree (the leaves may be yellow)
gazed abroad - looked around
bounded - surrounded
hedge - a thick row of bushes
swimming through - (the river like a person is swimming through) flowing through
rushes - tall plants that grow on the river's edge

C Ask and answer these questions.

1 Where do you think the tree was?
2 What were the four things the poet could see from the tree?
3 Have you ever climbed a tree? If yes, what did you do it for? If not, why?