

SAN05_MÒDUL11: PROJECTE DE LABORATORI CLÍNIC I BIOMÈDIC
UF1 NF3 Activitat N°1 Reporting data

Type of activity: Drawing statistical information Graphs	Topic: Types and uses of diagrams. Pictorial representations of information and effective visual tools.
Grouping: Class group/ In pairs /individually	Resources: 1. Student document: Reporting data 2. Student grammar support: The parts of speech. Identifying nouns and verbs.3. Teacher document-answer key: Reporting data & audio 4. Teacher grammar support - answer key: The parts of speech. Promoting vocabulary acquisition. 5. New terminology template. 6. Bibliography- COM
Timing: 120'	Outcomes: At the end of the lesson, students will be able to identify different types of diagrams and choose the suitable one to illustrate the research project (M11).

The [aim](#) of this activity is to develop an emphasis on students gathering data, and presenting the information in order to complete work requirements to the characteristics of the receivers.

Directions:

1. The teacher asks students about prior knowledge on the content in the handout "What' a diagram?" and maintains students' attention and encourages active participation by using symbolic representation of information.
2. The teacher distributes the student document: Reporting data
3. Tell the students to complete exercise n°1: Define "diagram". Correct as a whole group.
4. Following this, the teacher explains the most commonly used types of diagrams, and he/she projects a video on this topic as a teaching tool to increase motivation. Before watching the video, write the keyword related to this video on the board.
5. Next, the students do exercise n°2 (Reporting data). Correct as a whole group.
6. After this, under teacher supervision, the students fill in the "New terminology template" with the new vocabulary they have just learnt.
7. Now, move to the grammar support exercises: the parts of speech. Correct as a whole group.
8. More grammar support to enhance vocabulary acquisition. Vocabulary review and practice: A game to learn vocabulary.
9. Finally, having reviewed the definitions of the most commonly used types of diagrams, the students are assessed. Tell them to read and complete exercise n°3 "*Out of the 8 different ways of illustrating information -included in the box-, which is/are the most suitable for the following representations (a, b, c, d)?"* Correct as a whole group.

1. STUDENT DOCUMENT: REPORTING DATA

1. Prior knowledges. Define the word "diagram".

In groups, try to define the word diagram and write it down.

2. Read the definition of two sets of the diagrams and match them with the corresponding picture.

A-Read the definition of the Venn diagram, flowchart, tree diagram and population density map; then match them with the corresponding picture.

- a. A Venn diagram or set diagram is a diagram that shows all possible logical relations between finite collections of sets.
- b. A flowchart is a type of diagram that represents an algorithm or process, showing the steps as boxes of various kinds, and their order by connecting the boxes with arrows.
- c. A tree diagram is simply a way of representing a sequence of events
- d. A population density map. It is a measurement of population per unit area

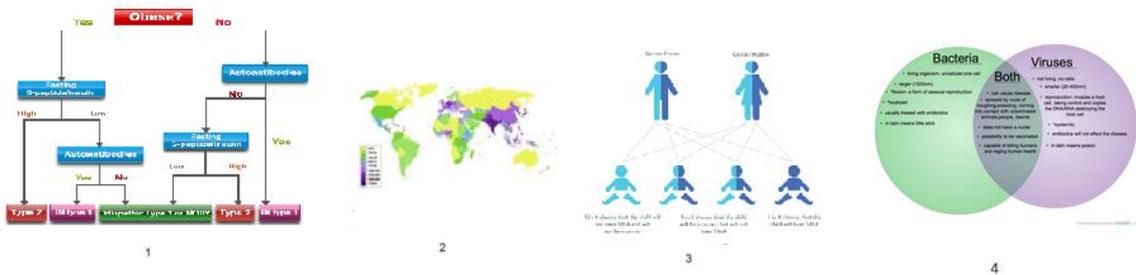


Fig. 1. A set of four types of diagrams

Diagram 1 is a..... Diagram 2 is a..... Diagram 3 is a..... Diagram 4 is a.....

B- Read the definition of histogram, bar graph, pie chart, line graph and an exploded diagram, then match with the corresponding picture.

- a. A histogram is a representation of tabulated frequencies, shown as adjacent rectangles erected over discrete intervals.
- b. A bar chart or bar graph is a chart with rectangular bars with lengths proportional to the values that they represent.
- c. A pie chart is a circular chart divided into sectors, illustrating numerical proportions.
- d. A line graph compares two variables. Each variable is plotted along an axis.
- e. An exploded diagram, view drawing, or photograph, that shows the individual parts of a mechanism separately and indicates their proper relationship.

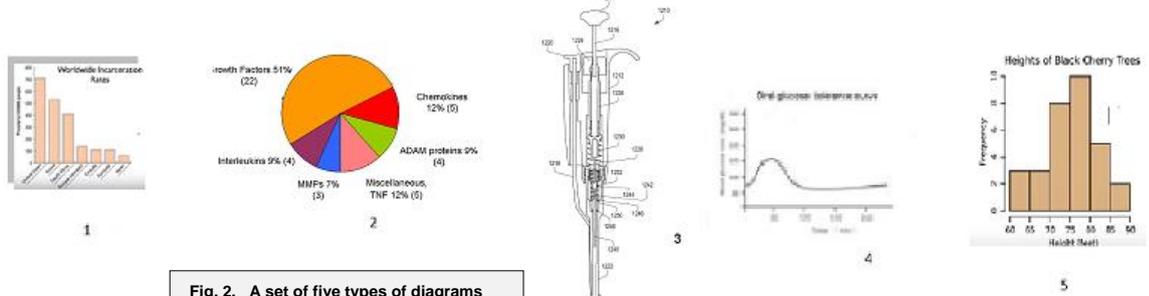


Fig. 2. A set of five types of diagrams

Diagram 1 is a..... Diagram 2 is a..... Diagram 3 is a.....
 Diagram 4 is..... Diagram 5 is.....

3. Out of the 8 different ways of illustrating information -included in the box-, which is/are the most suitable for the following representations (a, b, c and d)?

Histogram	Bar chart	Pie chart	Line graph	Venn diagram	Flowchart
	Tree diagram	Exploded diagram		Population density map	

- The tests to find out which type of diabetes you have. It is not always obvious which type of diabetes someone may have, and it may be necessary to carry out specific tests.
- Global categorization of the human plasma proteome, which is the entire set of proteins expressed by a genome, cell, tissue, or organism at a certain time. -Illustrating numerical proportions.-.
- A survey of 145 people asking, "What is the nicest fruit?"
- Numerical results of a final exam given to a hypothetical group of students

2. STUDENT GRAMMAR SUPPORT: IDENTIFYING NOUNS AND VERBS.

The aim of this session is to review the parts of speech and, enhance vocabulary acquisition.

1. Parts of speech In the English languages, words are categorized into eight groups (the parts of speech) based on their use and function: noun, pronoun, verb, adverb, adjective, conjunction, preposition, and interjection. In this lesson, we will focus on **nouns** and **verbs** in a text.

Color-coding parts of speech.

Blue= Adverbs

Yellow= Adjectives

Red= Prepositions

Green=Verbs

Purple=Nouns

Grey = Pronouns

Example: A pie chart is a circular chart divided into sectors

A. Identify the nouns and verbs in these sentences; underline them using the appropriate color-coding.

- A Venn diagram or set diagram is a diagram that shows all possible logical relations between finite collections of sets.
- A flowchart is a type of diagram that represents an algorithm or process, showing the steps as boxes of various kinds, and their order by connecting the boxes with arrows.
- A histogram is a representation of tabulated frequencies, shown as adjacent rectangles, erected over discrete intervals.
- A bar chart or bar graph is a chart with rectangular bars with lengths proportional to the values that they represent.
- A line graph compares two variables. Each variable is plotted along an axis.

B. Dictation: identify nouns and verbs. Individual activity.

The teacher dictates a small paragraph. Identify the nouns and verbs in the paragraph

2. Enhancing vocabulary acquisition.

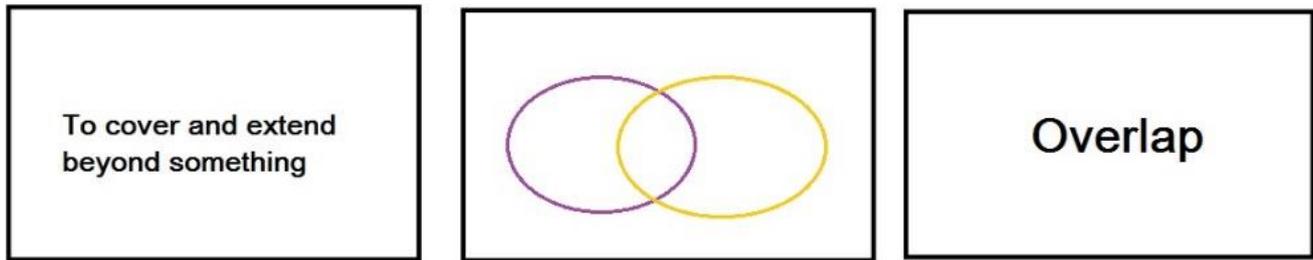


Fig. 3 Example: A set of flash cards.

- Work in groups of three or four.
- Look at the example: A set of flash cards.
- The teacher tells you the word you have to use in this game.
- The teacher distributes three card boards. Use each one to: first, write down the term; second, write down its definition; and third, draw a picture that describes this term.
- Each group will explain its set of flash cards.

Vocabulary review and practice: A game to learn vocabulary.

- Work in groups of three.
- The teacher distributes one flashcard to each student.
- Follow the instructions. The goal is to get one set of three flashcards.
- Timing: 7 minutes.
- Correct as a whole group

3. TEACHER DOCUMENTS: REPORTING DATA

When it comes to introducing the lesson plan, it is important the teacher asks the students about prior knowledge on the content in the handout "What's a diagram?"/'daɪəgræm/. The teacher shows visuals.

1. Prior knowledges

Data may be reported verbally (in written or spoken words), or non-verbally (in diagrams). Once you have collected data, it is important to organize the information into **diagrams**.

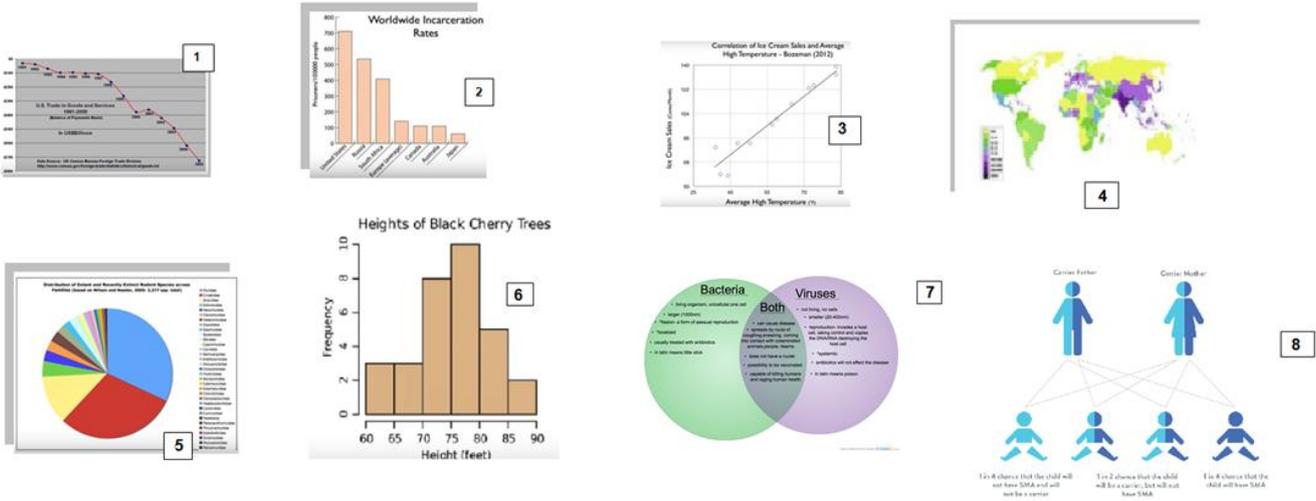


Fig.4 Pictures 1, 2, 3, 5, 6: A Beginner's Guide to Graphing Data Bozeman Science 1 25 Nov. 2012 -Picture 7 Veen diagram [Virus and bacteria](#). - Pictures 6 Genetics and diagnosing spinal muscular atrophy (SMA).

What is a diagram?

A diagram is a **symbolic representation of information**. It is a drawing that shows arrangements and relations.

PHONETICS USEFUL TOOL



Tophonetics

Text to Phonetics is an online application that transcribes small English texts into broad phonetic transcriptions in the International Phonetic Alphabet (IPA)

Most commonly used types of diagrams

These are the most commonly used types of diagrams

- Graph-based diagrams.
- Chart-like diagram.
- Schematic diagrams.

Graph-based diagrams

Graph-based diagrams: these take a collection of data and establish the relationships between the different items. Graph-based diagrams illustrate data by giving each item a 2D position, and by expressing relationships among the items as connections or overlapping areas. Ex. Venn diagram. Flowchart. Tree diagram.

Chart-like diagrams

Chart-like diagrams display a relationship between two variables that take either discrete or a continuous ranges of values. Chart like diagrams illustrate number-based information. Ex: Histogram. Bar chart. Pie chart. Line graph

Schematic diagrams and other types of diagrams

Schematic diagrams. A drawing showing all significant components or elements of a system.
Ex: An exploded view drawing
A population density map

Watch a video about types of Chart-like diagrams



[A Beginner's Guide to Graphing Data](#)

- ✓ Make a synopsis of this video.
Paul Andersen is a science teacher and he explains how graphs are used to visually display data that is collected through experiments. He describes five main types of graphs: line graph, scatter plot, bar graph, histogram, and pie chart. He describes the important elements of a successful graph including labelled axis, title, data, and a fit line.
- ✓ Before watching the video, write the keywords related to this video on the board. Explain these phrases.

US trade in goods and services:

Change over time

Dates are going to be along the x-axis

It's a correlation of variables

Old Faithful (Old Faithful Geyser in Yellowstone National Park)

You put the independent variable on the x-axis

I measure how much that plant grows over time

Worldwide incarceration rate

Rate of photosynthesis

Height of black cherry trees

Parts of the whole: parts del tot/global

Average high temperature:

Best fit line (a line of best fit)

Gridlines

Linear numbers: numbers that increases or decreases by a constant.

The best fit line is extending past the data

2. Read the definition of two sets of the diagrams and match them with the corresponding picture.

AUDIO 

A 

B 

A -Read the definition of the a. Venn diagram. b. flowchart. c. tree diagram. d. population density map. Then match them with the corresponding picture.

- A-Read the definitions**
- a. A Venn diagram or set diagram is a diagram that shows all possible logical relations between finite collections of sets.
 - b. A flowchart is a type of diagram that represents an algorithm or process, showing the steps as boxes of various kinds, and their order by connecting the boxes, with arrows.
 - c. A tree diagram is simply a way of representing a sequence of events
 - d. A population density map. It is a measurement of population per unit area

Diagram 1 is**b**... Diagram 2 is **.d**..... Diagram 3 is**c**.... Diagram 4 is ..**a**.....

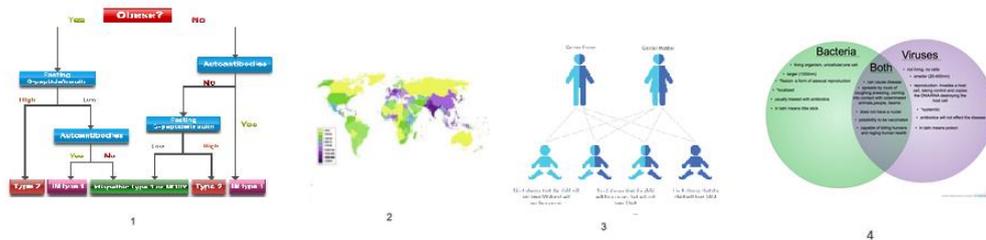


Fig. 1. A set of four types of diagrams

B- Read the definition of a. histogram, b. bar graph, c. pie chart, d. line graph, e. exploded diagram. Then match with the corresponding picture

- B- Read the definition,**
- a. A histogram is a representation of tabulated frequencies, shown as adjacent rectangles erected over discrete intervals.
 - b. A bar chart or bar graph is a chart with rectangular bars with lengths proportional to the values that they represent.
 - c. A pie chart is a circular chart divided into sectors, illustrating numerical proportions.
 - d. A line graph compares two variables. Each variable is plotted along an axis.
 - e. An exploded diagram, view drawing, or photograph, that shows the individual parts of a mechanism separately and indicates their proper relationship

Diagram 1 is **.b**... Diagram 2 is **.c**... Diagram 3 is **.e**...Diagram 4 is....**d**.... Diagram 5 is,,**a**....

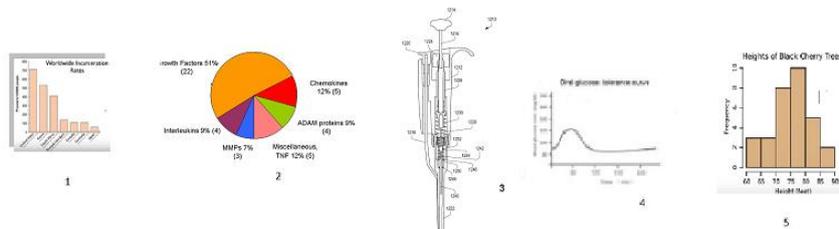


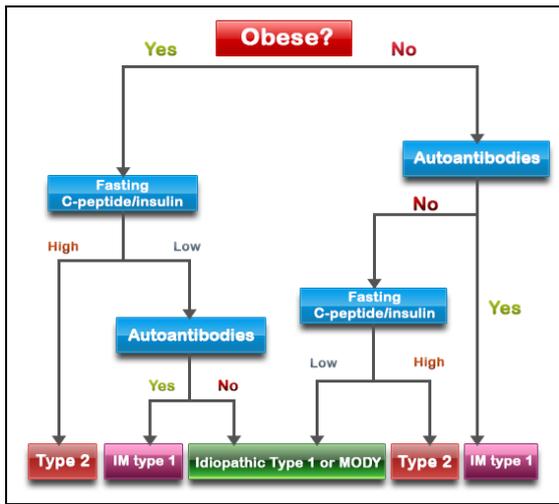
Fig. 2. A set of five types of diagrams

Now, move on to the grammar support exercises: the parts of speech. And following this, tell them to read and complete exercise nº3 "Out of the 8 different ways of illustrating information."

3. Out of the 8 different ways of illustrating information included in the box, which is/are the most suitable for the following representations?

a. Which type of diabetes do I have? Your health team may need to conduct one or more tests to figure out which type of diabetes you have. A flowchart is used to indicate the tests that may be done.

The following flowchart shows how tests can be carried out to distinguish between different types of diabetes.



Explanation of the flowchart:

- **C-peptide:** A C-peptide test is used to assess how much insulin your pancreas is producing
- **Autoantibodies:** Autoantibodies refers to immune cells which target and kill the insulin producing cells in the pancreas, a GAD test is used to detect the presence of specific autoantibodies in the blood
- **Type 2:** Type 2 diabetes - most common in adults
- **IM Type 1:** Immune mediated type 1 diabetes, the most common form of type 1 diabetes
- **Idiopathic Type 1:** A rare form of type 1 diabetes with no known cause
- **MODY:** Maturity onset diabetes of the young, a rarer form of diabetes caused by specific genetic mutations

Fig. 5.A flowchart Explanation of the flowchart

TO KNOW MORE

If you want to know more about differences between type 1 and type 2 diabetes check Diabetes.co.uk © 2018 Diabetes Digital Media Ltd - the global diabetes community.



Differences between type 1 and type 2 [diabetes](https://diabetes.co.uk).

b. Global Categorization of the human plasma proteome, which is the entire set of proteins expressed by a genome, cell, tissue, or organism at a certain time. -Illustrating numerical proportions-

Choose a pie chart in this case because this kind of graph illustrates numerical proportion. The sum of the parts that make up the whole is shown.

Explanation of the pie charts
 Categorization of **1427 high-confidence plasma proteins** that comprise the mass and time tag database and have passed the 95% confidence limit filtering criteria. This total is based on multiple analyses involving both depleted and non-depleted plasma samples.

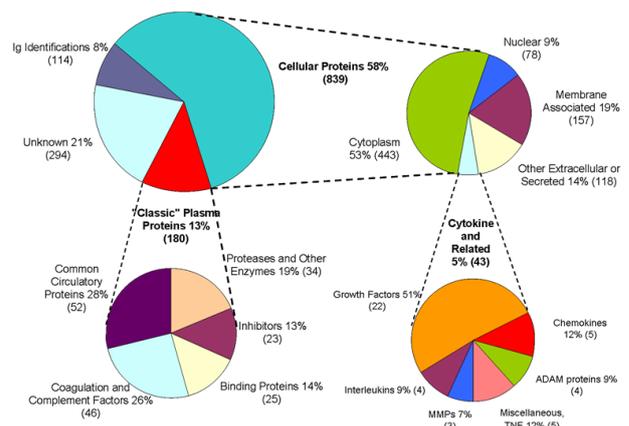


Fig. 6. A pie chart. Explanation of the pie charts.

TO KNOW MORE

If you want to know more about human plasma proteome check Proteomics National Center for Research Resource.



A new approach for global characterization of the human [plasma proteome](#)

- c. A survey asking, "Which is the nicest fruit?" Bar Graphs are good when your data is in categories (such as types of fruit, student grades, favourite type of movie etc.).

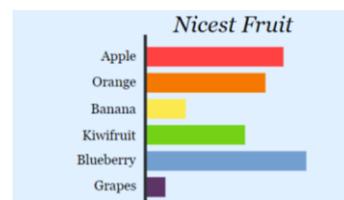
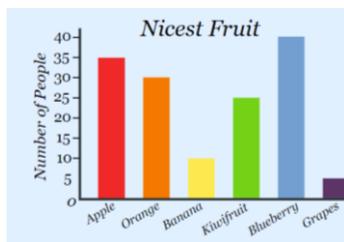


Fig. 7. Bar Graphs. Bar Graphs can also be Horizontal, like this.

TO KNOW MORE

If you want to know more about bar chart check



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- d. Numerical results of a final exam given to a hypothetical group of students. Choose a histogram. The illustration shows the results of a final exam given to a hypothetical class of students. Each score range is denoted by a bar of a certain colour. Histograms use continuous numerical data on the x-axis.

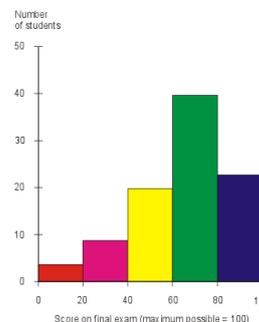


Fig. 8. A histogram. Explanation of the histogram.

4. TEACHER GRAMMAR SUPPORT - ANSWER KEY: THE PARTS OF SPEECH. PROMOTING VOCABULARY ACQUISITION.

The aim of this session is to review the parts of speech and enhance vocabulary acquisition

1. Parts of speech are a critical grammar concept to understand for reading and writing skills. Not only do the parts of speech help in creating correct sentences, they also help students to understand what is taking place.

TO KNOW MORE

If you want to know more about the parts of speech check this link.



Traditional grammar classifies words based on eight [parts of speech](#): the verb, the noun, the pronoun, the adjective, the adverb, the preposition, the conjunction, and the interjection.

In the English language, words can be considered as the smallest elements that have distinctive meanings. Based on their use and functions, words are categorized into eight groups (the parts of speech): noun, pronoun, verb, adverb, adjective, conjunction, preposition, and interjection.

<p style="text-align: center;">NOUNS</p> <p>A noun is any word that names people, things, animals, places, events, or ideas. Examples: Alex, Barcelona, bandage, medicine, advice, teacher, pharmacist, optimism.</p>	<p style="text-align: center;">ADJECTIVE</p> <p>An adjective describes, modifies or gives more information about a noun or a pronoun. Examples: big, chronic, red, young, dry, three.</p>	<p style="text-align: center;">PRONOUNS</p> <p>A pronoun is used in place of a noun. Examples: I, you, we, they, he, she, it, me, us, them, him, her, this, those</p>	<p style="text-align: center;">VERBS</p> <p>A verb shows an action or state of being. Examples: help, speak, tell, study, heal, advise, like, are, is</p>
<p style="text-align: center;">ADVERBS</p> <p>An adverb describes/ modifies a verb, an adjective or another adverb. Examples: occasionally, gradually, quietly, very, always, well, tomorrow, here</p>	<p style="text-align: center;">PREPOSITIONS</p> <p>A preposition shows the relationship of a noun or pronoun to another word. They can indicate time, place, or relationship. Examples: at, on, in, from, with, near, between.</p>	<p style="text-align: center;">CONJUNCTIONS</p> <p>A conjunction joins two words, ideas, phrases, or clauses together in a sentence. Examples: and, or, but, because, so, yet, unless, since, if.</p>	<p style="text-align: center;">INTERJECTION</p> <p>An interjection is a word or phrase that expresses a strong emotion. Examples: Shh! Ouch! Wow! Great! Help! Oh! Hi!</p>

Fig. 9. Parts of speech. Institut La Guineueta

In this lesson, we will focus on **nouns** and **verbs** in a text.

TO KNOW MORE



The power of **praise** in changing student behaviour is that it both indicates teacher approval and informs the student about how the praised academic performance or behaviour conforms to teacher expectations (Burnett, 2001). As with any potential classroom reinforce, praise has the ability to improve student academic or behavioural performance. [Praise the students](#)

Example A pie chart is a circular chart divided into sectors

Color-coding parts of speech.

Blue= Adverbs
Yellow= Adjectives
Red= Prepositions
Green=Verbs
Purple=Nouns
Grey = Pronouns

A. As a whole group, identify the nouns and verbs in these sentences; use the appropriate color-coding.

- a. A **Venn diagram** ¹ or **set diagram** is a **diagram** that **shows** all possible logical **relations** between finite **collections** of **sets**.
- b. A **flowchart** is a **type** of **diagram** that **represents** an **algorithm** or **process**, **showing** the **steps** as **boxes** of various **kinds**, and their order by connecting the boxes with arrows.
- c. A **histogram** is a **representation** of tabulated **frequencies**, **shown** as adjacent **rectangles** **erected** over discrete **intervals**.
- d. A **bar chart** or **bar graph** is a **chart** with rectangular **bars** with **lengths** proportional to the **values** that they **represent**.
- e. A **line graph** **compares** two **variables**. Each **variable** is **plotted** along an **axis**.

1 Venn diagram also called primary diagram, set diagram or logic diagram

B. Next, dictate these five sentences. After being corrected, each student identifies the nouns and verbs in the paragraph. Correct as a whole group.

2. Enhancing vocabulary acquisition.

There are many difficult words to spell in English. Periodically, the teacher will select some words from the "New terminology template". Students will create a set of three flashcards for each word. **This activity includes vocabulary review and practice at times.**

Make Your Own Flash Cards.

- a) Divide the class into groups of three or four students. Distribute the words among the students.
- b) Look at fig 3. Example: A set of flashcards.

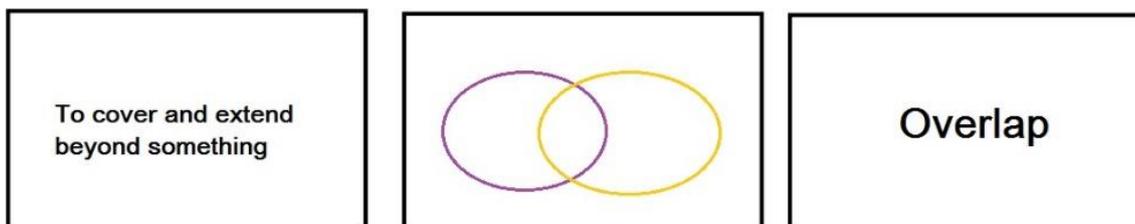


Fig. 3 Example: A set of flashcards.

- c) Give each group three card boards
- d) Tell the students to use each one to: first, write down the term; second, write down its definition; and third, draw a picture that describes this term.
- e) Tell the students the word definition is in the "New vocabulary template".
- f) Each group will explain its set of flashcards.
- g) Give them 5 minutes.

Vocabulary review and practice: A game to help students recycle vocabulary,

- a) Tell the students they work in groups of three.
- b) Distribute the flashcards. Make sure each group gets flashcards that don't match.
- c) Allow the teams to interact with one another.
- d) The goal of this activity is to get as many sets of three flashcards as possible
- e) Give them 7 minutes.
- f) Correct as a whole group.

6. BIBLIOGRAPHY. REGISTRE DE DOCUMENTACIÓ COMPLEMENTÀRIA (COM)

Supplementary documentation considered: catalogues, articles, instructions, photographs, audios, and videos, pages of reference websites, documents, graphics, and links to similar documents.

Imatge	Dades
	<p>Nom: Oxford English Dictionary</p> <p>Autoria: © 2018 Oxford University Press</p> <p>Llicència:</p> <p>URL: https://es.oxforddictionaries.com/</p>
	<p>Nom: Grammar and vocabulary. English grammar.</p> <p>Autoria: © British Council. Learn English</p> <p>Llicència:</p> <p>URL: https://learnenglish.britishcouncil.org/en/english-grammar</p>
	<p>Nom: Statistics: Power from Data! This web resource is published primarily for secondary students of Mathematics and Information Studies, although it will also be used by other students, teachers and the general population.</p> <p>Autoria:</p> <p>Llicència:</p> <p>URL: https://www.statcan.gc.ca/edu/power-pouvoir/toc-tdm/5214718-eng.htm</p>
	<p>Nom: Graphs of Life</p> <p>Autoria:</p> <p>Llicència:</p> <p>URL: https://www.youtube.com/watch?v=W9BhzvLool4</p>
	<p>Nom: The Writing help service Hamelin Hall MHN526</p> <p>Autoria:</p> <p>Llicència:</p> <p>URL: https://arts.uottawa.ca/writingcentre/en/hypergrammar/the-parts-of-speech</p>
Imatge	Dades
	<p>Nom: Verbs BBC</p> <p>Autoria:</p> <p>Llicència:</p> <p>URL: http://www.bbc.co.uk/skillswise/topic/verbs</p>
Imatge	Dades
	<p>Nom: Nouns BBC</p> <p>Autoria:</p> <p>Llicència:</p> <p>URL: http://www.bbc.co.uk/skillswise/topic/nouns</p>

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