



Lights Out

Home Energy Audit

About a fifth of the electricity we use in our houses is for lighting. Using inefficient lights (lights that use a lot of electricity), or having more lights turned on than are needed, wastes electricity.

The purpose of this audit is to determine which lights are on when not needed, and to help you calculate greenhouse gas emission reductions from turning them off when not needed.

1. Use the attached "How Are We Doing?" sheet, or make one of your own to track when lights are on in your house.
2. Are lights being left on in unoccupied rooms? What can you do to change that?
3. Is natural lighting (from windows and skylights) used to reduce the number of electrical lights used? List areas where natural lighting is or could be used.
4. Is task lighting (e.g. desk lamps) used to reduce the number of larger overhead lights used? List areas where task lighting is used instead of overhead lighting. Does task lighting use energy efficient lamps? (CFL's or LED's)
5. To calculate savings from upgrading to more efficient lighting or from turning off lights, use the following formulas: You will need to look at your lightbulbs to see how many watts each one uses.

Energy = Power x Time

Power = number of lights x Wattage of lights

Time = hours/day x days/year

Determine the change in Power by subtracting the power consumption of the old and new lights. Determine the change in Time by subtracting the time lights used to be on from how long the lights could (or should) be on.

6. How often did you find lights on in unoccupied rooms? Is it happening more in some rooms than in others?



Curriculum Connections

Grade 4 Physical Science: Outcome LI4.1 Investigate the characteristics and physical properties of natural and artificial sources of light in the environment.

LI4.2 Analyze how light interacts with different objects and materials to create phenomena such as shadows, reflection, refraction, and dispersion.

LI4.3 Assess personal, societal, and environmental impacts of light-related technological innovations including optical devices.

Social Studies: Outcome RW4.1 Analyze the strategies Saskatchewan people have developed to meet the challenges presented by the natural environment.

Mathematics: Outcome N4.1 Demonstrate an understanding of whole numbers to 10 000 (pictorially, physically, orally, in writing, and symbolically).

N4.2 Demonstrate an understanding of addition of whole numbers with answers to 10 000 and their corresponding subtractions (limited to 3 and 4-digit numerals)

N4.3 Demonstrate an understanding of multiplication of whole numbers (limited to numbers less than or equal to 10).

N4.4 Demonstrate an understanding of multiplication (2- or 3-digit by 1-digit)

N4.5 Demonstrate an understanding of division (1-digit divisor and up to 2-digit dividend) to solve problems

P4.1 Demonstrate an understanding of patterns and relations

Grade 5 Mathematics: Outcome N5.2 Analyze models of, develop strategies for, and carry out multiplication of whole numbers.

N5.3 Demonstrate, with and without concrete materials, an understanding of division (3-digit by 1-digit) and interpret remainders to solve problems.

N5.6 Demonstrate understanding of decimals to thousandths

P5.2 Write, solve, and verify solutions of single-variable, one-step equations with whole number coefficients and whole number solutions.

SP5.1 Differentiate between first-hand and second-hand data.

SP5.2 Construct and interpret double bar graphs to draw conclusions.



Grade 6 Physical Science: Outcome EL6.1 Assess personal, societal, economic and environmental impacts of electricity use in Saskatchewan and propose actions to reduce those impacts.

EL6.2 Investigate the characteristics and application of static electric charges, conductors, an insulators, switches and electromagnetism.

EL6.3 Explain and model the properties of simple series and parallel circuits.

Mathematics: Outcome: N6.3 Demonstrate understanding of the order of operations on whole numbers (excluding exponents) with and without technology.

N6.4 Extend understanding of multiplication and division to decimals (1-digit whole number multipliers and 1-digit natural number divisors).

P6.1 Extend understanding of patterns and relationships in tables of values and graphs.

SP6.1 Extend understanding of data analysis to include: line graphs; graphs of discrete data; data collection through questionnaires, experiments, databases, and electronic media; interpolation and extrapolation.

Grade 7 Mathematics: Outcome: N7.2 Expand and demonstrate understanding of the addition, subtraction, multiplication, and division of decimals to greater numbers of decimal places, and the order of operations.

SP7.1 Demonstrate an understanding of the measures of central tendency and range for sets of data.

SP7.2 Demonstrate an understanding of circle graphs.

Grade 8 Life Science: Outcome OP8.1 Identify and describe, through experimentation, sources and properties of visible light including: rectilinear propagation, reflection, refraction.

Mathematics: Outcome: N8.5 Demonstrate understanding of multiplication and division of integers concretely, pictorially, and symbolically.

SP8.1 Analyze the modes of displaying data and the reasonableness of conclusions.

