

Electrical Engineering!

on **Christmas**

Ruth
Spiro

Illustrated by
Irene Chan



Christmas is coming, Baby!
Time to decorate the tree.



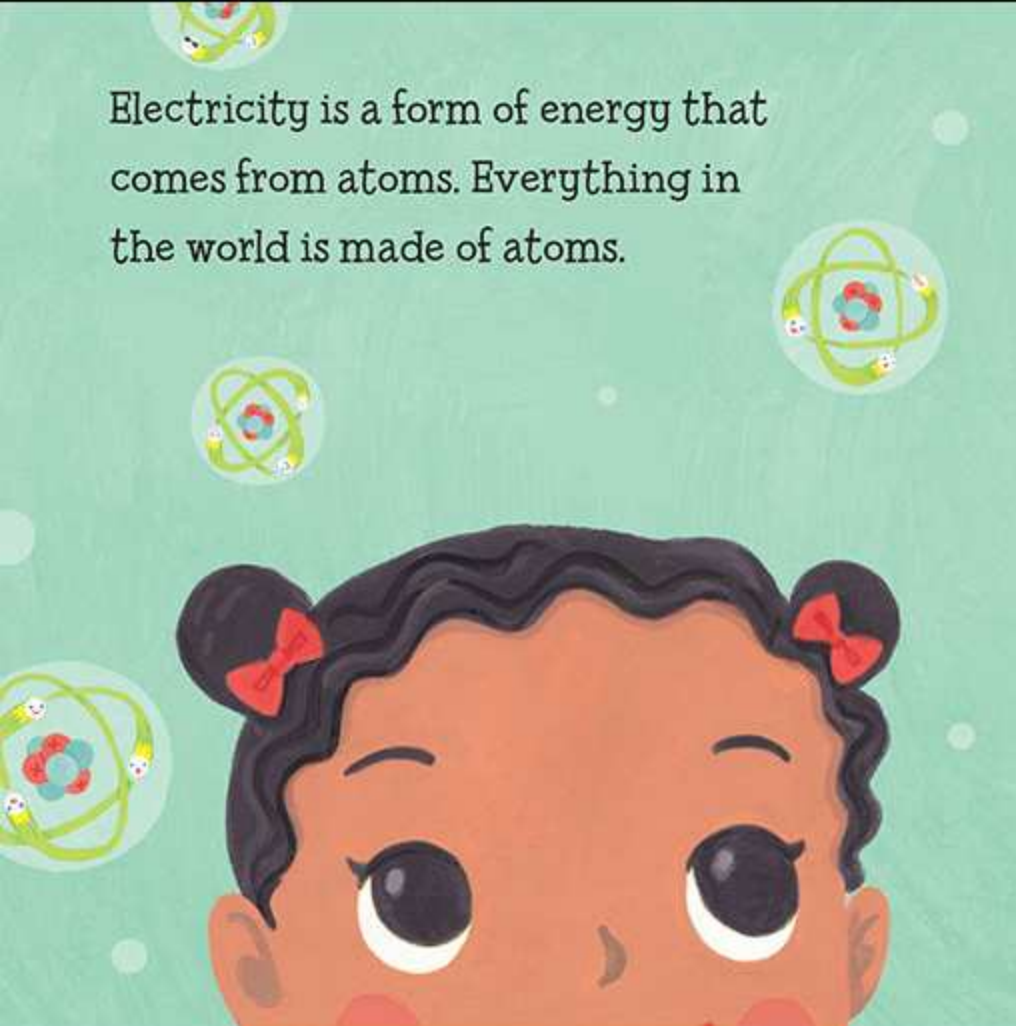


What will
make the lights
blink and twinkle?

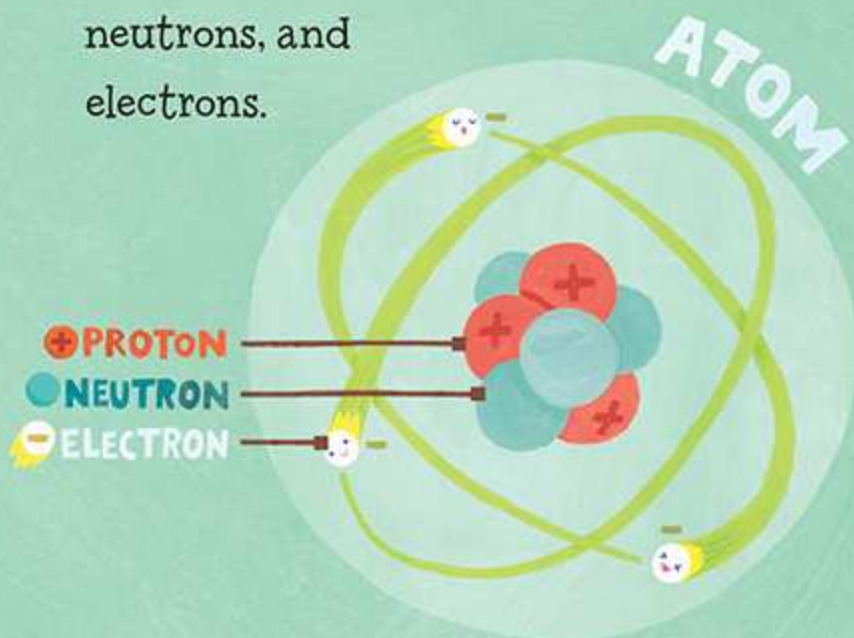
Electricity!



Electricity is a form of energy that comes from atoms. Everything in the world is made of atoms.



Atoms are made of protons,
neutrons, and
electrons.



Each proton and electron
has a small electric charge.

Electrons can break free when things
rub together. Their electric charges
build until . . .

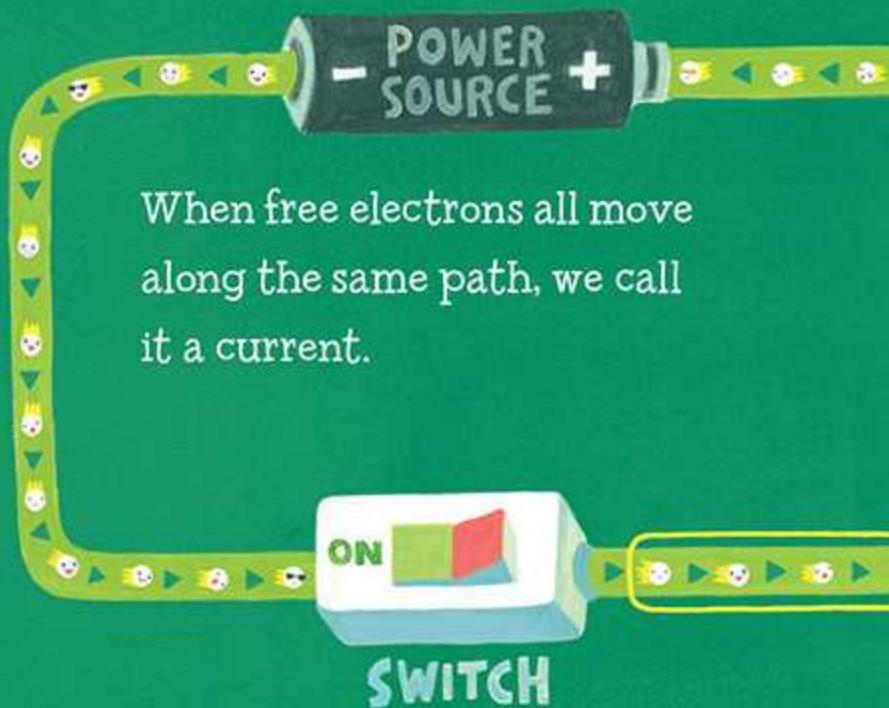
ZAP!

Static electricity.

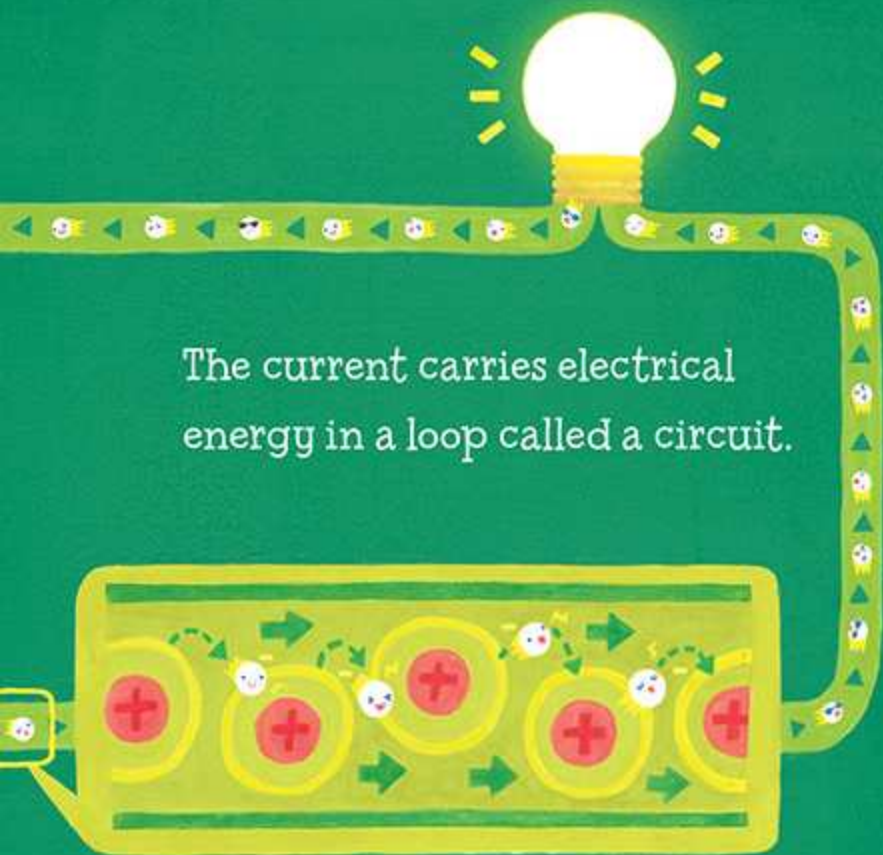


Static electricity shows up
in big ways, too.





When free electrons all move
along the same path, we call
it a current.



The current carries electrical energy in a loop called a circuit.

When the switch is off, the circuit is open.
Electrical energy cannot flow to the light.



When the switch is on, the circuit is closed.
Electrical energy flows to the light.

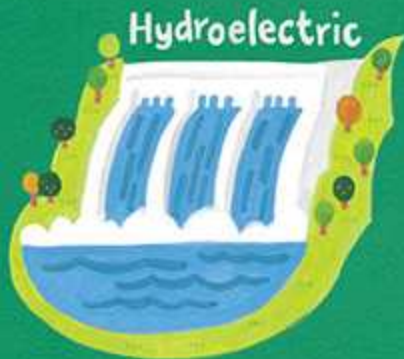


Baby flips the switch on,
and the tree lights up.



Where does the electricity in Baby's home come from? A power station.

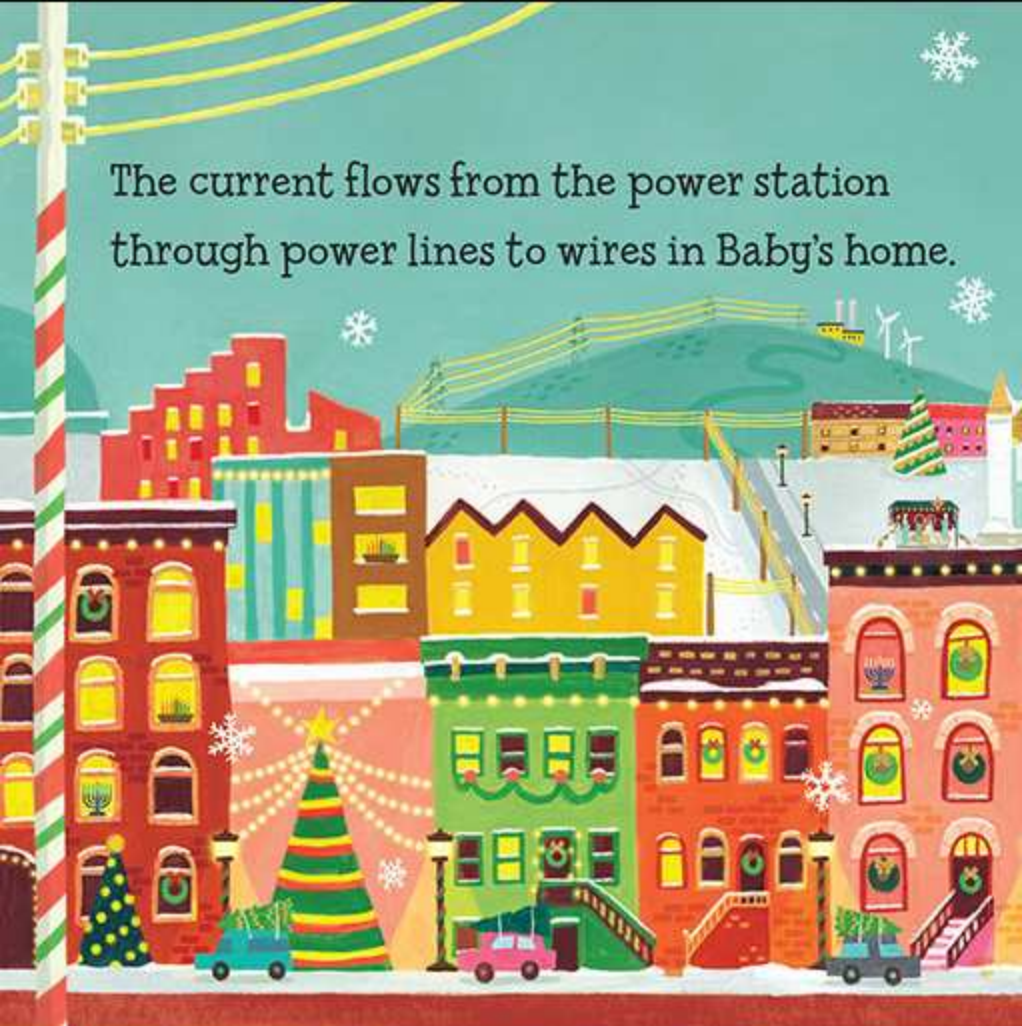




Power stations use
different kinds of energy
to create electricity.



The current flows from the power station
through power lines to wires in Baby's home.





Electricity is helpful, but it can also be dangerous. How can Baby stay safe?



Stay indoors during
a lightning storm.

Ask a grown-up
to plug things
into outlets.



If a cord looks broken,
don't use it.



Christmas celebrates the birth
of a very special baby long ago.



Families may
go to church,

share a
special meal,



or exchange gifts.

Not all Baby's friends celebrate Christmas,
but they can help her decorate the tree.



Baby loves Christmas!



Baby Loves Science

Little books about big ideas

Baby loves decorating the tree for Christmas. What makes the lights blink and twinkle? Celebrate the joys of the holiday with family, food, and physics!

Also available:



OOOH!



To friends who feel like family, and family who feel like friends—R. S.
For Ivan the electrical engineer—I. C.



Very special thanks to Dr. Fred Bortz and electrical engineer
George Lee for their invaluable expertise and advice.

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