Price Comparison Activity

Acronym Legend	LED	CFL	
Definition	Light-Emitting Diode	Compact Fluorescent Lamp	Incandescent
Picture			
Energy Used	9 watts = 0.009kW	23 watts = 0.023kW	60 watts = 0.06kW
Life of Bulb	25,000 hours	12,000 hours	1,000 hours
Price per bulb	$7.50	$1.87	$0.50
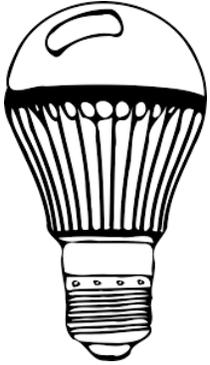
Cost of each bulb type for 25,000 hours:	LED	CFL	Incandescent
Life of Bulb (from above)	25,000 hours	12,000 hours	1,000 hours
number of bulbs to get 25,000 hours (25,000 hours/life of bulb)	1	2.08	25
X Price per bulb	$7.50	$1.87	$0.50
= Cost for 25,000 hours of light	$7.50	$3.89	$12.50

Cost of Electricity for 25,000 hours for each bulb:	LED	CFL	Incandescent
Total kWh Consumption (given)	25,000 hours	25,000 hours	25,000 hours
X Wattage (from above)	9 watts = 0.009kW	23 watts = 0.023kW	60 watts = 0.06kW
= Total kWh Consumption	225	575	1500
X $0.148 (cost for 1kWh in Nova Scotia)	$0.148	$0.148	$0.148
= Cost of Electricity for Year	$33.30	$85.10	$222.00

Life Cycle Cost	LED	CFL	Incandescent
Cost for 25,000 hours of light (above)	$7.50	$3.89	$12.50
+ Cost of Electricity for Year (above)	$33.30	$85.10	$222.00
= Life Cycle Cost	$40.80	$88.99	$234.50

Which bulb has the highest life cycle cost for 25,000hrs? _____incandescent_____

Which bulb has the least life cycle cost for 25,000hrs? _____LED_____

CURRICULUM LINKS

Grade 9 Mathematics
Students are expected to communicate in order to learn and express their understanding of mathematics (Communication [C])
- Connect mathematical ideas to other concepts in mathematics, to everyday experiences, and to other disciplines (Connections [CN])

GCO: Students will demonstrate operation sense and apply operation principles and procedures in both numeric and algebraic situations.
- **B1** model, solve, and create problems involving real numbers
- **B2** add, subtract, multiply, and divide rational numbers in fractional and decimal forms using the most appropriate methods

Grade 9 Science
Use of Electrical Energy
- Relate electrical energy to domestic power consumption costs: Watt as a unit of power (1W = 1J/s) (308-18)
- Make informed decisions and propose a course of action on science, technology, and social issues, including human and environmental needs for electricity and energy (113-9, 113-13)

Grade 10 Mathematics
Performance Indicators
- **N01.01** Compare the unit price of two or more given items.
- **N01.02** Solve problems that involve determining the best buy, and explain the choice in terms of the cost as well as other factors, such as quality and quantity.
- **N01.03** Compare, using examples, different sales promotion techniques.
- **N01.04** Determine the percent increase or decrease for a given original and new price.

Grade 11 Mathematics
Performance Indicators
- **A03** Students will be expected to solve problems by applying proportional reasoning and unit analysis.
- **A03.01** Explain the process of unit analysis used to solve a problem (e.g., given kmh and time in hours, determine how many kilometres; given revolutions per minute, determine the number of seconds per revolution).
- **A03.02** Solve a problem, using unit analysis.

- **A03.03** Explain, using an example, how unit analysis and proportional reasoning are related (e.g., to change kmh to km/min., multiply by 1 h/60 min. because hours and minutes are proportional [constant relationship]).
- **A03.04** Solve a problem within and between systems using proportions or tables (e.g., km to m or kmh to ft./sec.).

Grade 12 Mathematics
- **N03.03** Generate options that might improve the profitability of a small business