IT DOESN'T NEED TO BE SO SWEET!

Be careful with your sugar intake

In our diet, sugars are everywhere. They are found in foods naturally or are added to various foods and beverages. Sources of sugars in our diet include fruits and fruit juices, soft drinks, honey, jams and marmalades, plant-based products (e.g., ketchup), precooked foods, desserts, and other sweets.

Sugars are a very important source of direct energy for our brains and muscles and are an integral part of our diet. However, with the growth in the availability of sugar-rich foods and beverages, the consumption of sugars in our diets has increased in recent decades, reaching levels that are no longer considered so healthy for many of us.

It is therefore necessary to have awareness about the amount of sugar consumed daily even before we know the maximum intake levels recommended by the WHO.

Overview "IT DOESN'T NEED TO BE SO SWEET"

Context
Health and Care

Calculate your sugar intake

Cognitive processes
Analysing situations
Processing Informations

Content
Multiplication and division
Addition and subtraction
Equivalences
Decimal numbers

Target group

Adult and young adult learners with curiosity to health issues

X2+

Outcomes and results

Development of a method for calculating sugar quantities

Dispositions

Self confidence
Beliefs
Flexibility

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Main information

Content	Natural numbers Decimal numbers Units of measurement, quantities (weight: submultiples) Multiplication, division, addition and subtraction
Target group	Adults and young adults, learners who… ▪ recognize and understand simple, common quantitative representations and use the information to make decisions ▪ cope with one-step, simple operations such as counting, performing basic arithmetic operations to cope with everyday situations ▪ Curious and sensitive to health issues
Learning intention	Numeracy for personal and private purposes
Duration	3 UE+
Material and resources	Picture cards
Group size	from 5 to 10 learners / small group work: 2 to 3 learners
Problem statement	Whether naturally present, added to sweeten or to better preserve the product, sugars can be found, in large quantities, in even the most unthinkable foods. In fact when we refer to sugars we usually think of sucrose, in reality this large category also includes glucose, fructose, lactose, mannose and starches (among many others). In any case, sugars have been directly related to overweight and obesity, especially in children and adolescents, which is why most national guidelines for healthy eating indicate limiting consumption of sugar-rich foods and beverages. Before proceeding to ***a further and more complex example*** in which we address the issue of daily kcal intake and to the subsequent evaluation of the amounts for each macronutrient, learners find out how to calculate the amount of sugar they consume each day.
Working questions	Are learners aware of the amount of sugar in our food? Are learners aware of the amount of sugar they take in? Are learners aware of the negative consequences of a high intake of sugar over a longer period?

	How to calculate the amount of sugar learners consume every day.
Learning outcomes and results	Students will know how to interpret the information on nutrition tables; they will know the unit of weight measurement, especially the submultiples, and they will also become familiar with decimal numbers. Finally, they will be able to use all these skills to calculate the total daily intake of sugar. In addition, if the activity is linked to **the above proposed further and more complex example on daily kcal intake**, they will have the ability to convert that amount (*grams*) to kcal.

Working plan

Time (lessons)	Description of content/activities	Material	Methodical and didactic information[1]
40'+	<u>1. Discover:</u> Initial discussion in which students speculate whether there is a maximum sugar level not to be exceeded and if so what it is. Followed by a short presentation (e.g. power point, video) in which the topic is addressed. *It is recommended to use images such as those in the appendix*	presentation (at teacher's discretion) projector (for a proposal, see appendix 1)	information *HITS* *Questioning*
60'	<u>2. Quantity analysis</u> Observe some cards representing the nutrition tables of some packaged foods and start thinking about the amounts of sugar contained by paying attention to the information present (amount per 100g or per serving? how much is a serving worth?). *In most cases it will be expressed as decimal numbers or with units less than gram: learners are assisted in this part of the analysis.* Through simple multiplications and division calculate the amount of sugars taken in the case reported by the card by a single person for a meal, thus obtaining new cards with the amounts related to a person's consumption.	Cards (see appendix 2)	***hands on learning*** *Working in small groups* *HITS* *Questioning* *Explicite teaching* *Collaborative learning* *Metacognitive strategies*

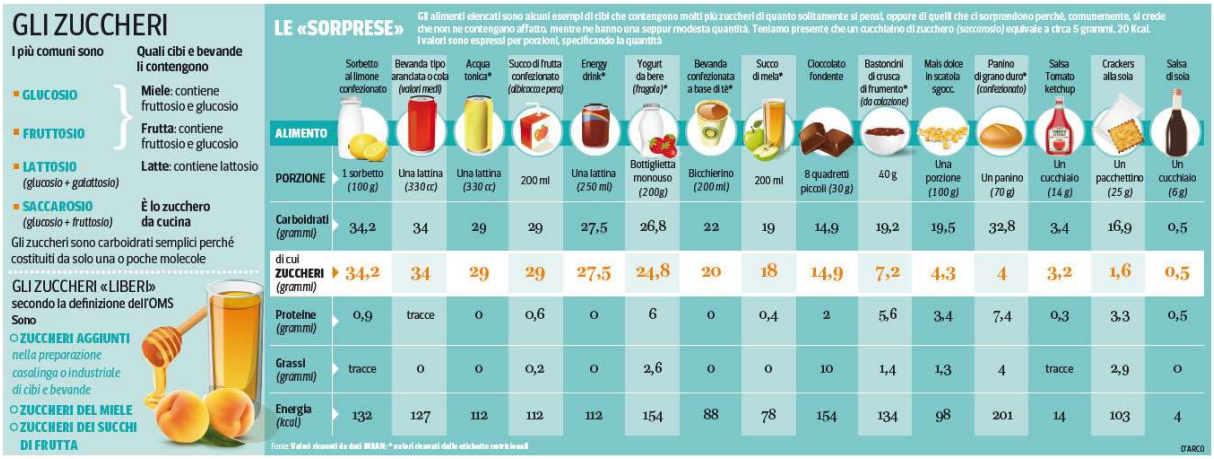
[1] for description and explanation of kinds of tasks, HITS and other background information please consult the teacher's/user's guide

60’	<u>3. Calculate the quantity</u> Using the cards obtained from the previous activity, learners take part in a game in which they combine various foods/ingredients to think of at least 3 meals to eat while trying to stay within the recommended threshold. The groups share the chosen combinations and a discussion time takes place afterwards.	Rearranged cards with nutritional chart	*Working in small groups* *HITS* *Questioning* *Collaborative learning* *Feedback*
45’	<u>3.1 (eventually) Calculate the kcal</u> Using the conversion from grams to kcal in the case of sugars, students transform the quantities found in the previous step into kcal. *This step is related to the* ***the above mentioned further and more complex example.***		HITS *Questioning* *Explicite teaching*
60’	<u>4. Discussion of work done and information gained.</u> The discussion is guided by also asking learners when mathematical tools were used during their investigation and asking them to do a confidence analysis with which these methods were used.		*HITS:* *feedback*

Appendix

Appendix 1 – Phase 1 (discover)

Some examples of impactful images to address the topic



GLI ZUCCHERI

I più comuni sono — Quali cibi e bevande li contengono

- GLUCOSIO — Miele: contiene fruttosio e glucosio
- FRUTTOSIO — Frutta: contiene fruttosio e glucosio
- LATTOSIO (glucosio + galattosio) — Latte: contiene lattosio
- SACCAROSIO (glucosio + fruttosio) — È lo zucchero da cucina

Gli zuccheri sono carboidrati semplici perché costituiti da solo una o poche molecole

GLI ZUCCHERI «LIBERI» secondo la definizione dell'OMS

Sono
- ZUCCHERI AGGIUNTI nella preparazione casalinga o industriale di cibi e bevande
- ZUCCHERI DEL MIELE
- ZUCCHERI DEI SUCCHI DI FRUTTA

LE «SORPRESE»

Gli alimenti elencati sono alcuni esempi di cibi che contengono molti più zuccheri di quanto solitamente si pensi, oppure di quelli che ci sorprendono perché, comunemente, si crede che non ne contengano affatto, mentre ne hanno una seppur modesta quantità. Teniamo presente che un cucchiaino di zucchero (*saccarosio*) equivale a circa 5 grammi, 20 Kcal. I valori sono espressi per porzioni, specificando la quantità

ALIMENTO	Sorbetto al limone confezionato	Bevanda tipo aranciata o cola (*valori medi*)	Acqua tonica*	Succo di frutta confezionato (*albicocca e pera*)	Energy drink*	Yogurt da bere (*fragola*)*	Bevanda confezionata a base di tè*	Succo di mela*	Cioccolato fondente	Bastoncini di crusca di frumento* (*da colazione*)	Mais dolce in scatola sgocc.	Panino di grano duro* (*confezionato*)	Salsa Tomato ketchup	Crackers alla soia	Salsa di soia
PORZIONE	1 sorbetto (100 g)	Una lattina (330 cc)	Una lattina (330 cc)	200 ml	Una lattina (250 ml)	Bottiglietta monouso (200g)	Bicchierino (200 ml)	200 ml	8 quadretti piccoli (30 g)	40 g	Una porzione (100 g)	Un panino (70 g)	Un cucchiaio (14 g)	Un pacchettino (25 g)	Un cucchiaio (6 g)
Carboidrati (grammi)	34,2	34	29	29	27,5	26,8	22	19	14,9	19,2	19,5	32,8	3,4	16,9	0,5
di cui ZUCCHERI (grammi)	34,2	34	29	29	27,5	24,8	20	18	14,9	7,2	4,3	4	3,2	1,6	0,5
Proteine (grammi)	0,9	tracce	0	0,6	0	6	0	0,4	2	5,6	3,4	7,4	0,3	3,3	0,5
Grassi (grammi)	tracce	0	0	0,2	0	2,6	0	0	10	1,4	1,3	4	tracce	2,9	0
Energia (kcal)	132	127	112	112	112	154	88	78	154	134	98	201	14	103	4

Fonte: Valori ricavati da dati INRAN; * valori ricavati dalle etichette nutrizionali

D'ARCO

Source: www.nutrizionedamore.it/articoli/zucchero-ovunque/ [14.06.2023]

Source: https://smartfood.ieo.it/nutrizione-e-salute/ [14.06.2023]

Source : https://ilfattoalimentare.it/coca-cola-zucchero-lattina.html [14.06.2023]

Appendix 2 – Phase 2 (quantity analysis)

Some examples of nutritional tables in which sugar content is given

(Sources, if not indicated differently, are own photos)

INFORMAZIONI NUTRIZIONALI: **ABBRACCI**			
VALORI MEDI	**per 100g**	**per biscotto (11g)**	**%AR* per biscotto**
ENERGIA	2056 kJ 491 kcal	226 kJ 54 kcal	3% 3%
GRASSI di cui: acidi grassi saturi	23,5 g 10,5 g	2,6 g 1,2 g	4% 6%
CARBOIDRATI di cui: zuccheri	60,9 g 24 g	6,7 g 2,6 g	3% 3%
FIBRE**	4,0 g	0,4 g	-
PROTEINE	7,0 g	0,8 g	2%
SALE	0,625 g	0,069 g	1%

*AR = assunzione di riferimento di un adulto medio (8400 kJ / 2000kcal).
** Determinate con metodo AOAC 2009.01.

Source: https://www.kaffeetraum.com/ [14.06.2023]

DICHIARAZIONE NUTRIZIONALE	per 100 g	per porzione (6 g) (2 crackers)
Energia	1841 kJ 440 kcal	111 kJ 26 kcal
Grassi di cui acidi grassi saturi	12,0 g 9,0 g	0,7 g 0,5 g
Carboidrati di cui zuccheri	72,0 g 8,0 g	4,3 g 0,5 g
Fibre	2,0 g	0,1 g
Proteine	10,0 g	0,6 g
Sale	0,04 g	0 g
Vitamina B1 (Tiamina)	0,6 mg (120%)*	0,04 mg (7%)*

* Valori Nutritivi di riferimento per lattanti e bambini nella prima infanzia
La confezione contiene 16 porzioni

La confezione contiene 6 gelati.

VALORI NUTRIZIONALI MEDI	per 100 g	per gelato (45 g)
ENERGIA	1266 kJ 304 kcal	570 kJ 137 kcal
GRASSI	20 g	9,0 g
di cui ACIDI GRASSI SATURI	16 g	7,0 g
CARBOIDRATI	26 g	12 g
di cui ZUCCHERI	24 g	11 g
FIBRE	1,7 g	0,8 g
PROTEINE	3,7 g	1,7 g
SALE	0,12 g	0,05 g

INFORMAZIONI NUTRIZIONALI Valori medi per 100 ml	
Energia	246 kJ/58kcal
Grassi	0,0 g
di cui acidi grassi saturi	0,0 g
Carboidrati	13,7 g
di cui zuccheri	13,7 g
Fibre	0,8 g
Proteine	0,4 g
Sale	0,0 g

INFORMAZIONI NUTRIZIONALI			
Valori medi per	100g	biscotto (5,2g)	% GDA* per 5,2g
Valore Energetico	1839 kJ 436 kcal	96 kJ 23 kcal	1%
Proteine	8,5 g	0,4 g	1%
Carboidrati di cui zuccheri	76,5 g 18,5 g	4,0 g 1,0 g	1% 1%
Grassi di cui saturi	10,0 g 4,9 g	0,6 g 0,3 g	<1% 1%
Fibre Alimentari	3,0 g	0,2 g	<1%
Sodio	0,33 g	0,02 g	<1%