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– E X P L A I N –

How to tell well what you know well

Quick Guide

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1 INTRODUCTION

" **Explain"** a quick guide

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All learning resources available on: www.explainwell.org

2 MAP YOUR KNOWLEDGE

2.1 How to manage your time

Why is important to organise your study?

How many of us have been in the situation where we said that we couldn't finish an activity because we didn't have enough time? **Time** is valuable and yet most of us either do not use it effectively or do not appreciate it. A day has the same number of hours for everyone, but **some people achieve more than others**. This is because **they know how to organise** their time more effectively.

It is known that everything created by us, can be organised by us. For this reason, it is our responsibility to organise our time efficiently and effectively.

Time Management refers to the way in which a person controls and plans their time for specific activities in order to **increase efficiency, effectiveness and productivity**.

Time management does not only refer to assigning enough time for certain activities, but also to **choosing the activities** that are most vital and valuable. In other words, time management means **organising your life**.

Are you able to organise your study?

To assess your ability to time manage you must begin by **creating a plan of activities** for one week. For each activity you must note how long you needed to finish it and how much time was lost being unproductive.

The goal is to find out how long it takes you to get results and to determine the toughest activities that require more concentration or need extra help. You should be honest when filling in all activities and tasks, including procrastination.

You can use a ***comparative table*** to write proposed and fulfilled activities, divided into time slots for each day of the week.

Comparative table helps us to:

- realise how we spend our time
- calculate necessary time for a specific activity
- see how effective we are in achieving proposed activities.

Example of a comparative table for assessing activities from the point of view of duration and productivity:

	Time	Proposed Activity	Fulfilled Activity
Day 1	7-8	Breakfast and sport (60 mins)	Breakfast (30 mins) Sport (30 mins)
		Effectively 60 mins for activity	0 mins lost
	8-10	Nature Science Project (120 mins)	Search on Internet re project subject (40 mins) Facebook socialising (25 mins) Talking on the phone with a friend about project (15 mins) Writing the project (100 mins) 180 min. = 40 + 25 + 15 + 100
		Effectively 140 mins for activity	60 mins lost = 20 mins extra time work + 40 mins socialising

You can observe that after each row activity:

- The 'Proposed Activity' column shows the total time spent on an activity;
- The 'Fulfilled Activity' column contains the time lost, meaning the difference between the amount of time proposed for the activity and the sum of time spent on activities effectively carried out including procrastination.

Discover when you are most productive

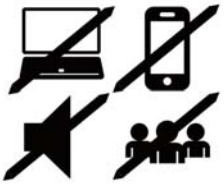
The **circadian rhythm** (biological clock) is set of biological and mental processes established in 24 hours by a living thing following the light and dark periods of a day.

According to circadian rhythm, **some people are productive in the morning, others at midday or in the evening**. To determine the times of the day when you are the most productive, you should answer to the following questions:

- what is the time of the day when you feel the most energetic and focused (you may find that there are several periods on one day)?
- when do you not have other compulsory activities to carry out (examples, school and sports practice)?

Plan your study

Time management techniques can help you **plan**, **organise** and **prioritise activities every day or for longer periods** (week, month, year). To better organise your time and to accomplish activities in one particular day, you can apply the following steps:

1.	**Make a list** with all your daily activities and **divide them into small tasks**	Define what are the most **important** and **urgent/necessary** activities throughout the day.	
2.	**Organise tasks** according to **importance and urgency**	a. Important and urgent. b. Important and NOT urgent. c. NOT important and urgent. d. NOT important and NOT urgent	
3.	**Calculate how much time** is required to complete an activity	Using your own experience in similar tasks or look for help from a tutor.	
4.	**Avoid procrastination**	Stay focused on your activity and: a. switch off the phone; b. stay offline on social sites; c. choose a quiet place; d. avoid external stimuli.	

Activities should be reorganised as and when their priority changes.

Remember to:

- plan relaxing breaks between activities
- get up from the desk and do some physical exercise.
- search for help when you are in trouble (friends, teacher, internet, documents).
- sleep for at least 7-8 hours every night to keep your energy and productivity levels high.

2.2 How to learn

Learning styles and strategies

Learning styles show how different people process and learn new information. Therefore, each person has more than one dominant learning style and in different settings uses a combination of them.

Learning strategies comprise of a number of rules, methods and principles used to facilitate learning. The application of learning strategies leads to active learning, because it teaches you how to learn and how to successfully apply your learning. In order to obtain good learning results, it is necessary to use number of combined learning strategies.

The Learning process: steps to learn

- **Read** slowly and carefully each section and only pass to the next topic when you understand the current one.
- **Organise** the material so that the new information can be grouped into categories and connected with information already learnt to create an active structure of interconnected information.
- **Memorise** knowledge and skills using short or long term memory. According to studies, after a day we remember only 40% of what we have learned and after one week only 20% of what we have learnt. Research in psychology showed that long-term memory is formed by repetition at long intervals (spaced out over time) and not by many repetitions at small intervals (compact).
- **Review and assess your learning:** it helps you to identify gaps in learning and to build confidence.

Methods and tools to organise knowledge

- **Mark** - after you read a whole paragraph mark the main points or ideas with highlighters or underline.
- **Mind maps** - help you to visually organise the information.
- **Concept maps** - is a chart that represents relationships between concepts.
- **Tables and charts** - represent data using pictures like bar, line, pie, and network.
- **Spidergram** –a drawing that shows a summary of facts or ideas
- **Comics** - explain an action or phenomenon by successive drawings.
- **Flowchart** – is a diagram to represent an algorithm or a process.
- **Infographics** - uses graphics to illustrate information.
- **Notes** - making a summary of the material helps you to memorise and easily repeat.
- **Summary** - stimulates thinking and helps you to find links to other topics that you already know.

Strategies and tools to memorise

The saying "to remember is to know" underlines the tight relation between memory and knowledge. Here below you find some techniques that help you improve your memory skills:

- **Repetition** - holding frequent repetition sessions with a shorter term is more effective than repeated many times in a single session.
- **Acronyms** – when you want to learn a list of words, you should constitute and memorise an acronym from the first letters of these words.
- **Viewing** – is used to memorise information that is associated with an image.
- **Itinerary** - is utilised to store information associated with a frequently used route or with a familiar place.
- **Flashcards** - help us to repeat the learned knowledge. They are small pieces of paper containing formulas, definitions, relationships between concepts, etc. created as pairs of questions and answers.
- **Explaining –** To explain to someone your new knowledge will help you remember and better understand the material studied.

How to self-evaluate your learning

- **Simple questionnaires** – answering questions is better than re-reading the material, as it forces you to understand the study material.
- **Exercises and problems** - which are explained in the educational material should not only be read, they should be physically solved. In this way you will understand the concepts that were used to solve them.
- **Practice** –helps us to obtain a routine or habit that will quickly get results.
- **Discussions** – in whole class or in a small group, help you to understand (through feed-back) what you have learnt and what gaps still exist.
- **Checklists and inventories** - take you through the main points of learning material so you can easily discover the gaps.
- **Presentation** – record a presentation of what you have learned and then watch it. You can ask somebody else for their advice or opinion.

2.3 How to represent knowledge

Why use graphical representations?

The purpose of graphical representations is to **exhibit relationships between ideas, data, information and concepts in a visual map or diagram**.

Graphical representations are easy to understand. They can also be edited and shared. The type of graphical representations used will depend on the type of information shown and on the learning domain. They are one of the most effective learning strategies. The most common graphical representations are mind map, concept map, graphs and info graphics.

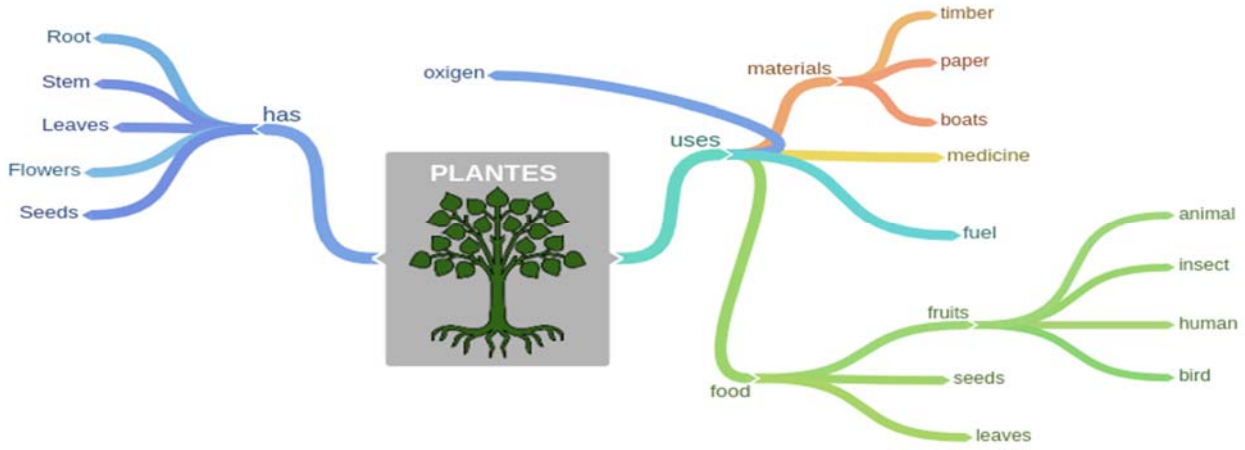
Using mind maps

A Mind Map visual represents hierarchical ideas and concepts and helps to better synthesise and structure the information. Usually a Mind Map is designed around a single concept represented by an image and/or a word which is connected, to other major concepts via connect branches. These branches then connect with other concepts, and so on. All these concepts form a radial structure or fireworks.

Mind Maps are used to:

- organise and structure knowledge and classify information
- present information – to better understand a text and memorise main ideas
- learn and memorise;
- plan (study time, events, presentations, projects etc.)
- solve problems by improving cognitive functions
- carry out brainstorming and creativity session
- take notes and summarise a text or a presentation
- make decisions

Here below an example of mind map representing parts of a plant:



Created with https://coggle.it

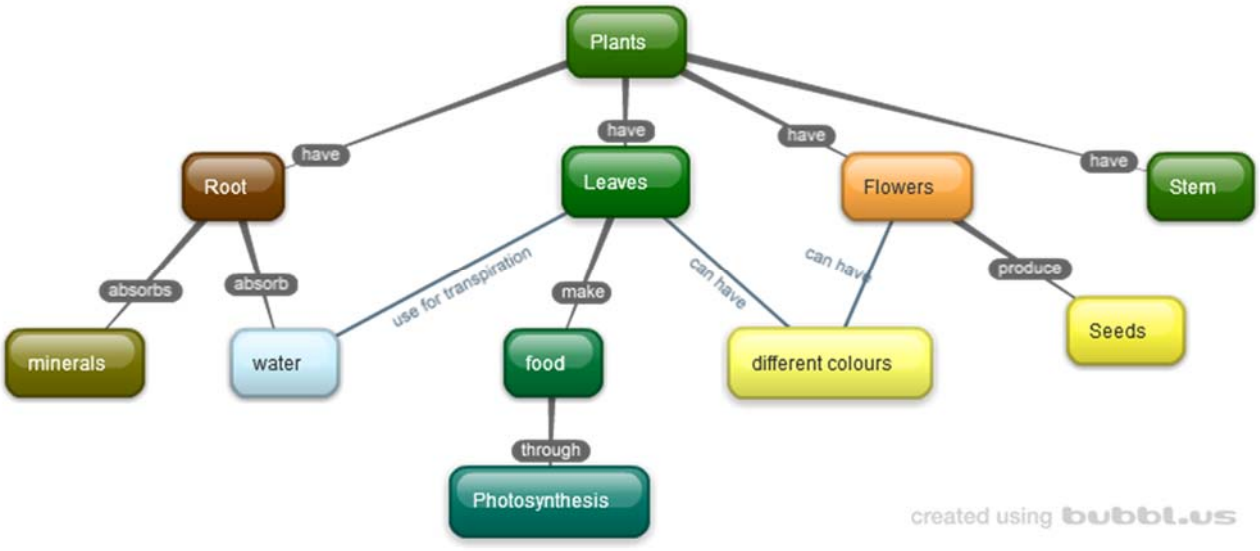
Using concept maps

A concept map graphically represents the relationships between concepts or ideas and assists in organising and structuring the information. A concept map has a central concept, which branches out to other relative concepts. The concepts are represented in circles or squares connected by labelled arrows with other concepts forming a tree.

Main Uses:

- synthesise concepts and relationships between them
- take notes;
- represent relational information (problem solving with alternative solutions, grammatical structure of a language entity, organisational structure in an institution, structure concepts on a field of study, professional development, concepts and arguments, errors in a system)
- understand text summaries by logical representation
- carry out brainstorming – creativity sessions
- design software (class structure, the structure of html pages, organising of files);
- represent a learning plan.

A concept map that represents structure and functions of plants designed with a software application.



3 SYNTHETISE TEXT

3.1 Summary and Synthesis

What is the difference?

The term **summary** and **synthesis** are often believed to be synonyms. Actually, there are important differences between a summary and a synthesis.

A summary is an objective, short, written presentation in your own words about ideas, facts or events **contained in a single piece of text**. For example, a summary of a text describing the African Lion, based on a book about this subject

A synthesis is a "**combination**" of **several texts into a single text**, which aims to create an understanding of or original perspective on the information in those texts.

Why are they so important?

Summarising and synthesising allow **comprehension** and a concise **understanding of the material**. They enable you to focus on those elements of an assigned text that are **worth knowing and remembering**.

In any profession, these skills of accuracy and brevity are important. Companies often ask to employees to draft work **reports**, business reports, **proposals**, case management and other professional writings. You may be called upon to synthesis several professional writings or even raw data of a subject.

In other professional domains you may be asked to summarise **events**, **activities**, **people's resumes**, or **workplace problems**.

At first glance summary and synthesis writing is a simple skill. However, because a person must understand the author’s ideas in depth, and then express or develop them, writing a good summary or synthesis can be a challenging.

3.2 Summaries - what are they?

The concept

A summary is a written composition that gives the main points **or the core information** in a resource e.g. text, speech, story, article, book, video clip etc.

When you're developing a summary, you should only highlight the most important aspects of the resource. Personal opinions should not be included.

A summary can be as short as a few sentences, or much longer, depending on the complexity of the text and the level of detail the author wishes to provide to readers.

What can you summarise?

Artistic or fictional works which include literary writings: a novel, a story, a poem, a play, an opera or artistic work in video or audio format: a movie, a play, a song.

Technical and non-fiction which include writings in scientific field; historical writings; journalistic articles; scientific works in video or audio format; documentaries, conferences, debates; a project; any description of food, beverage, or other object in everyday life; any description of events, facts, behaviours, conversations, etc. from everyday life.

Types of texts

The type or the characteristics of a text are very important for any work of summarisation on it. One of the most commonly used forms of text classification is that based on the text's purpose and meaning.

An expository text is intended to identify and characterise experiences, facts, situations, and actions in either abstract or real elements. Expository texts like reports, letters, executive summaries, essays or news reports are meant to explain, inform or describe.

A narrative text entertains, instructs or informs readers **by telling a story**. Narrative texts deal with imaginary or real world situations and can be fictional (fairy tales, novels, science fiction, horror or adventure stories, fables, myths, legends, etc.) and non-fictional (articles, newspaper reports, historical writings).

Argumentative texts aim is to change the reader's beliefs. They often contain negative qualities or characteristics of something/someone, or try to persuade their readers that an object, product, idea is in some way better than others.

You should note that **few texts are purely** one type: expository or argumentative texts can contain narration or evaluative elements.

The methods

The summarisation methods' specifics and reports depend on **the type of content** to be summarised (expositive/narrative, scientific/literary) and **the target public's expectations**, what is required or assessing the readers of the summary, when presenting it to them.

The three common elements to all summarisation are the **selection** of important ideas, the **rejection** of unnecessary information and the **substitution** of long sections in the original work for one sentence expressed in your own words.

Types of summaries

Informative summaries accurately convey the information contained in a text or in other types of resource. They should be objective i.e. "without personal opinions in presenting the ideas in the source text".

The main types of informative summaries are **Outlines** which present the plan or the "skeleton" of a written material and show the order and the relation between the parts of the written material. **Abstracts** which present the major point of a long piece of text or article and help readers to decide whether or not they want to read the longer text. **Synopsis** is a brief overview of an article, story, book, film and is a concise, chronological description of an historical event, news event, historical event or other experiences as they develop over time.

Descriptive summaries depict the original text (material) rather than directly presenting the information it contains. They should portray, in an objective way, the texts structure and main themes. They can include statements about the meaning and significance of the summarised work. They are used mainly for literary works.

Both techniques of summarisation can be applied to expository texts (scientific, technical, or other type of non-fictional works) or on narrative texts.

If you want to summarise a fictional or literary work, make sure you do not confuse the **theme** of the work with its **subject**. The **subject** is a topic which acts as a foundation for a literary writing while a **theme is an opinion expressed on the subject**. For example, a writer may choose **the subject of war** for his story and the **theme** of a story may be the writer's personal opinion that war is a curse on humanity.

The **dramatic structure** is the sequence of "moments" which usually includes an **exposition,** which defines the initial background. **The plot** (**intrigue**) is the moment when a conflict is created and triggers a sequence of causally interconnected events, the **development of the action** is the sequence of events triggered by the plot. **The climax** is the moment of highest dramatic intensity and is usually a turning point in the evolution of events. **The resolution** is the moment that reveals the resolution of the conflict.

Example of a descriptive summary using the dramatic structure:

The three little pigs' story

Exposition

Once upon a time there were three little pigs. One pig built a house of straw while the second pig built his house with sticks. They built their houses very quickly and then sang and danced all day because they were lazy. The third little pig worked hard all day and built his house of bricks.

Plot

A big bad wolf saw the two little pigs while they danced and played and thought, "What juicy tender meals they will make!" He chased the two pigs and they ran and hid in their houses.

Development of the action

The big bad wolf went to the first house and huffed and puffed and blew the house down in minutes. The frightened little pig ran to the second pig's house that was made of sticks. The big bad wolf now came to this house and huffed and puffed and blew the house down in hardly any time. Now, the two little pigs were terrified and ran to the third pig's house that was made of bricks.

Climax

The big bad wolf tried to huff and puff and blow the house down, but he could not.
He kept trying for hours but the house was very strong and the little pigs were safe inside. He tried to enter through the chimney but the third little pig boiled a big pot of water and kept it below the chimney. The wolf fell into it and died.

Resolution

The two little pigs now felt sorry for having been so lazy. They too built their houses with bricks and lived happily ever after.

Some modern literary works do not follow exactly the above listed dramatic structure. The moments cannot always be clearly defined, or presented in the order identified above.

3.3 Summaries - how to do them

Steps to write a summary

1. **Background exploration** is the first step in writing a summary to gather information about the text, the author, the subject, the context and purpose of the writing.

Several questions can help you in gathering information about the text:

- Who is the author of the text?
- What work by the same author have I already read?
- What is the main subject or theme of the text?
- What do I already know about this subject?
- What similar readings have I had in other courses?
- Why did the teacher/instructor assign this reading?

2. **Skimming the text** is to read the text very quickly (diagonal reading). Skimming helps you to detect the important elements in that text. During skimming, pay attention to titles, headings, subheadings in text, any bold, underlined, quoted, or highlighted text or pictures, graphs, charts, or images of any nature. Finally, try to find out what the author is talking about throughout the text.

3. **Read the text thoroughly** and select the important elements, ideas, concepts, facts, data, characters or sites. Take some notes, remove secondary or unnecessary information, define structure and search for the main idea

Example – Selecting and defining the structure

Original version (The text is about cougars, from https://en.wikipedia.org/wiki/Cougar).

The cougar, also commonly known as the mountain lion, panther or puma, is a large felid native to the Americas. An adaptable, generalist species, the cougar is found in most American habitat types. It is the second-heaviest cat in the New World, after the jaguar. Secretive and largely solitary by nature, the cougar is probably considered both nocturnal and crepuscular, although sightings during daylight hours do occur. The cougar is an ambush predator and pursues a wide variety of prey. Primary food sources are particularly deer, but also livestock. It also hunts species as small as insects and rodents. Cougar cat prefers habitats with dense underbrush and rocky areas for stalking, but can also live in open areas. The cougar is territorial and survives at low population densities. Individual territory sizes depend on terrain, and abundance of prey. Cougar is reclusive and avoids people. Fatal attacks on humans are rare, but in North America have been increasing in recent years as people enter their territories. Prolific hunting following European colonisation of the Americas and the ongoing human development of cougar habitat has caused populations to drop dramatically. In particular, the cougar was extirpated in eastern North America in the beginning of the 20th century, except for an isolated Florida subpopulation.

Version reduced and restructured

Cougar geographical habitat
The cougar, also commonly known as **the mountain lion**, **panther or puma**, is a large felid native to the Americas. An adaptable, generalist species, the cougar is found in most American habitat types.
Cougar characteristics and behaviour
Secretive and largely solitary by nature, the cougar is probably considered both nocturnal and crepuscular, although sightings during daylight hours do occur.
Cougar hunting habit
The cougar is an ambush predator and pursues a wide variety of prey. Primary food sources are particularly deer, but also livestock. It also hunts species as small as insects and rodents.
Cougar's habitat features
Cougar cat prefers habitats with dense underbrush and rocky areas for stalking, but can also live in open areas. The cougar is territorial and survives at low population densities. Individual territory sizes depend on terrain, and abundance of prey.
Cougar and humans
Cougar is reclusive and avoids people. Fatal attacks on humans are rare, but in North America have been increasing in recent years as people enter their territories.
Conservation status
Prolific hunting following European colonisation of the Americas and the ongoing human development of cougar habitat has caused populations to drop dramatically. In particular, the cougar was extirpated in eastern North America in the beginning of the 20th century, except for an isolated Florida subpopulation.

4. **Writing the summary** you should put your text away and try to write your summary from your notes.
   Begin your summary with an identification of the work. Clearly express the context information about the text you are summarising: title, author, and the main theme. For this first part of your summary you can use a typical framework format.

   An **Introduction** after the first paragraph, to note concisely, the major aspects, facts or reasons presented or discussed in the text. Use reporting verbs to introduce the text's ideas. The reporting verb is generally in present tense and should be neutral.

   In the **First Draft**, try to frame simple sentences in a logical sequence. Divide your summary in well-defined parts (**sections or paragraphs**). **Build your text choosing a criterion**, e.g. chronological order. Conclude your summary with a final statement.

5. **Revising the Summary**, a first draft of a summary always requires improvements, so it is essential to revise it. Refer back to the original text to make sure your summary reflects fairly the authors' ideas and his/her degree of certainty on the subject. Your summary should clarify the original text, using your own words.

Use the "**10 commands**" of summarisation:

1. Include all major ideas in the text.
2. Logically link each section in your summary.
3. Be objective and write your summary as the third person.
4. Avoid redundancy and repetition.
5. Restrict the length of your summary.
6. Respect the rules of paraphrasing and quoting.
7. Do not reproduce literally sentences from original text.
8. Do not introduce your ideas or opinions in the summary.
9. Do not criticise the original source.
10. Do not "rewrite" the whole original text.

3.4 Synthesising texts

What is a synthesis?

In educational fields, a synthesis is known as a written text presenting or discussing information **from several texts** or **from other type of resources**.

At its basic level, a synthesis involves **combining two or more summaries**. But synthesis writing is more difficult than it might appear: the combining of summaries must be done in a meaningful way.

A synthesis could aim **to explain ideas** from several (written) resources, or draw together particular themes or traits.

A synthesis should accurately report information from the sources you have used. It should be organised in such a way that readers can immediately see where the information from the sources overlap. It should assist the reader in understanding them in greater depth and helping readers to see the information in a new way.

Types of synthesis

Background Synthesis, also called **review or explanatory,** brings together ideas and information on a topic and organises them by topic rather than sources. It presents the information in a logical and useful way.

Argumentative Synthesis presents a particular opinion or view point supported by other sources. There are a number of categories included which are **illustrative synthesis** using a summary of texts or other resources i.e. audio that support a specific view point.

Concession synthesis which acknowledges counter arguments, but presents a stronger point of view.

A **comparison -contrast** synthesis will identify similarities and differences between two subjects.

4 HANDLE NUMBERS

4.1 Graph types and their application

The importance of graphs and info graphics

We are all surrounded by numbers. You do not find them only during math classes. On billboards, in newspapers, magazines, radio or TV – we find numbers everywhere and they are often represented through graphs, diagrams or info graphics in order to make their meaning more simple.

Infographics have the great advantage of letting us **grasp intuitively and immediately the significance of even complex mathematical calculations and statistics**. Moreover, they are a powerful tool **to present effectively studies or research** at school and university, but also in the professional field for the development and illustration of projects, products or services.

Being able to handle numbers with info graphics, you will not only deliver better presentations at school, university or work, but also it will **help you understand the world you live in**. Statistics about media, phone rates, health, income and politics will give insights into trends in our society.

What is a graph?

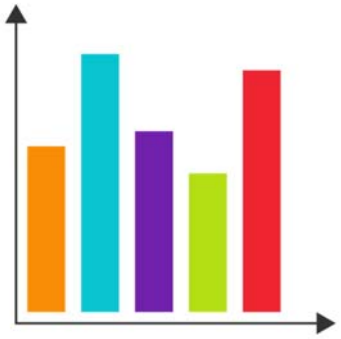
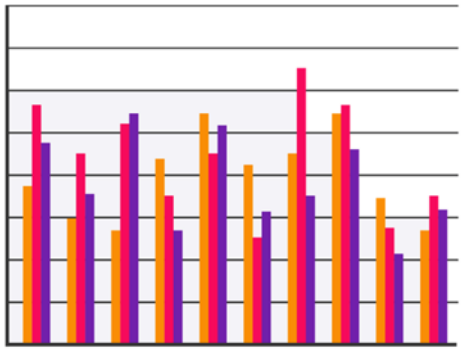
A graph is a representation of a topic and **shows the values** usually in lines or bars. Mostly, a graph **represents something that we count**. We could count the numbers of blue and red cars in a street and show our findings in a graph.
Or the hectares of the rainforest.
Or the rainy days in a week.
Or our income or pocket money and the way we spend it.

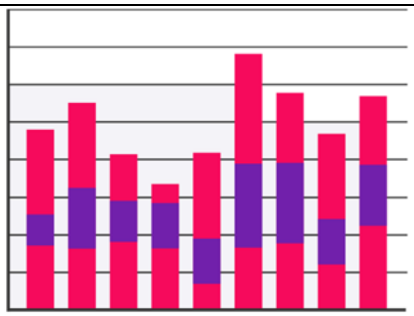
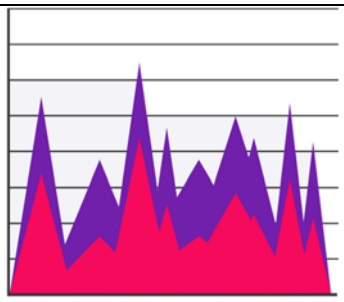
Therefore, a graph shows **a relationship between characteristics (two or more),** with the means of a line, curve, bars or other symbols. Typically, there is a horizontal line (x-axis) to represent an independent variable and a vertical line (y-axis) to represent a dependant variable.

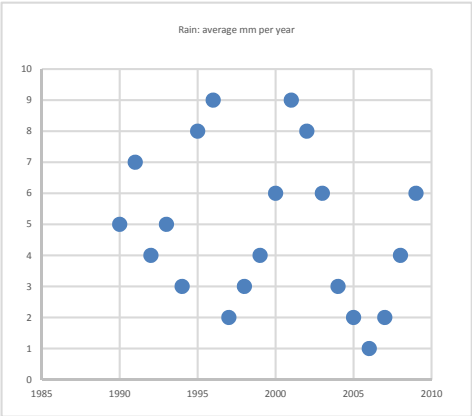
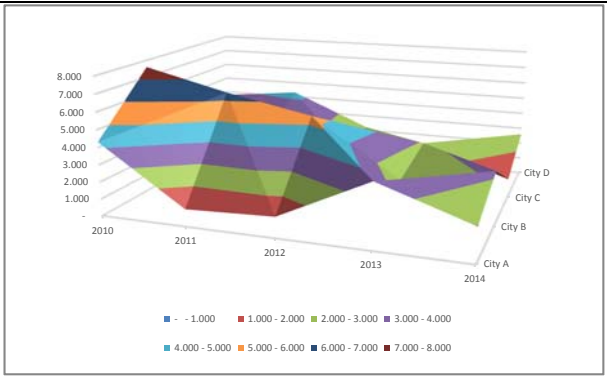
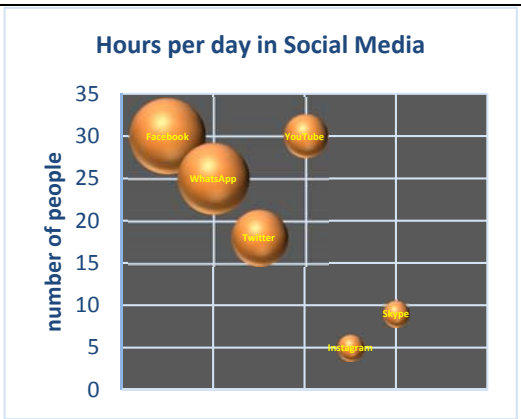
Different types of graphs

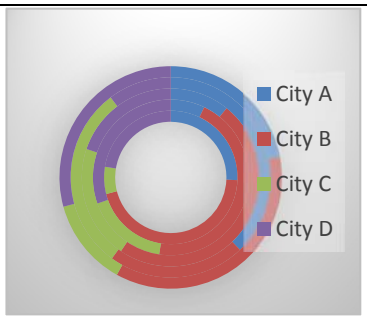
Different graphs can be used to represent, comparisons; contrasts; proportions; trends; developments; statistical spreads.

Here below you find some examples of graphs:

Graph type	What it looks like	What it's used for
Bar chart 1	 Picture: iStock	A **bar chart** is often used to compare values of items at a certain point in time. It is used mostly to show **proportions**, **trends**, **comparisons** or **contrasts**.
Line chart	 Picture: iStock	**A line chart** uses lines to indicate values, usually over a period of time. Therefore, it is mostly used to show **trends** or **developments**.
Group bar chart	 Picture: iStock	**Group bar chart** is like the bar chart 1, but adds a third characteristic (using a different colour for each characteristic)

Positive / Negative bar chart	 Picture: iStock	A **positive / negative bar chart** is used to show both positive and negative developments.
Pie chart	 Picture: iStock	**A pie chart** is a proportional area chart, made of a circle which is divided into segments. Usually it shows **relative sizes** and compares one component to the whole set (100%)
Stacked bar chart	 Picture: iStock	**This kind of bar chart** is another form of group bar chart, except that the bars are not stacked next to each other but added into the one bar and represented by different colours. Therefore, you can have specific data and the added data as well.
Area diagram	 Picture: iStock	An **Area diagram** shows **trends** over time, not unlike a line chart.

Scatter diagram (x,y)	 Picture: BFI OOE	A **scatter diagram** is two or three dimensional. The density and direction of points shows the **relationship between the variables**.
Surface diagram	 Picture: BFI OOE	A **surface diagram** is a more complex area diagram, as three characteristics are possible. It is also mostly used to show **trends** over time.
Web diagram	 Picture: BFI OOE	A **web diagram** is used for target-performance comparison**.**
Bubble chart	 Picture: BFI OOE	A **bubble chart** is a diagram which is labelled by bubbles. Additionally to the x-axis and y-axis, the size of the bubbles show a third characteristic.

Circle chart	 Picture: BFI OOE	A **circle chart** can either be used like a pie chart or a third characteristic can be added to be shown in a circle chart, as more circles are possible**.** It can be used to **depict fractions** (100%) and to make **comparisons.**
Infographs	 Picture: iStock	An infographic (information graphic) is a representation of data in a graphic format designed to make the important information easily understandable at a glance.

4.2 Creating graphs

Choose the right graph for your data

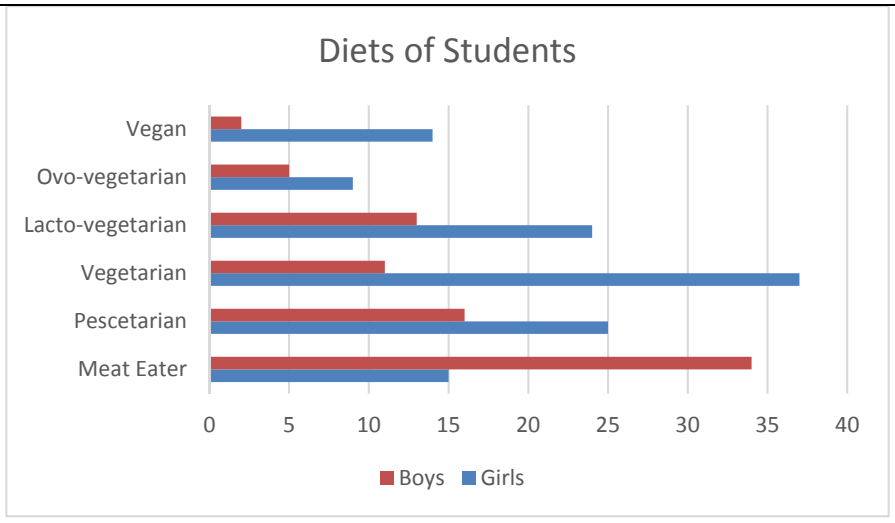
Step 1: Look at title, words and pictures. What does the table show?
Step 2: Look at the numbers. What do the numbers tell you?
Step 3: Choose a type of graph for this data. What kind of graph would you choose to effectively represent the data?

Diets of Students

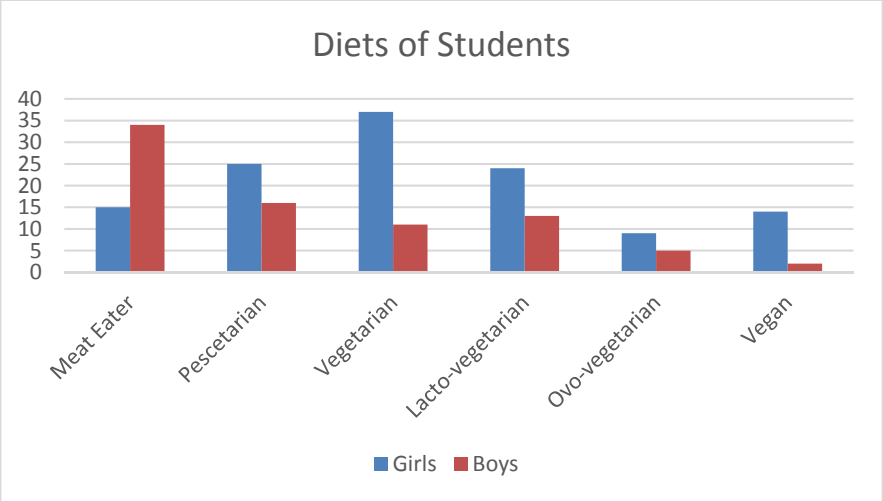
For a biology project we looked at feeding habits of animals and started to be interested in what the **"eating habits" of students** in our school were like. For clear differentiation we used the biological terms. We interviewed students and prepared a table where we put the outcomes of the interview:

	Omnivores	Pescetarian	Vegetarian	Lacto-vegetarian	Ovo-vegetarian	Vegan	Tot
Female	15	25	37	24	9	14	
Male	34	16	11	13	5	2	
tot	49	41	48	37	14	16	

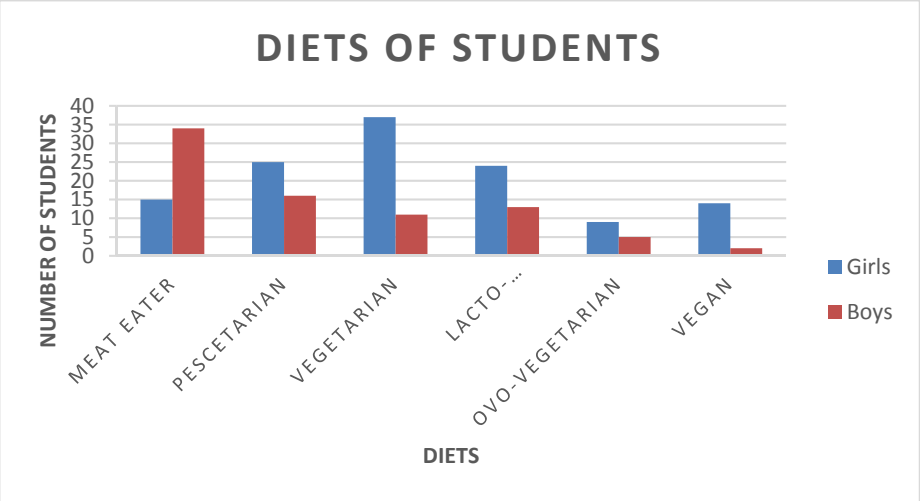
Using **a bar chart** to COMPARE the eating habits of boys and girls this chart can be displayed in different ways using different colours.



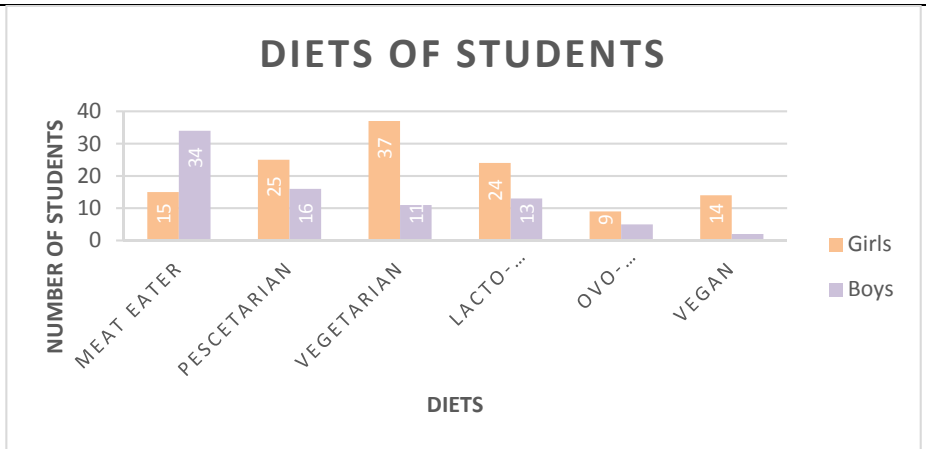
Picture: BFI OOE



Picture: BFI OOE



Picture: BFI OOE



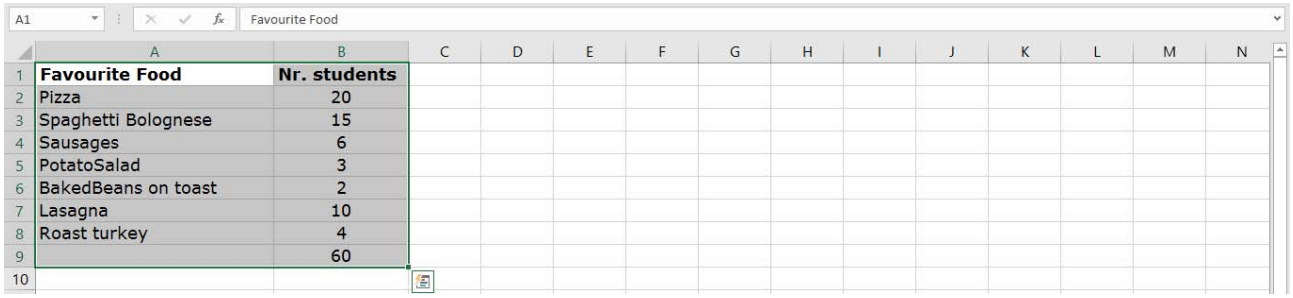
Picture: BFI OOE

Creating graphs with a spreadsheet

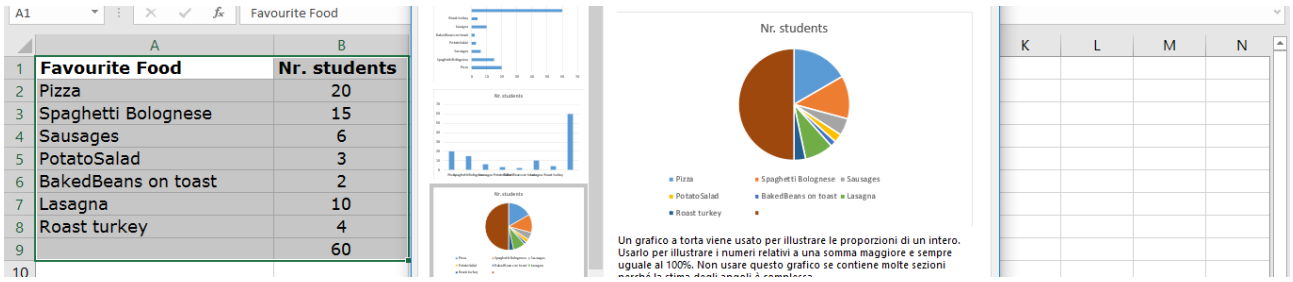
Creating graphs using suitable spreadsheet software works best. You can always use Microsoft Excel or other free software. This is how to create a graph using a spreadsheet on a survey about student's food likes.

Student's food likes	
Favourite Food	Nr. students
Pizza	20
Spaghetti Bolognese	15
Sausages	6
PotatoSalad	3
BakedBeans on toast	2
Lasagna	10
Roast turkey	4
Total number of students asked:	**60**

Open the spread sheet, insert and highlight the data



- insert the chosen graph



And finally complete the graph inserting title, labels, percentage, colours etc.

4.3 Infographics

What are Infographics?

Infographics are visual representations of figures, data, information, behaviours, and events. They allow you to present complex data like statistics or mathematical functions in a more intuitive and understandable way.

Infographics **present contents combining in a creative way, numbers, photos, illustrations, graphics, and videos**. They can enhance communication and for this reason are often used for marketing and commercial purposes.

Have a look on the **Internet**; there you can find hundreds of examples that could inspire you on how to represent numbers, data and concepts in a creative way.

Tips to create Infographics

When using infographics there are a lots of possible solutions. Your creativity has no limits when using infographics.

Top Tips

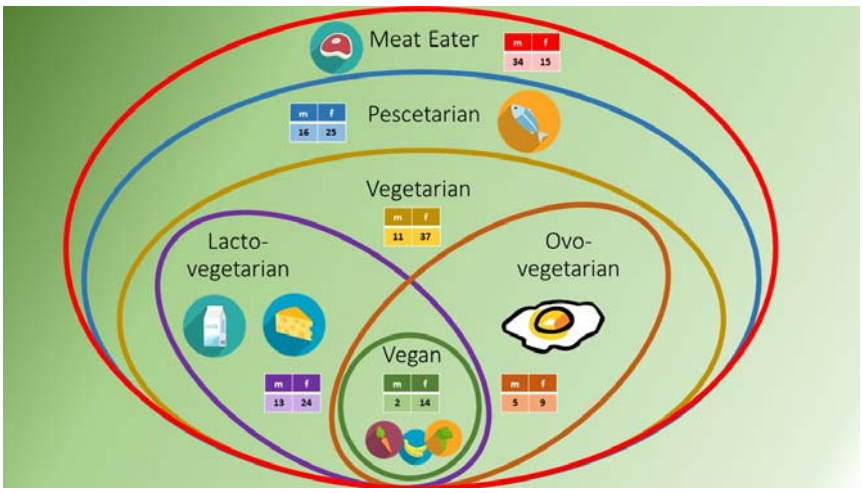
- find a **software** you like to work with.
- before starting to use software, try to **imagine** what it could look like; draw a sketch or **search the internet for ideas.**
- use **pictures** that clearly say what you want to say.
- check the **licence right** of your pictures.

The 7 Creative Steps - from table and graph to infographic

Let's look at an example of how to create an infographic. We can start with the same table as in the previous chapter:

	Omnivores	Pescetarian	Vegetarian	Lacto-vegetarian	Ovo-vegetarian	Vegan	Tot
Female	15	25	37	24	9	14	
Male	34	16	11	13	5	2	
total	49	41	48	37	14	16	

This is our infographic:



Pictures: iStock

To create an effective infographic you can follow **7 Creative Steps**:

1: Create pictures for the items
Associate for each item a meaningful picture i.e. omnivores = meat; Pescetarian = fish.

2: Use a software that you can handle.
If using Powerpoint it is easy to create using pictures and adding words and numbers.

3: Find a way to show large numbers and small numbers.
The circle sizes represent what the larger or smaller number of people prefer in their diet. The size of pictures or words can represent importance.

4: Add words and numbers if necessary
We added the letters "m" for males and "f" for females and the numbers of persons following this diet.

5: Find a suitable background
We chose a light green. This background is a good contrast to our pictures.

6: Create a meaningful title

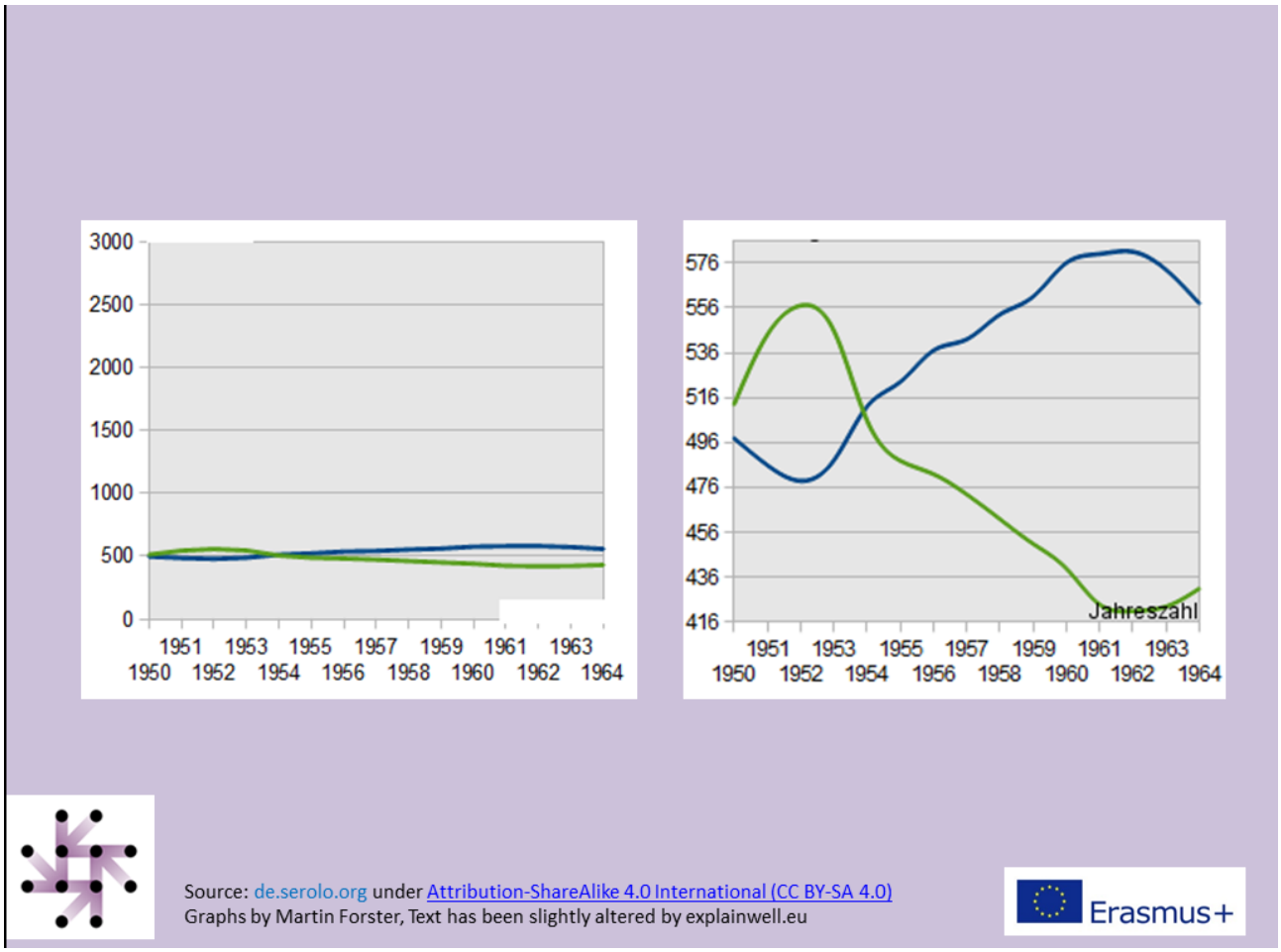
7: Save it as a presentation and then as picture in a jpg.

4.4 Interpreting graphs content

Why it is important to interpret graphs

Knowing how to read graphs can help us make sense of the world around us. In business, they use graphs to analyse their performance. In hospitals the inability to read graphs that are displayed on monitors can be dangerous. Music composing programs graphs are used to show music variations and, in factories graphs monitor production.

You might find reading and interpreting graphs confusing and misleading. Like in the following example:



Both graphs look very different, but they represent the same data. In the first one, the author wanted to emphasise a stability of a phenomenon, in the second changes are highlighted. So, always be careful when interpreting a graph!

6 How to interpret and analysis graphs

1. Reading basics

Read the labels and the legend of the diagram. What does it show?

2. Reading important numbers

Read the most important points like peaks, lows, turning points and intersection points.

3. Define trends

Define all significant trends.

4. Compare trends

Compare trends - look at similarities and differences. What are the common trends? Is there a pattern?

5. Analyse trends

Establish hypotheses how the data is related. These theories have to be questioned and assessed.

6. Predict a development

Based on the existing diagram and the established hypothesis we can predict future developments of the diagram. But be careful: Predictions are always only speculations!

The Do's and Don'ts for interpreting graphs

Do's

Read all numbers and information.

When you want to look at trends, always be carefulto state that looking at the facts, you THINK that the development will go in a specific direction. You cannot be certain.

Test your hypothesis, if possible.

Don'ts

Don't just look at the line or curve and draw a conclusion.

Don't read predictions as fact!

Don't take every graph to be true. The creator wants to tell you something. They might try and manipulate you.

5 SPEAK EASY

5.1 Speaking in public

Why communication skills are very important?

Have you ever wondered why you don't perform as well as you'd hoped in oral exams, even though you really know your stuff? The answer is simple: **if you can't communicate** effectively, **you won't be able to demonstrate** that **you really know what you've learnt**.

In order to perform well, you need a holistic **mix of skills**, which include the **rhythm** and **narration** of your **voice**, body **language**, **logic** and **clear** reasoning, and the ability to be **calm**.

Analyse your communication skills

To analyse your communication skills watch yourself using a video camera, tablet or smart phone and **record an oral presentation** on a subject of your choice as if you were at school or university. Then study yourself in action and finally **complete the check list** to identify your strengths and weaknesses.

	Strengths √	Weaknesses √
Presenting the content of the talk clearly and logically		
Using your voice effectively		
Clearly pronouncing words, phrases and sentences		
Reading aloud clearly		
Breathing correctly		
Using body language effectively and avoiding nervous gestures		
Having a comfortable and relaxed posture		
Using your facial expression appropriately		
Being confident when talking in front of an audience		

5.2 Preparing a talk or a presentation

How to prepare a talk

Prepare **a logical structure** that connects all the topics you are dealing with. Divide the talk into three parts: **introduction**, **development** and **conclusion**.

It's a good idea to learn the **introduction** and **conclusion** by heart. A good quality opening allows you to progress effortlessly through your talk whilst a strong conclusion can leave your audience entertained and enlightened.

Clarity is essential: **keep your talk simple and direct** and avoid over-complicated language. But above all, plan a talk that is **easy for you to learn and deliver**.

Prepare your talk

Choose a topic you want to present at school or university. You can use the grid below to help you organise the content.

STRUCTURE OF YOUR TALK	WHAT YOU ARE GOING TO SAY
INTRODUCTION ➢ Welcome the audience ➢ Introduce yourself ➢ Introduce the title, topic and sequence ➢ Explain your aims ➢ Get the audience's attention with ... facts, events, statistics; rhetorical questions; or personal experience or story.	
DEVELOPMENT (explain the topic) ➢ Describe the main idea, fact, event, process ➢ Show different points of view ➢ Compare advantages and/or disadvantages ➢ Analyse cause and effects ➢ Give evidence and acknowledge sources	
CONCLUSION ➢ Briefly summarise the main points ➢ Give your personal opinion ➢ Finish with an effective final sentence	

5.3 Presenting with visuals

Preparing visuals

The saying "***A picture is worth a thousand words***" is why you should use images rather than text when preparing slides.

The use of visuals helps enhance and make the speaker and the talk more credible as it reinforces the oral message in the form of text and images. Incorporating **physical objects or models** into your talk, allows you to show more effectively how something works and stimulate the audience's interest.

There are three basic things to bear in mind when choosing visual aids for your talk. **Firstly**, they must add real value to your talk by **describing your ideas more clearly**. **Secondly**, they must **make it easier for the audience to understand your ideas** and to follow your talk. And, **finally**, they must **help you remember your talk** and keep you on the right track.

Copyright and Credits

When using text, photos, videos or graphics as part of your presentation you must confirm the copyright, and, if they are copyrighted you must ask the owner for permission to use them. If copyright-free materials are used, you must always credit the source and the author.

Presenting a talk with visuals

The most important thing to remember when presenting with visuals is that you must always be the centre of attention. You must therefore ensure that the visuals link in with your talk. **Don't read straight from slides** and **never ever speak with your back to the audience**.

Tip: if you want to give the audience **handouts**, wait until the end of the talk.

Prepare your visuals

Before starting, **plan the sequence of the slides** and **decide what you will say** about each one. Here below you find some suggestions for the layout and graphics.

Structure	Base it on the structure of the talk and choose:
- for the introduction	- One slide to get the audience's attention - One slide which gives the outline of your presentation
- for the development	– Slides presenting data, facts etc. – highlighting the most important points
- for the conclusion	– One slide with a strong message and a lasting impact
Talk and visuals	– Decide what you will say for each slide you show
Timing	– Calculate about 1/2 minutes for each slide
Graphic consistency	– Adopt same layout, colours and font for all the slides
Space	– Aim for a balanced layout of text, pictures, graphs etc. – Blank space is good. And remember "less is more".
Font	– Use a large font size (no smaller than 30pt) – Only use fonts (like Arial or Gill Sans) which are easy to read
Colours	– Make sure there is a clear contrast between the lettering and background – Use a dark background with light-coloured text for dark rooms, a light background with black or dark-coloured text for rooms with all the lights on – Don't use red/green or blue/green combinations – Use different colours to differentiate key points/items (e.g. red=dangerous; green=safe)
Background	– Use one colour only – Avoid background pictures, logos or patterns that might distract the audience
Text	– Use short, simple, direct sentences – Review grammar and spelling
Bullets	– Include no more than 6 lines per slide – Write key words, not sentences
Images	– Don't choose images that might offend the audience or be misunderstood by people from different cultures or religions
Animation	– Use it only if it helps communicate your message better. If it doesn't make your ideas clearer, don't use it.
Copyright	– Observe copyright laws when taking materials from the internet, by crediting sources and authors

5.4 Communication techniques: breathing, voice and body language

Why is breathing so important in public speaking?

Breathing properly allows you to considerably improve the power and sound quality of your voice and helps you control your voice using the **right pace** and **pitch**.

Deep, regular breathing **reduces tension** allowing you to be feel both confident and focused. Controlled breathing will help you manage negative criticism and deal with awkward questions and argue your point. Before starting your talk, take a deep breath. You must feel you have enough air in your lungs. **Breathe out as you speak** your first words and pause briefly between each sentence to refill your lungs. Don't speak too fast or you'll run out of breath and oxygen won't get to your brain.

Don't be afraid to take longer pauses than normal. They allow you to breathe deeply and help you relax and release tension. They also give you time to think about and choose carefully what to say next.

Using the voice

Our voice and how we use it, can have a greater effect on the listener than the actual words we are saying. Using your voice to generate the appropriate emotion ensuring to the meaning of the words you are saying.

If you say something funny, your voice should sound happy; if you say something sad, your voice must sound more serious. You can't say "Oh, that was the most amazing thing that's ever happened to me!" in a voice from beyond the grave.

Avoid speaking in a monotone. If you don't **vary your tone**, **rhythm** and **volume**, nobody will enjoy listening to you.

Using body language

We can often **know what a person is thinking or feeling simply by looking at their face**. What's more, we can also sometimes **spot if someone is not being sincere** when the **words** they are using don't match **their facial expressions or body language**.

We all know that it's not only our words that people react to, but also our body language. You might think that your body language merely reflects your state of mind and how confident you feel, but your posture may not only influence other people's perceptions of you, but also empower or hinder your own self-confidence. So, people will not only be listening to your presentation, but they will also be watching picking up on all these other signs that will affect them both positively and negatively.

5.5 Reading in public

Preparing a reading in public

When you prepare a text to read aloud to an audience, print it out in a **large font size**, so it is easier to read and you won't lose your place.

Split each point into a paragraph which will also allow you to pause between each point. **Underline** those words or phrases that you have trouble pronouncing and practise saying them correctly.

Finally write some **key words** and **phrases** in bold to remind you that they are important and require emphasising.

Reading in public without sending everybody to sleep

While reading, try to **look at the audience for as long as you can**. And if you're worried about losing your place on the page, use this trick: lift your eyes from the page and raise your head when you're coming towards the end of a sentence.

Keep your head straight when you read. This position allows your voice to be more audible by the audience. Volume is very important, especially if you do not have a microphone.

Obviously, you want your audience to be involved in what you're reading. It might be a poem, a report or some technical stuff, it doesn't matter what. The audience must get the feeling that **you are fully committed to what you are reading**.

Use the full potential of your **voice** by **varying the tone and rhythm to your reading**.

And finally, take your time and don't read too fast. **Remember to pause**. Otherwise the audience won't be able to keep up with you.

5.6 Handling questions and arguing

Handling questions

At school or university, you might have to answer questions on things you know really well and others which you're totally unprepared for, and face people who are either firmly on your side or a bit antagonistic.

Sympathetic teachers will probably give you clues and suggestions. More demanding or antagonistic teachers will, of course, never be satisfied. But **never lose your cool**. **Focus on what you know** and try to be as thorough and comprehensive as you can.

And, whoever is in your audience, **never try to give the impression you know something when you don't**. People can almost always tell. Especially teachers.

Never avoid answering questions because you will inevitably lose credibility. If you are unsure exactly what they want, ask them to repeat or clarify the question. It will give you a bit more time to prepare your answer.

And remember, if you really don't know the answer, say so and promise that you will do further research. That is ALWAYS better than trying to pull the wool over your examiners' eyes.

Arguing

People love a good argument or debate, whatever the subject. For this reason, **you must be prepared to deal with disagreement** from an audience that is there to judge your work, research findings or points of views on a specific subject.

In this situation questions are designed not to seek clarification, but to evaluate and criticise your points of view. So try to **be aware of the potential strengths and weaknesses of your ideas, and to predict the questions** you may be asked.

There are probably three kinds of objection you might face:

First there is **fair criticism** that reveals weaknesses in your work or facts that you cannot dispute. Accept the criticism and thank the questioner. Point out that it will help you to correct and improve your work.

Then come those **objections that are not based on proven facts**, but which are simply the questioner's own opinion. These are legitimate but cannot affect the correctness of your work. Politely disagree, say why you think you are right and support your position by citing facts and reliable sources.

Sometimes you will have to deal with **objections which are irrelevant or off-topic**. Just point out that, even though the criticism is interesting, it has no relation to your presentation and so you are unable to answer.

And remember, even in situations where someone is trying to give you a hard time, always **keep calm and behave professionally**.

Defending your position

Starting with each of the points you are dealing with in your presentation, try to think of the questions the audience might ask. Use the grid below to list the potential objections and your answers.

List of your points	Objections	Your answers
Point 1		
Point 2		
Point 3		
Point …		

6 PROJECT PARTNERS AND CREDITS

Partners

The learning resources have been developed within the Erasmus+ program "EXPLAIN" by:

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BFI – Berufsfoerderungsinstitut Oberoesterreich (Austria)
Universitatea Dunarea De Jos Din Galati (Romania)
EVTA – Association Européenne pour la Formation Professionnelle AEFP / European Vocational Training Association (Belgium)
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Learning resources

All resources are accessible on:

- www.explainwell.org: learning resources
- www.explainwell.eu : information on the project and related activities.