

SAN02_MÒDUL 10: ANATOMOFISIOLOGIA I PATOLOGIA BÀSIQUES
UF5 NF1 Activitat N° 1 Diabetes and the endocrine system

Type of activity: Storytelling and Jigsaw	Topic: Diabetes and the most common endocrine diseases
Grouping: Class group/ in pairs/ individually	Resources: 1. Student document: Diabetes storytelling 2. Student grammar support: Question forming 3. Teacher documents-answer key: Diabetes storytelling 4. Teacher grammar support - answer key: Question forming 5. New terminology template. 6. Bibliography- COM
Timing: 3 hours	Outcomes: At the end of the lesson, students will be able to recognize the systems that intervene in the internal regulation of the organism and their relationship with the exterior and to describe the structure, function and diseases of the endocrine system, the reproductive system and the immune system.

The **aim** of this activity is to learn about the characteristics of diabetes and other endocrine diseases in order to be able to identify them in patients and understand their risk factors and treatment.

Directions: In two classes and using collaborative learning techniques the educator develops the teachings-learning to be higher efficiency. Subject diabetes

First class (90')

1. Activity 1: Create a story with pictures. In pairs. Oral activity. 20'.

To evaluate previous knowledge on the topic, the teacher projects 6 different pictures on the board. The students put them in order and try to recreate the story that links them together. When they are finished, they share the stories with the rest of the class. The pictures are related to the text that the students are going to read in the next activity.

2. Activity 2: Jigsaw reading. In groups. Reading, oral and writing activity. 60'.

Part 1. Experts groups

The teacher divides the class in 4 groups and hands out a copy of "Erika's story of diabetes" to each group. Each group will receive a part of the whole text. Each group is responsible for reading, looking up for new words in the dictionary and making sure they understand their part. Each group fills in a new terminology template with the new words they have learned. They can rewrite it in their own words if they prefer. They write 2 comprehension questions about their part.

Part 2. Mixed groups

Once they are finished, the teacher forms the mixed groups in which each member explains their part to the rest of the group. At the end all the students know the whole story. Once all the members are finished with their explanation, they try to answer the comprehension questions together.

3. Activity 3. Closing activity. Whole class. Oral activity. 10'

The teacher asks each group for a brief summary of the most important aspects of the text and checks for understanding, and solves any doubts that the students have.

Second class (90')

1. Activity 4. Video about diabetes. Individually. Listening and writing activity. 20'

The teacher shows a video about diabetes. While the students are watching the video, they take notes on the most important aspects they see/hear. After that, the teacher asks for understanding and reviews the physiopathology of diabetes types 1 and 2.

Fill the new terminology template for further feedback.

2. Activity 5. Infographic poster about the endocrine diseases. In groups of 3 or 4. Reading and writing activity. 60'

The teacher divides the class in groups of 3 or 4 and assigns each group a disease. The teacher can decide whether she wants to assign types of diabetes (type 1, type 2, gestational diabetes) to the groups or she wants to ask some groups to work on different types of endocrine diseases (Cushing syndrome, hyperthyroidism, hypothyroidism, Addison disease).

The groups create an infographic poster with information about the demography, causes, physiopathology, signs and symptoms, diagnosis, treatment and prognosis of the disease.

3. Activity 6. Closure activity 3-2-1. Individually. Writing activity. 10'

To sum up, the students write 3 effects or consequences of diabetes, 2 signs or symptoms of diabetes and 1 question they have about the topic. Then, the teacher asks for the questions and answers them.

1. STUDENT DOCUMENT: DIABETES STORYTELLING

Activity 1: Create a story with pictures.



The hyperlink on the figures indicates their copyright.

Activity 2. Jigsaw reading

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

Having done a set of activities that focus on diabetes, it is time to WORK IN GROUPS. Don't worry; you will have written information. At the end of this lesson the teacher will check for understanding through an oral assessment.

1. Read the document the teacher gives you. This is an individual task so try to read it on your own. In case of doubt ask the teacher. The leader may help you.
2. Underline difficult terminology and try to understand the general ideas.
3. Discuss the text that you have read with the rest of the expert group to clarify doubts and fill in the new terminology template together.
4. Write 2 comprehension questions about the text with the expert group. If it is necessary, use the grammar support to create them.
5. Next, the teacher will tell you to leave your expert group to sit with jigsaw or mixed groups
6. Explain the main points of your section to the rest of the members of the mixed group and ask them the comprehension questions to see if they have understood your part.
7. At the end of the lesson, the teacher will ask for general comprehension questions and will clarify any doubts.

Activity 3. Closing activity.

These are some questions that the teacher may ask:

1. What are some aspects of Erika's life that have changed after she has been diagnosed with diabetes?
2. What are some things that you should learn if you lived close to a person with diabetes?
3. What type of diabetes does Erika have? Do you know more information about this type of diabetes?
4. What is an insulin pump? What are its benefits?

Activity 4. Video about diabetes.

The teacher shows a video about diabetes. Take notes on the most important aspects you see/hear. Be prepared to share your knowledge on the physiopathology of diabetes types 1 and 2.

Video about diabetes



[What is diabetes](#)

[Type 1 and type 2 diabetes animation](#)

Activity 5. Infographic poster about the endocrine diseases.

The teacher will assign a specific disease to your group. You have to create an infographic poster with schematic information about the following topics:

1. **Demography:** how many people are affected by the disease?
2. **Causes:** what are the main causes of the disease?
3. **Physiopathology:** how does the disease affect the organs and systems of the body?
4. **Signs and symptoms:** what does the patient complain about?

5. **Diagnosis:** how can you determine what disease does the patient have?
6. **Treatment:** what medications or procedures are advised?
7. **Prognosis and consequences:** is this disease acute or chronic? Does it have effects or consequences in the long term?
8. **Bibliography:** resources checked in order to create the infography

In the following pages there are some examples of infographics.

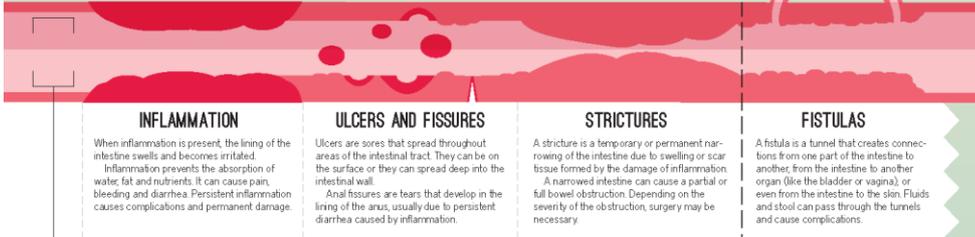
Activity 6. Closure activity 3-2-1.

- 3 effects or consequences of diabetes
- 2 signs or symptoms of diabetes
- 1 question they have about the topic

CROHN'S DISEASE

Crohn's disease is a chronic illness where a person's immune system attacks the gastrointestinal tract causing inflammation that can permanently damage the body. Currently, there is no cure.

WHAT'S HAPPENING INSIDE THE INTESTINES?



HEALTHY INTESTINE

A DEFINITIVE CAUSE IS STILL UNKNOWN.
 It may be environmental, hereditary and/or genetic, but research shows there may be risk factors such as living in an urban area or smoking.

Average age of diagnosis:
15-35 YEARS OLD

WHAT DOES CROHN'S FEEL LIKE?

Pain varies from person to person. Intestinal damage, disease activity and disease severity play a role in how a person can feel. Crohn's is considered an "invisible disease" because, most of the time, you can't tell a person has Crohn's just by looking at them.

MALES AND FEMALES ARE EQUALLY AFFECTED.
 Crohn's is non-discriminatory, affecting all races.

SYMPTOMS:
 DIARRHEA WEIGHT LOSS
 ABDOMINAL PAIN FATIGUE
 CRAMPING FEVER
 BLOODY STOOL SKIN RASH

To be diagnosed, a doctor or gastroenterologist will perform tests that may include: colonoscopy, endoscopy, MRI, X-ray, CT scan, and blood work.

75% 3 out of 4 people with Crohn's will need some type of surgery due to complications from intestinal damage.

THE PRICKLY PEAR
 It is in no rush and is quite content with scratching and picking its way through the bowels making sure to leave behind stinging sensations as a parting gift.

THE FIRE
 Flames can flare up or they can simmer at a constant, low burn. Regardless of the size of the inferno, the burn angers readily.

THE SINKER
 This dense mass swells and weighs heavily in the depths of the bowels.

THE PIRANHAS
 These vicious fishes are ever vigilant and when aggravated, they gnaw relentlessly at anything within reach.

THE STAMPEDE
 Without a moment's notice, the herd launches into a frenzy. All thought is obliterated and replaced with the singular, consuming need for a prolonged visit to the nearest porcelain lounge.

THE VICE
 Once its teeth are dug in, it refuses to let up. The fangs stab and squeeze tightly without remorse—sometimes for hours on end.

BURRILL BERNARD CROHN
 Gastroenterologist
1932
 Dr. Crohn wrote the first scientific publication of the disease. He originally dubbed it Regional Ileitis.

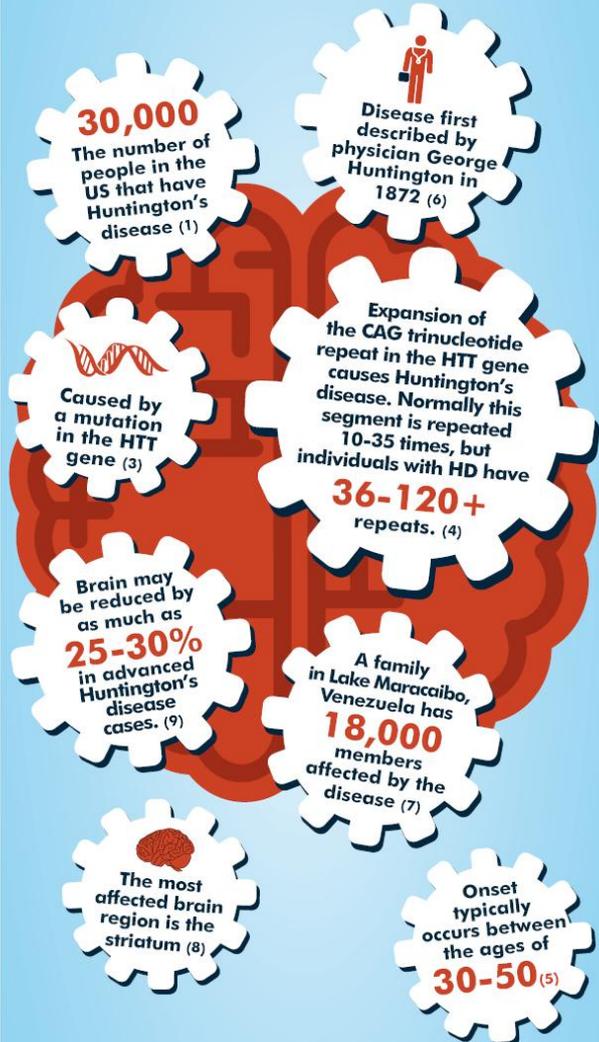
25 FEET THE AVERAGE INDIVIDUAL HAS 25' OF INTESTINES INSIDE THE BODY.
 That's 25' of disease potential for a person with Crohn's—slightly longer than the average killer whale.

Fig. 7. Extracted from <https://www.behance.net/gallery/17804301/Crohns-Disease-An-Infographic>

HUNTINGTON'S DISEASE



Huntington's disease is an inherited progressive neurodegenerative disorder which impairs cognition, causes issues with movement, and has associated behavioral changes and emotional problems. There is currently no cure for Huntington's disease, but research is focused on understanding the function of the Huntington's disease gene.



- 30,000**
The number of people in the US that have Huntington's disease (1)
- Disease first described by physician George Huntington in 1872 (6)**
- Expansion of the CAG trinucleotide repeat in the HTT gene causes Huntington's disease. Normally this segment is repeated 10-35 times, but individuals with HD have 36-120+ repeats. (4)**
- Caused by a mutation in the HTT gene (3)**
- Brain may be reduced by as much as 25-30% in advanced Huntington's disease cases. (9)**
- A family in Lake Maracaibo, Venezuela has 18,000 members affected by the disease (7)**
- Onset typically occurs between the ages of 30-50 (5)**
- The most affected brain region is the striatum (8)**

SYMPTOMS/DISORDERS(2)

- Movement disorders: Chorea, dystonia, problems with speaking/swallowing, uncoordinated fine motor skills
- Psychiatric disorders: Depression, insomnia, fatigue, bipolar disorder
- Cognitive impairments : Trouble learning, difficulties with spatial perception



Learn more about Huntington's disease at
www.novusbio.com/diseases/huntington-disease.html

Fig. 8 extracted from: <https://www.novusbio.com/antibody-news/antibodies/huntingtons-disease-infographic>

2. STUDENT GRAMMAR SUPPORT: QUESTION FORMING

This grammar section supports the activity 2 and reviews how to make questions about the text.

A. Question forms

We make questions by:

1: moving an **auxiliary** to the **front** of the clause:

Everybody is watching	>>	Is everybody watching?
They had worked hard	>>	Had they worked hard?
He's finished work	>>	Has he finished work?
Everybody had been working hard	>>	Had everybody been working hard?
He has been singing	>>	Has he been singing?
English is spoken all over the world	>>	Is English spoken all over the world?
The windows have been cleaned	>>	Have the windows been cleaned?

2: ... or by moving a modal to the front of the clause:

They will come	>>	Will they come?
He might come	>>	Might he come?
They will have arrived by now	>>	Will they have arrived by now?
She would have been listening	>>	Would she have been listening?
The work will be finished soon	>>	Will the work be finished soon?
They might have been invited to the party	>>	Might they have been invited to the party?

3: The **present simple** and the **past simple** have **no** auxiliary. We make questions by **adding** the auxiliary **do/does** for the present simple or did for the past simple:

They live here	>>	Do they live here?
John lives here	>>	Does John live here?
Everybody laughed	>>	Did everybody laugh?

B. There are some online self-corrected activities about question forming on the following websites:

To know more about question forming

If you want to practice about question forming, check the following websites and videos:



[British council question forms](#)
[Englisch hilfen question forms](#)



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

C. Activity about Wh questions

Fill in the missing information from the following chart with the correct questions or answers:

Q-ANSWER YES/NO	NORMAL VERBS	Does the child have diabetes?	
	TO BE	Is she sick?	
	MODAL VERBS		Yes, she can. She can take that medicine
Q- WORD ANSWERS Q-W + AUXILIARY VERB + SUBJECT + MAIN VERB	WHO person		The child has diabetes.
	WHAT thing		I think that her disease is serious
	WHEN	When do you take your medicine?	
	WHERE place		You get diabetes if you have genetic predisposition.
	WHICH a choose among few items		One of the risk factors of diabetes type 2 is obesity.
	WHY reason	Why do you check your blood sugar?	
	HOW	the way somebody does something How do you inject insulin? How do you spell your name ?	
		State of being How is your mother?	
		WHAT + TIME hour minutes..	
Q- WORDS - WITH TWO OR MORE – WORDS Q-W + Ws + AUXILIARY VERB + SUBJECT + MAIN VERB	WHOSE + NOUN possession	Whose medicines are those?	It's Sara's medicine They are my father's medicine
	HOW LONG time	How long does it take to get to the hospital?	
	HOW FAR distance	How far is the nearest hospital from your home?	
	HOW MUCH + UNCOUNTABLE NOUN quantity		I have a little money
	HOW MANY + COUNTABLE NOUN quantity	How many coins do you have?	

3. TEACHER DOCUMENT - ANSWER KEY: DIABETES STORYTELLING

First class (90')

Activity 1. Create a story with pictures.

Order of the pictures:

1. Figure 5 Beach because she starts the story on holidays in Puerto Rico
2. Figure 4 Plane because she flies home when she gets sick
3. Figure 2 Hospital because she is sent to the hospital when she gets home
4. Figure 3 Insulin because she is diagnosed with diabetes 1 and needs to learn how to administer insulin to herself
5. Figure 1 Picture of herself administering insulin because she grows and learns how to live with diabetes
6. Figure 6 Become a doctor because she wants to become a pediatrician when she gets older in order to help other children like herself.

Activity 2. Jigsaw reading.

The [jigsaw classroom](#) is a research-based cooperative learning technique that enhances student cooperation, oral expression and deep learning of content.

These are the steps of the jigsaw reading activity:

✓ **STEP ONE**

Divide the text diabetes into four sections:

- A. Diabetes: Erika's Story
- B. Living With Diabetes — and Little Brothers
- C. C. Things That Changed My Life
- D. Dating and Family

Make three or four photocopies of each model according to student ratio.

✓ **STEP TWO**

The teacher divides the class into 4 groups. Remember, the text has been splitted up into four sections. Each group will receive a part of the whole text (A, B, C or D).

✓ **STEP THREE**

Appoint one student from each expert 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**

Give students time to read over their segment individually at least twice and become familiar with it. There is no need for them to memorize it.

✓ **STEP FIVE**

Give students in these expert groups time to discuss the main points, to look up for new words and fill in the new terminology template and to create 2 comprehension questions about their text. They also have to rehearse the presentations they will make later.

✓ **STEP SIX**

Give each member of the experts group a number (1, 2, 3 and 4). If you have 5 or 6 students in an experts group give the same number to two students so that they both can make the presentation together in the new mixed groups.

Now create new mixed groups (1, 2, 3 and 4). Each of them should have at least one person who has read each section. For example, in group 1 there should be at least a member from group A, a member from group B, a member from group C and a member from group D.

✓ **STEP SEVEN**

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

✓ **STEP EIGHT**

Float from group to group, observing the process.

If any group is having trouble, make an appropriate intervention

✓ **STEP NINE**

After the presentations are over, students should solve the questions written by the experts groups. At the end of the session, ask questions on the topic. That is activity 3.

A. Diabetes: Erika's Story

"You have juvenile diabetes." Not something you hear every day, huh? But those were the words that changed my life forever. On August 31, 2000, I was lying in a hospital bed and the doctors were explaining that my pancreas had stopped functioning and I was no longer producing insulin. I was zoned out. Diabetes? How is that possible? Why me?

Maybe I should explain how I got there.

From Beach Chair to Hospital Bed

During the summer of 2000 I was in Puerto Rico at a family reunion. We were relaxing by the beach when suddenly I had to go to the bathroom. Five minutes later I had to go again. I thought it was all the water I was drinking, so I cut back. Still, the frequent trips to the bathroom continued. When I had two "accidents," I realized that something was wrong. I mean, at age 12 these things don't happen.

We called the doctor's office and they said it was probably just a urinary tract infection. I was given some antibiotics. Unfortunately, the medication had no effect. We cut our trip short and returned home. On the flight back, we had to ask for a seat close to the bathroom because my trips were increasing in frequency.

As soon as our plane landed, we headed to my physician's office. They took a urine sample, and for once I had no trouble giving one. When they tested it, they found traces of sugar in it. The physician then told me she wanted to check my blood sugar. I was scared! My grandparents have diabetes, so I knew that meant a needle. The machine read "466." My doctor stepped out of the room and, when she returned, she told me I had to go to the hospital. They were waiting for me there. She pulled my mom aside. I realized that things were not going well.

That's how I ended up with an IV in my arm, wearing one of those revealing robes; pulled from paradise into a world of white with beeping noises and bad food. During my time in the hospital, my family and I were taught about diabetes and how to manage it. I had to learn what to eat and how to give myself shots. I even had to improve my math skills in order to count carbohydrates.

I was overwhelmed! All I could think was, "I'm only 12 years old! How could this happen?" The fact that I was starting a new school that year didn't help. I didn't know how people would react or what they would say. What if they rejected me because of it? Would they make fun of me? Would I make friends? What if my blood sugar acted up and I made a fool of myself in class?

B. Living With Diabetes — and Little Brothers

At first I was really quiet about having diabetes. I refused to tell anyone in school. Then, when my friends began asking me why I had to go to the nurse's office all the time, I decided to tell them. It turned out to be a good choice. Everyone was interested. They asked some funny questions like "Is it contagious?" (it's not) and "So, wait, you can never have sugar?" (I can). But I enjoyed explaining. When I had low blood sugar at school, my friends noticed it immediately and were able to help me.

What is a day with diabetes like? I wake up and check my blood sugar using a finger-prick test. At breakfast I count carbohydrates and do some math in order to inject the proper dosage of insulin. At lunch, dinner, and before bed it's the same routine. If I have any symptoms of high or low blood sugar, then I have to prick my finger once again.

It's not a good idea for me to skip meals. And I have to do extra checks on my blood sugar levels when I'm doing any kind of intense physical activity. Diabetes can also make someone moody. I will be happy and bouncing off the walls one second, and the next, I am yelling at my brothers.

I must confess that having diabetes has not been a walk in the park. There have been times when I want to rip my hair out! For example, I wasn't even able to go to a sleepover until the tenth grade! My parents were kind of scared by it all.

I love sports. I can still play — I've played basketball, volleyball, and soccer — but I have to watch out for my blood sugar levels. During volleyball season, I tested my blood sugar more often. My blood sugar levels can affect my performance, so I wanted to make sure they were where they should be. Now I am getting in shape for soccer. All the running lowers my blood sugars, but the adrenaline rush can make them rise, causing my blood sugars to go up and down like a roller-coaster sometimes.

And I have the biggest sweet tooth imaginable. I mean I love candy (especially white chocolate) and ice cream. Before I was diagnosed with diabetes, I would eat it all the time. Afterward, well, let's just say I felt like a chronic smoker who had to stop smoking cold turkey. It was horrible. I craved it all the time! My two little brothers didn't help. They would sit there and eat any possible trace of sugar in the house right in front of me. Don't get me wrong, I am allowed to have sugar, as long as I don't go overboard. But let's be honest, once you have a slice, you want the whole cake.

C. Things That Changed My Life

My teenage years have been OK so far. I have learned how to handle my diabetes a lot better. In 2001, I got my insulin pump. That has completely changed my life, and things are a lot easier. I don't have to take a shot every time I eat, just one shot every 2 days. The pump takes a lot of the work off my hands. I still have to do calculations based on what I eat, but at least I don't have to give myself four shots a day. I only need to use a needle to insert a tiny plastic tube under my skin every 2 days. The pump is barely noticeable, too. Many people confuse it for a cell phone because of its size. It also comes with a lot of accessories, and as a girl, I love that!

I have also learned a lot more about diabetes and how to handle it. I have attended diabetes camps and have seen children much younger than I am with the same disease. Meeting them and their families has given me a more positive perspective on my diabetes. I have learned to whine less. If children 2 years of age can handle it, why can't I?

I have also become involved with the American Diabetes Association and the Juvenile Diabetes Research Foundation. I want to help others with diabetes. I figure, "Hey, if I have to live with it, why not help others walking the same path?" If you help one person, you help the world.

D. Dating and Family

One of the major areas in teenage life is dating, the most complicated area in life, right? Let's throw diabetes into the mix. Get the picture? In July 2002, I began a relationship. The guy was a close friend. Actually, he was also my next-door neighbour.

But on a more serious note, it was extremely difficult. He was the one person I was afraid to tell about my diabetes. See, I always had a crush on the guy. I thought that if I told him, it would make me less appealing. It wasn't until a month before we started dating that I told him about my diabetes. I was surprised when he told me that his grandmother had it. He was willing to learn all about it! My mom invited him over and taught him all the signs of high and low blood sugar, how to work my insulin pump, and how to check my blood sugar.

Every time we went out, he would make sure I checked my blood sugar and followed my meal plan — which was really bad when I wanted to cheat! He even got me sugar-free white chocolate for Valentine's Day. He would attend and help with all the diabetes walks and fundraisers. It was great. I really appreciate him for that. It also helped that I had someone to talk to when I was stressed about my diabetes. It helps to talk to someone other than your family members. Sometimes it's even easier.

But I have to give credit where it's due. My family has been so supportive of me. My parents have made so many sacrifices in order to provide all of my medical supplies, especially my mom. She is my angel. She will go out of her way to make sure I have everything I might possibly need, even if it's something as small as alcohol swabs. My brothers are incredible as well. My youngest brother, Gabriel, is incredibly mature. At night when I fall asleep studying, he comes into my room and checks my blood sugar for me. I could not ask for a better support system.

Learning for Life

Diabetes has its ups and downs. Some days I think it's too much to handle, others I forget I even have it. I personally think diabetes has helped me grow as a person. I have become more responsible and mature.

Because of my experience, I have decided to become a pediatric endocrinologist. This way I can help children with the same problems, and they can't tell me, "You don't know what I'm going through!" Diabetes has become a friend. All I have to do is view it as a part of me, not some disease. Yes, the road is hard, but nothing comes easy. You have to work for what you want.

Reviewed by: Steven Dowshen, MD
Date reviewed: July 2012

Activity 3. Questions about the text.

- 1. What are some aspects of Erika's life that have changed after she has been diagnosed with diabetes?**
She has to check her blood sugar levels frequently, not skip meals, be cautious with an excess of physical activity, not eat too much sugar, etc.
- 2. What are some things that you should learn if you lived close to a person with diabetes?**
You should learn signs and symptoms of high and low blood sugar, how does an insulin pump work, how to check for blood sugar and how to administer insulin.
- 3. What type of diabetes does Erika have? Do you know more information about this type of diabetes?** She has juvenile diabetes. Type 1 diabetes happens when your immune system destroys cells in your pancreas called beta cells. They're the ones that make insulin. You can find more information about juvenile diabetes in the links included in activity 4.
- 4. What is an insulin pump? What are its benefits?** An insulin pump is a medical device used for the administration of insulin in the treatment of diabetes mellitus, also known as continuous subcutaneous insulin therapy. She can have a shot every 2 days and she only needs to use a needle to insert a tiny plastic tube under her skin every 2 days. The pump is barely noticeable and easily confused with a cell phone.

Second class (90')

Activity 4. Videos about diabetes.

Videos about diabetes



[What is diabetes](#)

[Type 1 and type 2 diabetes animation](#)

To know more about diabetes

If you want to know more about diabetes check these web-pages.



[Diabetes-MedlinePlus.](#)

[American Diabetes Association.](#)

Activity 5. Infographic poster about the endocrine diseases.

The teacher can use the following evaluation rubric to grade the poster.

	1	2	3	4	TOTAL
Organization	There is no sequence of information and/or the organization makes it difficult to understand the content	Information is inconsistently organized, and some parts make sense while some other don't	Information is presented mostly in logical sequence.	Information is presented in logical sequence and helps understand the content.	
Quality of information	Information has little or nothing to do with the topic.	Information clearly relates to the main topic. No details and/or examples are given.	Information clearly relates to the main topic. It provides 1 or 2 supporting details and/or examples about all the items.	Information clearly relates to the main topic. It includes several supporting details and/or examples about all the items.	
Visual appearance	Poster is not visually attractive. Little effort has been put in the presentation.	Poster is mostly not visually attractive. The presentation is somehow appealing.	Poster is attractive and some effort has been put in it.	Poster is visually attractive and original and lots of effort have been put in it.	
Group work and collaboration	Most of the students have not cooperated for the final product. Some students may not have collaborated in the project.	Some students have worked together in the project, while some others haven't. The project is the result of the work of 1 or 2 students.	Most of the students have worked together to complete the poster.	Poster is the result of the collaboration of all the members of the group equally.	

Fig 9. Created by Pineda Badia Pujals

Activity 6. Closure activity 3-2-1.

3 effects or consequences of diabetes: coronary heart disease, stroke, diabetic retinopathy, diabetic nephropathy, diabetic neuropathy, diabetic foot and amputations...

2 signs or symptoms of diabetes: polydipsia, polyuria, polyphagia, fatigue, weight loss, blurred vision...

1 question they have about the topic: depends on the student

4. TEACHER GRAMMAR SUPPORT- ANSWER KEY: QUESTION FORMING

A. There are some online self-corrected activities about question forming on the following websites:

To know more about question forming

If you want to practice about question forming, check the following websites and videos:



British council question forms
 Englisch hilfen question forms



Learn about "Wh" Questions in English Grammar
 Improve your conversation skills with WH questions

B. Activity about Wh questions

Answers to the activity:

Q-ANSWER YES/NO	NORMAL VERBS	Does the child have diabetes?	Yes, he does. The child has diabetes.
	TO BE	Is she sick?	Yes, she is. She is sick.
	MODALS VERBS	Can she take that medicine?	Yes, she can. She can take that medicine
Q- WORD ANSWERS Q-W + AUXILIARY VERB + SUBJECT + MAIN VERB	WHO person	Who has diabetes?	The child has diabetes.
	WHAT thing	What do you think about her disease?	I think that her disease is serious
	WHEN	When do you take your medicine?	I take it in the afternoon
	WHERE place	Where do you get diabetes?	You get diabetes if you have genetic predisposition.
	WHICH a choose among few items	Which is one of the risk factors of diabetes type 2?	One of the risk factors of diabetes type 2 is obesity.
	WHY reason	Why do you check your blood sugar?	I check it because I have diabetes.
	HOW	the way somebody does something How do you inject insulin? How do you spell your name ?	I inject insulin through an insulin pump.
		State of being How is your mother?	She is fine, thanks
Q- WORDS - WITH TWO OR MORE – WORDS Q-W + Ws + AUXILIARY VERB + SUBJECT + MAIN VERB	WHOSE + NOUN possession	Whose medicine is this? Whose medicines are those?	It's Sara's medicine They are my father's medicine
	HOW LONG time	How long does it take to get to the hospital?	It takes about four minutes
	HOW FAR distance	How far is the nearest hospital from your home?	It's about 500 metres
	HOW MUCH + UNCOUNTABLE NOUN quantity	How much money do you have?	I have a little money
	HOW MANY + COUNTABLE NOUN quantity	How many coins do you have?	I have four coins

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: Diabetes: Erika's story</p> <p>Autoria: Teens Health</p> <p>Llicència:</p> <p>URL: http://m.rossa-editorial.kidshealth.org/en/teens/diabetes-erika.html?WT.ac=ctg</p>
	<p>Nom: What is diabetes</p> <p>Autoria: Centers for Disease Control and Prevention</p> <p>Llicència:</p> <p>URL: https://www.youtube.com/watch?v=wmOW091P2ew</p>
	<p>Nom: Type 1 and type 2 diabetes animation</p> <p>Autoria: Vanessa Nilsson</p> <p>Llicència:</p> <p>URL: https://www.youtube.com/watch?v=l-mQPbw2XfA</p>
	<p>Nom: Crohn's Disease infographic</p> <p>Autoria: Behance</p> <p>Llicència:</p> <p>URL: https://www.behance.net/gallery/17804301/Crohns-Disease-A-Infographic</p>
	<p>Nom: Huntington Disease Infographic</p> <p>Autoria: Novus biologicals</p> <p>Llicència:</p>

	<p>URL: https://www.novusbio.com/antibody-news/antibodies/huntington-disease-infographic</p>
Imatge	Dades
	<p>Nom: Diabetes</p> <p>Autoria: Medline Plus</p> <p>Llicència:</p> <p>URL: https://medlineplus.gov/diabetes.html</p>
Imatge	Dades
	<p>Nom: Diabetes basics</p> <p>Autoria: diabetis.org</p> <p>Llicència:</p> <p>URL: http://www.diabetes.org/diabetes-basics/</p>
Imatge	Dades
	<p>Nom: Question forms in British Council</p> <p>Autoria: © British Council. Learn English</p> <p>Llicència:</p> <p>URL: https://learnenglish.britishcouncil.org/en/english-grammar/question-forms</p>
Imatge	Dades
	<p>Nom: Jigsaw</p> <p>Autoria: © British Council. Learn English</p> <p>Llicència:</p> <p>URL: www.jigsaw.org</p>