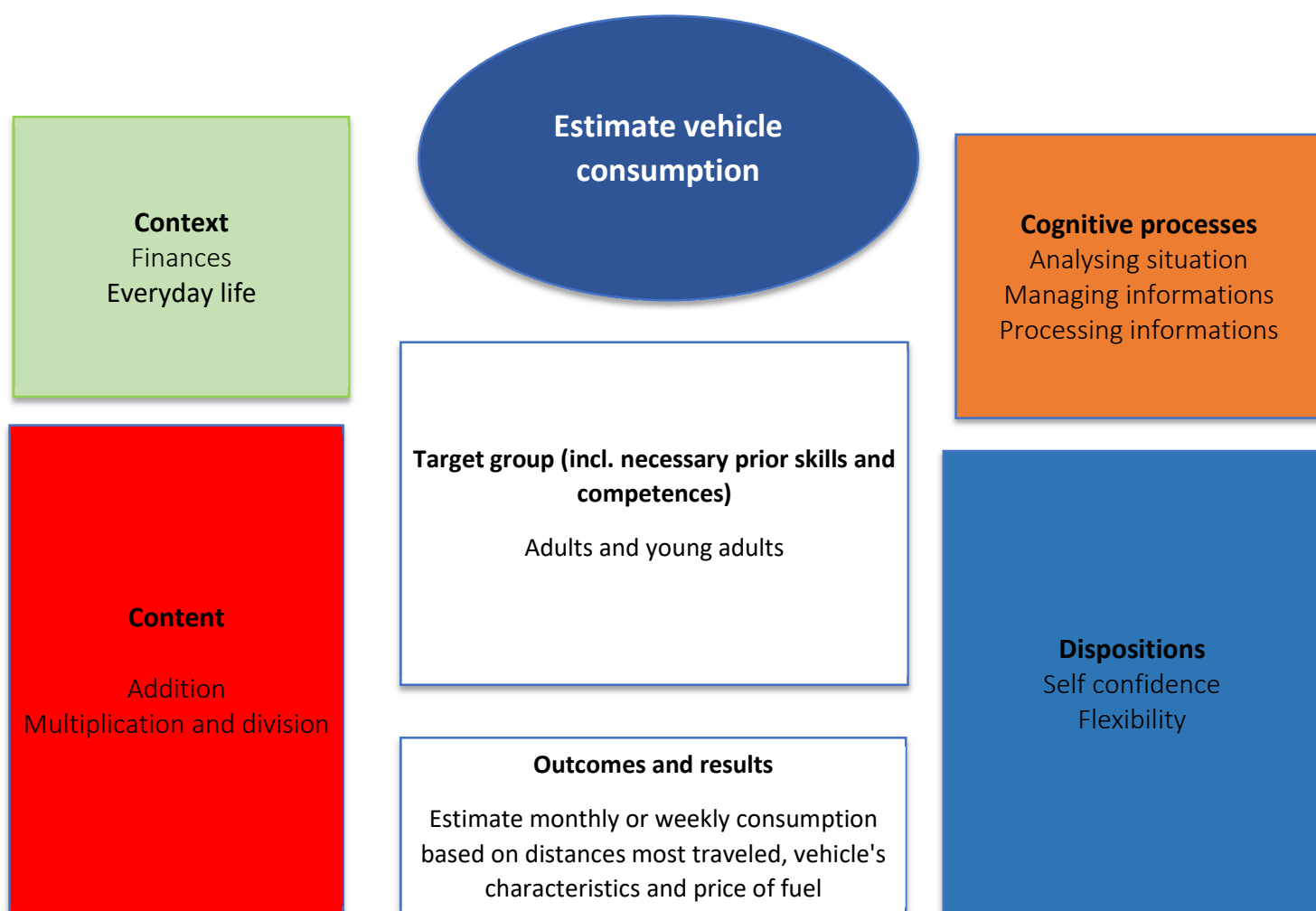


THIRSTY VEHICLE!

How to estimate the vehicle expenses

The cost of fuel for our cars and scooters continues to rise, impacting our daily expenses more than ever. The amount we spend on fuel largely depends on two main factors: the specific characteristics of our vehicle—such as engine efficiency, fuel type, and size—and the distances we travel. These factors cause fuel expenses to fluctuate, making it essential to track our usage closely. By monitoring our fuel consumption and applying some straightforward calculations, we can estimate our overall fuel use. This, in turn, allows us to gain a clearer understanding of the associated costs and to budget more effectively. With a bit of effort and awareness, we can make more informed decisions about how we drive, potentially saving both fuel and money over time.

Overview “THIRSTY VEHICLE”



Main information	
Content	Natural and decimal numbers; Multiplication, division and addition
Target group	Adults and young adults Learners: <ul style="list-style-type: none"> • With a basic level of mathematics, able to do simple operations and to relate several numbers to each other; • Use and/or own a vehicle that they use almost every day
Learning intention	2UE+
Duration	Presentation developed by the teacher
Material and resources	from 6 to 12 learners
Group size	Numeracy for personal and private purposes
Problem statement	Sensitive or not to the issue of global warming due to pollution, by now we know that it would be better to limit the heavy use of private motor vehicles, yet it is not always possible to give up one's means of transportation. Being equipped with your own vehicle can be a convenience but also a great expense. The ongoing expense is due to the consumption of our means of transportation, which is due to multiple factors. By evaluating one at a time and relating them, it is possible to get an estimate.
Learning outcomes and results	The students are able to estimate monthly or weekly consumption based on distances most traveled, vehicle's characteristics and price of fuel. They will examine factors that affect fuel use, like vehicle type, engine efficiency, driving habits, and distance traveled. By calculating their vehicle's fuel consumption and costs, students will gain insight into the ongoing expenses of ownership. Using real or hypothetical data, they will perform calculations to estimate their fuel use and its financial impact. Students will also explore alternative transportation options, considering the pros and cons of each for saving money and reducing environmental impact



Working plan

Time (lessons)	Description of content/activities	Material	Methodical and didactic information ¹
45'	<p>1. Discover and Discussion</p> <p>The problem is presented to the learners, who, being adults or young adults, can actively confront and expose the various aspects that will be addressed</p> <p>It is important that at the end of this phase you have collected all the elements that will be useful in obtaining the final estimate of expenditure (i.e., fuel price, vehicle characteristics, and distance traveled).</p> <p>[alternative]</p> <p><i>The teacher may have previously researched some data, such as the average price of fuel, or decide to construct this research with the learners on the spot. Possibly the activity can also begin simply with the statement of the problem and then the learners are made to work in small groups and, with the necessary means at their disposal, are themselves to create material that they will share with the other groups at a later stage (in this case the time required will be longer).</i></p>	see appendix 1	Active learning Cooperative learning
30'+	<p>2. Relation between data and calculation</p> <p>Knowing the data influencing the cost learners first work to estimate their expenditure and then perform the same procedure with the calculator.</p>		Individual work

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



45'+	<p><u>3.Exchange</u> To allow learners to practice more on the topic, personal or fictional situations from <u>step 2</u> are collected and shared with the rest of the class. everyone will have a chance to practice on different situations.</p>		Questioning Active learning
30'	<p><u>4.Discussion</u></p> <p>The concluding phase involves an open discussion related to the sharing of one's thoughts on the topic, the adherence of these to the initial hypotheses, and the awareness of one's abilities regarding the solving of the problems presented.</p> <p>This final phase can also be the moment to involve the learners in a discussion session where they compare different transportation options. First, students work in small groups to gather information on public transit, biking, and carpooling, focusing on aspects like cost, environmental impact, and practicality. Then, each group presents their findings and discusses the advantages and disadvantages of each option with the class. Finally, the class works together to develop criteria for determining the best transportation option for different situations.</p>		Feedback



Appendix 1

Discover and discussion

PREZZI MEDI PRATICATI SELF (€/L) NAZIONALE 23/01/2023						
	 Agip Eni	 Esso	 Api-IP	 Q8	 Tamoil	 No logo
Benzina	1,835	1,851	1,848	1,848	1,853	1,844
Diesel	1,881	1,894	1,898	1,893	1,890	1,887

PREZZI MEDI PRATICATI SERVITO (€/L) NAZIONALE 23/01/2023						
	 Agip Eni	 Esso	 Api-IP	 Q8	 Tamoil	 No logo
Benzina	2,036	2,004	2,030	2,006	1,936	1,896
Diesel	2,083	2,048	2,083	2,049	1,974	1,937
GPL	0,796	0,802	0,794	0,792	0,795	0,772
Metano *	2,126	2,253	2,046	2,241	2,281	2,147

Elaborazione Quotidiano Energia sui dati alle 8:00 di ieri dell'Osservaprezzi del Mise *Prezzi metano in €/kg

PREZZI ITALIA QE (€/L) 23/01/2023		
	Self Service	Servito
Benzina	1,845	1,984
Diesel	1,890	2,029

Raffronto dati al 26 agosto e al 14 settembre. Prezzi in euro

	BENZINA			DIESEL		
	PREZZO AL 30/08	PREZZO ATTUALE	PREZZO CON SCONTO REGIONE	PREZZO AL 30/08	PREZZO ATTUALE	PREZZO CON SCONTO REGIONE
Esso piazzale Foraggi	1,389	1,349	1,059	1,349	1,299	1,099
IP Passeggio Sant'Andrea	1,409	1,399	1,109	1,369	1,299	1,099
Eni via Valerio	1,394	1,389	1,099	1,304	1,299	1,099
Q8 via Locchi	1,399	1,349	1,059	1,379	1,299	1,099
Tamoil viale Miramare	1,389	1,348	1,058	1,329	1,288	1,088
Q8 strada della Rosandra	1,379	1,359	1,069	1,319	1,299	1,099
Eni viale Miramare	1,389	1,339	1,049	1,299	1,289	1,089
Eni strada del Friuli	1,394	1,339	1,049	1,304	1,289	1,089
Esso Sistiana	1,389	1,349	1,059	1,349	1,299	1,099
San Marco Sgonico	1,428	1,389	1,099	1,377	1,319	1,119

Source : [Carburanti, prezzi ancora in salita - Focus Energia - ANSA.it](#) [30.06.2023]



Source: [Consumi reali auto, chi bara di più | Auto.it](#) [30.06.2023]

BENZINA					
MODELLO	KM/LITRO EFFETTIVI	KM/LITRO DICHIARATI	EMISSIONI CO2 EFFETTIVE G/KM	EMISSIONI CO2 DICHIARATE G/KM	DIFFERENZA %
Smart Fortwo 70	17,247	24,4	131,9	93	41,8
Seat Leon Cupra 280	11,84	15,6	202,8	154	31,7
Abarth 695 Biposto	14,558	18,5	184,3	145	27,1
Opel Corsa 1.0	16,255	20,4	133	106	25,5
Volkswagen Golf R	11,713	14,5	204,2	165	23,8
Audi RS6 Avant	8,241	10,2	275,8	223	23,7
Mini JCW	14,26	17,5	190,2	155	22,7
Audi TT Coupé 2.0 TFSI	12,981	15,6	184,9	154	20,1
Volkswagen Golf GTI	13,402	15,6	161,8	139	16,4
Lamborghini Huracàn	7,011	8	330,9	290	14,1
Mercedes A 45 AMG	13,022	14,1	175,3	162	8,2
Porsche 911 Turbo S	9,432	10,1	243	227	7,1
BMW M4	11,654	12	209,9	204	2,9

DIESEL					
MODELLO	KM/LITRO EFFETTIVI	KM/LITRO DICHIARATI	EMISSIONI CO2 EFFETTIVE G/KM	EMISSIONI CO2 DICHIARATE G/KM	DIFFERENZA %
Volvo V40 Cross Country D3	16,087	25	161,6	104	55,4
Mini Cooper D 1.5 5P	18,628	28,6	141,2	92	53,5
Bmw 116d 1.5	18,212	27,8	148	97	52,6
Bmw 220d Active Tourer	16,167	24,4	164,4	109	50,9
Citroën Cactus 1.6 E-Hdi	19,539	29,4	135,3	90	50,4
Mazda 6 Wagon 2.2 D	16,584	21,7	158,2	121	30,8
Audi A3 2.0 TDI	18,717	24,4	140,7	108	30,3
Vw Polo 1.4 TDI	22,622	29,4	114,3	88	29,9
Toyota Verso 1.6 D-4D	17,29	22,2	152,8	119	28,4
Nissan Juke 1.5 dCi	19,608	25	132,6	104	27,5
Jeep Renegade 2.0 Mjt	15,406	19,6	170,4	134	27,2
Peugeot 2008 1.6 e-Hdi	21,255	27	121,9	96	27
Mercedes GLA 220 CDI 4Matic	16,383	20,8	161,1	127	26,9
Mazda 3 2.2 D	19,265	24,4	135,4	107	26,6
Mercedes GLE Coupé 350d	11,566	14,5	225,5	180	25,3
Audi A3 Sedan 2.0 TDI	19,518	24,3	130,7	105	24,5
Bmw X4 35d	13,558	16,7	193,4	157	23,2
VW Passat Variant 2.0 TDI 150	17,601	21,7	146,6	119	23,2
Skoda Yeti 2.0 TDI	15,359	18,9	168,5	137	23
Mercedes C 220 CDI Sw	19,04	23,3	132,2	108	22,4
Fiat 500X 2.0 Mjt 4X4	14,913	18,2	175,8	144	22,1
Volvo XC90 D5 2.0D	14,176	17,2	184,4	152	21,3
Bmw 220d Coupé	18,737	22,7	139,2	115	21,1
Suzuki Vitara 1.6 DDiS 4Wd	19,893	23,8	132,7	111	19,6
Audi Q3 2.0 TDI Quattro 184 Cv	15,696	18,5	163,7	139	17,8
Land Rover Discovery Sport 2.2 Sd4	14,061	16,4	185,4	159	16,6
Range Rover Evoque 2.2 Sd4	13,515	15,4	198,2	174	13,9
Skoda Superb 2.0 TDI 190 4X4	18,524	20	141,3	131	7,9
Hyundai Santa Fe 2.2 CRDi	14,214	15,1	184,8	174	6,2
Subaru Outback 2.0 D-S	16,265	16,4	160,3	159	0,8

