PRE-ACADEMIC COURSE IN ENGLISH

LEVEL 2

NATIONAL DIPLOMA
IN
TECHNOLOGY

INSTITUTE OF TECHNOLOGY
UNIVERSITY OF MORATUWA

Dear Students,

This is the second pre-academic English course that we are offering you.

After following the Level 1 English course, I'm sure that by now you have gained some experience following a study course on a self-study basis. In the same way, we expect you to follow the Level 2 course as well.

Remember, we are offering you these English courses primarily to improve your English language proficiency and to help you face an English medium academic programme with confidence.

Therefore, we expect you to do all the exercises and tasks we have included in this course as well. We have also included a timetable for you to follow on page 03 of this course book. Please spend at least two hours per day, following this course.

I hope you will work hard and have fun learning English!

Course Coordinator

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PART 1
Reading

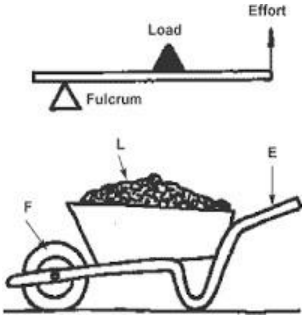
1. Simple Machines

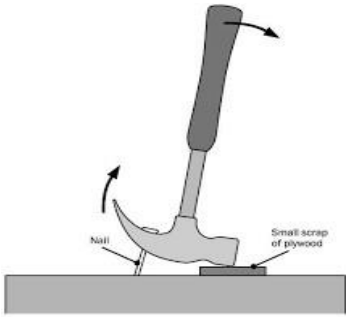
Once upon a time a person needed to move something heavy. He picked up a long stick and stuck it under the edge of the heavy object and then pushed down on the other end of the stick. The first simple machine was invented! Simple machines are just that, the simplest form of using one thing to accomplish something faster or better, a tool. They were the first ones created and we still use them today.

There are 6 basic simple machines; the **lever**, the **wheel and axle**, the **inclined plane,** the **wedge**, the **pulley**, and the **screw**. Several of these simple machines are related to each other. But each has a specific purpose in the world of doing work.

Let's look at each of the 6 simple machines in detail.

The Lever

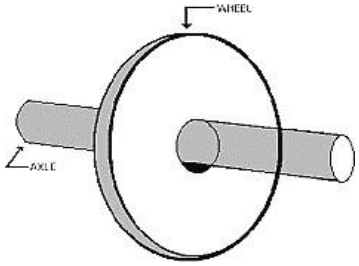




The lever is a long tool such as a pole or a rod put under an object to lift it. The lever is more efficient when combined with a fulcrum. A fulcrum is another object, perhaps a rock, used as a brace under the long tool to support it. This gives the long pole something to push down against. The location of the fulcrum helps determine how well the lever will perform work. The closer the fulcrum is to the object being lifted, the easier the person can lift the object. The longer the lever, the object can be lifted higher.

Levers are all around us. Some examples of levers are: door handles, the claws of a hammer (for removing nails), crowbars, light switches, bottle openers and hinges.

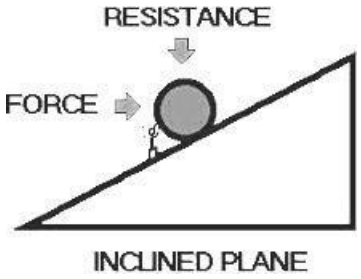
The Wheel & Axle

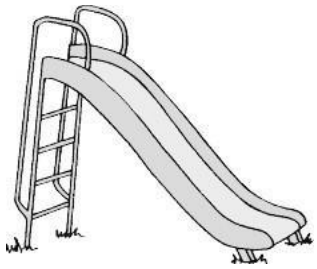


The wheel has always been considered a major invention in the history of mankind. But it really would not work as well as it does if not for the axle. An axle is a rod or pole centred in the wheel that allows the wheel to turn around it. The wheel then spins in a balanced circle to be used as transportation on a bike or to turn the hands of a clock. Gears are a form of the wheel and axle.

Wheels are found in things that turn in a circle such as in an electric fan, a motor, a revolving door, a merry go round, and any wheel — on a car, or on a bicycle.

The Inclined Plane

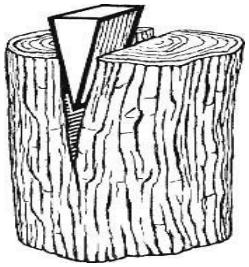




The inclined plane is simply a ramp (slope). One end is higher than the opposite end. This allows things to go from a low point to a higher point or vice versa. It takes the same amount of work, but less force, to move an object up a ramp than to move it vertically. Gravity makes it easier to move an object down a ramp than up that ramp.

Ramps are used in skateboard parks, wheelchair ramps and to get heavy equipment in and out of the back of a truck. But modified versions of a ramp can also be found in stairs, escalators, ladders etc.

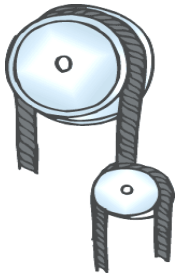
The Wedge

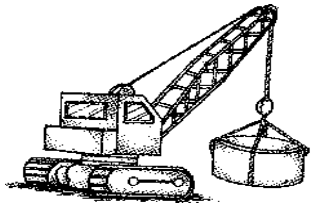


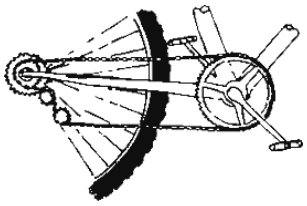
Some people might see the wedge as just an inclined plane, although it is actually two inclined planes. However, the use of a wedge is actually different in nature. The wedge is used to pull an object apart. This is needed to cut, tear or break something in two. A wedge can also be used to keep things together or secure things from movement.

Some examples of wedges that are used for separating might be a shovel, a knife, an axe, a pick axe, a saw, scissors, or an ice pick. But wedges can also hold things together as in the case of a staple, push pins, nail or doorstop.

The Pulley







The pulley is actually a version of a wheel and axle that is combined with a rope, chain or other cord to allow moving something up and down or back and forth. The pulley can be combined with other pulleys to reduce the amount of work necessary to lift huge amounts of weight or to lower them. It can also make moving something such as a flag up the pole convenient to do from the ground. It changes the direction of the force necessary to do the work.

Pulleys are used in window blinds and drapery to move them up and down or back and forth. Pulleys are also used on ships to raise and lower sails, in industry to raise and lower heavy cargo, or on cranes to be used in moving construction equipment. Elevators also use pulleys to move the car up and down from floor to floor.

The Screw

The screw is really a twisted inclined plane. It allows movement from a lower position to a higher position but at the same time it moves it in a circle. That makes it take up less horizontal space. A screw can also act to hold things together in some cases.

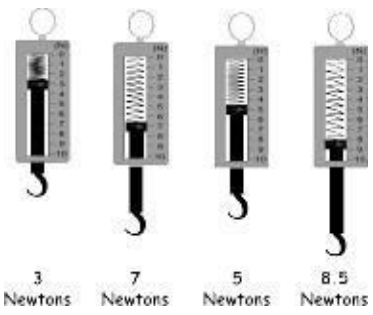
Some examples of using a screw are in a jar lid, a drill, a bolt, a light bulb, faucets, bottle caps and ball point pens. Circular stairways are also a form of a screw.

Another use of the screw is in a device known as a screw pump. A huge screw shape is lowered into the water and by turning the screw the water is moved up the twisted shaft and lifted to where it is needed. Screw pumps are often used in agricultural settings such as in farms and in irrigation.

Measuring Work

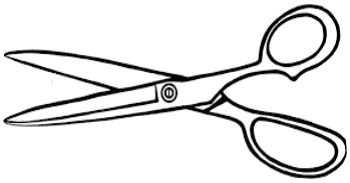
In the scientific sense, work is the amount of energy necessary to move an object. A group of people can push against a brick wall until they sweat. But unless they move the wall — even a tiny bit — they have done no work. But at the same time, if you move the computer mouse even a part of an inch, you have done work. (But, don't try to convince your parents or your teachers that you have done a lot of work by playing video games!).

Work can be measured. It is measured by the amount of distance that a force moves an object. Sir Isaac Newton was a famous scientist who had a wonderful understanding of the relationship between force and motion. For this reason, the measurement is known as a Newton. It is abbreviated with a capital N. The term joule is often used to measure work as Newtons per meter. If it takes 1 Newton to move any object 1 meter, then that is equivalent to a joule.



There are special tools for measuring the force necessary to move an object. These are known as force meters. They use a spring and a hook to determine how much pull is required to slide an object up an inclined plane. They are really very simple to use.

Compound Machines



Simple machines can be combined to form compound machines. Many of the everyday tools and objects that we use are really compound machines. Scissors are a good example. The edges of the two blades are the wedges. But the blades are combined with a lever to make the two blades come together to cut.

A lawnmower combines wedges (the blades) and a wheel and axle that spins the blades in a circle. But there is even more. The engine probably works in combination of several simple machines and the handle that you use to push the lawnmower around the yard is a form of a lever. So, even something complicated can be broken down into the simplest form of machines.

Take a look around you — can you figure out what simple machines make up a can opener, the hand cranked pencil sharpener, the ice dispenser in the refrigerator or the stapler? Just be careful, though. In our modern times, many things rely on electronics and light waves to function and are not made of simple machines. But even then, you may be surprised. The turntable in your microwave oven is a wheel and axle. The lid to the laptop is connected to the pad by a hinge or lever.

Simple machines may be simple — but they are simply everywhere.

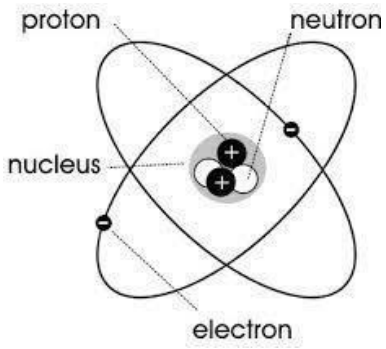
Task 1: Answer the following questions.

1. What are simple machines?

2. Name the six basic types of simple machines. Give an example for each.

3. What is a combined machine? Give examples.

2. Atoms and Molecules



An **element** is a substance that cannot be chemically broken down into simpler substances. They are primary constituents of all matter, for example hydrogen, sodium and sulphur. The tiny particles that make up elements are called atoms. An **atom** is the smallest unit of an element that retains or keeps the properties of that element. For example, the atoms that make up oxygen can never be changed.

The inside of an atom contains three different kinds of particles as well. They are called protons, neutrons, and electrons. Surprisingly, an atom is not solid, it is mostly empty space. There is a tiny, very dense body in the centre of an atom called the **nucleus.** Inside the nucleus there are protons and the neutrons. The electrons are in the space outside the nucleus.

A **proton** carries one unit of positive electric charge. An **electron** carries one unit of negative electric charge. **Neutrons** have no electric charge. The number of protons in an atom determines what the element is. An oxygen atom, for example, has eight protons.

The **Periodic Table of Elements** shows the number of protons in each element. The element or substance called sodium has eleven protons. When the substance sodium, combines with another substance we get salt.

Different kinds of atoms join together to make molecules. A molecule is a particle that contains more than one atom. Basically, atoms come together in different ways to make molecules, and molecules come together in different ways to make different kinds of matter.

Water is an example of a molecule made up of different atoms. An atom of water consists of hydrogen and oxygen. It takes two atoms of hydrogen and one atom of oxygen to make one molecule of water. This would be an extremely tiny drop of water a person could not see without a special microscope. Some elements are made up of single atoms and do not attach to any other kind of atom. Neon is an example of an atom that does not attach to another atom.

However, there are some atoms that attach to atoms of the same kind to make different substances. For example, oxygen is usually made up of two-atom molecules. But, a three-atom molecule of oxygen will create ozone. Oxygen and ozone are very different from each other but both are formed by oxygen atoms that join together.

Most everyday substances that people use, are made up of a combination of different molecules. Table salt is made up of an element called sodium joined with an element called chloride.

Sodium chloride is the scientific name for salt. The different atoms making up sodium and chloride are joined together to make a new substance (molecule) called salt.

In summary, the particles (or ingredients) that make up an **atom** are **protons, neutrons**, and **electrons**. Atoms join together in many different ways and methods to form **molecules.** Finally, molecules join together to make everything on Earth and in the universe.

A. Underline the correct answer.

1. The smallest unit of an element that retains or keeps the properties of that element is called: a molecule, an atom, a proton, a neutron.

2. Which of the following does not have an electrical charge?
   a neutron, an electron, a proton

3. The Periodic Table of Elements show the number of_____for each element.
   neutrons, electrons, atoms, protons

4. How many more protons does sodium have than oxygen?
   8, 11, 3, 1

5. Protons, electrons, and neutrons make up atoms and atoms make up
   substances, matter, molecules,

6. Sodium Chloride is the scientific name for which of the following substance?
   water, sugar, gas, salt

B. Fill in the blanks with the following words.

(retain, contain, space, dense, determine, combine, include, extremely, attach, confusing)

1. The house was so small that it did not have enough---------- to accommodate six people.
2. The City of Colombo has a ---------- population.
3. I am ---------- sorry for not writing to you earlier.
4. Please ---------- a copy of your birth certificate to the application.

5. It was hard to ---------- the exact location of the house from the map.
6. The prices mentioned in the list does not ---------- transport charges.
7. The greenhouse effect causes our atmosphere to ---------- more of the heat from the sun than normal.
8. Hydrogen and oxygen---------- to form water.
9. Some of the questions on the test were really ----------.
10. These boxes---------- some old books.

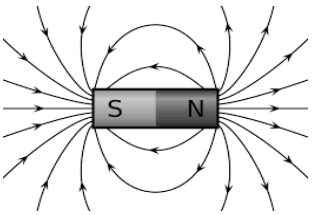
3. Magnetism

Magnets are easy to use, safe, and fun. Two magnets can come together and stick like glue. Some objects push or pull-on things because they are magnetic. **Magnetism** is a property ofcertain types of matter.

A magnet has a north pole and a south pole. The north pole of a magnet will attract the south pole of another magnet. The north pole of a magnet will repel the north pole of another magnet, and so will the two south poles of two magnets. In short, like poles **repel** each other, and unlike poles **attract**.

Examples for two different kinds of **permanent** magnets are bar magnets and horseshoe magnets.

The area surrounding a magnet is called its **magnetic field.** The magnetic field of a magnet is an invisible field which is created by the magnet's magnetism. To ancient people, magnetism probably seemed like magic. The force of a magnet that attracts or repels another magnet or attracts other objects is caused by moving electrons.



The Earth also contains magnetic material and behaves like a gigantic magnet. The north pole of a magnet will point approximately to the Earth's north pole and the south pole of a magnet to the Earth's south pole. A compass has a magnetic tip on the needle which points towards the North Pole. Compasses are used to help and prevent people such as hikers or people in a ship getting lost, especially when there is no GPS or maps to help guide them.

A magnet may also be used to convert a piece of magnetic material, such as an iron nail, into a magnet. This is done by rubbing it with the magnet. This is called **magnetization**. Magnets made this way are called temporary magnets because they eventually lose their magnetism.

Another method of creating a temporary magnet is by using electricity. This can be done by wrapping an iron nail with a coil of wire. By passing electricity through the coil of wire the iron nail will become a temporary magnet or an electromagnet. The strength of the electromagnet depends on the size of the electric current and the number of times the coil is wrapped around the nail. If the electricity stops flowing through the coil, the nail will no longer be magnetic.

There are many uses for permanent magnets and temporary magnets like electromagnets. Electric appliances with electric motors use magnets to turn electricity into motion. Other examples include electric fans, lawnmowers, and other things that contain a motor.

Magnets are used to keep doors closed, such as in refrigerators and kitchen cabinets. Magnets are also used to read and write data on a computer's hard drive or on an old-fashioned cassette tape. There are also magnets in headphones and stereo speakers which help in converting stored music back to the sounds you can hear.

In summary, magnetism is property of certain kinds of matter. There are two poles to a magnet, the South Pole and the North Pole. Like poles repel each other and unlike poles attract each other. There are two different kinds of magnets, temporary and permanent. A temporary magnet can be made by using electricity. All magnets contain an invisible electromagnetic field which surrounds the magnet. There are many uses for magnets from keeping doors closed to helping music sound better with the use of magnets inside the speakers.

A. Select the correct answer.

1. Which of the following statements is true?

   like poles attract, unlike poles repel. like poles repel, unlike poles attract.
   like and unlike poles attract. like and unlike poles repel.

2. The invisible field surrounding a magnet is called:
   a magnetic field, an electromagnet, the force field, none of the above

3. Moving_____is the cause of magnets repelling or attracting each other or other objects. protons, electrons, neutrons, molecules

4. Which of the following is a temporary magnet?
   a bar magnet, a horseshoe magnet, an electromagnet, the north pole

5. Which of the following statements is false (x)?

   a. The strength of the electromagnet depends on the size of the electric current and the number of times the coil is wrapped around the nail.

   b. Certain objects push or pull-on things because they are magnetic.

   c. Electric motors use magnets to turn electricity into motion.

   d. A magnet cannot be used to convert a piece of magnetic material such as an iron nail, into a magnet.

B. Match words with similar meaning

permanent	nearby
convert	short-term
invisible	lasting
ancient	finally
eventually	unseen
temporary	rely
depend	change
surrounding	very old
gigantic	stop happening
prevent	huge

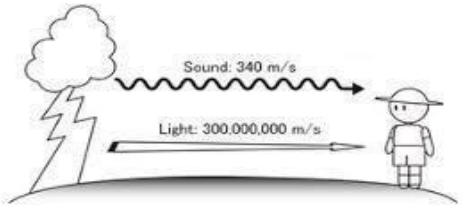
4. Light and Sound

There's light and sound everywhere. Light waves and sound waves travel from place to place and can be seen or heard. **Light** is visible to the human eye and is responsible for the sense of sight. It is a form of energy and when it is reflected off the surface of an object we can see it. **Sound** is vibration that travels through air or another medium and can be heard when they reach a person's or animal's ears.

Light waves travel through the air from place to place and do not carry matter. Light is believed to travel faster than anything else in the universe. It travels at a speed of 186,000 miles per second. Light is unable to travel through solids, but it can travel through liquids and gases.

There are two properties of light. The first property of light is called reflection. **Reflection** is when light bounces off a surface which then allows the object to be visible to the eye. For example, when we see the moon in the sky, it is because the light from the sun reflects off the surface of the moon. A light ray comes off a surface at an equal angle to the angle at which it strikes the surface.

The second property of light is called refraction. **Refraction** is when a ray of light passes from a transparent medium to another transparent medium such as from air to water. The change in the speed will bend the wave.



For example, when a pencil is placed in a glass of water, the pencil will seem like it is broken into two pieces because when the light is travelling through the water, there is refraction, and the light bends causing the pencil to look like it is in two pieces. Another example of refraction is the use of eyeglasses to improve a person's vision. Using a glass that is curved at a certain angle the vision of a person can be corrected by the way light is refracted in the eye.

All sounds are different to each other, but one thing in common is that sounds are created by something that vibrates. Sound wave vibrations can travel through solids, liquids, and gases. Sound waves travel through solids much faster than through liquids or gases. They travel faster through liquids than through gases.

The molecules that make up a solid stay close together, allowing sound to travel fast. **Molecules** are the substances that make up solids, liquids, and gases. In a liquid, the molecules are farther apart, so the sound waves travel slower. In a gas, the molecules are spread even farther apart so sound waves travel much slower. A sound travelling through a solid can be better heard than when it travels through a gas. For example, a vibrating speaker collides with the molecules in the

air passing along the energy and creating sound waves. This is why music can be heard from the speakers. When there are no molecules in the air like in space, sound cannot be heard. The speed of sound travels much slower than the speed of light. It normally travels in the air at about1200 feet per second.

In summary, light and sound are everywhere. Light is a form of energy and we can see an object when light is reflected off the surface of the object. Sound is a vibration that can pass through solids, liquids, and gases. Reflection and refraction are two properties of light. Sound travels through solids much faster than through liquids and gases. Molecules which make up all objects stay closer together in a solid allowing the sound to travel faster. Light travels much faster than sound.

A. Select the correct answer.

1. Which of the following can be described as vibration?
   Sound, Light, Water, Reflection

2. Which of the following statements is true?
   Light travels at the same speed as sound.
   Sound travels faster than light.
   Light travels faster than sound.
   The speed of light and the speed of sound depends on the temperature.

3. Which of the following best defines reflection?

   Light bounces off a surface of an object which then allows the object to be seen
   A ray of light passes from a transparent medium to another transparent medium
   A ray of light passes from a solid to a gas
   Light bounces off the surface of the sun

4. Through which of the following will sound travel faster?
   Air, water, pudding, wood

5. Which of the following makes up the substances of solids, liquids, and gases?
   Molecules, Minerals, Vibrations, None of the above

6. Which of the following explains light waves bending as they pass through water?
   Reflection, Refraction, Molecules, Energy

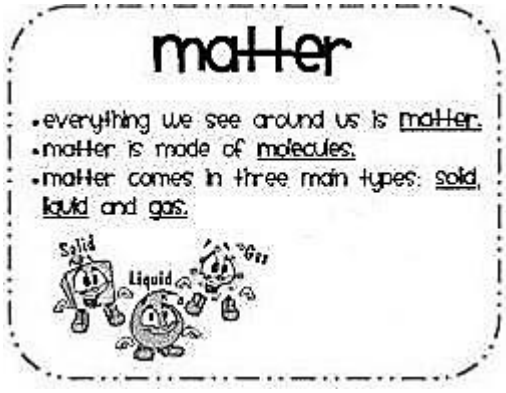
B. Fill in the blanks with the following words.

reflect, angle, responsible, vibration, energy, surface, identify, collided, curved, transparent

1. Neil Armstrong was the first person to set foot on the---------- of the moon.
2. Even the smallest baby can ---------- its mother by her voice.
3. Pale colours..... light.
4. While going to school I saw a man leading a bull with huge---------- horns.
5. The ----------of the washing machine made a terrible noise.
6. The ---------- generated by the windmill drives the water pumps.
7. The municipal council is ---------- for keeping the streets clean.
8. The car..... with a tree.
9. If a substance or object is ---------- , you can see through it very clearly.
10. The light house is visible from every ---------- -- .

5. Solids, Liquids, and Gases

All matter takes up space and can be identified as solids, liquids, and gases. Solids, liquids, and gases are called the three states of matter.



Everywhere a person looks, there are examples of solids: desks, chairs, windows, rocks, tissues, and many more. Examples of liquids are water, milk, juice, soda and chocolate syrup. Examples of gases are harder to see because they are invisible. The oxygen in the air, propane gas used in portable stoves and the helium inside a balloon can be given as examples.

Besides what they look like, there are many differences between solids, liquids, and gases. In other words, they have different **characteristics**. These characteristics determine if a substance is a solid, a liquid, or a gas.

A **solid** has a definite shape. It can be hard or soft, smooth or rough. Solids can come in all sizes. A solid can be large like a 'stupa', or small like a marble. It can be tiny like a bread crumb, or as big as a mountain, and everything in between. If small enough, solids can be held in a person's hand, and they are difficult to compress or change shape. The molecules of a solid are compact and stay close together.

A **liquid** takes up space inside a container and take the shape of the container. Liquids usually have a smooth surface, but do not have a specific size or shape. A person may be able to hold a small amount of liquid in their hand, but a liquid cannot be held like a solid. Liquids are less difficult to compress or push. It is much easier for something to move through a liquid than a solid.

The molecules of a liquid are spread out more than in a solid, but less than in a gas.

A **gas** has no shape, but can fill a container of any size or shape. It will fill an entire container as the molecules move. A gas cannot be felt by touch like a solid or a liquid. It has no surface or no particular size. It cannot be held in a person's hands, and it is easy to push or compress. It is easier for something to move through a gas than through a liquid or a solid.

The molecules of a gas are more spread out and move all the time. They are full of energy.

Water is the best example of a substance that can be a solid, a liquid, or a gas. Water by itself is a liquid. When water freezes it becomes a solid. If a container of water is heated it turns into a

gas called water vapour. Ice cream is a solid until it melts, then it becomes a liquid. A moth ball is a solid, but it releases a gas that a person can smell across the room.

In summary, the different states of matter are called solids, liquids, and gases. The states of matter have different characteristics and examples of each can be found everywhere.

A. Select the correct answer.

1, Matter is basically a solid, a liquid, or a gas that takes up---------- --.
me, space, energy, heat

2. Oxygen, helium, and propane are examples of a
solid, liquid, gas, mineral

3.

4. Which of the following states of matter has a definite shape?
solid, liquid, gas, none of the above

5. Which of the following states of matter takes on the shape of the container?
solid, liquid, gas, all of the above

6. Which of the following states of matter has no surface or particular size?
solid, liquid, gas, liquid and gas

7. Which of the following describes the molecules in a solid?
The molecules are spread out and have lots of energy.
The molecules are somewhat spread out but less than in a gas.
The molecules can easily be moved through.
The molecules are compact and close together.

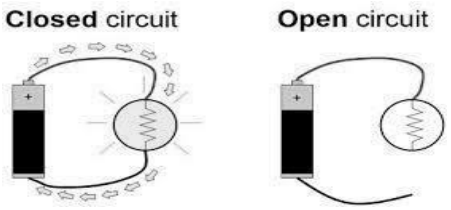
B. Select the word with similar meaning given words from the following:
impossible, rough, entire, definite, compress, inflexible, type, smooth, characteristics, spread out.

1. rigid ---------- 2. specific ----------
3. properties ---------- 4. category ----------
5. unattainable ---------- 6. extend ----------
7. condense ---------- 8. sleek ----------
9. coarse ---------- 10. whole ----------

6. Electric Current

Electric current is a flow of electric charge due to movement of electrons. Electric current is created by electrons or charges continuously moving through a path called an **electric circuit**. It flows from a power source like a battery or a power station.

A **closed circuit** has a complete path for current to flow allowing the electric charges or electrons to flow through the wires of the circuit. An **open circuit** will not allow the electric charges or electrons to flow through the wires of the circuit. A **switch** can be used to open and close a circuit.



In a **series circuit**, the same current flows through each of the components. In a series circuit, for example a string of Christmas lights each bulb will receive the same electrical charge, but if one goes out or if any of the bulbs is missing or burned out, no current will flow and none of the lights will go on.

Batteries are also a source of electric current usually used with a series circuit. The electric current from the battery flows in one direction to the component such as a radio, a flashlight, or a toy.

Parallel circuits will have different amounts of current flowing through them. The same voltage is applied to parallel circuits, but different amounts of current will flow through the wires. **Voltage** is a kind of electrical force that makes electricity move through a wire and it is measured in volts. The higher the voltage, the more current will tend to flow. A 12-volt car battery will normally produce more electric current than a 1.5-volt flashlight battery.

A parallel circuit example is the wiring of a house. There is a single power source supplying all the lights and appliances with the same voltage. However, if one of the lights burns out, the current will still flow through the rest of the house.

There are power plants that produce electricity for homes and businesses. Most power plants use coal to generate electricity, but some use wind, water, or natural gas. The **power grid** is the system connecting all of the power plants across the country. All the poles and wires along the highway and roads are a part of the power grid. A **transformer** can help in decreasing or increasing the voltage as the electricity travels to homes and businesses through **transmission lines**. A **meter** is used to measure the amount of electricity used.

Electricity goes through wires to the service panel in a basement or garage, where breakers or fuses protect the wires inside a house from being overloaded. The electricity then travels through wires inside the walls to outlets and switches all over the house.

Conductors are made of materials that electricity can flow through easily. A material that is a good conductor gives very little resistance to the flow of electricity. The electricity can flow through a conductor very easily. Examples of conductors include water, trees, aluminium, copper, people, and animals.

Insulators prevent or block the flow of electricity. Insulators do not allow the flow of electricity and blocks the electricity from moving along its path. Examples of insulators are glass, rubber, porcelain, and plastic. Wires that carry electricity are covered with an insulator.

There are many steps involved when electric current flows from its source to its use.

A. Select the correct answer.

1. Which of the following best describes a closed circuit?

   Does not allow electricity or electrons to flow through the wires when the switch is off.
   Does not allow electricity or electrons to flow through the wires when the switch is on.
   Allows electricity or electrons to flow through the wires when the switch is on.
   Allows electricity or electrons to flow through the wires when the switch is off.

2. Which of the following circuits have different amounts of electricity flowing through them?
   Parallel circuits, Closed circuits, Open circuits, Series circuits

3. Which of the following is the system, connecting power plants across the country?
   Transformer, Power grid, Meter, Transmission line

4. Which of the following is used to measure electricity used by a home or business?
   Voltage, Meter, Battery, Conductor

5. All of the following are examples of conductors EXCEPT:
   Water, Glass, Aluminium, Copper

6. All of the following are examples of insulators EXCEPT:
   Rubber, Porcelain, Plastic, Trees

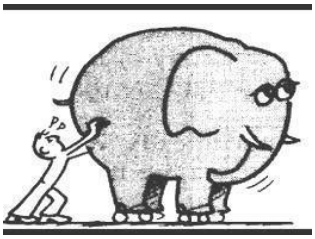
B. Match words with similar meaning.

continuous	get
components	guard
receive	path
usually	provide
direction	be likely
prevent	non stop
tend to	produce
supply	avert
generate	parts
protect	normally

7. Force, Motion & Friction

There are many things that move in different directions. Some things move up and down and others from right to left, in circles, or in many other directions. There are objects that move slowly, quickly, or in between. Some objects move on their own, and there are other objects that need help to move. No matter how things move, whether it is an object, a person, or an animal, this movement is called **motion**.

Motion is movement from one place to another. For example, when two people sit on a see-saw they cause it to move up and down. One person will be in the air; the other person will be on ground level, and then they will switch places or positions. **Position** is the place where a person or object is located. If the position changes, it is movement or motion.



Speed is how fast a person or object moves. Many things that move, though, cannot move on their own. The push or pull to get an object to move is called **force**.

While pushing and pulling is usually easy to do, there is something that sometimes makes it more difficult. **Friction** is the resistance of motion when an object rubs against and acts in the opposite direction of another object. For example when riding a bike, a person pedals, the wheels move, and the tires move across the road or sidewalk. The tires rubbing along the concrete will eventually cause the bike to slow down and stop moving due to friction.

Friction causes a second object to lose energy by slowing its motion. The energy does not disappear, but it changes from moving energy, which is called **kinetic** energy to heat energy or **thermal** energy. When a person rubs his hands together frictionis generated and then it turns into heat. This is why cold hands become warm after rubbing them together. This is also called **kinetic friction**.

Friction can be found anywhere objects come into contact with each other. The brakes of a car cause friction between the brake pads and the wheels of the car, allowing the car to come to a stop. A person running on a sidewalk may stop quickly because of friction caused between the bottom of the shoes and the asphalt or concrete. However, other variables can lessen the effects of friction. For instance, if the same person running tries to stop on a water-covered sidewalk, friction would be less and the runner may notbe able to stop as quickly, and in some cases may fall. This is similar to a car trying to stop on anice-covered roadway. The friction is still there, but it is much less and may

lead to accidents. Also,during rain, there is still friction between the brakes and the wheels, yet if the brakes are wet, thewheels would not be as much in contact with the ground. As a result, cars **hydroplane** (lose braking control) when they go too fast on puddles of water.

There are times when friction needs to be prevented so things will move more easily. Lubricants like grease and oil can help reduce friction between two objects. Engines and machines use grease and oil to reduce friction and wear so they can last much longer. Friction can also be reduced by using a ball or wheel on certain objects. This is called **rolling friction**. Changing the types of materials that come in contact with each other is another way of preventing friction. A good example is the use of roller skates on a concrete surface, ice skates on a lake covered with ice, or wearing rubber shoes on a wet sidewalk.

Besides **dry friction,** as discussed in some of the examples up to now, there is also **static friction** when objects are not moving such as when touching a metal surface and feeling a shock. When friction involves a fluid or air it is called **fluid friction**. The air resistance on an airplane, water resistance on a boat, and the slides at water parks are examples of fluid friction.

Finally, the two main factors that influence the total amount of friction include the roughness of the objects' surfaces and the force applied between the two objects. The measure of friction or its **coefficient** is based on the roughness of the materials that come in contact with each other. For example, concrete on concrete has a very high coefficient of friction, and the Teflon surfaces of pots and pans have a low coefficient because it is a surface where most things do not stick.

In summary, friction is the resistance of motion when an object rubs against and acts in the opposite direction of another object. There are different types of friction such as kinetic friction, dry friction, rolling friction, static friction, and fluid friction. Common examples of friction are the brakes on a car, ice skates, and wearing rubber shoes on a wet surface. Roughness and force of objects are factors of friction, and the coefficient of friction is a measure of how easily an object moves in relation to another.

A. Select the correct answer.

1. Which of the following is the movement of objects or people?
   Position, Motion, Speed, Friction

2. Which of the following is the place where a person or object is located?
   Motion, Force, Friction, Position

3. Which of the following is how fast or slow an object or person moves?
   Force, Position, Speed, Friction

4. Which of the following is the push or pull to get an object to move?
   Force, Position, Motion, Speed

5. Which of the following is a force that acts on another to slow it down or cause it to stop?
   Speed, Motion, Position, Friction

6. Which of the following is considered heat energy?
   Kinetic, Static, Dry, Thermal

7. Which of the following types of friction occurs when a person rubs his hands together to produce heat?
   Kinetic, Fluid, Static, Rolling

8. Which of the following types of friction occurs when a boat moves along the surface of water?
   Kinetic, Static, Fluid, Rolling

9. Which of the following best explains hydroplaning?
   A boat's surface scraping the bottom of a body of water
   When the wheels on a car are not in contact with the roadway but moves across water
   The air resistance felt by an airplane as it moves through the air
   An airplane moving across the sky through a storm

10. All of the following can reduce friction EXCEPT:
    Concrete, Oil, Grease, Water

11. Which of the following would have the highest coefficient of friction?
    Eggs on Teflon, Rubber on concrete, Ice skates on ice, Tires on water

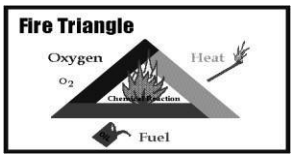
B. Write paragraphs briefly explaining the following.

1. motion, position, speed, force
2. friction, kinetic energy, thermal energy
3. hydroplane and how friction can be reduced
4. dry friction, static friction, fluid friction
5. coefficient of friction

8. FIRE

Four things must be present at the same time in order to produce fire:

1. Enough oxygen to sustain combustion,
2. Enough heat to raise the material to its ignition temperature,
3. Some sort of fuel or combustible material, and
4. The chemical, exothermic reaction (a chemical reaction that releases energy by light or heat) thatis fire.



Oxygen, heat, and fuel are frequently referred to as the "fire triangle." Add in the fourth element, the chemical reaction, and you actually have a fire "tetrahedron." The important thing to remember is: take any of these four things away, and you will not have a fire or the fire will be extinguished. Essentially, fireextinguishers put out fire by taking away one or more elements of the fire triangle / tetrahedron.

Fire safety, at its most basic, is based upon the principle of keeping fuel sources and ignition sources separate.

Not all fires are the same, and they are classified according to the type of fuel that is burning. If you use the wrong type of fire extinguisher on the wrong class of fire, you can, in fact, make matters worse. It is therefore very important to understand the four different fire classifications:

Class A - wood, paper, cloth, trash, plastics
Solid combustible materials that are not metals. (Class A fires generally leave ash.)

Class B - Flammable liquids: gasoline, oil, grease, acetone Any non-metal in a liquid state, on fire. This classification also includes flammable gases. (Class B fires generally involve materials that boil or bubble.)

Class C - Electrical: energized electrical equipment
As long as it's "plugged in," it would be considered a class C fire. (Class C firesgenerally deal with electrical current.)

Class D - Metals: potassium, sodium, aluminium, magnesium
Unless you work in a laboratory or in an industry that uses these materials, it is unlikely you'll have to deal with a Class D fire. It takes special extinguishing agents(Metal-X, foam) to fight such a fire.

Most fire extinguishers will have a pictograph label telling you which classifications of fire the extinguisher is designed to fight. For example, a simple water extinguisher might have a label like theone below, indicating that it should only be used on Class A fires.

Different types of fire extinguishers are designed to fight different classes of fire. The three most common types of fire extinguishers are: Water (APW), Carbon Dioxide (CO_2) and Dry Chemical (ABC,BC, DC)

How to use a fire extinguisher-

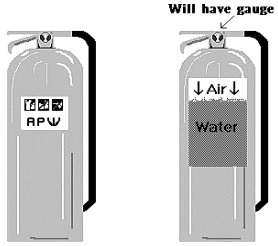
It's easy to remember how to use a fire extinguisher if you can remember the acronym **PASS,** whichstands for **Pull, Aim, Squeeze,** and **Sweep.**

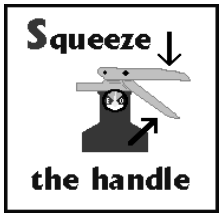
Pull the pin.
This will allow you to discharge the extinguisher.

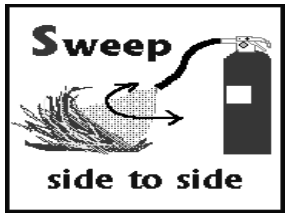
Aim at the base of the fire.
If you aim at the flames (which is frequently the temptation), the extinguishing agent will fly rightthrough and do no good. You want to hit the fuel.

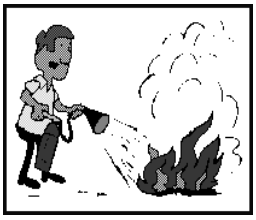
Squeeze the top handle or lever.
This depresses a button that releases the pressurized extinguishing agent in the extinguisher.

Sweep from side to side.
until the fire is completely out. Start using the extinguisher from a safe distance away, then moveforward. Once the fire is out, keep an eye on the area in case it reignites.









Task 1: Write a brief explanation about how fire is produced, classification of fire, the type of fire extinguishers and how to put out a fire.

Task 2: Select the correct answer.

1. An example of two "Class B" fuels would be:

   cardboard and newspapers , a lamp and a hot plate, grease and paint thinner

2. An APW (water extinguisher) is safe to use on an

   electrical fire.True, False

3. Carbon Dioxide extinguishers are designed for which types fuels?

   Class B and C, Class A, B, and C, Class A and C, Class A and B

4. Which type of extinguisher has a hard horn on the end of a flexible hose or metal arm?

   APW (Air Pressurized Water), CO_2 (Carbon Dioxide), ABC (Dry Chemical)

5. As a general rule, you should not attempt to fight a fire if it is spreading rapidly.

   True, False

6. ABC fire extinguishers extinguish fire by cooling it down.

   True, False,

7. Water will not extinguish most flammable liquid fires.

   True, False

8. You should always keep an exit or means of escape at your back when trying to fight a fire.

   True, False

9. The three elements of the fire triangle are:

   Water, A Heat source and Fuel
   Oxygen, Water, and Fuel
   Oxygen, Fuel and a Heat source
   Fuel, Oxygen, and Earth

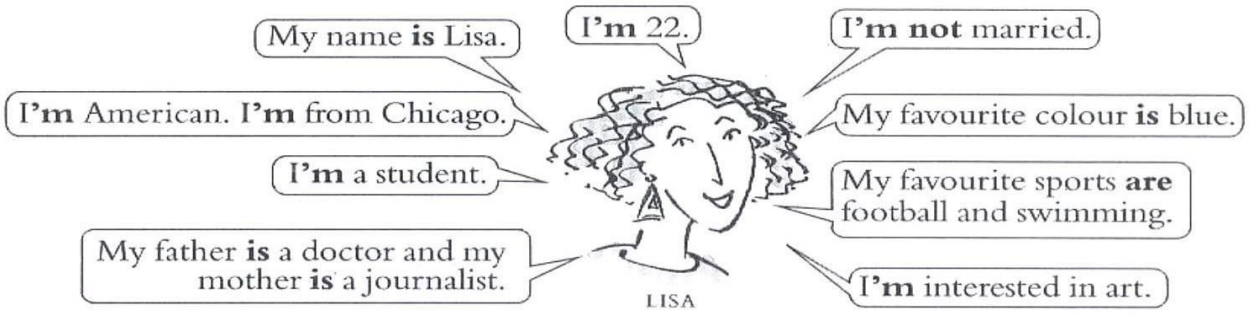
10. Do you know where the nearest fire extinguisher is in your living area? Yes, no

PART 2

GRAMMAR

Present Tense

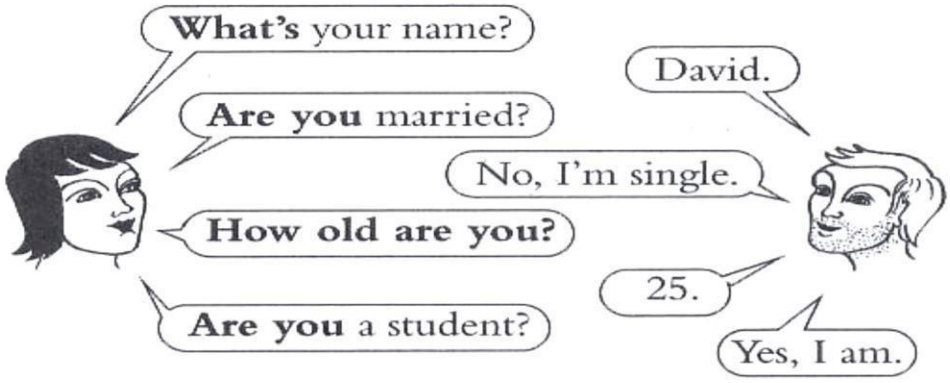
Verb Be am / is /are



Now draw your picture and write 10 sentences about yourself as in the above example.

Put in **am**, **is** or **are**.

1 The weather *is* nice today.
2 I ..... not tired.
3 This bag ..... heavy.
4 These bags ..... heavy.
5 Look! There ..... Carol.
6 My brother and I ..... good tennis players.
7 Ann ..... at home. Her children ..... at school.
8 I ..... a taxi driver. My sister ..... a nurse.



Imagine that this is the first day in English class. Write 06 questions that you could ask the student sitting next to you. Write down his / her answer.

Q .....

A .....

Q .....

A .....

Q .....

A .....

Q .....

A .....

Q .....

A .....

Q .....

A .....

Find the right answers for the questions.

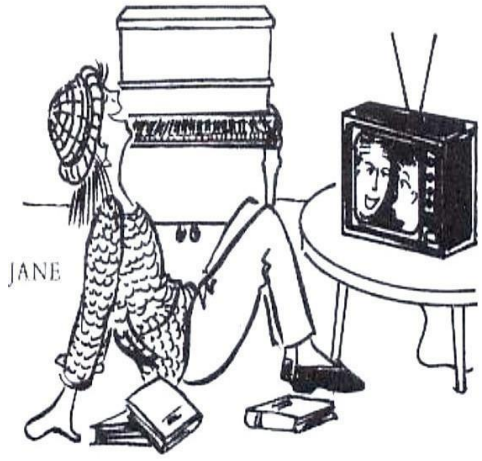
1 Where's the camera?	A London.	1	G
2 Is your car blue?	B No, I'm not.	2	.....
3 Is Linda from London?	C Yes, you are.	3	.....
4 Am I late?	D My sister.	4	.....
5 Where's Ann from?	E Black.	5	.....
6 What colour is your bag?	F No, it's black.	6	.....
7 Are you hungry?	G In your bag.	7	.....
8 How is George?	H No, she's American.	8	.....
9 Who's that woman?	I Very well.	9	.....

Complete the questions. Use **What... / Who... / Where... / How...** .

1	How are your parents?	They're very well.
2	..... the bus stop?	At the end of the street.
3	..... your children?	Five, six and ten.
4	..... these oranges?	£1.20 a kilo.
5	..... your favourite sport?	Skiing.
6	..... the man in this photograph?	That's my father.
7	..... your new shoes?	Black.

(She's = She is), (She isn't = She is not)

Look at the picture. Write sentences about Jane. Use **She's -ing** or **She isn't -ing**.



1 (have dinner) Jane isn't having dinner.
2 (watch television) She's watching television.
3 (sit on the floor) She .....
4 (read a book) .....
5 (play the piano) .....
6 (laugh) .....
7 (wear a hat) .....
8 (write a letter) .....

(Present Continuous) I am doing …

She**'s eating.**
She **isn't reading.**

It**'s raining.**
The sun **isn't shining.**

They**'re running.**
They **aren't walking.**

What are these people doing? Use these verbs to complete the sentences:

~~eat~~ have lie play sit wait

1 She's eating an apple.
2 He ..... for a bus.
3 They ..... football.
4 ..... on the floor.
5 ..... breakfast.
6 ..... on the table.

Complete the sentences. Use one of these verbs:

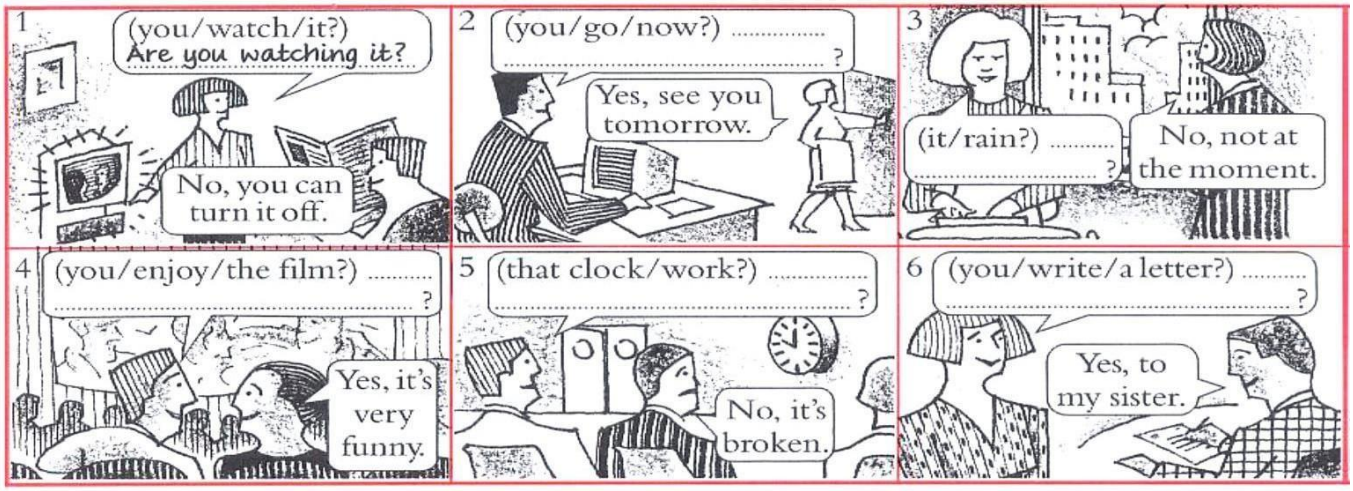
build cook go have stand stay swim ~~work~~

1 Please be quiet. I'm working.
2 'Where's John?' 'He's in the kitchen. He ..... .'
3 'You ..... on my foot.' 'Oh, I'm sorry.'
4 Look! Somebody ..... in the river.
5 We're here on holiday. We ..... at the Central Hotel.
6 'Where's Ann?' 'She ..... a shower.'
7 They ..... a new theatre in the city centre at the moment.
8 I ..... now. Goodbye.

We do **not** use these verbs in the present continuous:

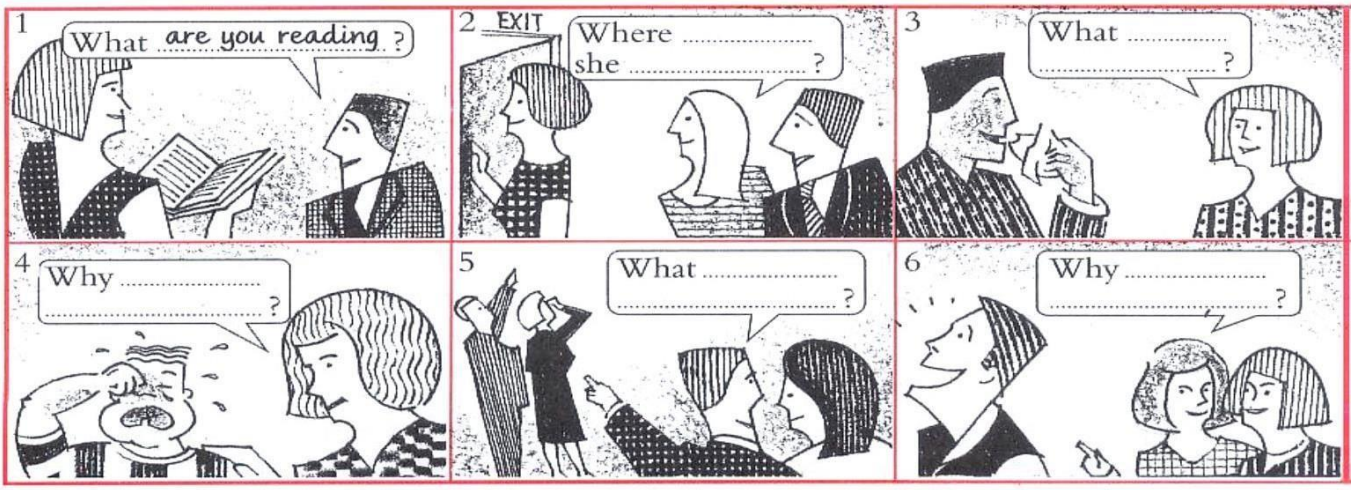
like love want know prefer understand
hate need mean think believe

Look at the pictures and write the questions.



Look at the pictures and complete the questions. Use one of these:

cry **eat** **go** **laugh** **look at** ~~**read**~~



Write questions from these words. Use **is** or **are** and put the words in order.

1 (working / Paul / today?) Is Paul working today?
2 (what / doing / the children?) What are the children doing?
3 (you / listening / to me?) .....
4 (where / going / your friends?) .....
5 (your parents / television / watching?) .....
6 (what / cooking / Ann?) .....
7 (why / you / looking / at me?) .....
8 (coming / the bus?) .....

(Simple Present) I do / work etc.

I/we/you/they	**read**	**like**	**work**	**live**	**watch**	**do**	**have**
he/she/it	reads	like**s**	works	lives	watch**es**	do**es**	has

They're looking at their books.
They **read** a lot.

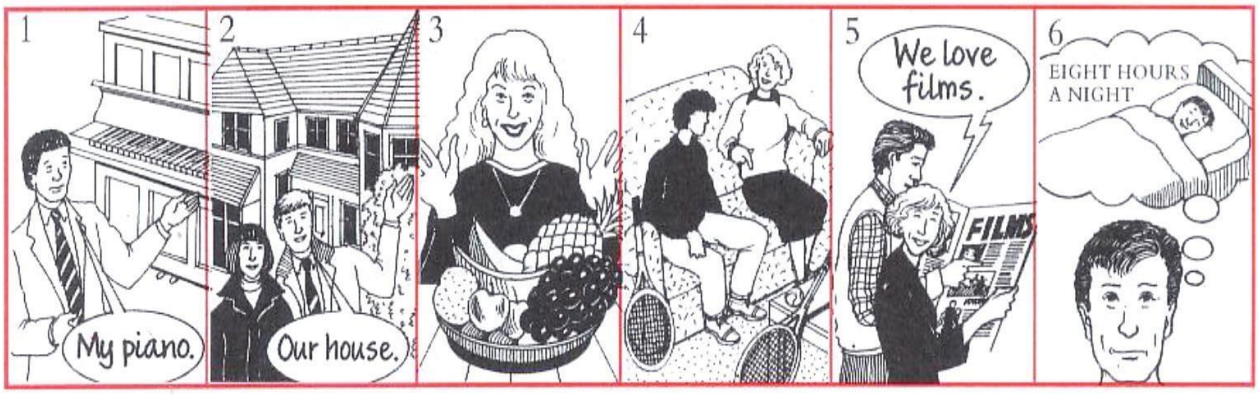
He's eating an ice-cream.
He **likes** ice-cream.

Write these verbs + **-s** or **-es**.

1 (read) she reads
2 (think) he .....
3 (fly) it .....
4 (dance) he .....
5 (have) she .....
6 (finish) it .....

Complete the sentences about the people in the pictures. Use these verbs:

eat **go** **live** ~~**play**~~ **play** **sleep**



1 He plays the piano.
2 They ..... in a very big house.
3 ..... a lot of fruit.
4 ..... tennis.
5 ..... to the cinema a lot.
6 ..... eight hours a night.

Write sentences from these words. Put the verb in the right form (**arrive** or **arrives** etc.).

1 (always / early / Sue / arrive) Sue always arrives early.
2 (basketball / I / play / often) I .....
3 (work / Margaret / hard / usually) .....
4 (Jenny / always / nice clothes / wear) .....
5 (dinner / we / have / always / at 7.30) .....
6 (television / Tim / watch / never) .....
7 (like / chocolate / children / usually) .....
8 (Julia / parties / enjoy / always) .....

Write sentences about yourself. Use **always/never/often/sometimes/usually**.

1 (watch television) I never watch television. / I usually watch television in the evening. (etc.)
2 (read in bed) I .....
3 (get up before 7 o'clock) .....
4 (go to work/school by bus) .....
5 (drink coffee) .....

The present simple negative is **don't/doesn't** + *verb:*

She **doesn't drink** coffee.

He **doesn't like** his job.

Write the negative.

1 I play the piano very well. I don't play the piano very well.
2 Jane plays the piano very well. Jane .....
3 They know my phone number. .....
4 We work very hard. .....
5 He has a bath every day. .....
6 You do the same thing every day. .....

We use Do /Does / Don't /Doesn't, in Present Simple questions.

Write questions with **Do ...?** and **Does ...?**

1 I like chocolate. And you? Do you like chocolate?
2 I play tennis. And you? ..... you .....
3 Tom plays tennis. And Ann? ..... Ann .....
4 You live near here. And your friends? .....
5 You speak English. And your brother? .....
6 I do exercises every morning. And you? .....
7 Sue often goes away. And Paul? .....
8 I want to be famous. And you? .....
9 You work hard. And Linda? .....

Write questions. Use the words in brackets (...) + **do/does**. Put the words in the right order.

1 (where / live / your parents?) Where do your parents live?
2 (you / early / always / get up?) Do you always get up early?
3 (how often / TV / you / watch?) .....
4 (you / want / what / for dinner?) .....
5 (like / you / football?) .....
6 (your brother / like / football?) .....
7 (what / you / do / in the evenings?) .....
8 (your sister / work / where?) .....
9 (to the cinema / often / you / go?) .....
10 (what / mean / this word?) .....
11 (often / snow / it / here?) .....
12 (go / usually / to bed / what time / you?) .....
13 (how much / to phone New York / it / cost?)
.....
14 (you / for breakfast / have / usually / what?)
.....

Put in **am/is/are** or **do/don't/does/doesn't**.

1 Excuse me, do you speak English?
2 'Where's Ann?' 'I ..... know.'
3 What's funny? Why ..... you laughing?
4 'What ..... your sister do?' 'She's a dentist.'
5 It ..... raining. I ..... want to go out in the rain.
6 'Where ..... you come from?' 'Canada.'
7 How much ..... it cost to phone Canada?
8 George is a good tennis player but he ..... play very often.

Put the verb in the present continuous (**I am doing**) or the present simple (**I do**).

1 Excuse me. Do you speak (you/speak) English?
2 'Where's Tom?' ' He's having (he/have) a shower.'
3 I don't watch (I/not/watch) television very often.
4 Listen! Somebody ..... (sing).
5 Sandra is tired. ..... (she/want) to go home now.
6 How often ..... (you/read) a newspaper?
7 'Excuse me but ..... (you/sit) in my place.' 'Oh, I'm sorry.'
8 I'm sorry, ... (I/not/understand). Can you speak more slowly?
9 It's late. ..... (I/go) home now. ..... (you/come) with me?
10 What time ..... (your father / finish) work in the evenings?
11 You can turn off the radio. ..... (I/not/listen) to it.
12 'Where's Paul?' 'In the kitchen. ..... (he/cook) something.'
13 Martin ..... (not/usually/drive) to work. He ..... (usually/walk).
14 Sue ..... (not/like) coffee. ..... (she/prefer) tea.

Past Tense and Past Participle form of Verbs

past simple / past participle are the same:

1

cost	→	**cost**
cut	→	**cut**
hit	→	**hit**
hurt	→	**hurt**

let	→	**let**
put	→	**put**
shut	→	**shut**

2

lend	→	**lent**
send	→	**sent**
spend	→	**spent**
build	→	**built**

lose	→	**lost**
shoot	→	**shot**
get	→	**got**
light	→	**lit**
sit	→	**sat**

burn	→	**burnt**
learn	→	**learnt**
smell	→	**smelt**

keep	→	**kept**
sleep	→	**slept**

feel	→	**felt**
leave	→	**left**
meet	→	**met**
dream	→	**dreamt** /dremt/*
mean	→	**meant** /ment/*

3

bring	→	**brought** /brɔ:t/*
buy	→	**bought** /bɔ:t/*
fight	→	**fought** /fɔ:t/*
think	→	**thought** /θɔ:t/*
catch	→	**caught** /kɔ:t/*
teach	→	**taught** /tɔ:t/*

4

sell	→	**sold**
tell	→	**told**

find	→	**found**
have	→	**had**
hear	→	**heard**
hold	→	**held**
read	→	**read** /red/*
say	→	**said** /sed/*

pay	→	**paid**
make	→	**made**

stand	→	**stood**
understand	→	**understood**

* *pronunciation*

past simple / past participle are different:

1

break	→	**broke**	**broken**
choose	→	**chose**	**chosen**
speak	→	**spoke**	**spoken**
steal	→	**stole**	**stolen**
wake	→	**woke**	**woken**

2

drive	→	**drove**	**driven**
ride	→	**rode**	**ridden**
rise	→	**rose**	**risen**
write	→	**wrote**	**written**

beat	→	**beat**	**beaten**
bite	→	**bit**	**bitten**
hide	→	**hid**	**hidden**

3

eat	→	**ate**	**eaten**
fall	→	**fell**	**fallen**
forget	→	**forgot**	**forgotten**
give	→	**gave**	**given**
see	→	**saw**	**seen**
take	→	**took**	**taken**

4

blow	→	**blew**	**blown**
grow	→	**grew**	**grown**
know	→	**knew**	**known**
throw	→	**threw**	**thrown**
fly	→	**flew**	**flown**
draw	→	**drew**	**drawn**
show	→	**showed**	**shown**

5

begin	→	**began**	**begun**
drink	→	**drank**	**drunk**
swim	→	**swam**	**swum**
ring	→	**rang**	**rung**
sing	→	**sang**	**sung**
run	→	**ran**	**run**

6

come	→	**came**	**come**
become	→	**became**	**become**

Present Perfect 1 (has / have + past participle)

has cleaned / have gone etc.

The present perfect tense is used to express actions that have happened in the immediate past. When we use the present perfect tense there is always a connection with the time of speaking. The action in the past has a connection to the present.

His shoes are dirty. He is cleaning his shoes. He **has cleaned** his shoes. (= his shoes are clean *now*)

They are at home. They are going out. They **have gone** out. (= they are not at home *now*)

Complete the sentences with a verb from the list.

break buy decide ~~finish~~ forget go go invite see not/see take tell

1 'Can I have this newspaper?' 'Yes, I *'ve finished* with it.'
2 I ..... some new shoes. Do you want to see them?
3 'Where is Liz?' 'She ..... out.'
4 I'm looking for Paula. ..... you ..... her?
5 Look! Somebody ..... that window.
6 'Does Lisa know that you're going away?' 'Yes, I ..... her.'
7 I can't find my umbrella. Somebody ..... it.
8 I'm looking for Sarah. Where ..... she ..... ?
9 I know that woman but I ..... her name.
10 Sue is having a party tonight. She ..... a lot of people.
11 What are you going to do? ..... you ..... ?
12 'Where are my glasses?' 'I don't know. I ..... them.'

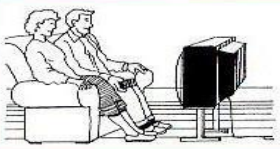
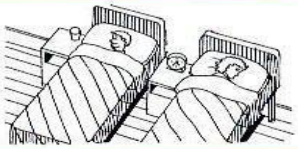
Look at the pictures. What has happened? Choose from:

go to bed **~~clean his shoes~~** **stop raining** **close the door** **fall down** **have a bath**

before *now*

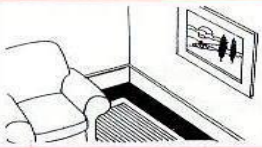
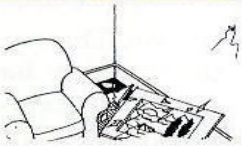
1  →  He has cleaned his shoes.

2  →  She .....

3  →  They .....

4  →  It .....

5  →  He .....

6  →  The .....

Complete the sentences with a verb from the list.

break **buy** **decide** **~~finish~~** **forget** **go** **go** **invite** **see** **not/see** **take** **tell**

1 'Can I have this newspaper?' 'Yes, I 've finished with it.'
2 I ..... some new shoes. Do you want to see them?
3 'Where is Liz?' 'She ..... out.'
4 I'm looking for Paula. ..... you ..... her?
5 Look! Somebody ..... that window.
6 'Does Lisa know that you're going away?' 'Yes, I ..... her.'
7 I can't find my umbrella. Somebody ..... it.
8 I'm looking for Sarah. Where ..... she ..... ?
9 I know that woman but I ..... her name.
10 Sue is having a party tonight. She ..... a lot of people.

Present Perfect 2 just, already, yet

just = a short time ago
already = before expectedyet
= until now

(they have = they've, he has = he's)

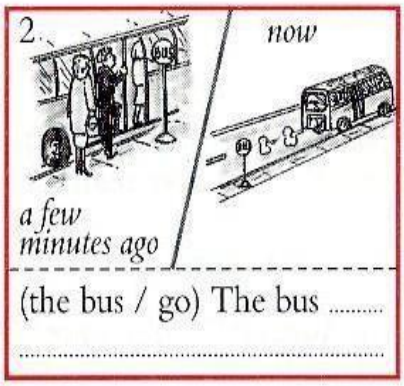
Write a sentence with **just** for each picture.

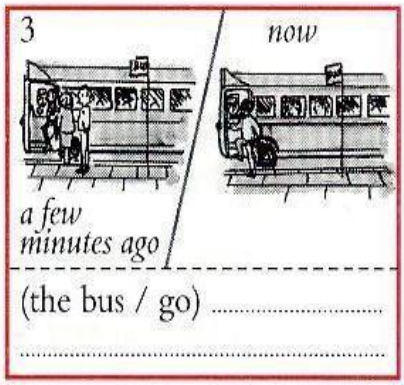
1 They've just arrived.
2 He .....
3 They .....
4 The race .....

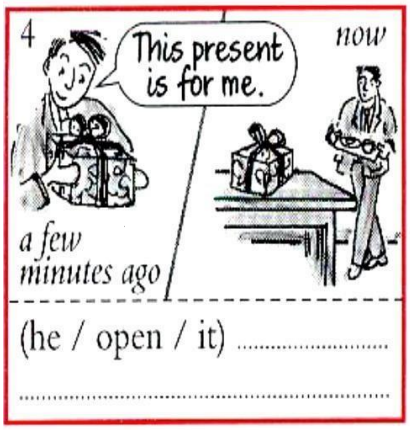
Complete the sentences. Use **already** + present perfect.

1	What time is Paul arriving?	He's already arrived.
2	Do Sue and Bill want to see the film?	No, they ..... it.
3	Don't forget to phone Tom.	I .....
4	When is Martin going away?	He .....
5	Do you want to read the newspaper?	I .....
6	When does Linda start her new job?	She .....

Write a sentence with **just** (**They've just … / She's just …** etc.) or a negative sentence with **yet** (**They haven't … yet / She hasn't … yet** etc.).

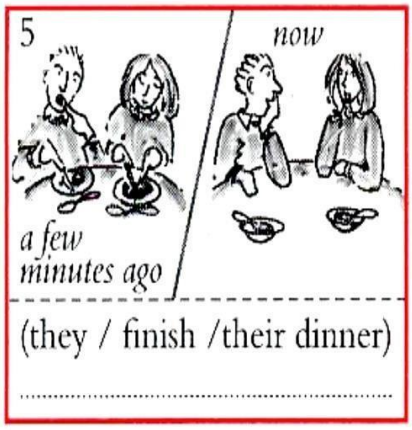






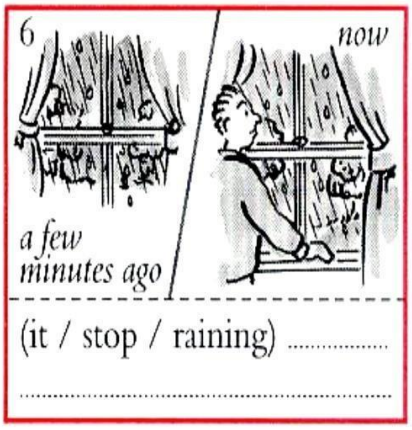
(he / open / it) .....

.....



(they / finish /their dinner)

.....



(it / stop / raining) .....

.....

Write questions with **yet**.

1 Your friend has got a new job. Perhaps she has started it. You ask her:
Have you started your new job yet?

2 Your friend has some new neighbours. Perhaps he has met them. You ask him:
..... you .....

3 Your friend must write a letter. Perhaps she has written it now. You ask her:
.....

4 Tom was trying to sell his car. Perhaps he has sold it now. You ask a friend about Tom:
.....

You are asking Helen questions beginning **Have you ever ... ?** Write the questions.

1	(London?) Have you ever been to London?	No, never.
2	(play / golf?) Have you ever played golf?	Yes, many times.
3	(Australia?) Have	No, never.
4	(lose / your passport?)	Yes, once.
5	(fly / in a helicopter?)	No, never.
6	(eat / Chinese food?)	Yes, a few times.
7	(New York?)	Yes, twice.
8	(drive / a bus?)	No, never.
9	(break / your leg?)	Yes, once.

Present Perfect 3 For, Since, Ago, how long

We use for and since to say how long

Since = point of time in the past

for = period of time

Complete these sentences.

1 Jill is in hospital. She has been in hospital since Monday.
2 I know Sarah. I have known her for a long time.
3 Linda and Frank are married. They ..... married since 1989.
4 Brian is ill. He ..... ill for the last few days.
5 We live in Scott Road. We ..... there for ten years.
6 Catherine works in a bank. She ..... in a bank for five years.
7 Alan has a headache. He ..... a headache since he got up this morning..
8 I'm learning English. I ..... English for six months.

Present Perfect 4

We use the continuous to ask or say *how long* (for an activity that is still happening):	We use the simple to ask or say *how much*, *how many* or *how many times* (completed actions):
• How long **have** you **been reading** that book? • Mary is still writing letters. She's **been writing** letters **all day.** • They've **been playing** tennis **since 2 o'clock.**	• How many pages of that book **have** you **read?** • Mary **has written** ten letters today. • They've **played** tennis three times this week.

Make questions with **How long ... ?**

1	Jill is on holiday.	How long has she been on holiday ?
2	Mike and Judy are in Brazil.	How long ..... ?
3	I know Margaret.	How long ..... you ..... ?
4	Diana is learning Italian.	..... ?
5	My brother lives in Canada.	..... ?
6	I'm a teacher.	..... ?
7	It is raining.	..... ?

Read the situations and write two sentences using the words in brackets.

1 Tom started reading a book two hours ago. He is still reading it and now he is on page 53.
(read / for two hours) ...He has been reading for two hours.
(read / 53 pages so far) ...He has read 53 pages so far.

2 Linda is from Australia. She is travelling round Europe at the moment. She began her tour three months ago.
(travel / for three months) She .....
(visit / six countries so far) .....

3 Jimmy is a tennis player. He began playing tennis when he was ten years old. This year he is national champion again – for the fourth time.
(win / the national championship four times) .....
(play / tennis since he was ten) .....

4 When they left college, Mary and Sue started making films together. They still make films.
(make / ten films since they left college) They .....
(make / films since they left college) .....

For each situation, ask a question using the words in brackets.

1 You have a friend who is learning Arabic. You ask:
(how long / learn / Arabic?) ...How long have you been learning Arabic?

2 You have just arrived to meet a friend. She is waiting for you. You ask:
(how long / wait?) .....

3 You see somebody fishing by the river. You ask:
(how many fish / catch?) .....

4 Some friends of yours are having a party next week. You ask:
(how many people / invite?) .....

5 A friend of yours is a teacher. You ask:
(how long / teach?) .....

6 You meet somebody who is a writer. You ask:
(how many books / write?) .....
(how long / write / books?) .....

7 A friend of yours is saving money to go on holiday. You ask:
(how long / save?) .....
(how much money / save?) .....

Past Tense

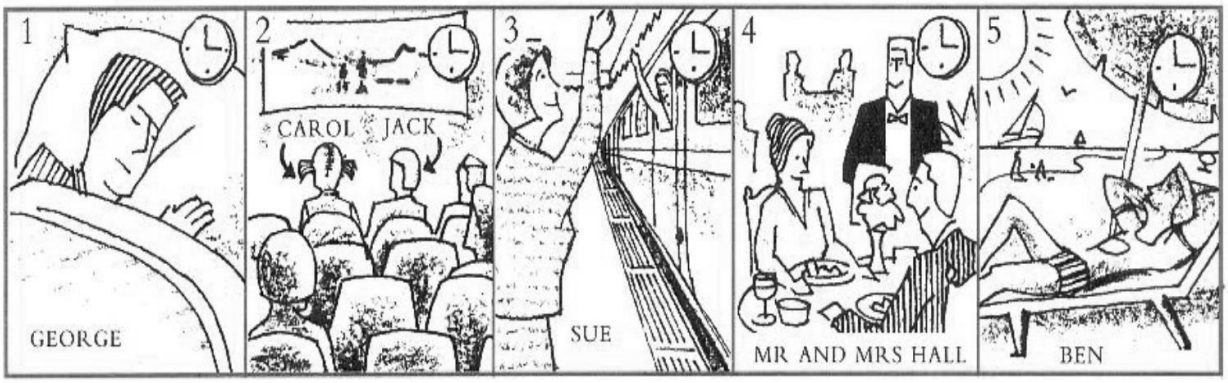
Verb Be - Was / Were

Now Robert **is** at work.

At midnight last night he **wasn't** at work.

He **was** in bed.
He **was** asleep.

Look at the pictures. Where were these people at 3 o'clock yesterday afternoon?



1 George was in bed.
2 Carol and Jack .....
3 Sue .....
4 .....
5 .....
6 And you? I .....

Put in **am/is/are** (present) or **was/were** (past).

1 Last year she was 22, so she is 23 now.
2 Today the weather ..... nice, but yesterday it ..... very cold.
3 I ..... hungry. Can I have something to eat?
4 I feel fine this morning but I ..... very tired last night.
5 Where ..... you at 11 o'clock last Friday morning?
6 Don't buy those shoes. They ..... very expensive.
7 I like your new jacket. ..... it expensive?
8 This time last year I ..... in Paris.
9 'Where ..... the children?' 'I don't know. They ..... in the garden ten minutes ago.'

Put in **was/were** or **wasn't/weren't**.

1 We weren't happy with the hotel. Our room ...was... very small and it ...wasn't... very clean.
2 George ..... at work last week because he ..... ill. He's better now.
3 Yesterday ..... a public holiday so the shops ..... closed. They're open today.
4 '..... Sue and Bill at the party?' 'Sue ..... there but Bill ..... .'
5 'Where are my keys?' 'I don't know. They ..... on the table but they're not there now.'
6 You ..... at home last night. Where ..... you?

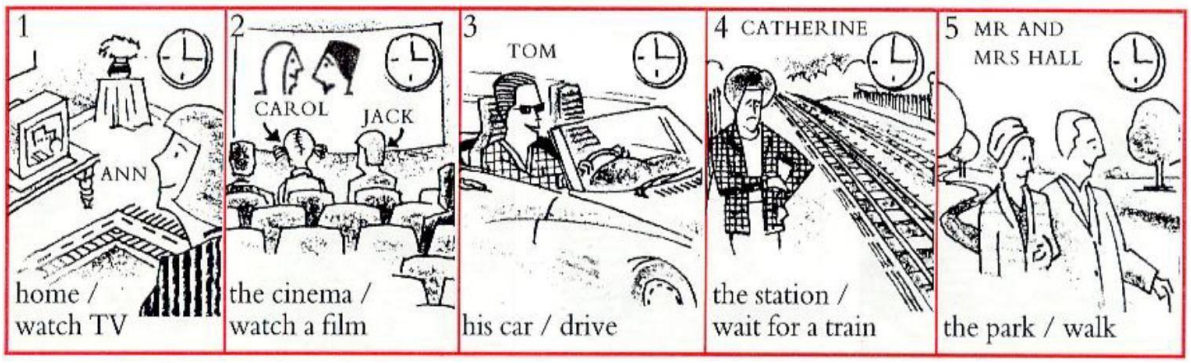
Write the questions. Use the words in brackets (...) in the correct order + **was/were**.

1	(late / you / this morning / why?) Why were you late this morning?	The traffic was bad.
2	(difficult / your exam?)	No, it was easy.
3	(last week / where / Ann and Chris?)	They were on holiday.
4	(your new camera / how much?)	Sixty pounds.
5	(angry / you / yesterday / why?)	Because you were late.
6	(nice / the weather / last week?)	Yes, it was beautiful.

Past Continuous

Was / were + -ing (used for actions that were continuing in the past)

Look at the pictures. Where were these people at 3 o'clock yesterday afternoon? And what were they doing? Write two sentences for each picture.



1 Ann was at home. She was watching TV.
2 Carol and Jack ..... . They .....
3 Tom .....
4 .....
5 .....
6 And you? I .....

Complete the questions. Use **was/were -ing**. Use **what/where/why** if necessary.

1	(you/live) Where were you living in 1990?	In London.
2	(you/do) ..... at 2 o'clock?	I was asleep.
3	(it/rain) ..... when you got up?	No, it was sunny.
4	(Ann/drive) ..... so fast?	Because she was in a hurry.
5	(Tim/wear) ..... a suit yesterday?	No, a T-shirt and jeans.

Look at the picture. You saw Joe in the street yesterday afternoon. What was he doing? Write positive or negative sentences.

1 (wear / a jacket) He wasn't wearing a jacket.
2 (carry / a bag) .....
3 (go / to the dentist) .....
4 (eat / an ice-cream) .....
5 (carry / an umbrella) .....
6 (go / home) .....
7 (wear / a hat) .....
8 (ride / a bicycle) .....

Past Simple (Used for actions that were completed in the past)

The past tense form is often –ed for regular verbs.

work → work**ed** clean → clean**ed** start → start**ed**
stay → stay**ed** arrive → arriv**ed** dance → danc**ed**

Some verbs are irregular, therefore the past simple is not –ed but a different form. Here are the present / past tense forms of some important irregular verbs:

begin	**began**	fall	**fell**	leave	**left**	sell	**sold**
break	**broke**	find	**found**	lose	**lost**	sit	**sat**
bring	**brought**	fly	**flew**	make	**made**	sleep	**slept**
build	**built**	forget	**forgot**	meet	**met**	speak	**spoke**
buy	**bought**	get	**got**	pay	**paid**	stand	**stood**
catch	**caught**	give	**gave**	put	**put**	take	**took**
come	**came**	go	**went**	read	**read** /red/*	tell	**told**
do	**did**	have	**had**	ring	**rang**	think	**thought**
drink	**drank**	hear	**heard**	say	**said**	win	**won**
eat	**ate**	know	**knew**	see	**saw**	write	**wrote**

Write the past simple of these verbs.

1 get got	4 pay	7 go	10 know .....
2 see	5 visit	8 think	11 put .....
3 play	6 buy	9 copy	12 speak .....

Read about Lisa's journey to Madrid. Put the verbs in the correct form.

Last Tuesday Lisa (1) flew from London to Madrid. She (2) ..... up at six o'clock in the morning and (3) ..... a cup of coffee. At 6.30 she (4) ..... home and (5) ..... to the airport. When she (6) ....., she (7) ..... the car and then (8) ..... to the airport café where she (9) ..... breakfast. Then she (10) ..... through passport control and (11) ..... for her flight. The plane (12) ..... on time and (13) ..... in Madrid two hours later. Finally she (14) ..... a taxi from the airport to her hotel in the centre of Madrid.

fly, get
have
leave, drive
arrive, park, go
have, go
wait, depart
arrive
take

We use **did** in past simple negatives and questions.

Complete these sentences with the verb in the negative.

1 I saw Barbara but I didn't see Jane.
2 They worked on Monday but they ..... on Tuesday.
3 We went to the post office but we ..... to the bank.
4 She had a pen but she ..... any paper.
5 Jack did French at school but he ..... German.

Write questions with **Did ...?**

1 I watched TV last night. And you? Did you watch TV last night?
2 I enjoyed the party. And you? .....
3 I had a good holiday. And you? .....
4 I finished work early. And you? .....
5 I slept well last night. And you? .....

Look at the pictures and put the verbs in the correct form, past continuous or past simple.

1 

Carol broke (break) her arm last week. It ..... (happen) when she ..... (paint) her room. She ..... (fall) off the ladder.

2 

The train ..... (arrive) at the station and Paula ..... (get) off. Two friends of hers, John and Jenny, ... (wait) to meet her.

Put the verb into the past continuous or past simple.

1 A: What were you doing (you/do) when the phone rang (ring)?
B: I was watching (watch) television.
2 A: Was Jane busy when you went to see her?
B: Yes, she ..... (study).
3 A: What time ..... (the post / arrive) this morning?
B: It ..... (come) while I ..... (have) breakfast.
4 A: Was Margaret at work today?
B: No, she ..... (not/go) to work. She was ill.
5 A: How fast ..... (you/drive) when the police ..... (stop) you?
B: I don't know exactly but I ..... (not/drive) very fast.
6 A: ..... (your team / win) the football match yesterday?
B: No, the weather was very bad, so we ..... (not/play).
7 A: How ..... (you/break) the window?
B: We ..... (play) football. I ..... (kick) the ball and it ..... (hit) the window.
8 A: ..... (you/see) Jenny last night?
B: Yes, she ..... (wear) a very nice jacket.
9 A: What ..... (you/do) at 2 o'clock this morning?
B: I was asleep.
10 A: I ..... (lose) my key last night.
B: How ..... (you/get) into your room?
A: I ..... (climb) in through a window.

Past Perfect had + past participle (I had done ...)

(used to state that one action happened before another in the past)

Read the situations and write sentences from the words in brackets.

1 You went to Jill's house but she wasn't there. (she / go / out) ...She had gone out.....
2 You went back to your home town after many years. It wasn't the same as before.
(it / change / a lot) .....
3 I invited Rachel to the party but she couldn't come.
(she / arrange / to do something else) .....
4 You went to the cinema last night. You arrived at the cinema late.
(the film / already / begin) .....
5 I was very pleased to see Tim again after such a long time.
(I / not / see / him for five years) .....
6 I offered Sue something to eat but she wasn't hungry.
(she / just / have / breakfast) .....

Put the verb into the correct form, past perfect (I had done *etc.*) *or past simple* (I did *etc.*).

1 'Was Tom at the party when you arrived?' 'No, he ...had gone... (go) home.'
2 I felt very tired when I got home, so I ..... (go) straight to bed.
3 The house was very quiet when I got home. Everybody ..... (go) to bed.
4 Sorry I'm late. The car ..... (break) down on my way here.
5 We were driving along the road when we ..... (see) a car which
..... (break) down, so we ..... (stop) to see if we could help.

Past Perfect Continuous (had been doing)

e.g.

Yesterday morning I got up and looked out of the window.
The sun was shining but the ground was very wet.
It **had been raining**.

You can say that something had been **happening** for a period of time *before something else happened*:

- Our game of tennis was interrupted. We'**d been playing** for about half an hour when it started to rain very heavily.
- Ken gave up smoking two years ago. He'**d been smoking** for 30 years.

Read the situations and make sentences from the words in brackets.

1 I was very tired when I arrived home.
(I / work / hard all day) ...I had been working hard all day.....

2 The two boys came into the house. They had a football and they were both very tired.
(they / play / football) .....

3 There was nobody in the room but there was a smell of cigarettes.
(somebody / smoke / in the room) .....

4 Ann woke up in the middle of the night. She was frightened and didn't know where she was.
(she / dream) .....

5 When I got home, Mike was sitting in front of the TV. He had just turned it off.
(he / watch / TV) .....

Read the situations and complete the sentences.

1 We played tennis yesterday. Half an hour after we began playing, it started to rain.
We ...had been playing for half an hour... when ...it started to rain....

2 I had arranged to meet Tom in a restaurant. I arrived and waited for him. After 20 minutes I suddenly realised that I was in the wrong restaurant.
I ..... for 20 minutes when I .....
.....

3 Sarah got a job in a factory. Five years later the factory closed down.
At the time the factory ....., Sarah .....
..... there for five years.

4 I went to a concert last week. The orchestra began playing. After about ten minutes a man in the audience suddenly began shouting.
The orchestra ..... when .....
.....

5 *This time make your own sentence:*
I began walking along the road. I .....
when .....

Used to …

Dave **used to work** in a factory. Now he **works** in a supermarket.

Dave **used to work** in a factory = he worked in a factory before but he doesn't work there now:

Look at the pictures. Complete the sentences with **used to …** .

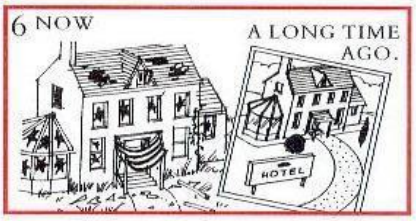
She used to have long hair.

He ..... football.

..... a taxi driver.

..... in the country.

.....



This building .....

Complete these sentences. Use **used to** or the present simple (**I play / he lives** etc.).

1 I used to play tennis. I stopped playing a few years ago.
2 Do you do any sport?' 'Yes, I play basketball.
3 'Have you got a car?' 'No, I ..... one but I sold it.'
4 George ..... a waiter. Now he's the manager of a hotel.
5 'Do you go to work by car?' 'Sometimes but most days I ..... by train.'
6 When I was a child, I never ..... meat, but I eat it now.
7 Mary loves watching TV. She ..... TV every evening.
8 We ..... near the airport but we moved to the city centre a few years ago.
9 Normally I start work at 7 o'clock, so I ..... up very early.
10 What games ..... you ..... when you were a child?

Future Tense

Will

Complete the sentences. Use **I'll (I will)** + one of these verbs:

~~carry~~ do eat send show sit stay

1	My bag is very heavy.	I'll carry it for you.
2	Enjoy your holiday.	Thank you. ..... you a postcard.
3	I don't want this banana.	Well, I'm hungry. ..... it.
4	Do you want a chair?	No, it's OK. ..... on the floor.
5	Did you phone Jenny?	Oh no, I forgot. ..... it now.
6	Are you coming with me?	No, I don't think so. ..... here.
7	How do you use this camera?	Give it to me and ..... you.

Complete the sentences. Use **I think I'll ...** or **I don't think I'll ...** + one of these verbs:

buy ~~go~~ have play

1 It's cold today. I don't think I'll go out.
2 I'm hungry. I ..... something to eat.
3 I feel tired. ..... tennis.
4 This camera is too expensive. ..... it.

Which is right?

1 ~~I phone~~ / I'll phone you tomorrow, OK? I'll phone is right
2 I haven't done the shopping yet. I do / I'll do it later.
3 I like sport. I watch / I'll watch a lot of sport on TV.
4 I need some exercise. I think I go / I'll go for a walk.
5 Jim is going to buy / will buy a new car. He told me last week.
6 'This letter is for Rose.' 'OK. I give / I'll give / I'm going to give it to her.'
7 A: Are you doing / Will you do anything this evening?
B: Yes, I'm going / I'll go out with some friends.

Will be

Sarah goes to work every day. She is always there from 8.30 until 4.30.

It is 11 o'clock now. Sarah **is** at work.

At 11 o'clock yesterday, she **was** at work.

At 11 o'clock tomorrow, she **will be** at work.

Helen is travelling in Europe. Complete the sentences with **she was**, **she's** or **she'll be**.

1 Yesterday she was in Paris.
2 Tomorrow ..... in Amsterdam.
3 Last week ..... in Barcelona.
4 Next week ..... in London.
5 At the moment ..... in Brussels.
6 Three days ago ..... in Munich.
7 At the end of her trip ..... very tired.

Where will you be? Write sentences about yourself. Use:

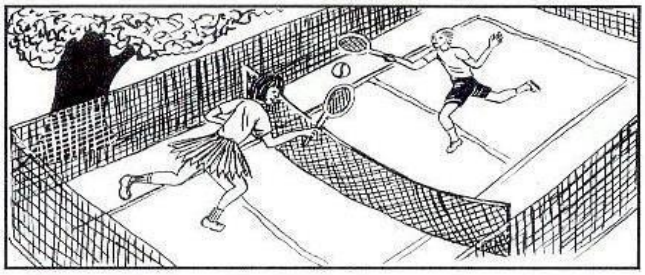
I'll be ... *or* **I'll probably be ...** *or* **I don't know where I'll be.**

1 (at 10 o'clock tomorrow)
I'll probably be on the beach. OR I'll be at work. OR I don't know where I'll be.
2 (one hour from now) .....
3 (at midnight tonight) .....
4 (at 3 o'clock tomorrow afternoon) .....
5 (two years from now) .....

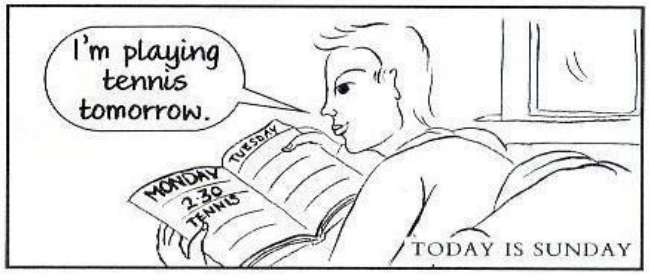
Put in **will** ('ll) or **won't**.

1 Don't drink coffee before you go to bed. You won't sleep.
2 'Are you ready yet?' 'Not yet. I ..... be ready in five minutes.'
3 I'm going away for a few days. I'm leaving tonight, so I ..... be at home tomorrow.
4 It ..... rain, so you don't need to take an umbrella.
5 A: I don't feel very well this evening.
B: Well, go to bed early and you ..... feel better in the morning.
6 It's Bill's birthday next Monday. He ..... be 25.
7 I'm sorry I was late this morning. It ..... happen again.

Present Continuous (I am doing) with a future meaning

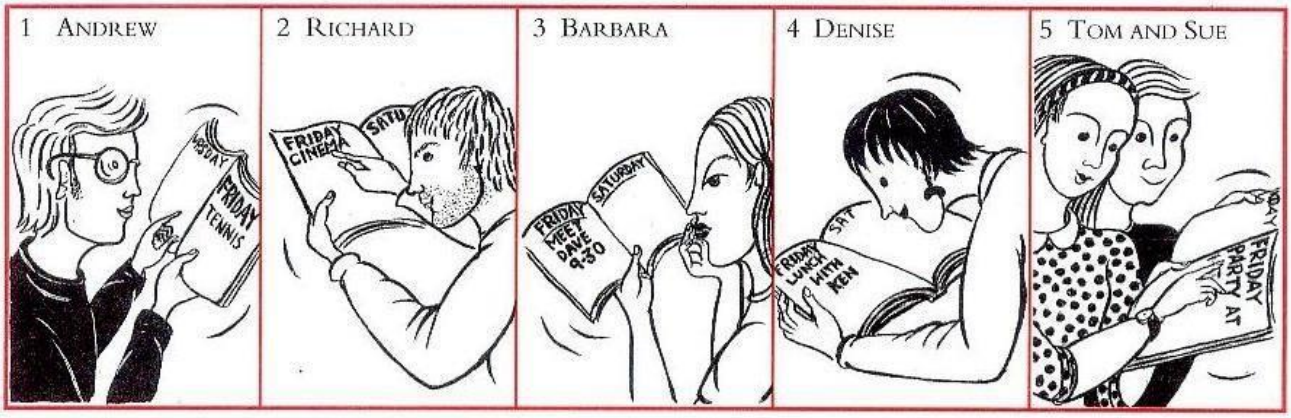


They **are playing** tennis (**now**).



He **is playing** tennis **tomorrow**.

Look at the pictures. What are these people doing next Friday?



1 Andrew is playing tennis on Friday.
2 Richard ..... to the cinema.
3 Barbara .....
4 ..... lunch with Ken.
5 .....

Write questions. All the sentences are future.

1 (you / go / out / tonight?) Are you going out tonight?
2 (you / work / next week?) .....
3 (what / you / do / tomorrow evening?) .....
4 (what time / your friends / arrive?) .....
5 (when / Liz / go / on holiday?) .....

Write sentences about yourself. What are you doing in the next few days?

1 I'm staying at home tonight.
2 I'm going to the theatre on Monday.
3 .....
4 .....
5 .....
6 .....

Will be doing (Future Continuous) and Will have done (Future Perfect)

Study this example situation:

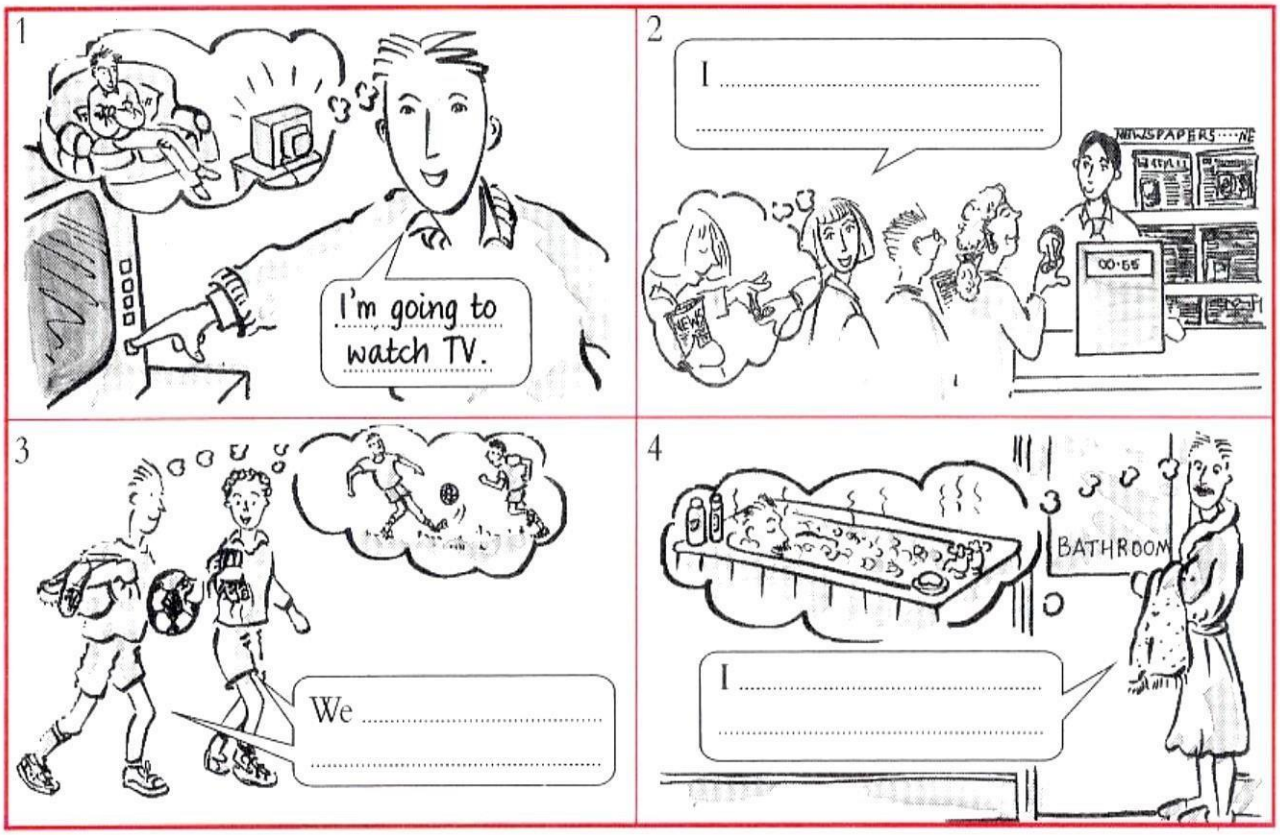
> Kevin loves football and this evening there is a big football match on television. The match begins at 7.30 and ends at 9.15. Paul wants to see Kevin the same evening and wants to know what time to come to his house.
>
> PAUL: Is it all right if I come at about 8.30?
> KEVIN: No, I'll **be watching** the football then.
> PAUL: Well, what about 9.30?
> KEVIN: Fine. The match **will have finished** by then.

Put the verb into the correct form, **will be** (do)**ing** *or* **will have** (done).

1 Don't phone me between 7 and 8. ...We'll be having... (we/have) dinner then.
2 Phone me after 8 o'clock. ..... (we/finish) dinner by then.
3 Tomorrow afternoon we're going to play tennis from 3 o'clock until 4.30. So at 4 o'clock, ... (we/play) tennis.
4 A: Can we meet tomorrow afternoon?
B: Not in the afternoon. ..... (I/work).
5 *B has to go to a meeting which begins at 10 o'clock. It will last about an hour.*
A: Will you be free at 11.30?
B: Yes, ... (the meeting/finish) by that time.
6 Tom is on holiday and he is spending his money very quickly. If he continues like this, ... (he/spend) all his money before the end of his holiday.
7 Chuck came to Britain from the USA nearly three years ago. Next Monday it will be exactly three years. So on Monday, ... (he/be) in Britain for exactly three years.
8 Do you think ..... (you/still/do) the same job in ten years' time?
9 Jane is from New Zealand. She is travelling around Europe at the moment. So far she has travelled about 1,000 miles. By the end of the trip, ... (she/travel) more than 3,000 miles.
10 If you need to contact me, ... (I/stay) at the Lion Hotel until Friday.

Going to … (It is my intention to do it / something is about to happen)

What are these people saying?

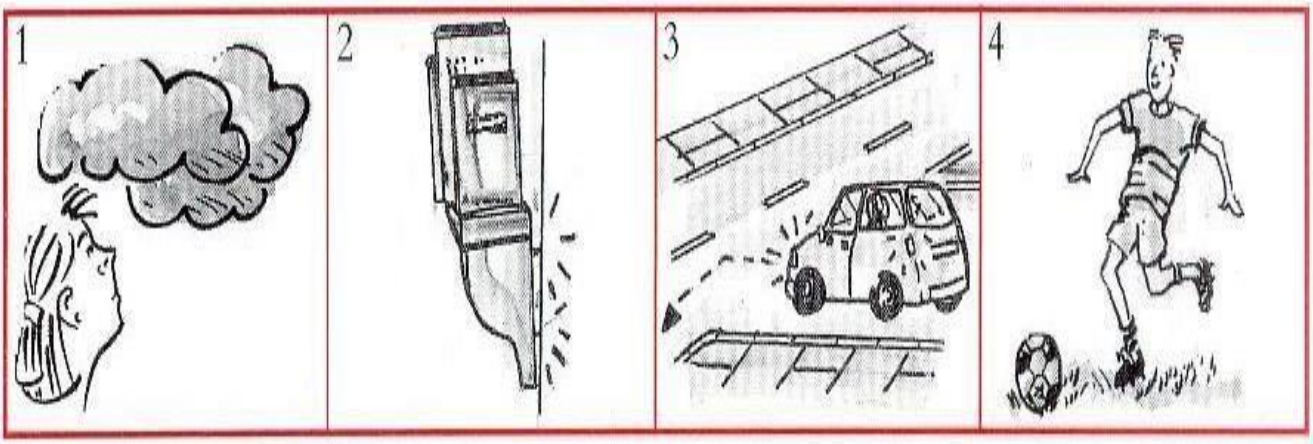


Complete the sentences. Use **going to** + one of these verbs:

eat **do** **give** **lie down** **stay** **walk** ~~**wash**~~ **watch** ~~**wear**~~

1 My hands are dirty. I'm going to wash them.
2 What are you going to wear to the party tonight?
3 I don't want to go home by bus. I .....
4 John is going to London next week. He ..... with some friends.
5 I'm hungry. I ..... this sandwich.
6 It's Sharon's birthday next week. We ..... her a present.
7 Sue says she's feeling very tired. She ..... for an hour.
8 There's a good film on TV this evening. ..... you ..... it?
9 What ..... Rachel ..... when she leaves school?

Look at the pictures. What is going to happen?



1 It's going to rain.

2 The shelf .....

3 The car .....

4 He .....

What are you going to do today or tomorrow? Write three sentences.

1 I'm .....

2 .....

3 .....

(Ref. Reymond Murphy / Essential English Grammar, English Grammar in Use)