

# Santa's "shocking" Carbon footprint dampens

## Christmas spirit

A group of scientists from the University of Leeds' School of Earth & Environment have calculated that Santa's Carbon footprint on Xmas Eve is enormous. The scientists calculated the environmental damage, caused by the reindeer, the manufacture of toys and the delivery to children's houses. The scientists thought that carrying out this research might help make people think harder about trying to reduce their own carbon emissions over the Christmas period.

We all know that Santa is magical and good, so he will not pollute, but let us pretend he is a real person and calculate all the things he does.

During his 122-million-mile journey around the world, Santa will release 69,7 million metric tons of carbon emission. Let's see where they come from.

## Reindeer

The Tundra reindeer, found in the Arctic tundra of Eurasia, typically grows to a height of 7 feet and a weight of 410 pounds. A team of seven-foot-tall Tundra reindeer will emit 40.668 metric tons equivalent of carbon dioxide ( $CO_2$ ) during their flight.



## Lumps of coal

The typical lump of coal found in a naughty child's stocking, weighs approximately six ounces. If 1/5 of all children in the world are on the naughty list, 75,000 tons of coal will be left in stockings: 37,111 metric tons equivalent carbon dioxide was released in the mining of that coal in the form of methane gas.

Another 194,591 metric tons will be emitted.

If they choose to burn the coal Christmas morning total 231,702 metric tons.



## Toys

Toys are, by far, the top contributor to Santa's Carbon footprint. From the Initial production and assembly, to the packaging and eventual disposal, toys for good children will release 68,1 million metric tons of  $CO_2$ .



The Christmas Eve tradition of leaving out milk and biscuits come at a cost to the environment. It takes about between 900 and 750 grams worth of carbon emission per kilogram of food to produce milk and biscuits respectively, total 8,86 metric tons.

## Factory up North

The size of Santa's workshop also adds to his carbon footprint. The workshop is comparable in size to large factories owned by Nike.

Thus the workshop would emit 983,000 metric tons of  $CO_2$ .



## Wrapping Paper

Different types of weights of wrapping paper will change the amount of carbon emission produced. But, in general, if every good child receives one wrapped present from Santa on Christmas, it will produce 284,493 metric tons. Now that we are aware of exactly what increases Santa's Carbon footprint, there are steps we can take to ensure a more environmentally friendly holiday.



## Sleigh upgrade

A redesigned sleigh could help create less ice build-up and wind resistance, allowing Santa to travel over long distances more quickly, using fewer resources. Santa could also use the new sodium batteries that are used in other forms of hybrid locomotion.



When you set out that cup of milk and plate of biscuits for Santa, choose items that were produced locally. Buying local product cuts down on the largest CO<sub>2</sub> emitter, transportation and refrigeration. An even better choice would be Soy milk, since Soy beans absorb rather than emit CO<sub>2</sub>.

## Green wrapping

Instead of reaching for commercial wrapping paper, which is loaded with toxic dyes, Santa could use recycled paper, natural fibre fabrics, or sustainable biodegradable paper.



## Don't leave coal

Instead of giving lumps of coal to naughty children, give them an alternative form of energy, such as a tiny wind turbine, a pinwheel or a few locally grown lemons or potatoes or carrots.



## Energy - Efficient Factory

The Factory Up North should switch to solar power, Santa and the elves can take advantage of the period of 24-hour sunlight of the North Pole.



## Recycled toys

Changing the types of toys delivered on Xmas will have the largest impact on reducing the amount of carbon emissions. Santa should choose to make eco-friendly toys made from 100% recycled materials. In the case of music and video games, opt for the digital format instead of a physical copy.



So, after reading all this, Santa should really consider going green, that is really a LOOOOOT of carbon output for one night. Don't you think?

# GAMES

## Carbon footprint Activities

Find two words for every letter of the sentence "save the planet"

S

A

V

E

T

H

E

P

L

A

N

E

T

How many other words can you write with the sentence "Save the planet."

Examples=Ten, Pen ...



### CARBON FOOTPRINT WORD SEARCH

weather, water, global warming, radiation, petrol, gasoline, coal, hurricanes, pollution, mountains, earthquake, natural resources, tsunami, unleaded petrol, rubbish, garbage, sun, trees, oil slick, biodegradable, sea, sky, carbon monoxide, biodiversity, floods, drought, greenhouse, environment, fossil fuel, atmosphere

C	C	A	Q	W	E	E	E	A	T	H	E	R	R	T	Y	U	I	G	O	B
O	A	P	A	S	D	A	F	H	U	R	R	I	C	A	N	E	S	A	N	I
A	R	G	H	J	K	T	L	Z	X	C	V	B	N	M	Q	W	E	R	A	O
L	B	R	S	U	N	E	T	Y	U	G	A	S	O	L	I	N	E	B	T	D
I	O	O	P	A	S	R	D	F	D	R	O	U	G	H	T	G	H	A	U	E
E	N	J	K	U	N	L	E	A	D	E	D	P	E	T	R	O	L	G	R	G
A	M	L	F	Z	X	C	V	B	R	A	D	I	A	T	I	O	N	E	A	R
R	O	B	O	N	M	Q	R	U	B	B	I	S	H	W	E	R	T	Y	L	A
T	N	Y	S	U	P	I	O	P	A	T	S	U	N	A	M	I	S	T	R	D
H	O	D	S	F	E	G	P	O	L	L	U	T	I	O	N	F	H	R	E	A
Q	X	Q	I	W	T	E	R	T	S	K	Y	Y	U	T	I	L	A	E	S	B
U	I	S	L	D	R	F	G	H	J	K	L	Z	X	R	C	O	V	E	O	L
A	D	B	F	N	O	I	L	S	L	I	C	K	M	E	Q	O	W	S	U	E
K	E	R	U	T	L	Y	U	I	I	O	A	S	D	E	F	D	G	C	R	V
E	W	R	E	A	T	M	O	S	P	H	E	R	E	S	F	S	S	T	C	G
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G	R	E	E	N	H	O	U	S	E	G	A	S	B	N	B	M	A	C	S	N
E	N	V	I	R	O	N	M	E	N	T	U	L	K	L	C	R	I	E	P	D
F	B	I	O	D	I	V	E	R	S	I	T	Y	Q	T	Y	U	I	L	P	G
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# Carbon Foot Print "Memory Game"

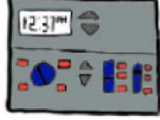





**HOW TO PLAY:** a player selects two cards from the game board and turns them over.







If there is a match, the player removes it from the table and continues to seek a new pair.

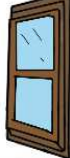
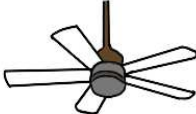
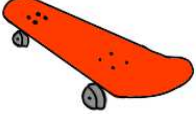

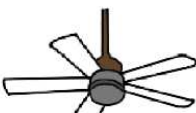
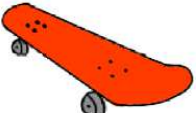
If there is no match, the cards are turned back over in the same spot.







The player continues to seek pairs of matching cards for 60 seconds, earning one point per pair and 10 bonus points if all the pairs are found in the time allotted.







 Reduce, Reuse and Recycle	 Keep doors and windows closed when the heat on air conditioning is on	 Plant trees to shade your house from the sun
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 Set a programmable thermostat	 Caulk gaps around windows	 Seal gaps in ductwork with duct mastic
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 Plant a vegetable in the garden	 Use a power strip as central turn-off point for equipment	 Fix leaky faucets and running toilets
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 Install storm windows in winter	 Run ceiling fans clockwise in the winter, counterclockwise in the summer	 Walk, ride a bike, or skateboard instead of using a car
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 Use both sides of a piece of paper	 Read email messages on the screen, don't print them	 Look for the ENERGY STAR® when purchasing products
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 Insulate attic crawl spaces	 Seal around openings to the outdoors or attic	 Properly ventilate your attic
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 Turn off lights when you leave the room	 Replace incandescent light bulbs with ENERGY STAR qualified CFL bulbs	 Unplug power chargers and adapters when not in use
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