
CONDENSATION OF Protons and Neutrons

By Mary Wissinger

Illustrated by Harriet Kim Anh Rodis

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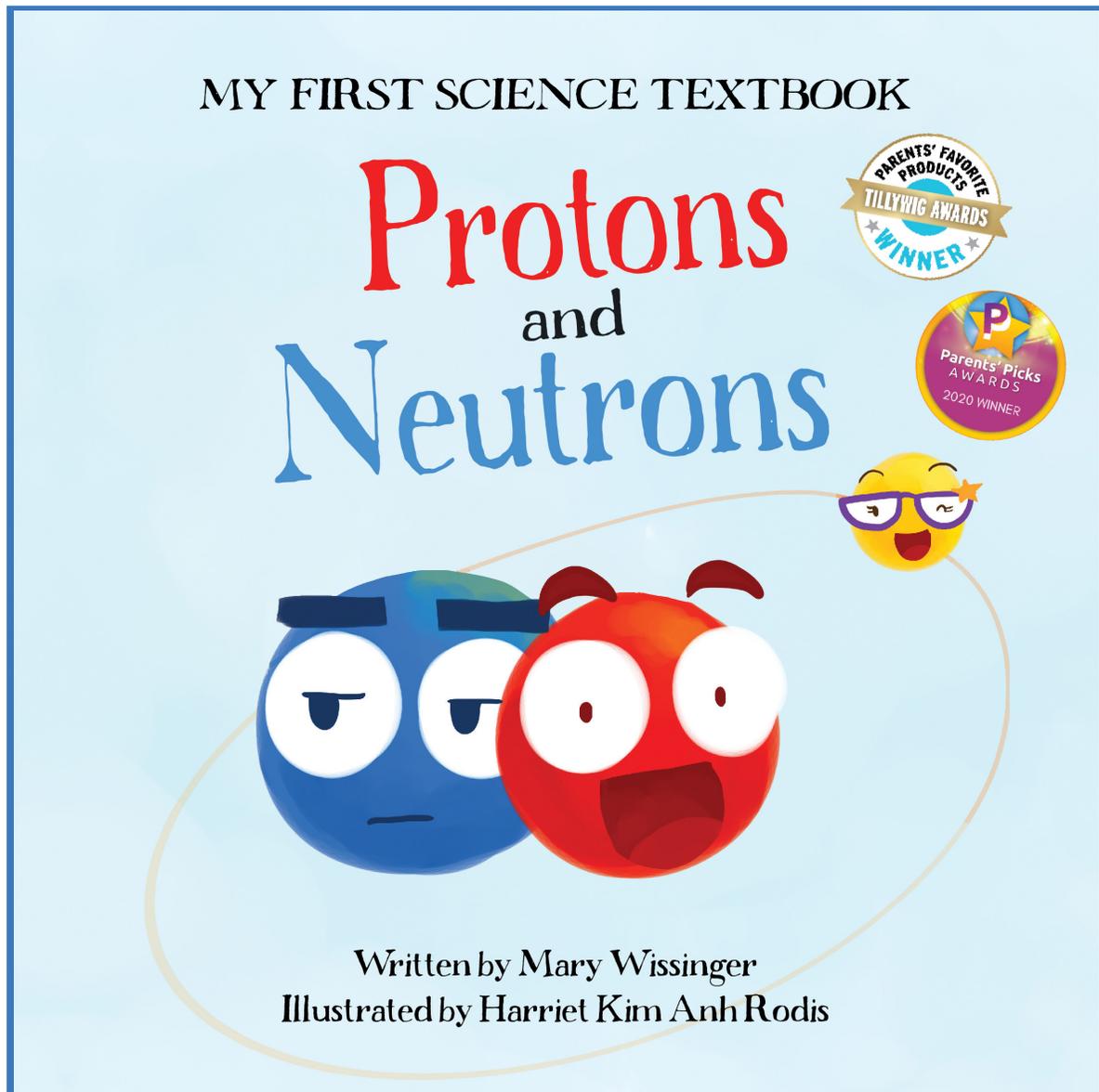
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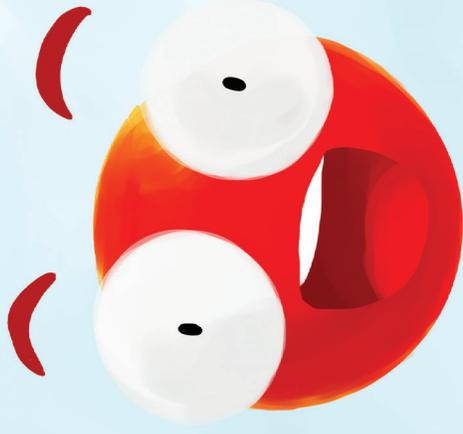
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Science, Naturally!
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This title is also available in bilingual English-Spanish (September 2021).
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I'm Pete the Proton!



When it comes to an element's identity, **protons** are the defining trait.



Find six of us in carbon.



10



In oxygen, find eight.

11

Our playground is the **nucleus**
and it's where we like to stay.



The strong force
keeps us stuck like glue.



Splitting us is a tough mission.

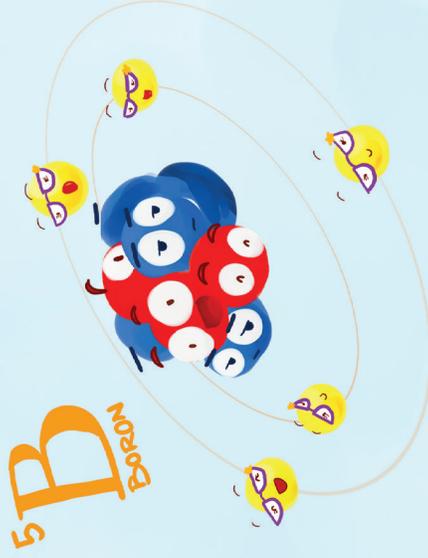


Our reaction?

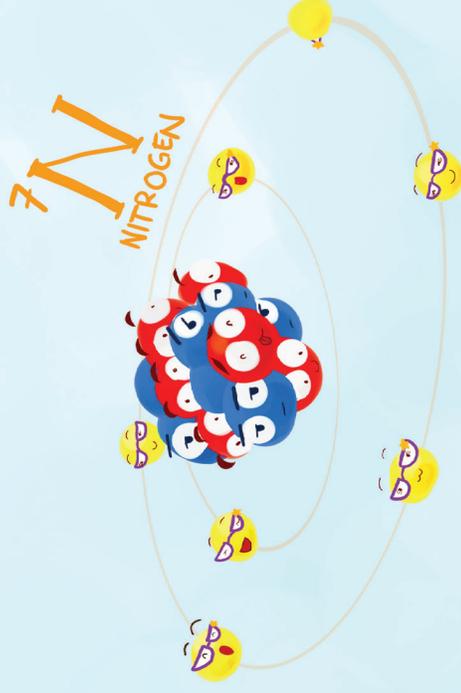
Explosively energetic!

It's called nuclear fission.

When **protons**, **neutrons**, and
electrons team up,



26



we are the best of friends.

27

Glossary

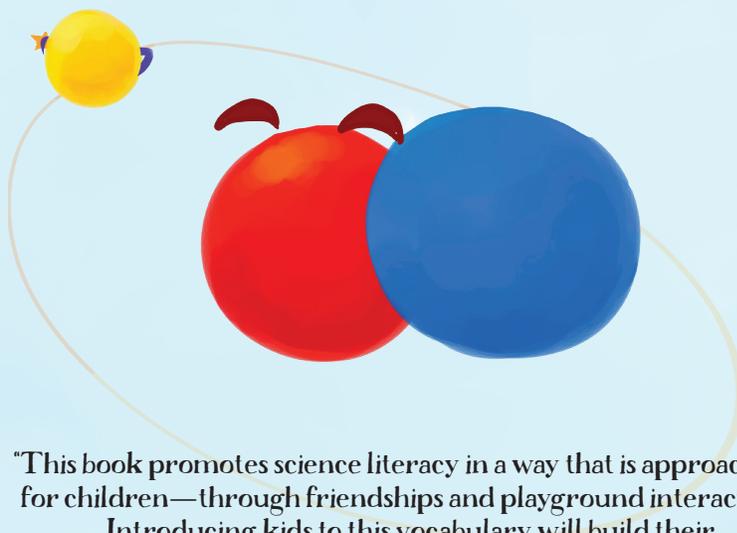
- ATOMS:** Atoms are the building blocks for all matter in our universe. They are so small that you can't see them, and are made up of even smaller particles called protons, neutrons, and electrons.
- ATOMIC NUMBER:** The number of protons in an atom determines an element's atomic number, which is used to categorize elements.
- CHARGE:** An electric charge is a property of matter. There are two types of electric charges: positive and negative. Protons have a positive charge and electrons have a negative charge.
- DECAY:** In an atom that has an uneven number of protons and neutrons, the nucleus slowly breaks down and loses energy and matter through radiation, which can be very dangerous.
- ELECTRONS:** Very teeny particles with a negative electric charge. Electrons travel around the nucleus of every atom.
- ELEMENT:** A pure substance made of one type of atom.
- FORCE:** The push or pull on something when it interacts with something else. A force can cause an object to move faster, slow down, stay in place, or change shape.
- GAS:** Air-like substances that have no set shape or volume because the molecules in them are spread very far apart and moving very quickly. A gas can expand to fill a whole space.
- ISOTOPES:** Two or more types of the same element whose atoms have the same number of protons and a different number of neutrons.
- LIQUID:** A substance that flows freely and has volume but no set shape, like water or oil. The molecules in liquids stay close together, but they can move freely.
- MASS:** A measure of how much matter is in an object. Mass is usually measured in kilograms (1 kg = a little over 2 pounds). Mass is different from weight because the mass of an object never changes, but its weight will change based on its location in the universe.

- MATTER:** Matter makes up everything around you. It is anything in the universe that takes up space and has mass.
- MOLECULE:** A group of atoms that are bonded together to form the smallest unit of a substance that has all the properties of that substance. For example, a water molecule is the smallest unit that is still water.
- NEUTRONS:** Very teeny particles with no electric charge, found in the nucleus of most atoms.
- NEUTRAL:** An object with no electric charge, or with equal numbers of positively-charged protons and negatively-charged electrons.
- NUCLEAR FISSION:** The process of splitting atoms apart into smaller pieces, releasing energy.
- NUCLEUS:** The center of an atom, made up of protons and neutrons.
- PARTICLES:** Tiny, singular bits of matter that can range in size from subatomic particles, such as electrons, to ones large enough to be seen, such as particles of dust floating in sunlight.
- PROTONS:** Very teeny particles with a positive electric charge. Protons are in the nucleus of every atom.
- SOLID:** A form of matter that has a set shape and volume because the molecules in it are packed close together and do not move much. The shape of a solid only changes when a force is applied.
- STATE OF MATTER:** The way matter acts, based on temperature or pressure. For example, ice (solid) melts into water (liquid), then evaporates into steam (gas).
- SUBATOMIC PARTICLE:** A particle that is smaller than an atom and exists within it, like protons, neutrons, or electrons.
- TRAIT:** Something about a person, animal, or object that makes them different from others.
- UNIVERSE:** A word to describe everything that exists. The universe includes all matter and energy, on Earth and in space.

The second book in the award-winning My First Science Textbook series!



The story of subatomic particles as never told before.
Meet Pete the Proton and Ned the Neutron.
This light-hearted, scientifically accurate book turns
Chemistry 101 into a delightful tale of universal friendship!



"This book promotes science literacy in a way that is approachable for children—through friendships and playground interactions. Introducing kids to this vocabulary will build their confidence in science later on."

—Kristin J. Labby, Ph.D., Assistant Professor of
Chemistry, Beloit College

Ages 2–7
Teacher's Guide available



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