

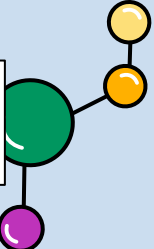
Hyattsville
Library

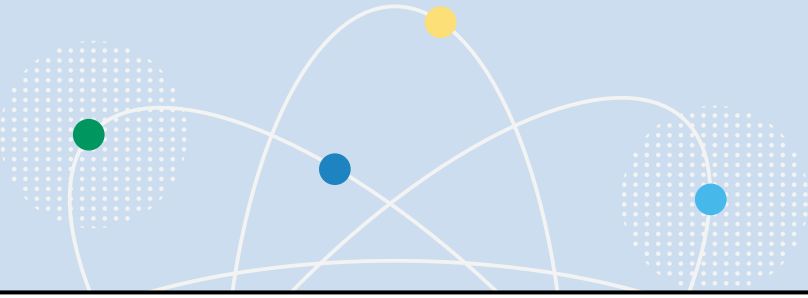
BUBBLING UP WITH CHEMISTRY

Atoms, Acids, Bases, and Reactions

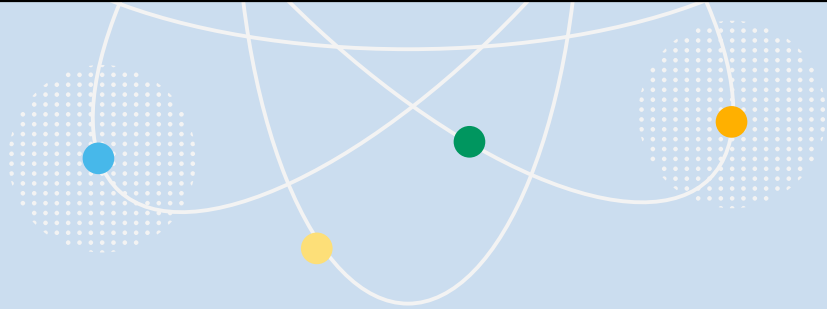


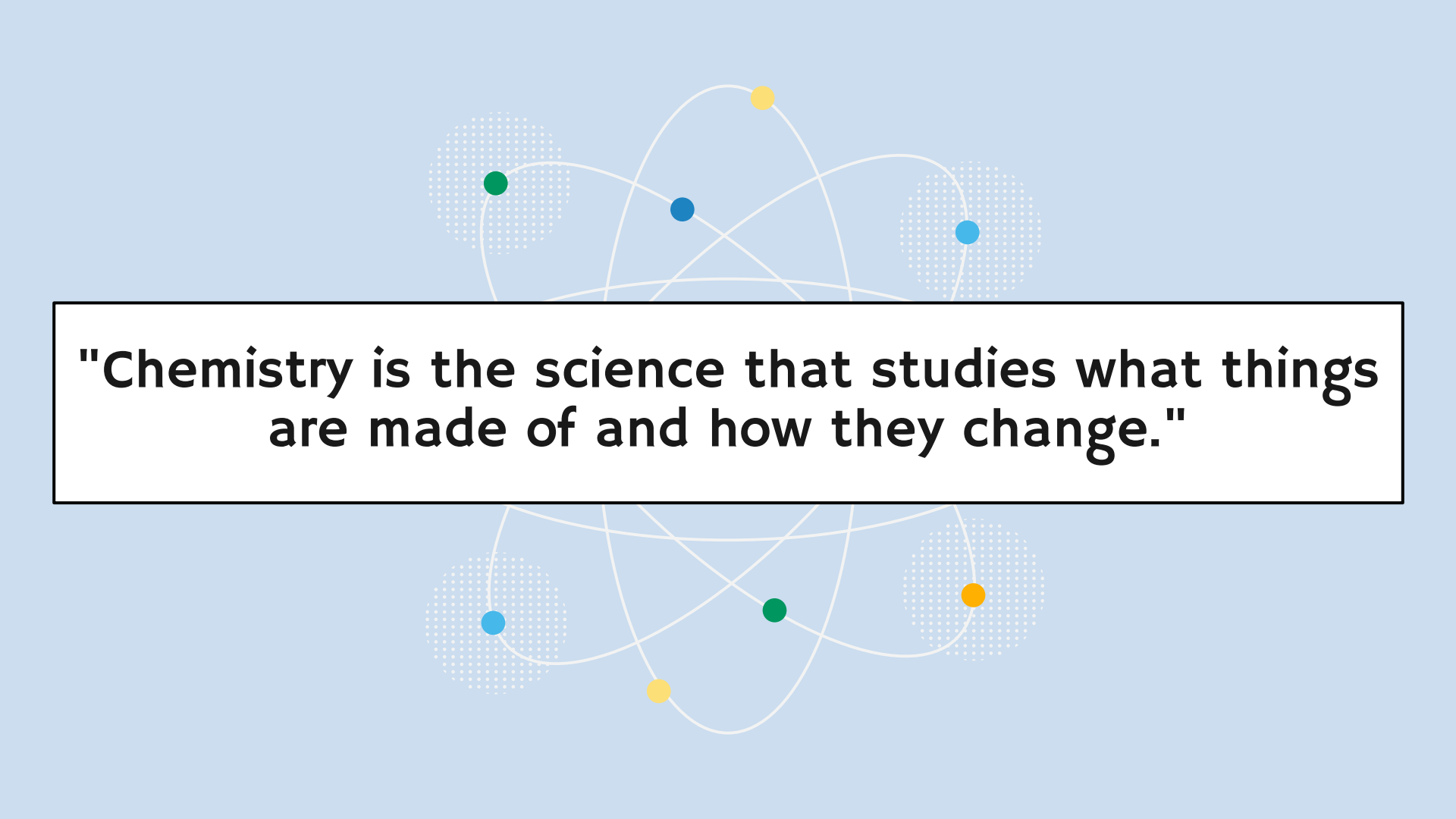
Brought to you by the University of Maryland Balloon Payload Program!





What is chemistry?



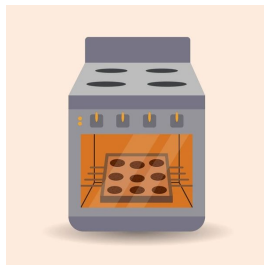
A stylized atomic model is centered in the background. It features a central nucleus with four colored dots: green, blue, yellow, and light blue. Several white elliptical orbits intersect around the nucleus. Two of these orbits are filled with a white dotted pattern. The entire graphic is set against a solid light blue background.

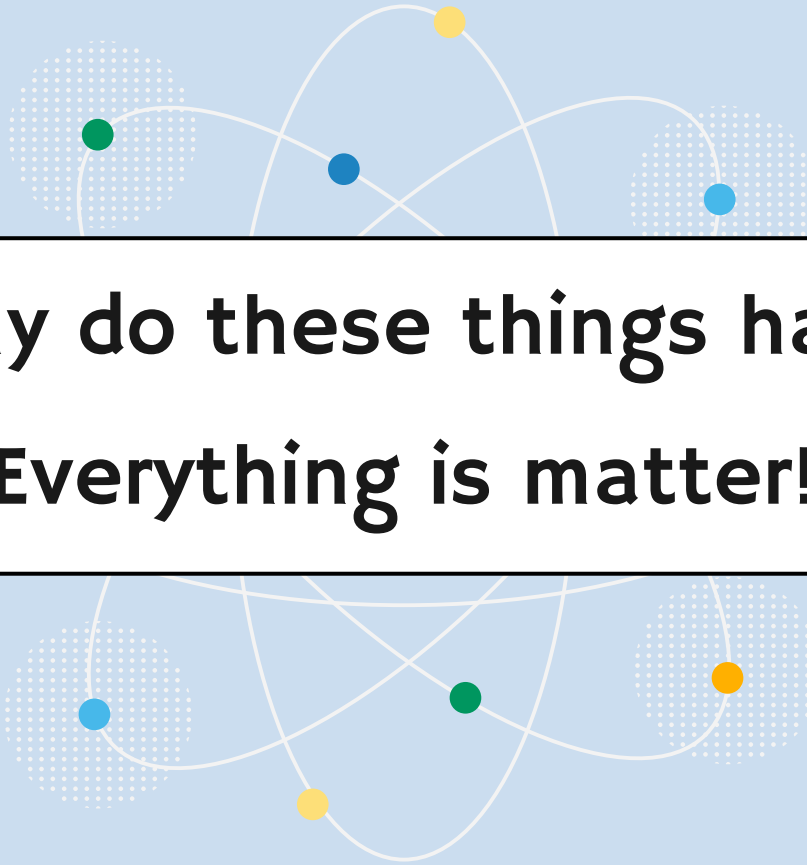
"Chemistry is the science that studies what things are made of and how they change."

Chemistry is all around us!

We use it everyday... in what?

- Cooking and baking
- Cleaning
- Fire
- Plants
- Rust





But why do these things happen?
Everything is matter!

What is matter made of? - Atoms!

ELECTRON

Negatively charged



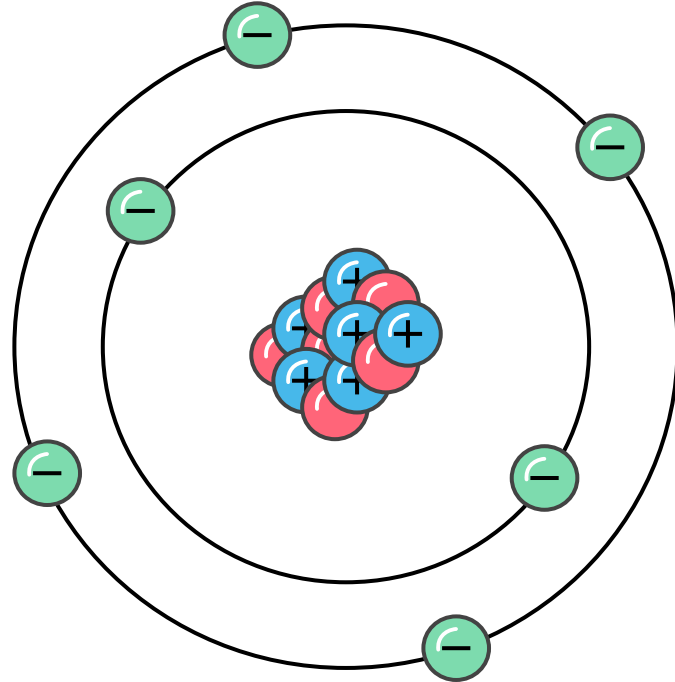
PROTON

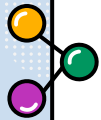
Positively charged



NEUTRON

No charge

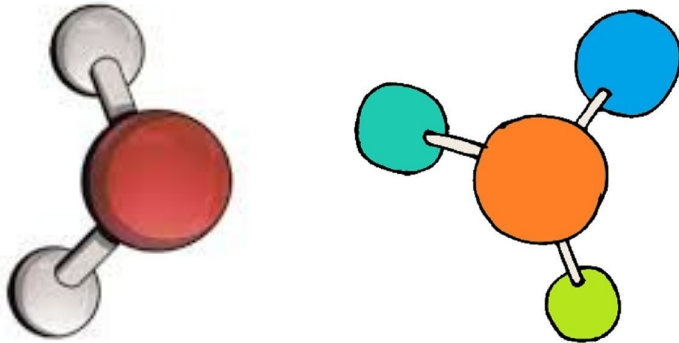


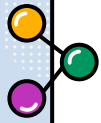


Molecules

Atoms come together to form molecules!

- Atoms are like **building blocks**
- Molecules are like a **tower**



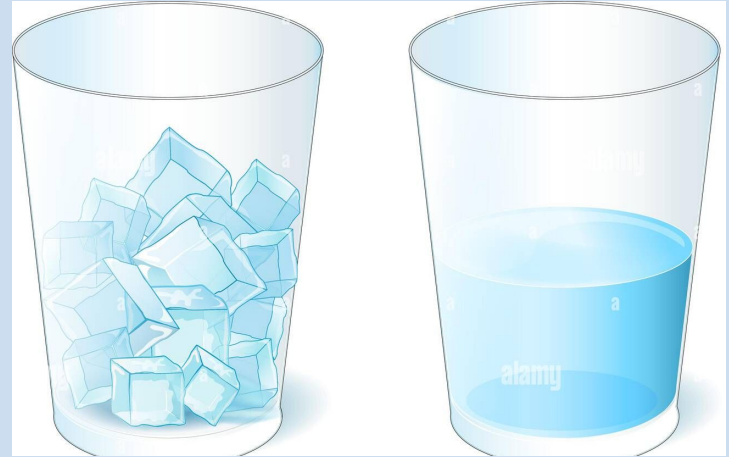


Matter has special rules we need to follow!

- Rule 1: we cannot create matter
- Rule 2: we cannot destroy matter

... So what do we do?

- We can *change* matter!



But how do we change matter?

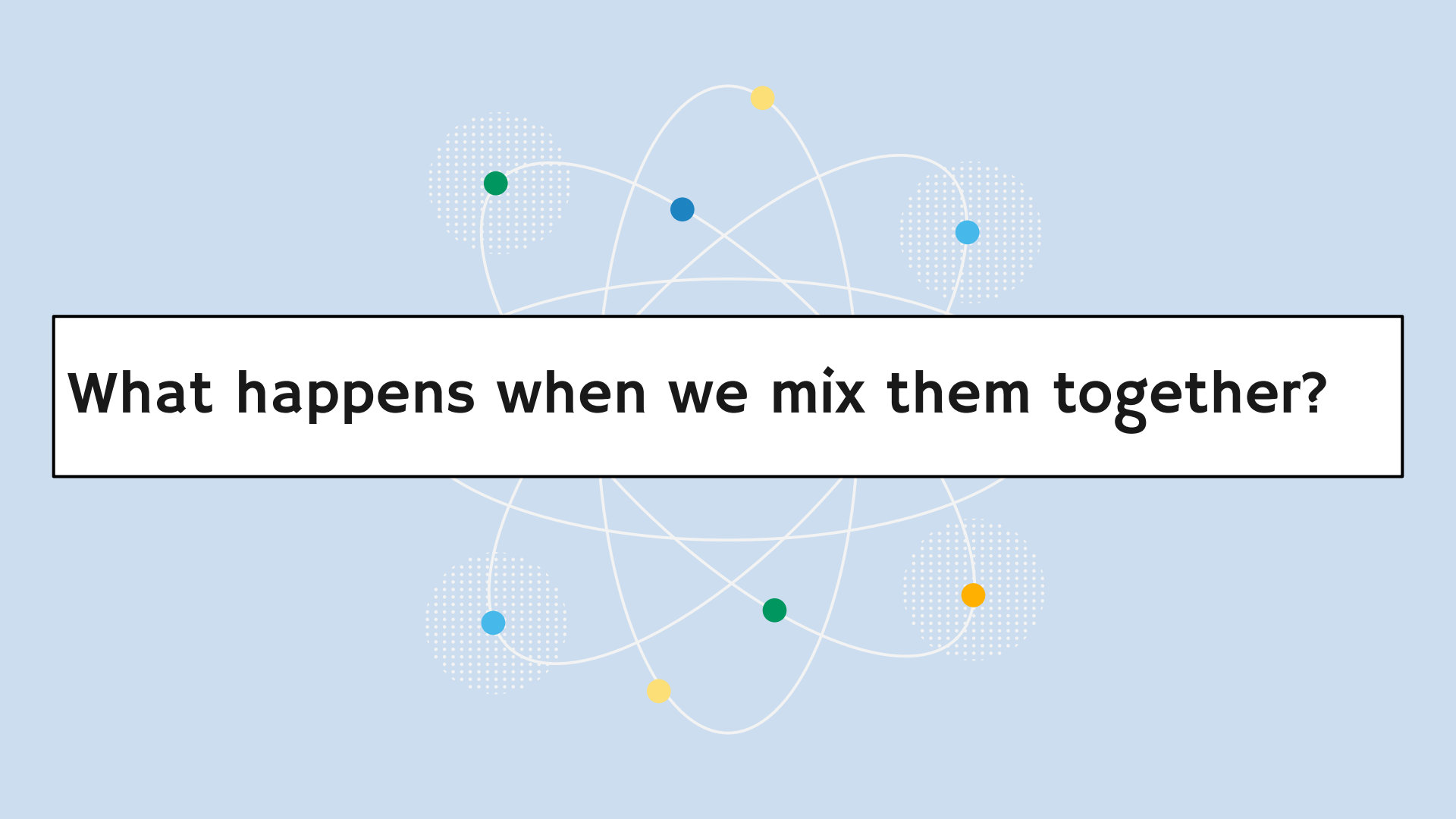
1. Change the Environment

- Hot & Cold



OR...

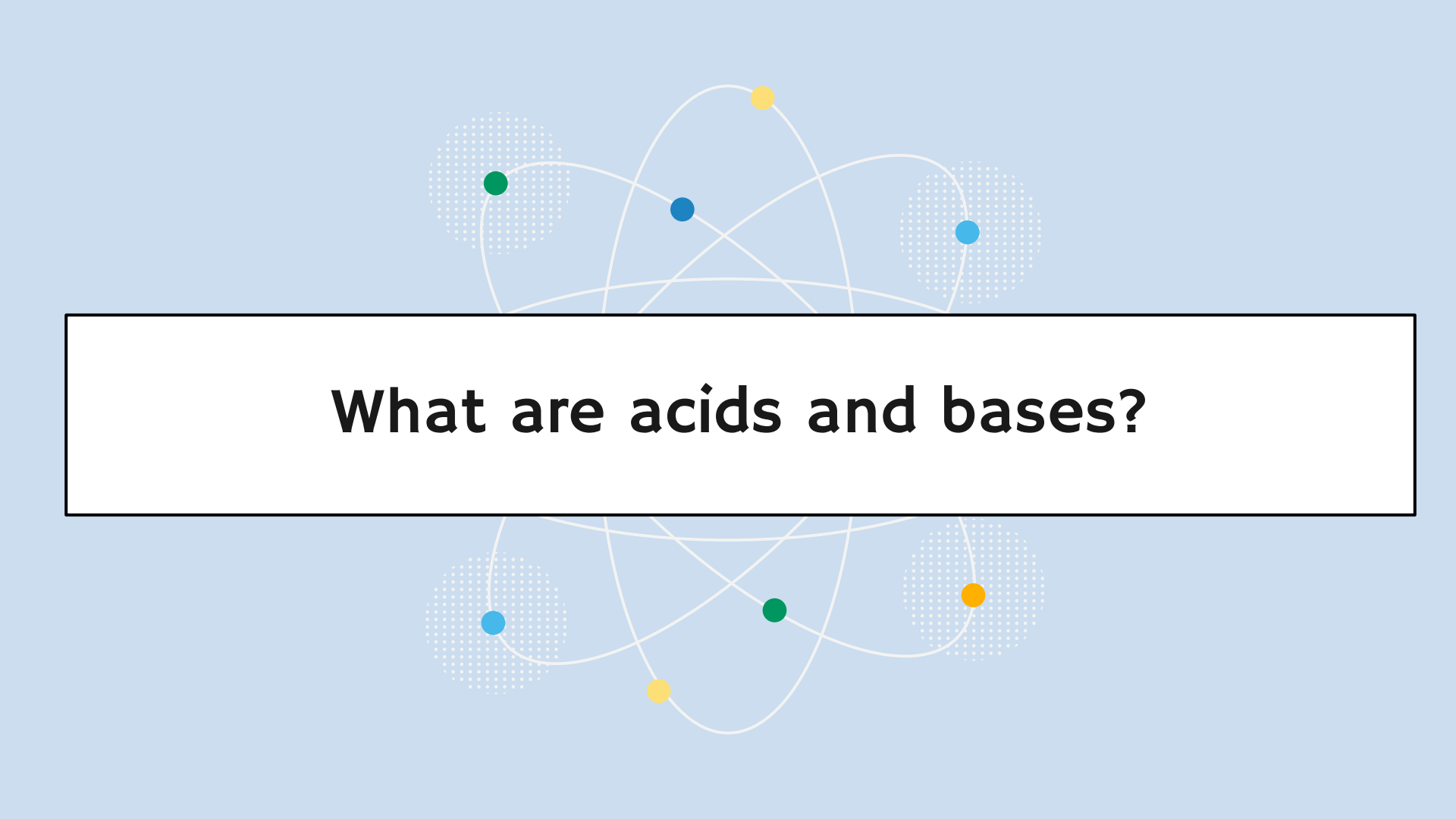
2. Mix things together



What happens when we mix them together?

Iodine Clock



A stylized atomic model is centered in the background. It features a central nucleus with four colored dots: green, blue, yellow, and light blue. Three elliptical orbits intersect around the nucleus. Two of these orbits are highlighted with a dotted pattern: the one on the left containing the green dot, and the one on the right containing the light blue dot. The entire graphic is set against a light blue background.

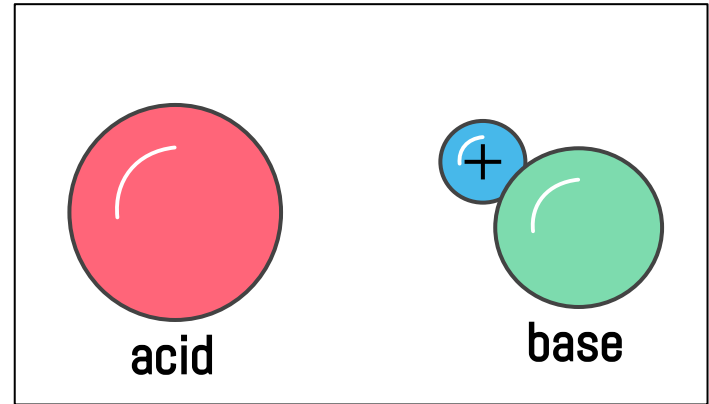
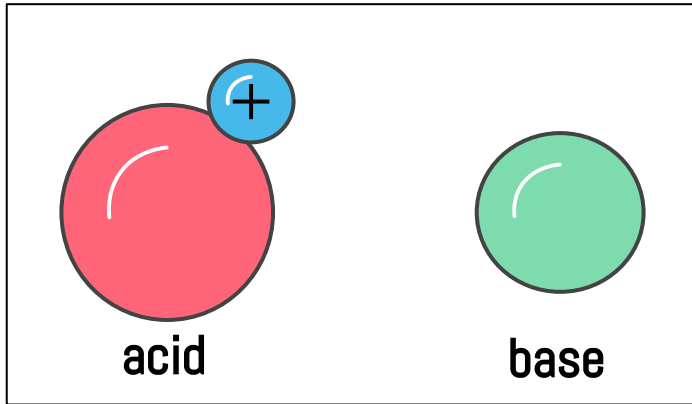
What are acids and bases?

Acids

- "Givers"
- Positively charged
- **Give** away a positive hydrogen

Bases

- "Takers"
- Negatively charged
- **Take** a positive hydrogen



Acids VS Bases



Acids

- Taste sour
- Your stomach produces acids to break down food
- Some acids are mild like those in foods like oranges but some are highly corrosive and can burn your skin!



Bases

- Opposite of acids
- Feel slippery or soapy
- Taste bitter
- Examples: baking soda, cleaning products

Acid or Base?

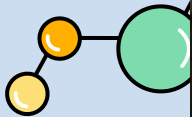
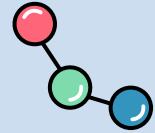


What do lemons taste like?
Is it an Acid or a Base

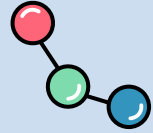
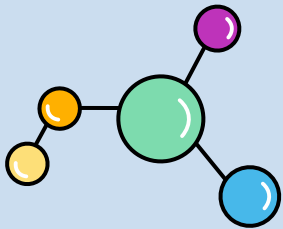


What does soap feel like?

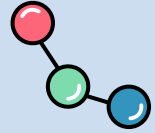
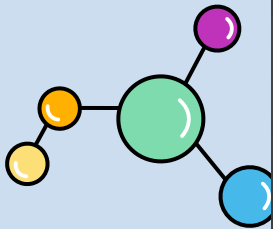
Hydrogen Peroxide + Potassium

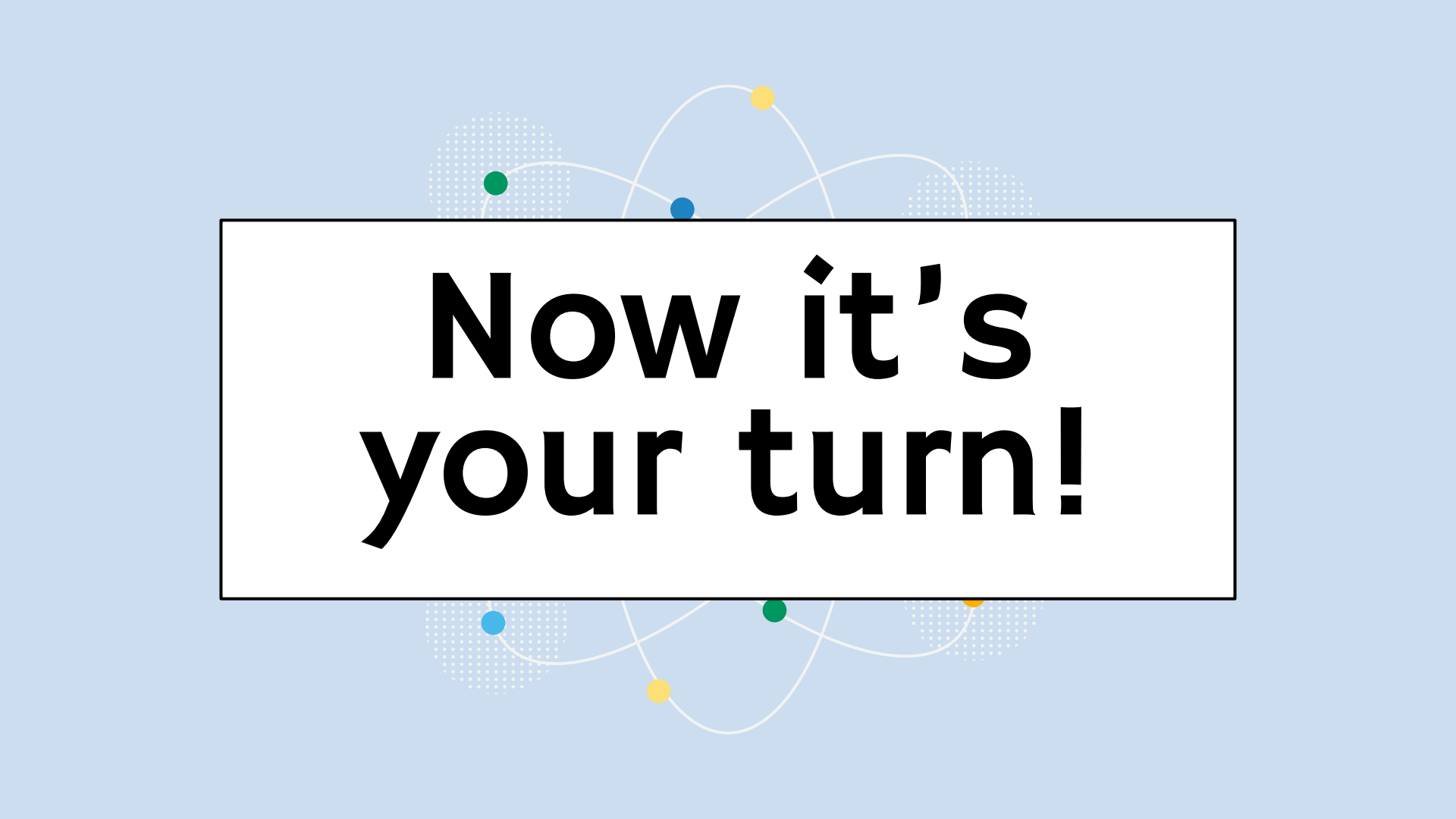


Titration



Baking Soda and Vinegar





**Now it's
your turn!**