**References**


1. Text book; New Headway Plus. Pre-Intermediate (60%)
2. Specialization (English Technical Language): (40%)
   2.1 English Academic Writing for Students and Researchers. T. V. Yakhontova, 2003.
   2.2 New Headway Academic Skills Level 1 Student's Book
   2.3 English Solutions for Engineering Adam Turner, 2009

## Unite One

## The Sentence

### 1.1 The Sentence

❖ A sentence is a group of words that are put together to mean something. A sentence is the basic unit of language which expresses a complete thought. It does this by following the grammatical rules of syntax.

A complete sentence has at least a subject and the main verb to state a complete thought. The first word of a written sentence has a capital letter, and at the end of the sentence there is a full stop or full point.

The sentence consists of:

subject + verb + object or (preposition + noun)

### 1.2 Sentence Structure

❖ The basic unit of grammar is the clause. All clauses have at least two parts: a noun phrase (subject) and a verb phrase.

clause = subject + verb

We can join two or more clauses together to make a sentence.

Example:

Although <u>the method</u> improved accuracy, <u>it</u> <u>caused</u> a significant increase in computation time.

(subject) (verb) (subject) (verb)

❖ There are two types of clause: main clause (independent clause) and subordinate clause (dependent clause):

(1) Main clause (Independent clause)

The main clause contains a subject and a verb that has a tense that expresses a complete thought. It can make sense as a sentence by itself as the underlined clause shows below.

The main clause is formed with a subject + verb.

Example:

Although the method improved accuracy, <u>it caused a significant increase in computation time.</u>

(2) Subordinate clauses (Dependent clause)

A subordinate clause begins with a subordinator such as **when**, **although**, **if**, **that**, or **who**. A dependent clause does not express a complete thought and does not make sense as a complete sentence by itself, it supports the main idea in the main clause.

A subordinate clause is formed with subordinator + subject + verb.

$\underbrace{\text{Although the method improved accuracy}}_{\text{subordinate clause}}$, $\underbrace{\text{it caused a significant increase in computation time.}}_{\text{main clause}}$

The difference between a clause and a sentence is that the main clause makes sense as a complete sentence. A subordinate clause lacks some information to make it a complete sentence.

- Clauses are made up of phrases. A phrase is a group of words that does not have a subject and verb; for example, “in the morning”, “To improve writing skills” etc.

## 1.3 Types of Sentence Structure

There are three basic types of sentences:

(1) Simple sentence

A simple sentence has one main (independent) clause.

Example:

The earth shook.

(2) Compound sentence

A compound sentence has two main (independent) clauses joined by a coordinator or conjunctive adverb.

Examples:

(A) Coordinator

| main clause | ,coordinator | main clause |
|---|---|---|
| He borrows a book | , and | started reading it. |
| He worked hard | , but | he did not pass the exam. |
| Study hard | , or | you will fail. |

- and: is used when the statements are similar.
- but: is used to connect statements that express opposite ideas.

(B) Conjunctive adverb

| the main clause | ; conjunctive adverb, | the main clause |
|---|---|---|
| Writing well is a difficult skill to develop | ; however, | it is important for professional success. |

- A conjunctive adverb is an adverb that connects two independent clauses. The conjunctive adverb shows cause and effect, sequence, contrast, comparison, or other relationships.
- The conjunctive adverbs are: accordingly, consequently, for example, furthermore, hence, in addition, in contrast, in fact, indeed, instead, moreover, nevertheless, otherwise, therefore, thus.

(3) Complex sentence

A complex sentence has one independent and one (or more) dependent clauses. There are three kinds of subordinate clauses:

(A) Adverb clause,
(B) Adjective clause and
(C) Noun clause.

- In an adverb clause, the subordinate clause can be either at the beginning or end of the sentence. Words like a **while**, **when**, **if**, **because**, **since**, **whereas**, **as**, etc. introduce subordinate adverb clauses.

Examples:

(A) Adverb clause

| subordinate clause (adverb clause) | , | main clause |
|---|---|---|
| Because using multimedia is more interesting to students | , | they may be more motivated to learn. |

| main clause | No comma | subordinate clause (adverb clause) |
|---|---|---|
| They may be more motivated to learn | | because using multimedia is more interesting to students. |

(B) Adjective (relative) clause

| the main clause | the subordinate clause (adjective clause) |
|---|---|
| Communicative teaching is done using group work, | which helps students to have more time to use the new language in conversation. |

C) Noun clause

| the main clause | dependent clause (noun clause) |
|---|---|
| The teachers do not agree | that the teaching method is effective. |

**Exercise 1**: The following sentences have been divided into two parts. The first part of each sentence is in list A and the second part is in list B. Write a complete sentence consists of the two parts:

| List A | List B |
|---|---|
| 1. An elastic body returns to its original form | a. although it is in compression |
| 2. The modern building materials are deformed very slightly | b. Because it is subjected to a high pressure and temperature |
| 3. High-temperature creep is developed in a boiler | c. when the deforming force is removed |

## Unite Two

## Articles

(Unit Four, New Headway Plus. Pre-Intermediate)

Articles are the forms **a**, **an**, and **the**, it is a part of speech that comes before a noun.

### 2.1 The Indefinite Articles (a/an)

- The form **a** is used before a word beginning with a consonant, or a vowel with a consonant sound:

  **a** plane **a** one-way

- The form **an** is used before words beginning with a vowel (a, e, i, o, u) or words beginning with a silent **h:**

  **an** iron **an** hour

❖ Use of the indefinite articles:

The indefinite articles (a/an) are used:

(1) Before a singular noun which is countable (i.e. of which there is more than one) when it is mentioned for the first time and represents no particular person or thing:

The four centers lie in **a** plane.

(2) With a noun complement:

The noun complement is a word or phrase used to complete a grammatical construction. There are two kinds of noun complements; subject complement and object complement.

A subject complement is a predicative expression that follows a linking verb (the term linking verb is used to refer to verbs that describe the subject or link

the subject to some complement such as a predicate adjective or predicate noun) and that completes the subject of the sentence by either renaming it or describing it.

The subject complement is bold in the following examples:

The lake was a **tranquil** pool.

Predicate adjective

It was an **earthquake**.

Predicate noun

The object complement is a noun, pronoun, or adjective which follows a direct object.

The advisor sent him a **paper**

Indirect object (entity indirectly affected by the action)

## 2.2 The Definite Article (the)

The definite article **the** is used with countable nouns in the singular/plural and uncountable nouns in the meaning "mentioned earlier."

❖ Use of the definite articles:

The definite article (the) is used:

(1) In generalizations with singular countable nouns to refer to a class of things.

**The brain** is a complex biological system.

(2) Before the superlative degrees of adjectives, ordinal numerals, and specifies (such as same, only, principal, etc.).

**The <u>best</u>** results were obtained during **the <u>second</u>** experiment.

Superlative degree of adjective | Ordinal numbers

**The only** paper on this problem was published ten years ago.

(3) With the names of unique objects.

**The Universe** is thought to contain $10^{11}$ kilograms of matter.

(4) With the names of theories and devices modified by a proper name used as an adjective:

The Dirichlet problem, the Celsius scale

BUT: when a proper name is used in the possessive form, no article is used:

Dirichlet's conditions

<u>Note</u>:

The definite article "the" is not used with the first mention of the constructions that denote the part of a whole:

a molecule of hydrogen

**2.3 Additional Grammar Reference**

- New Headway Plus, Student's Book, Unit Four, Section 4.2, Page 133.

**<u>Exercises</u>**:

- New Headway Plus, Workbook with key, Unit Four- Items 7, 8 and 9 of Pages 24-25.

## Unite Three

## Present Simple

(Unit Two, New Headway Plus. Pre-Intermediate)

**3.1 The Verb:** It is a part of speech (or word class) that describes an action or indicates a state of being.

| Action | State of being |
|---|---|
| We **study** different topics | We **are** postgraduate students |

- Types of the verb:

(1) The main verb: is any verb that isn't an auxiliary verb, it conveys a real meaning and doesn't depend on another verb.

e.g. He studied geometry last year.

(2) An auxiliary verb (also known as a helping verb): determines the tense of another verb in a phrase.

The primary auxiliaries are **be**, **have**, and **do**. The modal auxiliaries include **can**, **could**, **may**, **must**, **should**, **will**, and **would**.

e.g. Mechanics is a branch of physics.

(3) A finite verb: expresses tense and can occur on its own in the main clause: e.g. The foundation settled.

### 3.2 Present Simple

The present simple is used to make statements about the present time.

#### 3.2.1 Use of present simple

It is used in the following ways.

1. Permanent facts: These sentences give facts which are always true.

For example: Water consists of hydrogen and oxygen.

2. Present facts: These sentences are true now.

For example: I work at home.

"I work at home" doesn't mean I am working right now, but it does mean that in my present condition I work at home.

3. Habitual actions: These actions are repeated regularly, so they are considered a present reality and are expressed in the simple present.

For example: They use public transportation every day.

**3.2.2 Negative form of present simple**

In the negative statements of the simple present use the following form:

| Affirmative | Negative |
|---|---|
| subject + verb + object | subject + do/does + not + verb + object |
| I walk to school. | I don't live far from here. |
| He works near hear. | He doesn't work downtown. |

<u>Notes</u>:

1. Contractions: don't = do not, doesn't = does not

Use don't and doesn't instead of do not and does not, respectively when you speak, and for informal writing.

2. If the subject is I, you, we, or they, use the simple form of the verb.

3. If the subject "he, she, or it" (third singular person) in the simple present, the rules are:

a. Most of verbs ends in -s

work works

b. Verbs ending in /s/ /ch/ /sh/ /z/ /o/ /x/ add -es

watch watches

wash washes

do does

go goes

fix fixes

c. Verbs ending in consonant + y, change the "y" to "ies"

study studies

try tries

4. The following adverbs are usually used with the present simple tense:

every morning, every day, every week …

once a day, twice a week, three times a month …

usually, always, frequently, generally, occasionally, seldom, rarely …

**3.3 Agreement of Subject and Verb**

The subject and the main verb of a sentence (clause) must agree in number.

1. A singular noun, pronoun, or an uncountable noun is used with a singular verb. A plural noun or pronoun is used with a plural verb.

   The water in the river is fresh and transparent.

1. After "**or**" or "**nor**" a verb agrees with the subject closest to it.

   The chairman or the committee members decide when to meet next.
   Neither Oxygen nor other air gases are visible.

2. The following singular expressions with plural nouns agree with plural verbs: a number of..., the majority of..., a couple of..., a lot of...

**A number of** researchers from your university are taking part in the conference.

Note:

The verb after **the number of** is singular.

For example, The number of earthquakes is not known.

3. The following nouns ending in -s agree with singular verbs: means, dynamics, physics (and other like subjects of study).

   Physics is a natural science.

4. Names of quantities thought of as one unit have singular verbs.

   Five miles is too much to walk.

5. The name of a book is singular.

   "Grammar and Idiom" is a useful book.

### 3.4 Additional Grammar Reference

- New Headway Plus, Student's Book, Section 2.1, Page 130.

**Exercises**:

- New Headway Plus, Workbook with key, Unit Two-Items 1and 4 of Pages 10 and 11, respectively.

Unit Four

Present Perfect and Past Simple

(Units Three, Seven and Ten, New Headway Plus. Pre-Intermediate)

**4.1 Past Simple** (Unit Three, New Headway Plus. Pre-Intermediate)

- Form

The regular verbs form Past Simple with

| | |
|---|---|
| the addition of **-ed** | in affirmative sentences |
| **did** and **did not** + the infinitive without to | in questions and negative sentences |

Irregular verbs many forms in the affirmative, but use the forms "did/did not" in in question and answer forms as regular verbs.

- Use

The Past Simple tense is used:

(1) for n action completed in the past at a known time

He **accomplished** two projects last year.
I **worked** in London from 1995 to 2000.

(2) to describe the different steps in making an experiment.

<u>Note</u>:

The Past Simple is used with adverbs of past time: **yesterday**, **last night/week/year**, **just now**.
The Past Simple is used with adverbs of time with "ago": **few minutes ago**, **three days ago**, **a long time ago**

That bridge was built many years ago.

**4.2 Used to** (Unit Ten, 10.2 Page 139, New Headway Plus. Pre-Intermediate)

- Form

The form of **(Used to + infinitive)** is always past.

(1) **Used + to + infinitive** (the base form of the verb in all persons in the affirmative)

Tourists used to come here.

(2) The questions and short answers are formed with **did**

Did tourists use to?

| Simple past tense | the base form of the verb |
|---|---|

- Use

**Used to** is used:

(1) to express a past habit

He **used to** play football every Saturday.

(2) to express a past state

They **used to** be happy together.

**4.3 Present Perfect**

- Form

have/has + -ed (past participle)

The past participle of regular verbs ends in **-ed**.

- Use

(1) The Present Perfect looks back from the present into the past, and expresses what has happened before now. The action happened at an indefinite time in the past, for example:

She **has written** two books. (up to now)

The action can continue to the present, and probably into the future, for example:

She **has lived** here for twenty years. (she still lives here)

(2) The Present Perfect expresses an experience as part of someone's life.

They **have lived** all over the world.

Note:

**Ever** and **never** are common with this use.

He has **never** flown in a plane.

(3) The Present Perfect expresses an action or state which began in the past and continues to the present.

How long **have** you **worked** as a teacher?

Note:

The time expressions **for** and **since** are common with this use. The time expression **for** is used with a period of time, and **since** with a point in time.

We have lived here **for** two years. (a period of time)

I have worked **since** April. (a point in time)

(4) The Present Perfect expresses a past action with results in the present. It is often a recent past action.

I **have lost** my book. (I have not got it now.)

Note:

The adverbs **just**, **already** and **yet** are common with this use. The adverb **yet** is used in questions and negative.

## 4.4 Comparing between the Past Simple and Present Perfect

Past Simple

1. The Past refers to an action that happened at definite time in the past.
2. The action is finished.
3. Time expressions + the Past Simple

Present Perfect

1. The Present Perfect refers to an action that happened at an indefinite time in the past.
2. The action can continue to the present.
3. Time expressions + the Present Perfect

## 4.5 Additional Grammar Reference

- New Headway Plus, Student's Book, Sections 3.1and 7.1-7.2 of Pages 131 and 136, respectively.

**Exercises**:

- New Headway Plus, Workbook with key: Unit Three-Item 6 of Page 18, Unit Seven-Items 6 and 7 of Page 40, and Unit Ten-Item 5 of Page 54.

Unit Five

Quantity

(Unit Four, New Headway Plus. Pre-Intermediate)

## 5.1 Expressions of quantity

**5.1.1** The difference between count and uncount nouns

The main difference between count and uncount nouns is whether or not the things they refer to can be counted.

**Count** nouns refer to things that can be divided up into smaller units which are separate and distinct from one another, for example:

candidate
table
word

**Uncount** nouns refer to things that cannot be counted because they are regarded as a whole which cannot be divided into parts. They often refer to abstractions and occasionally have a collective meaning, for example:

education
furniture
weather

Note:

(1) Count nouns can be singular or plural

This cup is full.

These cups are empty.

(2) Uncount nouns can only be singular

The water is cold.

**5.1.2** Some and any

**Some** and **any** are used with uncountable nouns and plural nouns. The general rule is:

(1) **Some** is used in positive sentences.

I have **some** homework to do.

(2) Any is used in questions and negatives.

I do**n't** have **any** homework to do.

(3) Some is used in questions that are requests or offers.

Can I have some water?

Note:

The rules are the same for the compounds **someone**, **anything**, **anybody**, **somewhere**, etc.

**5.2 Additional Grammar Reference**

- New Headway Plus, Student's Book, Section 4.1 of Page 133.

**Exercises**:

- New Headway Plus, Workbook with key: Unit Four-Item 3 of Page 23.

Unit Six

# Adjective

Adjectives are words that are used to describe nouns and pronouns and to quantify and identify them.

## 6.1 Placement of Adjectives

There are certain rules regarding the placement of different kinds of adjectives in a sentence. The two basic positions for adjectives in a sentence are:

(1) Adjective after the verb (be + adjective): An adjective can come after some verbs, like be. Even when an adjective comes after the verb it always refers to and qualifies the subject of the sentence, not the verb.

For example, A doctor's job **is stressful**.

(2) Adjective before the noun (adjective + noun): Adjectives usually precede the nouns they modify.

For example, A doctor has **a stressful job**.

## 6.2 Order of adjectives

The general order of the adjectives is:

1. Determiners: These are the various articles (the, a, an), demonstratives (this, that, these, those), possessives (my, mine, your, yours, etc.), quantifiers (all, many etc.), numerals (one, twenty, thirty-seven etc.) and distributive (each, every, neither, either).
2. Observations (quantity and opinion): Then the adjectives that give a quantity (also known as post-determiners) comes and subjective opinion to the noun.

few, most, one, three/ beautiful, difficult etc.

The beautiful house.

3. Size: The position after observations is for the adjectives that tell about the size of the noun, they can be used for an object as well as a living thing.

huge, little, bulky, thin, tiny, lean etc.

The beautiful little house.

4. Age: Then is the turn of the adjectives that tell about the age of a noun either by itself or in relation to another noun.

old, recent, bygone etc.

The beautiful little old house.

5. Shape: Next are the adjectives that tell about the shape or appearance of the noun.

circular, triangular, oval, wavy, straights etc.

The beautiful little old square house.

6. Color: After that are the adjectives that tell the shade and hue of a noun.

pastel, red, blue, brown, colorless, translucent etc.

The beautiful square brown colored house.

7. Origin: Next are the adjectives that show the different geographical locations associated with a noun.

southern, northern, English etc.

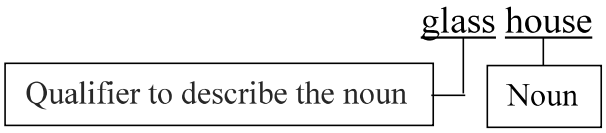
The beautiful brown colored English house.

8. Material: Next are the adjectives that talk about the raw material or texture of the objects or the behavior of the living nouns.

wooden, plastic, steely, metallic, etc.

The beautiful English limestone house.

9. Qualifier: Lastly, the qualifier or the grammatical modifier comes, which an additional word or phrase is provided to change the meaning of the noun in a sentence.




**Note:**

Long strings of cumulative adjectives tend to be awkward. As a rule, use no more than two or three of them between the article and the noun modified

**Exercise**: Complete these sentences with the correct adjective form of the words in parentheses.

1. Drawing is important in (structure) design.
2. The behavior of spring is always (elasticity).
3. The amount of deformation produced in a body is directly (proportion) to the applied force.

Unit Seven

Comparative and Superlative Adjectives

(Units Six, New Headway Plus. Pre-Intermediate)

## 7.1 Form of Comparative and Superlative Adjectives

- Comparative adjectives

Comparative adjectives are used to compare differences between the two objects they modify (larger, smaller, higher). They are used in sentences where two nouns are compared, in this pattern:

Noun (subject) + verb + comparative adjective + than + noun (object).

Example:
The rock flew higher than the roof.

- Superlative adjectives

Superlative adjectives are used to describe an object which is at the upper or lower limit of a quality (the tallest, the smallest, the highest). They are used in sentences where a subject is compared to a group of objects.

Noun (subject) + verb + the + superlative adjective + noun (object).

Example:
My house is the largest one in our neighborhood.

- Forming of Comparative and Superlative Adjectives

| | | Comparative | Superlative |
|---|---|---|---|
| Short adjectives | small | smaller | smallest |
| Adjectives that end in -y | heavy | heavier | heaviest |
| Adjectives with two syllables or more | interesting | more interesting | most interesting |
| Irregular adjectives | good | better | best |

Notes:

1. Short adjectives with one vowel + one consonant, double the consonant: hot/hot**ter**

2. 'Than' is often used after a comparative adjective.

3. 'Much' can come before the comparative to give emphasis.

Is Tokyo **much more modern than** London?

4. 'The' is used before the superlative Adjectives.

Which is **the tallest** building in the world?

**Exercises:**

• New Headway Plus, Workbook with key: Unit Six-Item 5 (Opposite adjectives), and Item 6 (as or than) of Page 35.

**7.2 Simple Statements of Comparison**

Study these example sentences:

1. A meter is longer than a yard.
2. Soft woods are cheaper than hard woods.
3. X-rays are shorter in wavelength than light rays.
4. A diesel engine is more efficient than steam engine.
5. River water usually contains more impurities than well-water.

Unit Eight

The Passive

(Units Eleven, New Headway Plus. Pre-Intermediate)

## 8.1 Form of the Passive

- The passive is commonly used in scientific writing. It is used with verbs that take objects. When the doer of the action is the subject of the verb, the sentence is active, e.g.

In the chemistry lab, we measure the volume of liquids.

The passive voice is formed by making the object the subject of the sentence and using the right tense of 'to be' followed by the past participle. Therefore, in the passive voice, the object of the action is the subject of the sentence, e.g.
In the chemistry lab, the volume of liquids is measured.

- The forms of the passive are:

| | |
|---|---|
| is/are<br>was/were<br>has/have been<br>will | + past participle |

The past participle of regular verbs ends in -ed. There are many common irregular verbs (See the list on p143 of New Headway Plus. Pre-Intermediate).

**Present**: English is spoken all over the world.

**Past**: The animals were frightened by a loud noise.

**Present Perfect**: Diet cola has been made since 1982.

**will**: 10,000 cars will be produced next year.

**Note**:

I. The rules for tense usage in the passive are the same as in the active.

Present Simple to express habit:

My car is serviced regularly.

Past Simple to express a finished action in the past:

America was discovered by Christopher Columbus.

Present Perfect to express an action which began in the past and continues to the present:

Diet cola has been made since 1982.

2. The passive infinitive (to be + -ed) is used after modal auxiliary verbs and other verbs which are followed by an infinitive.

Driving should be banned in city centers.

**8.2 Use**

I. The object of an active verb becomes the subject of a passive verb.

2. The passive is not another way of expressing the same sentence in the active. We choose the active or the passive depending on what we are more interested in.

Shakespeare wrote comedies, histories, and tragedies. (We are more interested in Shakespeare.)

**Note:**

Some verbs, for example, give, send, show, have two objects, a person and a thing. In the passive, we often make the person the subject, not the thing.

She gave me a book for my birthday.

I was given a book for my birthday.

**Exercises:**

• New Headway Plus, Workbook with key: Unit Eleven-Item 2 (Making questions) of Page 59, and Item 6 (Notices) of Page 61.

## How to write a good CV?

First impressions count, especially when applying for jobs. Find out how to write a CV and discover useful tips to help make your CV stand out from the crowd

### What is a CV?

A CV, which stands for curriculum vitae, is a document used when applying for jobs. It allows you to summarise your education, skills and experience enabling you to successfully sell your abilities to potential employers.

In the USA and Canada, CVs are known as résumés. These documents tend to be more concise and follow no particular formatting rules.

### How long should a CV be?

A standard CV in the UK should be no longer than two sides of A4. You can take a look at many examples for CV inspirations in the web.

To save space only include the main points of your education and experience. Stick to relevant information and don't repeat what you've said ***in your cover letter***.

**You can google and see what the cover letter is.*

* As a recent graduate your CV may only take up one page and that's ok. Some academic CVs may be longer depending on your experience.

### What to include in a CV?

***Contact details*** - Include your full name, home address, mobile number, and email address.

***Profile*** - A CV profile is a concise statement that highlights your key attributes and helps you stand out from the crowd. Usually placed at the beginning of the CV and

it picks out a few relevant achievements and skills, while expressing your career aims. A good CV profile focuses on the sector you're applying to, *as your cover letter will be job-specific*. Keep CV personal statements short and snappy - 100 words is the perfect length.

You can discover how to write a personal statement for your CV from the website.

***Education*** - List and date all previous education, including professional qualifications. Place the most recent first. Include specific modules only where relevant.

***Work experience*** - List your work experience in reverse date order, making sure that anything you mention is relevant to the job you're applying for.

* If you have plenty of relevant work experience, this section should come before education.

***Skills and achievements*** - This is where you talk about the foreign languages you speak, and the IT packages you can competently use. The key skills that you list should be relevant to the job. Don't exaggerate your abilities, as you'll need to back up your claims at interview.

*If you've got lots of job-specific skills you should do a skills-based CV.

***Interests*** - 'Socialising', 'going to the cinema' and 'reading' aren't going to catch a recruiter's attention. However, relevant interests can provide a more complete picture of who you are, as well as giving you something to talk about at interview. Examples include writing your own blog if you want to be a journalist or being part of a drama group if you're looking to get into sales.

***References*** - You don't need to provide the names of referees at this stage. You also don't need to say 'references available upon request' as most employers would assume this to be the case.

For more help and advice on how to write a CV and to find CV templates, see example CVs in the website.

## CV format

Avoid fonts such as Comic Sans. Choose something professional, clear, and easy to read such Arial or Times New Roman. Use a font size between 10 and 12 to make

sure that potential employers can read your CV. Ensure all fonts and font sizes are consistent throughout.

Section headings are a good way to break up your CV. Ensure they stand out by making them larger (font size 14 or 16) and bold.

List everything in reverse chronological order so the recruiter sees your work history and most recent achievements first.

Keep it concise by using clear spacing and bullet points. This type of CV layout allows potential employers to skim your CV and quickly pick out important information first.

If you're posting your CV, print it on white A4 paper. Only print on one side and don't fold your CV - you don't want it to arrive creased.

**How to write the CV?**

Use active verbs when possible. For example, include words like 'created', 'analysed' and 'devised' to present yourself as a person who shows initiative.

A good CV doesn't have any spelling or grammar mistakes. Use a spell checker and enlist a second pair of eyes to check over the document.

Avoid generic, over-used phrases such as 'team player', 'hardworking' and 'multitasker'. Instead, provide real-life examples that demonstrate all of these skills.

Tailor your CV. Look at the company's website and social media accounts, look to see if they've recently been mentioned in the local press and use the job advert to make sure your CV is targeted to the role and employer.

Create the right type of CV for your circumstances. Decide whether the chronological, skills-based or academic CV is right for you.

Don't put the term 'curriculum vitae' at the top of the page.

Make sure your email address sounds professional. If your personal address is inappropriate create a new account for professional use.

Don't lie or exaggerate on your CV or job application. Not only will you demonstrate your dishonesty to a potential employer, but there can be serious consequences too. For example, altering your degree grade from a BSc to an MSc is classed as degree

fraud and can result in a prison sentence. *Take a look at this advice and guidance on degree fraud for students.*

If posting your CV online don't include your home address, as you could be targeted by fraudsters.

You should always include a cover letter unless the employer states otherwise. It will enable you to personalise your application. You can draw attention to a particular part of your CV, disclose a disability or clarify gaps in your work history. Find out how to write a persuasive cover letter.

# 8 Quality

**A** Quality means **meeting** the minimum set of **requirements** in a product's **specification** and then being **delighted** that the customer's **expectations** have been met and **exceeded**. Therefore, the goal of a business should be to find out **customer needs** and then fine tune the **process** to ensure that they are met.

Quality **improvement** concepts have developed over several decades. They began simply as a method for **detecting defective** products by **inspection** at the end of the production line. In recent years the emphasis has changed from inspection to **prevention**. Today **sampling** methods **monitor** processes and keep them under control. The ultimate aim, of course, is **zero defects**.

**B** In recent years different approaches to quality improvement have been developed. The overall aim is to prevent *defects* through:

*continuous process improvement*
*customer focus*

**Defect prevention**

error • failure • inspect • prevent
process control • repair • rework • scrap

**Continuous process improvement**

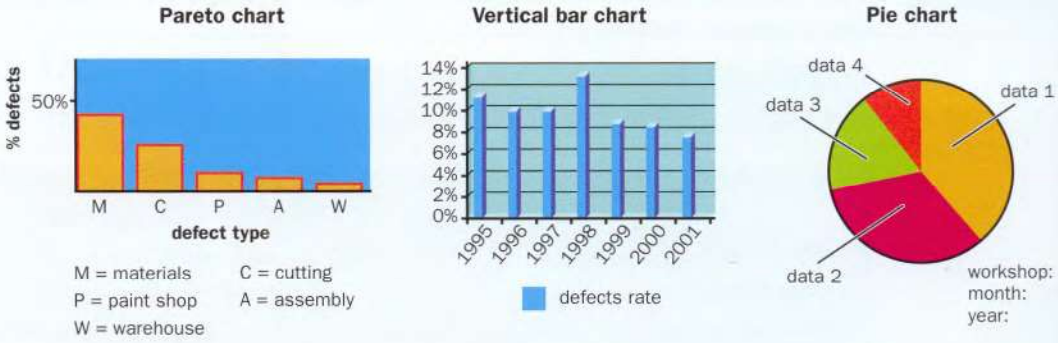
add value • analysis • cause/effect analysis • check • commitment
control • define • facilitate • monitor • prioritize
inventory control • system failure analysis • variability

**Customer focus**

accurate • comply with • needs • rectify

**C** Below are three examples of useful quality summary charts:

A **Pareto chart** is a type of bar chart typically used to improve quality, process capability, or to conserve materials and energy.




A **bar graph** uses either horizontal or vertical bars to show comparisons among categories.

A **pie chart** helps you to visualize the relative importance of several categories of a variable.

## TASKS

**1** **Choose the correct word in the following sentences.**

1 We must **check/control** the temperature regularly to make sure it doesn't rise.
2 To compare the number of defects over the last ten years, it would be best to use a **Pareto/bar** chart.
3 We try to **detect/define** faulty products before they are sent to our customers.
4 But it's a better idea to **protect/prevent** faulty products in the first place.
5 Making sure that materials are stored correctly is part of **process/inventory** control.
6 We're sending our engineer who will **repair/remake** the faulty motor.
7 We have had problems with the electronic equipment due to power **errors/failures**.
8 This process is very inefficient because of the volume of **scrap/error** left over.
9 Here is a list of things we could do to improve quality, and now we must **define/prioritize** them.
10 Improving the design quality of these cars will add **value/variability**.

**2** **Choose the correct ending from B to complete each of the following sentences in A and then produce a short article about Japanese cars.**

| A | B |
|---|---|
| Let us consider what happened when Japanese cars | as often as British or American cars. |
| Local manufacturers thought they were cheap | which exceeded their expectations. |
| But soon people noticed that they didn't break down | they provided value for money. |
| At the same time, Japanese manufacturers started trying to | were first imported into the UK and America. |
| Customers were delighted with the new cars | and of low quality. |
| The cars did more than simply satisfy customers' requirements, | meet customer needs in terms of style and design. |

**3** **Here is a memo from the head of quality control to the managing director. Complete it with words from the box.**

improvement • sampling • defects • zero • prevent • analysis • monitor
continuous • cause/effect • defective • Pareto

### MEMO

**From** Sue Braun **To** Alois Vicent **Re** Quality control

As you know we recently carried out a (a) _____ analysis of the bottle manufacturing plant. Our aim was quality (b) _____ and to reduce the number of (c) _____ products. As you can see from the attached (d) _____ chart, raw materials and system failures are the areas we must improve on.

We will introduce new systems to change our (e) _____ methods and (f) _____ raw materials more carefully. We carried out a system failure (g) _____ and we are now repairing the moulding machine. This will (h) _____ future failures and reduce (i) _____. With (j) _____ process improvement, our aim is (k) _____ defects.

## How to write an email?

***Casual Versus Formal Email***: What's the Difference?

A formal email differs from a casual email. A casual email usually goes to a person you know well—often it's someone you're on good terms with such as a friend or family member. When sending a casual email, you don't need to worry as much about structure and tone.

In fact, part of what makes a formal email different from a casual email is the structure. A formal email has a very defined structure, with a definite salutation (the opening part of the email), signature section, opening sentence, and body.

You also use language differently in a formal email than in a casual email. Avoid using abbreviations, contractions, slang, emoticons, and other informal terminology. The tone of a formal email is different as well. An informal email may not even use complete sentences or proper grammar, but a formal email always does.

Here's an example of formal email language:

The meeting is scheduled for December 5th at 9:30 a.m. All students must attend. Your project updates are needed.

***Compare the formal language with the informal email language in this email***:

Required meeting—Dec 5, 9:30 a.m. Updates needed. See ya there. :)

Both statements share the same information. But the tone of the first is much more formal. Notice the incomplete sentence, slang, and emoticon in the informal example.

## Writing a Formal Email

While an informal email can often be sent quickly, writing a formal email typically takes a bit more thought and a bit more time. Careful consideration needs to be given to each email element.

With that in mind, let's take a closer look at some common elements of a formal email:

### *Subject Line*

The subject line is what the reader sees in their inbox. If the subject line is misleading or missing information, your email may not get read. The message may even be sent to spam. The more formal your email is, the more detailed your subject line should be. But beware of making your subject line too long.

Here's an example of a formal email subject line:

Required Student Meeting: December 5th, 9:30 a.m.

Compare that subject line with this informal email subject line:

Upcoming Meeting

Notice that the first subject line is more informative and complete. The informal subject line, sent to someone you know well, just barely touches on the topic.

***Salutation***

The salutation directly addresses the person you're sending the email to. It's always used in formal email messages, but sometimes skipped in informal messages. Here are some examples of formal and informal salutations:

If you're sending the email to a group, address the entire group. Here's an example:

Dear Students,

If you've got the person's name you want to send the email too, it's proper to use their name along with any title the person has. Here's a sample formal salutation for an individual:

Dear Professor Smith,

If you don't know the name of the person you're trying to reach, you should make every effort to discover that information. As a last resort, it's okay (but less effective) to address the email to the title of the person you hope to reach. Here's an example of a formal salutation without a name:

Dear Human Resources Director,

In rare instances where you don't know a person's name or title, it's okay to use this salutation:

To whom it may concern,

Contrast the formal salutation examples with the following informal salutations:

***Informal Salutation for a Group***

Hey Class!

Informal Salutation for an Individual

Hello Taylor,

As you can see, the formal and informal salutations are very different.

***Introduction***

The opening of a formal email often requires the sender to introduce themselves. In contrast, informal emails are sent to someone you know and the introduction isn't needed.

Here's an example of an opening in a formal email:

My name is Jordan Smith. I am the professor of Statistics for XYZ University. This message is for all current students.

In this article, you'll find even more examples of email openings:

***Body***

The body of a formal email typically elaborates on the purpose of the email. Elaboration may not be needed in an informal email. Although the body contains detailed information, it's important to write clearly and concisely in a formal email. Remember your reader isn't familiar with you and may not be familiar with your topic. You don't want your email recipient to misunderstand an important point.

***Closing***

How you end a formal email is equally important. Since the email closing is the last thing your recipient looks at, your email closing can leave a lasting impression.

A good formal email closing also reminds the reader who you are since it should include your full name, contact information, and title (if appropriate). If you can, use a professional signature template for added impact.

In contrast, an email closing may be extremely casual for an informal email. In some instances where the recipient is well known to you, you may even omit the email closing.

The most common way to start a formal email closing is with the word "Sincerely." It may be a common closing, but it’s also a safe closing.

Here’s an example of a formal email closing:

Sincerely,

Jordan Smith

Professor of Statistics, XYZ College

[Email address goes here]

[Phone number goes here]

## Formatting and Structuring a Formal Email

While many informal emails are unstructured, how you format and structure your formal email is important. At a minimum, a formal email should contain all of the following elements:

***Subject line***. Be specific, but concise. Many experts agree that the ideal subject line is six to ten words long.

***Salutation***. Address the recipient by name, if possible. Use honorifics, as appropriate. For example, write Dear Professor Smith, not Hey.

***Body text***. This section explains the main message of the email. For a formal email, use proper grammar and complete sentences.

***Signature***. Your email closing should be formal, not informal. Use your first and last name. If you're writing on behalf of an organization and you know the title of the person you're sending the email to, use it.

## Sending a Formal Email

Once you've written and formatted your formal email, you're almost ready to send your message. But before you press that Send button, review your email carefully. Look for:

- Spelling errors
- Mistakes in a name
- Typos
- Grammatical errors

Remember, a sloppy email full of mistakes makes a bad impression.

# 3 Research and development 1

**A**

Research and development (R and D) is the **search** for new and **improved** products and industrial processes. Both industrial firms and governments **carry out** R and D. **Innovations** in products or processes normally follow a path from **laboratory** (lab) idea, through **pilot** or **prototype** production and manufacturing start-up, to full-scale production and market introduction. There are two main types of research. **Pure** or **basic research** aims to clarify **scientific** principles without a specific end product in view; **applied research** uses the **findings** of pure research in order to achieve a particular commercial objective. **Development** describes the improvement of a product or process by **scientists** in conjunction with **engineers**. Industry spends vast sums to **develop** new products and the means to produce them cheaply, efficiently, and safely.

**B**

Research is important in many disciplines and there are different *types of research* with different *research professionals*. The type of research reflects the environment and the objectives. In addition, many research words have entered the general language.

### Types of research

academic research • applied research • clinical research
development and evaluation research • experimental development • experimentation
innovation • practical application • product development • pure basic research
pure research • strategic basic research

### Research professionals

analyst • engineer • lab technician • research assistant • scientist • technician

### General terms

breakthrough • carry out • feasible • feasibility • me-too product
patent • file* a patent • pipeline • pilot • prototype • register* a patent
technical know-how (TKH)

**file/register a patent*

**C**

Notice the stress in the word families below often changes:

| verb | noun (process) | noun (person) | adjective |
|---|---|---|---|
| 'analyse | an'alysis | 'analyst | ana'lytical |
| 'innovate | inno'vation | 'innovator | inn'ovative |
| de'velop | de'velopment | de'veloper | develop'mental |
| ex'periment | experimen'tation | ex'perimenter | experi'mental |
| in'vent | in'vention | in'ventor | in'ventive |

'What a breakthrough – we've bred the first germ we can attack with everyday household objects!'

## TASKS

### 1 Match the term with the correct definition.

| | |
|---|---|
| applied research | the study of pure scientific principles |
| clinical research | the study of the parts and their relationship to one another |
| pilot study | changing and improving a product to achieve the best possible result |
| experimentation | looking at how scientific theory can be used in practice |
| pure basic research | looking at the effects of drugs or treatment on patients |
| product development | a new technique or idea |
| innovation | the process of tests and trials to see what happens under different conditions |
| analysis | small-scale experiment |

### 2 Use the word in brackets to form a word which fits in the sentence.

1 The scientists have presented a detailed _____ of the results. (analyse)
2 They have brought in a food _____ to help in the research. (analyse)
3 All process materials are tested using highly developed _____ techniques. (analyse)
4 The researchers have come up with an _____ idea for the use of recycled plastics. (innovate)
5 Charles Dyson is the _____ of a vacuum cleaner which works on a new principle. (invent)
6 The advent of the ballpoint pen was a wonderful _____ . (invent)
7 They employ a large team of software _____. (develop)
8 A report has been prepared on the _____ tests that have been carried out. (develop)
9 Increasing numbers of people can now work from home thanks to _____ in telecommunications. (develop)
10 These methods of production are still at an _____ stage. (experiment)
11 The _____ is continuing work on the new drug. (experiment)
12 Many people are against animal _____. (experiment)

### 3 The following email has been received by the R and D department. Complete it using words from the list.

breakthrough • prototype • developmental • engineers
design • patent • innovative • experiment

Dear Frank
I had a preliminary meeting with Maria Altefors regarding her (a) _____ for a new children's pushchair. It's a simple but (b) _____ invention which will allow two children of different ages to be transported in a single unit. She has already registered a (c) _____ and I'd like us to develop a (d) _____. Could you arrange a meeting with the (e) _____ to discuss this? We will have to carry out (f) _____ tests to assess safety features and (g) _____ with different weight loads.
This could be a real (h) _____ in pushchair design!
Regards
Ruth

# 4 Research and development 2

**A** If you want to get **feedback** on a product or service, you can use **qualitative research**. Qualitative **research** uses open-ended **interviewing** to **explore** and **understand** the attitudes, opinions, feelings and behaviour of individuals or a group of individuals. Qualitative research has many common uses, including:

- **investigating** current product/service/brand positioning
- **identifying** strengths and weaknesses
- **exploring** alternative communication messages
- understanding why customers buy and use a product or service
- **evaluating** the impact of advertising or public relations campaigns

**B** Research is based around a wide range of *activities* – from detailed analysis to product improvement. Results from research activities need to be scientifically *measured* and then *reported*.

**Research activities**

analyse • assess • compile • determine • develop • discover • evaluate
experiment • explore • find • identify • improve • innovate • investigate
modify • record • search for • study • survey • test • trial

**Measuring the results**

constant • correlation • deviation • distribution • frequency • mean
measurement scale • median • mode • norm • random • reliability
sampling • standard • statistics • validity • variable • variance

**Reporting the results**

feedback • report • response

**C** The following words can be used as both nouns and verbs:

study • test • trial • experiment

We plan to conduct a *study* of consumer attitudes.
We are going to *study* consumer attitudes.
We intend to *test* the reactions to our new advertising campaign.
We will carry out the *tests* in order to get feedback on our advertising campaigns.
The *trials* produced some very interesting results.
We aim to *trial* our new products over the coming months.
We have evaluated the reliability of the *experiments*.
It is important to *experiment* with new processes.

Notice the following verb and noun patterns

| Form | noun ending | Noun |
|---|---|---|
| compile | -ation | compilation |
| standardize | | standardization |
| evaluate | | evaluation |
| identify | -ication | identification |
| modify | | modification |
| assess | -ment | assessment |
| develop | | development |
| improve | | improvement |

## TASKS

### 1 Choose the correct word from the box to complete the following.

distribution • random • scale • sampling • statistics
mean • frequency • median • mode

The collecting, classifying and analysing of information shown in numbers is known as (a) _____.

The middle value of a set of numbers is known as the (b) _____.

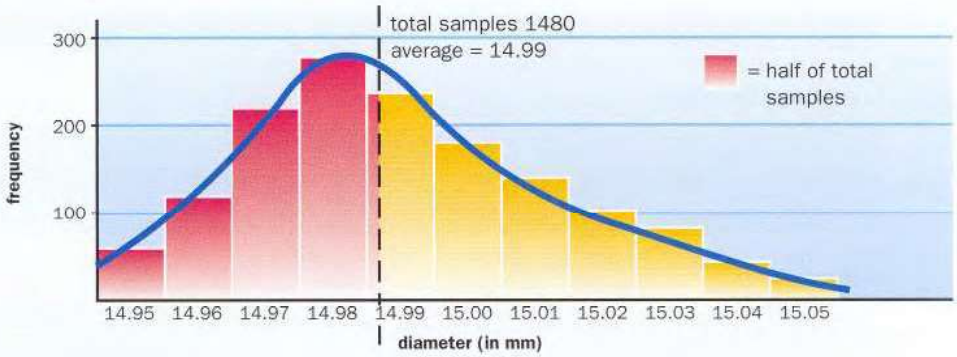
The average value is also known as the (c) _____.

The value which occurs most often is the (d) _____.

1,480 ball bearings were measured as part of quality control. The results are shown in a histogram. The histogram shows frequency (e) _____. The figures are based on a (f) _____ of 2,000 ball bearings. They were chosen at (g) _____ ; in no particular order, time or pattern. The measurement (h) _____ is in millimetres. The (i) _____ of 14.96mm is two.

Answer the following questions from the graph below.

The median is (j) _____. The mode of distribution is (k) _____. The mean is (l) _____.




### 2 Complete the following sentences with an appropriate verb from *Research Activities* on the page opposite. You will have to put the verb in the correct form.

1 They _____ a report on future energy requirements.

2 The temperature was measured every hour and carefully _____.

3 Following the accident, fire experts have to _____ the cause of the fire.

4 These clothes have not worn well so we will have to try and _____ the quality.

5 Scientists continue to _____ for a cure for cancer.

6 They are trying to _____ a solution to the problem of friction.

### 3 Put the following sentences in the correct order to describe the steps in the process of developing a new drug.

a After hospital specialists have evaluated the drug, information gathered from clinical trials is analysed.

b Data is subsequently sent to the Committee on Safety of Medicines.

c Then an application is made to the government for a clinical licence.

d Tests are then carried out on volunteers.

e They are monitored closely for any other unwanted effects which were not identified earlier.

f A decision is made by the committee and a licence issued before the new product is introduced.

g Any side effects or toxicity are identified at this early stage.

h First of all, a new substance is tested in the laboratories.

# 5 Information technology 1

**A** Information systems **collect**, **organize**, **store**, **process**, **retrieve** and **display** information in different formats (text, video, and voice). Information technology allows very fast, automated manipulation of **digital** data and their transformation from and to **analogue**.

Two basic technologies have been responsible for the development of the necessary **hardware**: **integrated circuits** and **digital communications**. Parallel advances have been made in **software**, particularly easy-to-use software products to **create**, **maintain**, **manipulate**, and **query files** and **records**. Many of these **software programs** are designed for use both by computer professionals and enthusiastic amateurs. Another important factor is the development of **computer networks** (➛ 6).

**B** As technology develops, new *models* and *types* of computer appear. At the heart of all computers is the *hardware*. However, without *software*, computers are just dumb boxes, unable to perform any calculations or operations.

**Models and types of computer**

desktop • laptop • mainframe • notebook • server • terminal • workstation

**Computer hardware**

CPU (central processing unit) • dot matrix printer • expansion card • inkjet printer
*keyboard* • *laser printer* • *monitor* • *mouse* • RAM (*random access memory*)
scanner • screen • storage devices

**Software**

applet • application software • browser • database software • email software
graphics software • operating system • search engine • spreadsheet
word processing

**C** Many words in the field of IT come from American English. So you may see the following spellings:

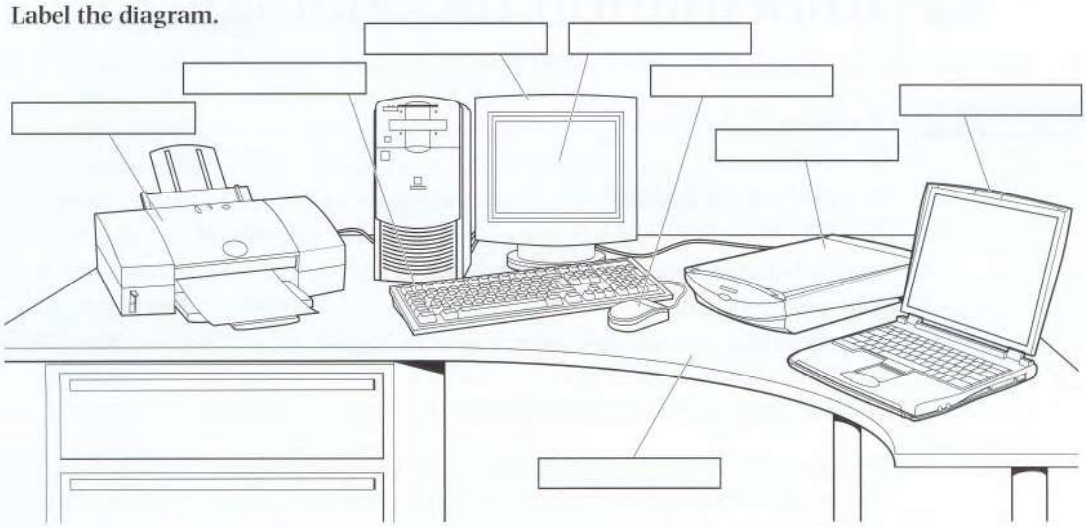
| British English | American English |
|---|---|
| programme | program |
| analogue | analog |

The area of IT is developing very quickly; and the language to describe hardware, software and applications is also evolving at a high speed. As a result new noun + noun combinations often change to single nouns

| noun + noun | single noun |
|---|---|
| lap top | laptop |
| note book | notebook |
| work station | workstation |
| desk top | desktop |

## TASKS

**1** **Label the diagram.**



**2** **Combine one word from A and one word from B and match it with the appropriate definition in C.**

| A | B | C |
|---|---|---|
| create | products | a monitor will do this on a computer screen |
| central | information | this describes the format of 0 and 1 in which information is stored |
| software | processing unit | these enable a computer to perform word processing, to create databases, and to manipulate numerical data |
| display | card | when two or more components are combined and then incorporated into a single package |
| digital | files | to make new programs, utilities or documents |
| expansion | network | a group of electronic machines connected by cables or other means which can exchange information and share equipment (such as printers and disk drives) |
| integrated | data | the principal microchip that the computer is built around |
| computer | circuits | you plug this into a slot to add features such as video, sound, modem and networking |

**3** **Complete each gap in the following text with a phrase from the table above.**

1 The computer monitor will _____ _____ so you can see it on screen.

2 Information is stored on a computer as _____ _____.

3 Spreadsheet and graphic software are examples of _____ _____.

4 Digital communications and _____ _____ have allowed developments in hardware to be made.

5 In order to organise data you should _____ _____ where you can store data.

6 When several computers are linked together you have a _____ _____.

7 The part of the computer which interprets and carries out instructions is the _____ _____.

8 An _____ _____ can be inserted in your computer to give your computer extra capabilities.

# 6 Information technology 2

**A**

A **network** includes:

- – **techniques**
- – **physical connections**
- – computer programs

used to **link** two or more computers.

Network users can:

- – **share files**, printers and other resources
- – send **electronic messages**
- – **run** programs on other computers

Each network operates according to a set of computer programs called network **protocols** for computers to talk to one another. Computer networks can now be **interconnected** efficiently through **gateways**. The biggest network is the **World Wide Web**. It consists of a large number of smaller interconnected networks called **internets**. These internets may **connect** tens, hundreds, or thousands of computers. They can share information with each other, such as **databases** of information. The internet allows people all over the world to **communicate** with each other effectively and inexpensively.

**B**

Before a network can operate, it needs physical *connections* so that signals can be transmitted. After the network has been connected, it is ready for *operation*.

**Network connections**

bandwidth • baud • bits per second (bps) • optical fibre • packet receive • signal • transmit • transmission speed • twisted pair

**Network operation**

configure • download • hack • hub • install • internet service provider (ISP) local area network (LAN) • switch • transmit • upload • web page • website wide area network (WAN) • wireless

**C**

A prefix comes at the beginning of a word and usually has a specific meaning, for example inter = between.

**Look at the following prefixes and their use in the above IT words/phrases:**

| prefix | meaning of prefix | example of use |
|---|---|---|
| inter- | between | internet, interconnect, interactive, international |
| intra- | within | intranet, e.g. company intranet |
| trans- | across | transmit, transfer, transaction |
| co-/com-/con- | with | combine, compatible, connect, configure |
| up- | up (to internet) | upload |
| down- | down (from internet) | download, downtime, i.e. when the network is down (not working) |

## TASKS

**1** **Choose the correct word in each of the following.**

1 The speed with which a modem can process data is measured in _____.
   a) bandwidth  b) bits per second (bps)  c) signal
2 Cables consisting of several copper wires each with a shield are known as _____ cables.
   a) twisted pair  b) optical fibre  c) power cables
3 Computers that are connected together within one building form a _____.
   a) WAN  b) ISP  c) LAN
4 If you transfer a file from a remote computer to your computer, you _____.
   a) download  b) upload  c) run
5 To send out information is to _____.
   a) signal  b) packet  c) transmit
6 A document containing information and graphics that can be accessed on the internet is _____.
   a) a website  b) a web page  c) the World Wide Web

**2** **Complete the words in the following sentences by adding the prefix *inter-, intra-, trans-, com-, con-, up- or down-*.**

1 Last month computer _____time cost the company over €10,000 in lost production.
2 The computers in the production department have now been successfully _____connected with those in the planning department.
3 Once you have completed payment details the data will be _____mitted via a secure link.
4 We cannot network these computers because the systems are not _____patible.
5 Many companies distribute internal documents on their own _____net.
6 Once the home page has been completed, we'll be ready to _____load the site.
7 Cables are being laid throughout the building as the network requires physical _____nections.
8 Using the network he was able to _____bine the data from different reports.

**3** **Here is a list of instructions for someone wanting to set up a small network. Put the instructions in the correct order.**

a Make wiring and layout plans for your network.
b Hook up the network cables by connecting everything to the hub.
c Check that each computer has an IP address and give it a name.
d If you're installing a small network, twisted pair will be adequate. However, in order to span greater distances and to minimize magnetic and electrical interference use fibre optic cable.
e Decide on the type of network you want to install. To enable you to transfer large amounts of data, choose Fast Ethernet (100BaseT).
f Install network adapters in the computers.
g Add an internet gateway to your network to set up a shared internet connection.
h Install driver software for the adapter driver and install client software to share printers and files.
i Check which protocols are installed and add any other protocols you require.
j Get the hardware you need: an Ethernet adapter card for each computer that doesn't have an Ethernet port, a hub if you've got more than two computers, cables and wall jacks.