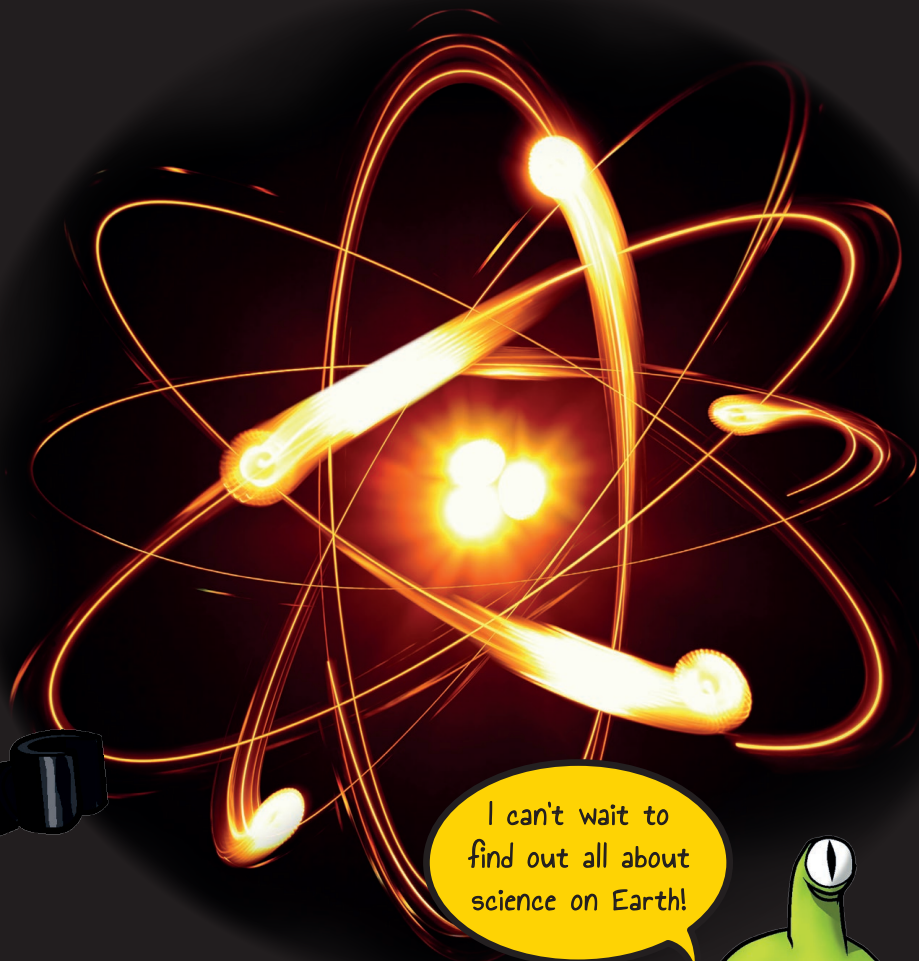
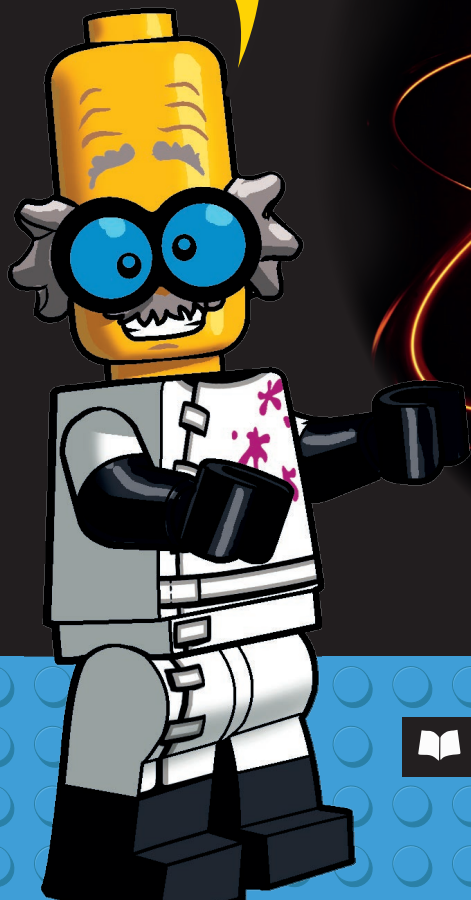




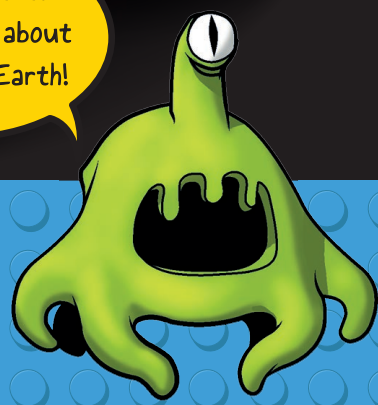
science

A LEGO® ADVENTURE IN THE REAL WORLD

Read on for a monster load of science fun!

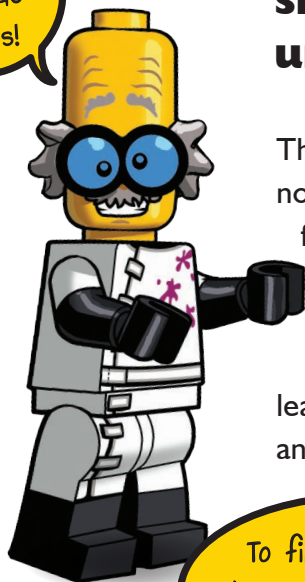


I can't wait to find out all about science on Earth!



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Arggh! Even
electricity can be
hair-raising!



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Are you sure bananas are made of atoms?



What part of "EVERY SINGLE THING" don't you understand? Yes, bananas, too!



THE MATTER?

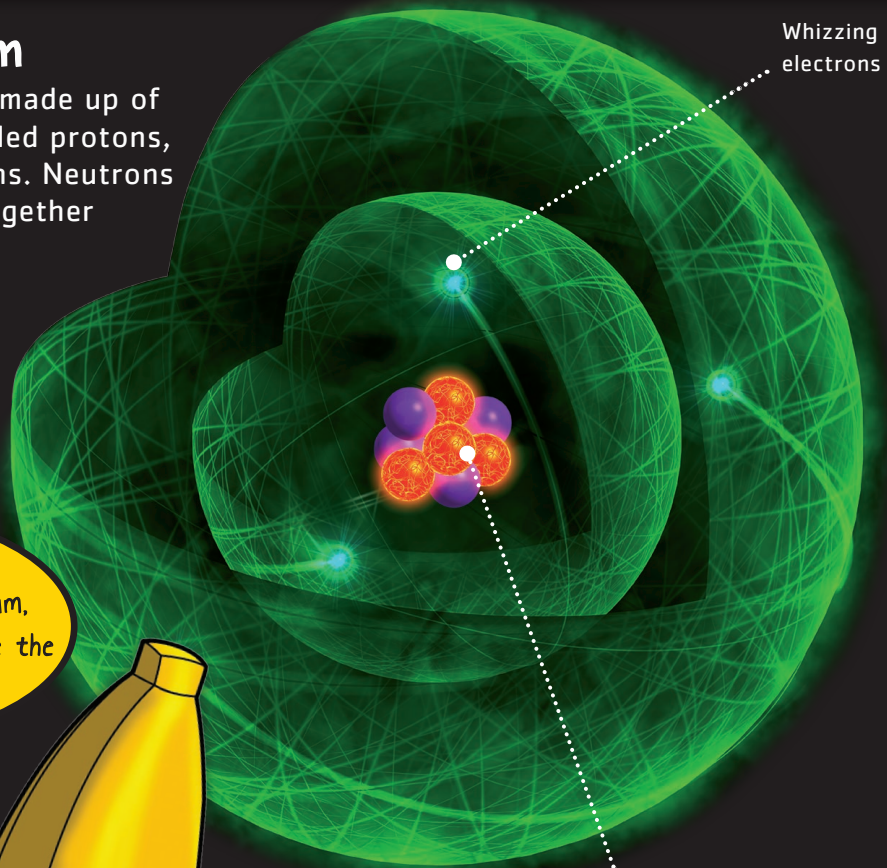
That matter is made of unbelievably tiny specks called atoms. This book, the air you breathe, a banana—all matter is made of atoms.

Atoms

If you could keep cutting a banana into smaller and smaller pieces, you'd eventually end up with an atom. Atoms are so tiny that there are 9,500,000,000,000 in the period at the end of this sentence.

Inside an atom

Amazingly, atoms are made up of even smaller parts called protons, neutrons, and electrons. Neutrons and protons huddle together in the center of the atom, which is called the nucleus. Even tinier electrons whiz around the nucleus.



Whizzing electrons

Nucleus, made up of protons and neutrons

If an atom was the size of a baseball stadium, then the nucleus would be the size of a LEGO brick.



OK . . . that fact is messing with about a billion of my brain atoms right now!

Want to learn to sing the elements? Check out Tom Lehrer's song *The Elements*. Let's rock!



WOW!



In 1869, a scientist called Dmitri Mendeleev had a dream about the elements. The second he woke up, he drew a neat table of them. It's called the Periodic Table, and we still use it today.

Elements

There are only 118 different types of atom. When matter is made up of just one type of atom, it's called an element. The 118 elements are shown on a chart called the Periodic Table. Gold, copper, and oxygen are all elements.

WHAT THE BOX TELLS YOU

2
He
HELIUM

2 – The atomic number shows how many protons an atom has. Helium has two.

He – This is the atom's symbol.

Helium – This is the element's name.

The table groups together elements that are similar, such as metals or gases.

Each box has key facts about a particular element.

1 H HYDROGEN																	2 He HELIUM
3 Li LITHIUM	4 Be BERYLLIUM															9 F FLUORINE	10 Ne NEON
11 Na SODIUM	12 Mg MAGNESIUM															17 Cl CHLORINE	18 Ar ARGON
19 K POTASSIUM	20 Ca CALCIUM	21 Sc SCANDIUM	22 Ti TITANIUM	23 V VANADIUM	24 Cr CHROMIUM	25 Mn MANGANESE	26 Fe IRON	27 Co COBALT	28 Ni NICKEL	29 Cu COPPER	30 Zn ZINC	31 Ga GALLIUM	32 Ge GERMANIUM	33 As ARSENIC	34 Se SELENIUM	35 Br BROMINE	36 Kr KRYPTON
37 Rb RUBIDIUM	38 Sr STRONTIUM	39 Y YTTRIUM	40 Zr ZIRCONIUM	41 Nb NIOBIUM	42 Mo MOLYBDENUM	43 Tc TECHNETIUM	44 Ru RUTHENIUM	45 Rh RHODIUM	46 Pd PALLADIUM	47 Ag SILVER	48 Cd CADMIUM	49 In INDIUM	50 Sn TIN	51 Sb ANTIMONY	52 Te TELLURIUM	53 I IODINE	54 Xe XENON
55 Cs CESIUM	56 Ba BARIUM	57-71 La-Lu LANTHANIDS	72 Hf HAFNIUM	73 Ta TANTALUM	74 W TUNGSTEN	75 Re RHENIUM	76 Os OSMIUM	77 Ir IRIDIUM	78 Pt PLATINUM	79 Au GOLD	80 Hg MERCURY	81 Tl THALLIUM	82 Pb LEAD	83 Bi BISMUTH	84 Po POLONIUM	85 At ASTATINE	86 Rn RADON
87 Fr FRANCIUM	88 Ra RADIUM	89-103 Ac-Lr ACTINIDS	104 Rf RUFORGIUM	105 Db DUBNIUM	106 Sg SEABORGIUM	107 Bh BOHRIUM	108 Hs HASSIUM	109 Mt MEITNERIUM	110 Ds DARMSTADTIUM	111 Rg ROSGONIUM	112 Cn COPECNIUM	113 Nh NIHOBIUM	114 Fl FLEROVIUM	115 Mc MOSCOWIUM	116 Lv LIVERMORIUM	117 Ts TENNESSINE	118 Og OGANESSON
			57 La LANTHANUM	58 Ce CERIUM	59 Pr PRASEODYMIUM	60 Nd NEODYMIUM	61 Pm PROMETHIUM	62 Sm SAMARIUM	63 Eu EUROPIUM	64 Gd GADOLINIUM	65 Tb TERBIUM	66 Dy DYSPROSIUM	67 Ho HOLMIUM	68 Er ERBIUM	69 Tm THULIUM	70 Yb YTERBIUM	71 Lu LUTETIUM
			89 Ac ACTINIUM	90 Th THORIUM	91 Pa PROTACTINIUM	92 U URANIUM	93 Np NEPTUNIUM	94 Pu PLUTONIUM	95 Am AMERICIUM	96 Cm CURIUM	97 Bk BERKELIUM	98 Cf CALIFORNIUM	99 Es EINSTEINIUM	100 Fm FERMIUM	101 Md MEISENERIUM	102 No NOBELIUM	103 Lr LAWRENCIUM

Material magic

The atoms of the elements in the Periodic Table can combine to make lots of different materials, just like the letters of the alphabet can combine to make many different words. Materials made of two or more elements are called compounds.

Molecules

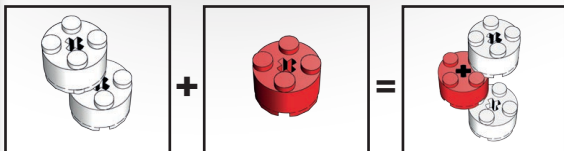
In most materials, the atoms glue themselves into groups called molecules. Some molecules have just a few atoms in them, but others are made up of thousands of atoms.

WATER MOLECULES

A water molecule has two atoms of hydrogen (H) for every one atom of oxygen (O). The chemical formula for water is written H_2O .

BUILD A WATER MOLECULE

Use your bricks to make a water molecule.



So . . . I'm made up of the same types of molecules as you?

Yup, can't you tell?