

SAN05 _MÒDUL11: PROJECTE DE LABORATORI CLÍNIC I BIOMÈDIC

UF1 NF3 Activitat N°3 Line graph & The glucose tolerance test

Type of activity: Jigsaw-Assessment activity	Topic: Line graph & The glucose tolerance test
Grouping: In groups of three or four	Resources: 1. Student document: Exploring the functions of a line graph 2. Student grammar support: Phrases for discussions in English & Wh questions. 3. Teacher documents: Jigsaw game & Line graphs. The assessment: filling the blanks. 4. Teacher grammar support - answer key: Phrases for discussions in English & Wh questions 5. New terminology template. 6. Bibliography- COM
Timing: 60'	Outcomes: At the end of the lesson, students will be able to interpret and create line graphs. And, they will use these types of diagrams to illustrate the research project (M11).

The **aim** of this activity is to learn about line graphs and review different aspects of testing blood glucose levels. At the end of this lesson, an assessment will be done.

Directions:

1. Let the students know that today's lesson deals with line graphs and they will work in groups. Explain the jigsaw strategy.
2. Hand out the document student grammar support focus on phrases for discussion and Wh questions. Learning them will help students become more eloquent.
3. Assign each student to learn one section. (A, B, C and D). Ask them to read the document, underline difficult terminology and try to memorize basic information. Give them 10 minutes.
4. Next, the teacher forms "expect groups". Each group has to get the main idea about the text. They must interact to master the content and also take some notes. Give them 15 minutes
5. Bring the students back into their jigsaw groups. Ask each student to present what has learnt about his/her section to the jigsaw group. The aim is to share and learn the different sections of information. Give them 10 minutes
6. By the end of this activity, they must have learned the content of the four sections.
 - A. Line graph -Definition and general view &The glucose tolerance test
 - B. Line graph -The labels &The glucose tolerance test
 - C. Line graph -Data and axis
 - D. Line Graphs –variable &The glucose tolerance test
7. Tell the jigsaw groups to fill in the new terminology template with the new vocabulary they have just learnt. Correct as a whole group.
8. Assess the students, with the purpose of seeing how much information the students have retained, through fill -in -the-blanks.

1. STUDENT DOCUMENT: EXPLORING THE FUNCTIONS OF A LINE GRAPH

Today's lesson is focused on line graphs. You will work in groups of four students.

Each Jigsaw group has a student that gets the role of leadership, under teacher supervision. The leadership helps the group to complete its tasks successfully

Having done a set of activities focuses on line graphs, it is time to be responsible for teaching some content to the group you are sitting with now. Don't worry, you will have a written information.

At the end of this lesson, an assessment will be done.

1. Read the document the teacher gives you. This is an individual task, so learn this content on your own. If you have any doubts or questions, ask the teacher. The leader may help you.
2. Underline difficult terminology and try to memorize basic information. Timing: 10 minutes.
3. Next, the teacher will tell you to leave your home group to sit with a temporary "expert groups".
4. Discuss the main points of your section and rehearse the presentations you will give to your jigsaw group.

2. STUDENT GRAMMAR SUPPORT: PHRASES FOR DISCUSSIONS IN ENGLISH & WH Q

Useful expression for discussions in English.

1. Introduction

Let's begin/start with...

2. What you think about somebody/ Something

I think ... / I don't think...

In my opinion...

3. How to agree/disagree

I totally/fully/partly agree.

I agree/don't agree with you.

4. Asking for clarification

What do you think?

What's your opinion?

5. How to interrupt politely

I'm sorry, but...

Sorry to interrupt, but...

6. Other opinions

They also say...

Speaking of...

7. Phrases to keep a debate going

As I was saying...

1. Wh-Questions. Fill in the blanks.

WHO person		The child has type I diabetes.
WHAT thing		Diabetes is a serious life-long condition.
WHEN		A person is diagnosed with diabetes when two diagnostic tests done on different days show that the blood glucose level is high.
WHERE place		The independent value is on X- axis
WHICH choose among few items		The second (measure) one has the highest value.
WHY reason		I take that medicine because I have diabetes
HOW in what way or manner, to what extent.		You could highlight the highest or smallest data points with different colours.
WHAT + TIME hour minutes.		I take it at four o'clock
WHOSE + NOUN possession		It's Sara's analytical result
HOW LONG time		The glucose tolerance test may take up to 3 hours.
HOW FAR distance		Put the numbers on every gridline or every other gridline.
HOW OFTEN frequency		Your blood will be taken every 30 to 60 minutes after you drink the solution
HOW MUCH + UNCOUNTABLE NOUN quantity		You need 75 grams of glucose per 237 ml of water
HOW MANY + COUNTABLE NOUN quantity		I will plot six points

3. TEACHER DOCUMENTS: JIGSAW GAME & LINE GRAPHS

A cooperative-learning technique, "[jigsaw](#)", is used, which gives students the opportunity to specialize in one aspect of a topic, master the topic, and then teach the material to group members.

Jigsaw builds comprehension, encourages cooperation, and improves communication and problem-solving skills.

Explain the jigsaw strategy. Tell the student that they will be an assessment by the end of this activity with the purpose of seeing how much information the students have retained while working together.

Step one. Preparing the jigsaw documents.

Divide the content of the topic Line graphs" into four sections:

- A.** Line graph -Definition and general view &The glucose tolerance test
- B.** Line graph -The labels &The glucose tolerance test
- C.** Line graph -Data and axis
- D.** Line Graphs –variable &The glucose tolerance test

Make photocopies of each model according to student ratio.

Step two

The teacher forms groups that should be four students. These are the home groups or jigsaw groups or also called mixed groups.

Remember, the target has been split up into four sections (A, B, C, D).

In case you have 5 students in a jigsaw group, give the same letter to two students so that they both can make the presentation together in the new mixed group.

Step three

Appoint one student from each group as the leader. Initially, this person should be the most mature student in the group. It is important to guidance the leader in how to best take on this role. "He will help the group to complete its tasks successfully and maintain effective working relationships among its members".

Step four

Make sure students have direct access only to their own segment.

Step five

Give students time to read over their segment at least twice and become familiar with it.

Step six

Now students will leave their home group to sit with an expert groups" (A,B,C and D) by having one student from each jigsaw group join other students assigned to the same segment.

Give students in these expert groups time to discuss the main points of their segment and to rehearse the presentations they will give to their jigsaw group.

Step seven

Bring the students back into their jigsaw groups.

Step eight

Ask each student to present her or his segment to the jigsaw group. Encourage others in the group to ask questions for clarification.

Step nine

Float from group to group, observing the process. If any group is having trouble make an appropriate intervention

Step ten

At the end of the session, assess the students' content acquisition using a filling in the gap exercise.

SECTION A

Line graphs can be used to show how something changes over time. Line graphs are good for plotting data that has peaks (ups) and valleys (downs), or that was collected in a short time period. It is important to identify the different components of a line graph. For instance, the title and the source.

The Title

The title offers a short explanation what is in your graph. This helps the reader identify what they are about to look at. It can be creative or simple as long as it tells what is in the graph. The title of the following line graph tells the reader that the graph contains information about the clinical test: "Oral glucose tolerance test".

The glucose tolerance test is a lab test to check how your body breaks down sugar. Before the test begins, a sample of blood will be taken.

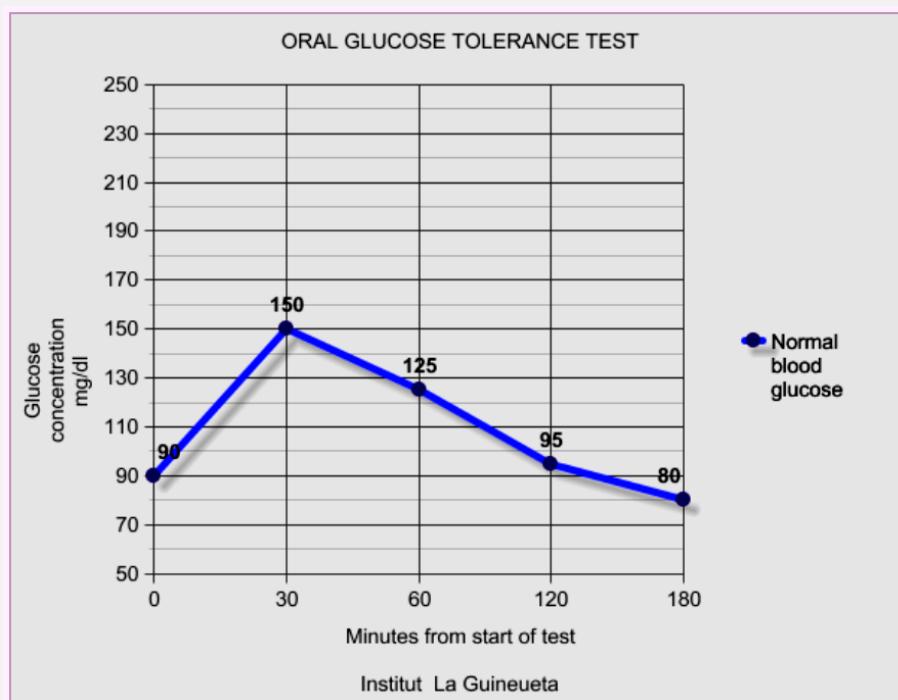
You will then be asked to drink a liquid containing a certain amount of glucose (usually 75 grams). Your blood will be taken again every 30 to 60 minutes after you drink the solution. The test may take up to 3 hours.

Normal blood values for a 75-gram oral glucose tolerance test used to check for type 2 diabetes in those who are not pregnant:

- * Fasting: 60 to 100 mg/dL
- * 1 hour: less than 200 mg/dL
- * 2 hours: less than 140 mg/dL

The Source

The source explains where you found the information that is in your graph. In this graph, the source tells us that we found our information from **Guineueta Institute**



SECTION B

Line graphs can be used to show how something changes over time. Line graphs are good for plotting data that has peaks (ups) and valleys (downs), or that was collected in a short time period. It is important to identify the different components of a line graph. For instance, the title and the legend.

The Title

The title offers a short explanation of what is in your graph. This helps the reader identify what they are about to look at. It can be creative or simple as long as it tells what is in the graph. The title of this graph tells the reader that the graph contains information about the Oral glucose tolerance test

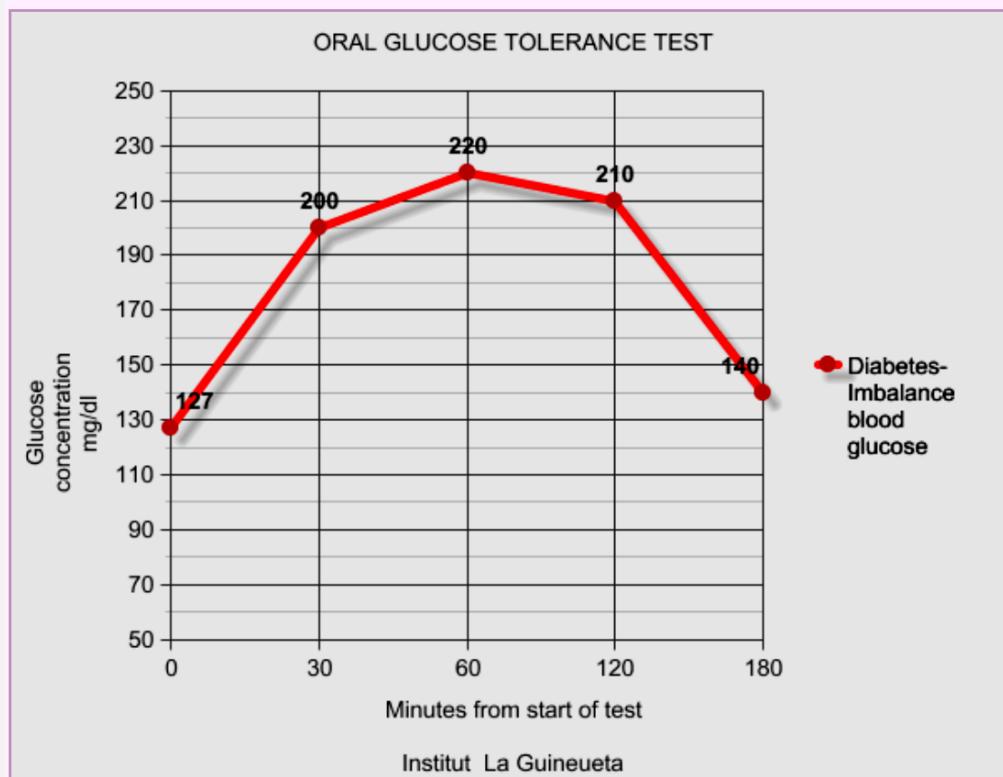
The glucose tolerance test is a lab test to check how your body breaks down sugar. Before the test begins, a sample of blood will be taken.

You will then be asked to drink a liquid containing a certain amount of glucose (usually 75 grams). Your blood will be taken again every 30 to 60 minutes after you drink the solution. The test may take up to 3 hours.

What's Diabetes? A person has diabetes when two diagnostic tests done on different days show that the blood glucose level is high. This means either the two hour levels is greater than 200 mg/dl or the fasting glucose is noted as greater than 126 mg/dl.

The Legend

The legend tells what each line represents. Just like on a map, the legend helps the reader understand what they are looking at. This legend tells us that the red line stands for the blood glucose level that occurs in people with diabetes, so the legend is identified with the term Diabetes



SECTION C

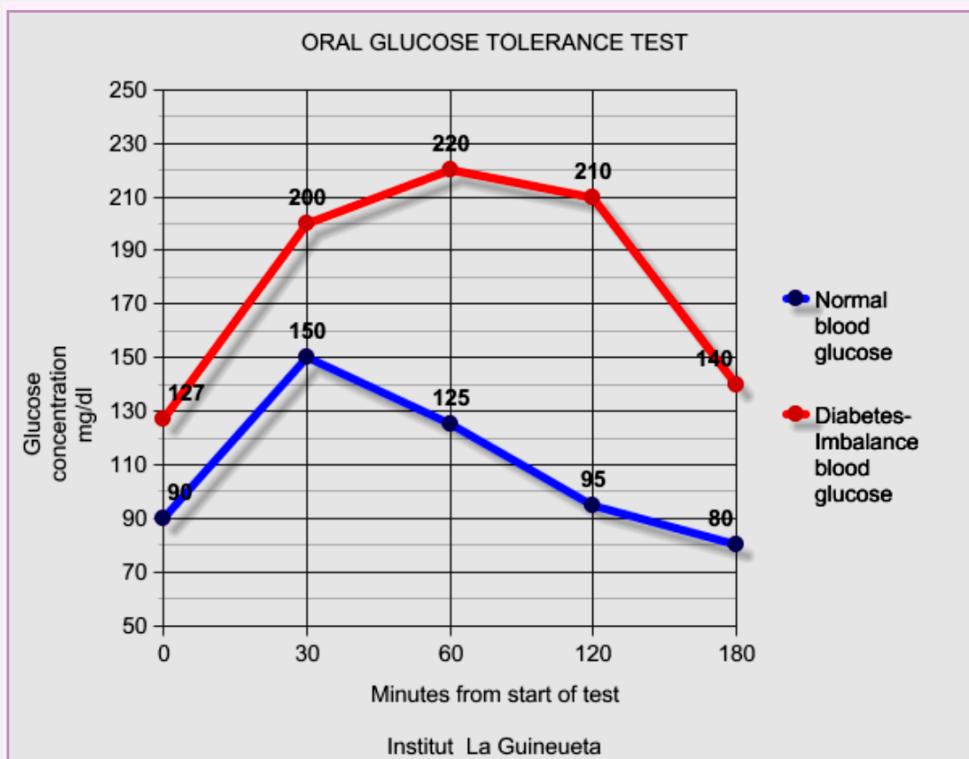
Line graphs can be used to show how something changes over time. Line graphs are good for plotting data that has peaks (ups) and valleys (downs), or that was collected in a short time period. It is important to identify the different components of a line graph. For instance, the Y-Axis, the Data and finally the X-Axis

Y-Axis

In line graphs, the y-axis runs vertically (up and down). Typically, the y-axis has numbers for the amount of stuff being measured. The y-axis usually starts counting at 0 and can be divided into as many equal parts as you want to. In this line graph, the y-axis is measuring the blood glucose level on adults. In this case, the y-axis starts counting at 50 mg/dl.

The Data

The most important part of your graph is the information, or data, it contains. Line graphs can present more than one group of data at a time. In this graph, two groups of data are presented. One group is represented by a red line and the second group is represented by a blue line.

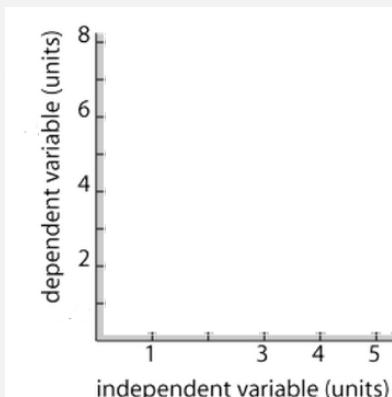


X-Axis

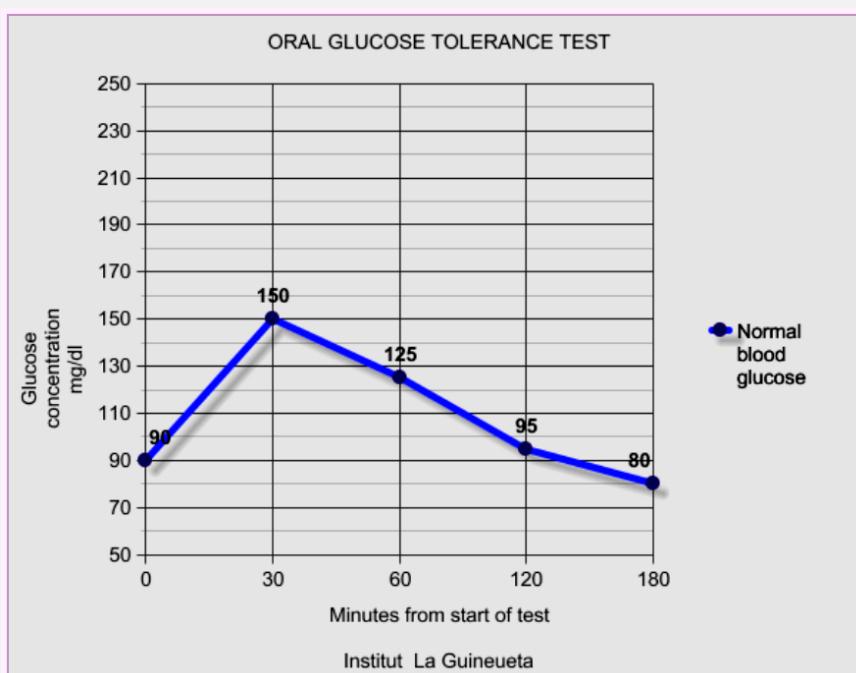
In line graphs, the x-axis runs horizontally (flat). Typically, the x-axis has numbers representing different time periods or names of things being compared. In this plot, the x-axis measures time, (minutes).

SECTION D

Line graphs can be used to show how something changes over time. Line graphs are good for plotting data that has peaks (ups) and valleys (downs), or that was collected in a short time period.



Line graphs illustrate the relationship between two major variables. The independent variable is charted on the horizontal axis the x-axis (the abscissa), while the dependent is plotted along the vertical axis, y-axis (the ordinate).



In the above line graphs, the independent variable is **time**, (minutes). Other examples of independent variables are temperature, distance.

In addition, the dependent variable is the blood glucose **concentration**; it is expressed in mg/dl. *This line graph is focus on “The glucose tolerance test”.* It is a lab test to check how your body breaks down sugar. Before the test begins, a sample of blood will be taken.

You will then be asked to drink a liquid containing a certain amount of glucose (usually 75 grams). Your blood will be taken again every 30 to 60 minutes after you drink the solution.

THE ASSESSMENT: FILLING THE BLANKS.

The (1)..... is usually placed in the centre of the graph, either above or below the graph. The (2)..... of the graph should explain what the x and y axes represent. Include (3)..... for both the (4)..... ((5).....) and (6)..... ((7)): labels should be brief and explain exactly what each aspect of the graph is showing. The units of measurement (8)..... (mg/dl), (9)..... (minutes) should also be included.

Include a (10)..... This provides a key to the various data plotted on a graph. For example, if you have used colours or shading, the legend should explain what the colours and/or shading represent. Add (11) to further explain the data.

Moreover, in line graphs, the (12) runs up and down. Typically, the (13)..... has numbers for the amount of stuff being measured.

On the other hand, the (14)..... runs flat. Typically, the (15) has numbers representing different time periods or names of things being compared. The independent variable is placed on (16)

(17)..... causes a change in (18)..... variable and it isn't possible that (19)..... variable could cause a change in (20)..... variable.

"The glucose tolerance test". It is a lab test to check how your body breaks down sugar. Before the test begins, (21) will be taken.

You will then be asked to drink a liquid containing a certain amount of glucose (usually 75 grams). Your blood will be taken again every (22)..... after you drink the solution.

Normal blood values for a 75-gram oral glucose tolerance test used to check for type 2 diabetes in those who are not pregnant:

- * Fasting: 60 tomg/dL (23)
- * 1 hour: less than200 mg/dL (24)
- * 2 hours: less than mg/dL (25)

THE ASSESSMENT. ANSWER-KEY: FILLING THE BLANKS.

The **title**¹ is usually placed in the centre of the graph, either above or below the graph. The **title**² of the graph should explain what the x and y axes represent. Include **labels**³ for both the **x-axis**⁴ (**horizontal**⁵) and **y-axis**⁶ (**vertical**⁷): labels should be brief and explain exactly what each aspect of the graph is showing. The units of measurement **concentration**⁸ (mg/dL), **time**⁹ (minutes) should also be included. Include a **legend**¹⁰. This provides a key to the various data plotted on a graph. For example, if you have used colours or shading, the legend should explain what the colours and/or shading represent. Add **footnotes**¹¹ to further explain the data.

Moreover, in line graphs, the **y-axis**¹² runs up and down. Typically, the **y-axis**¹³ has numbers for the amount of stuff being measured.

On the other hand, the **x-axis**¹⁴ runs flat. Typically, the **x-axis**¹⁵ has numbers representing different time periods or names of things being compared. The independent variable is placed on **x-axis**¹⁶.

Independent variable¹⁷ causes a change in **dependent variable**¹⁸ and it isn't possible that **dependent variable**¹⁹ could cause a change in **independent variable**²⁰.

"The glucose tolerance test". It is a lab test to check how your body breaks down sugar. Before the test begins, a **sample of blood**²¹ will be taken.

You will then be asked to drink a liquid containing a certain amount of glucose (usually 75 grams). Your blood will be taken again every **30 to 60 minutes**²² after you drink the solution.

Normal blood values for a 75-gram oral glucose tolerance test used to check for type 2 diabetes in those who are not pregnant:

* Fasting: **60 to 100** mg/dL²³

* 1 hour: less than **200** mg/dL²⁴

* 2 hours: less than **140** mg/dL²⁵

4. TEACHER GRAMMAR SUPPORT - ANSWER KEY: TRANSITION WORDS & WH QUESTIONS

Useful expression for discussions in English.

1. Introduction

Let's begin/start with...

2. What you think about somebody/ Something

I think ... / I don't think...

In my opinion...

3. How to agree/disagree

I totally/fully/partly agree.

I agree/don't agree with you.

4. Asking for clarification

What do you think?

What's your opinion?

5. How to interrupt politely

I'm sorry, but...

Sorry to interrupt, but...

6. Other opinions

They also say...

Speaking of...

7. Phrases to keep a debate going

As I was saying...

TO KNOW MORE



[Phrases for discussion BBC Learning English Learn](#)



[Improve your conversation skills with WH questions EnglishLessons4U](#)
[Learn about "Wh" Questions in English Grammar TeacherPhilEnglish](#)



1. An exercise about Wh-Questions. Follow teacher instructions and fill the gaps by giving examples

Q-ANSWER YES/NO	MOST OF THE VERBS	Does the trend remain steady?	Yes, it does. The trend remain steady
	TO BE	Is it a line graph?	No, it isn't. It is not a line graph.
	MODALS VERBS	Can I take this medication?	Yes, you can. You can take this medication
Q- WORD ANSWERS Q-W + AUXILIARY VERB + SUBJECT + MAIN VERB	WHO person	Who has diabetes?	The child has type I diabetes.
	WHAT thing	What is diabetes?	Diabetes is a serious life-long condition.
	WHEN	When is somebody diagnosed with diabetes?	A person is diagnosed with diabetes when two diagnostic tests done on different days show that the blood glucose level is high.
	WHERE place	Where is the independent variable?	The independent value is on X- axis
	WHICH choose among few items	Which of these measures has the highest value?	The second measure has the highest value.
	WHY reason	Why do you take that medicine?	I take that medicine because I have diabetes
Q- WORDS - WITH TWO OR MORE - WORDS Q-W + Ws + AUXILIARY VERB + SUBJECT + MAIN VERB	WHAT + TIME hour minutes.	What time do you take your medicine?	I take it at four o'clock
	WHOSE + NOUN possession	Whose analytical result is this?	It's Sara's analytical result
	HOW LONG time	How long does the glucose tolerance test take?	The glucose tolerance test may take up to 3 hours.
	HOW FAR distance	How far apart should I put the time labels on the x-axis?	Put the numbers on every gridline or every other gridline.
	HOW MUCH + UNCOUNTABLE NOUN quantity	How much of glucose per ml of water do you need?	You need 75 grams of glucose per 237 ml of water
	HOW MANY + COUNTABLE NOUN quantity	How many points will you plot?	I will plot six points
	HOW OFTEN frequency	How often will your blood be taken after you drink the solution?	Your blood will be taken every 30 to 60 minutes after you drink the solution

5. NEW TERMINOLOGY TEMPLATE.

TOPIC

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
	Nom: Oxford English Dictionary Autoria: © 2018 Oxford University Press Llicència: URL: https://es.oxforddictionaries.com/
	Nom: Grammar and vocabulary. English grammar. Autoria: © British Council. Learn English Llicència: URL: https://learnenglish.britishcouncil.org/en/english-grammar
	Nom: 3 expressions to improve your conversation skill Autoria: Learn English with Emma [engVid] Llicència: URL: https://www.youtube.com/watch?v=OZcfQVggDRM
	Nom: Improve your conversation skills with WH questions Autoria: Llicència: URL: https://www.youtube.com/watch?v=Pu1zdTrcCT4
	Nom: Learn about "Wh" Questions in English Grammar Autoria: Llicència: URL: https://www.youtube.com/watch?v=aQyettA79LI
	Nom: The jigsaw classroom Autoria: Llicència: URL: https://www.jigsaw.org/
	Nom: Jessica Lu, Bachelor of Arts (Cell Biology), Columbia University Autoria: Grammar correction Llicència: URL: https://www.linkedin.com/in/jessica-lu-89b15348