

Section 16.9 on Friday

The Washington Center Internship Program. If you have any students that are interested or thinking about interning in our nation's capital, encourage them to attend one of the sessions. For more information on the program: www.twc.edu

Information Sessions:

Owl's Nest 1:30pm and 3:00pm

Sample Internships

TWC maintains a network of over 600 internship site partners that host hundreds of TWC interns every year. We place interns in all kinds of industries, from nonprofit, to government, to private sector, to the arts, and finance, and everything in-between. Your internship advisor will guide you through the decision process, and will help match you to the organization that's right for you.

This list is by no means exhaustive, but will give you an idea of the range of organizations you could potentially be matched to.



Arts, Humanities & Education

American Federation of School Administrators • American Foundation for Suicide Prevention • Catholic Diocese of Arlington-Migration & Refugee Services • Congressional Chorus • International Leadership Association • Joy of Motion Dance Center • National Archive • National Association of Federally Impacted Schools • Naval History & Heritage Command • Respectability • Special Olympics • Student Veterans of America • The Urban Institute • United Way Worldwide • U.S. Department of Education • Washington Performing Arts



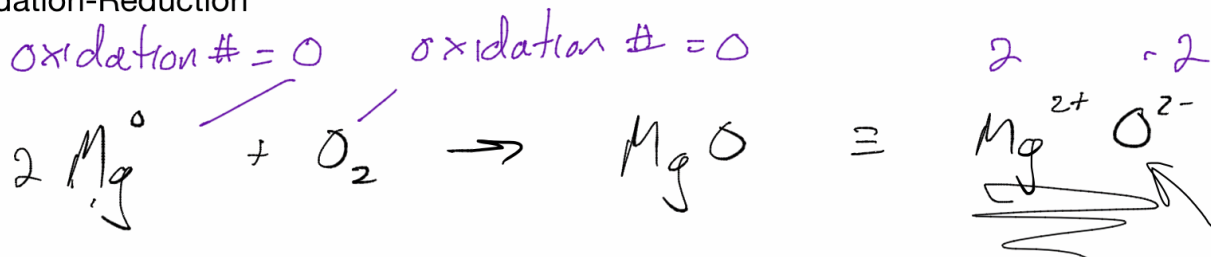
Business, Economics & Trade

1776 • Brazilian Industries Coalition • Central Union Mission • Citigroup • D.C. Department of Small & Local Business Development • Foundation on Economic Trends • Institute on Taxation & Economic Policy • International Executive Service Corps • Izar Capital Group • Manchester Trade • Peru Trade, Tourism & Investment Office • Prep Factory • The Consumer Goods Forum • U.S. Department of Commerce • U.S. Small Business Administration



Government & Politics

American Security Project • Council of State Governments • Grant Thornton Kieloch Consulting • Lobbyit.com • National Hispanic Caucus of State Legislators • Running Start • S&P Global • The Abraham Group • The McKeon Group • The Potomac Advocates • U.S. Department of Energy • U.S. House of Representatives • U.S. Senate • Whitmer & Worrall

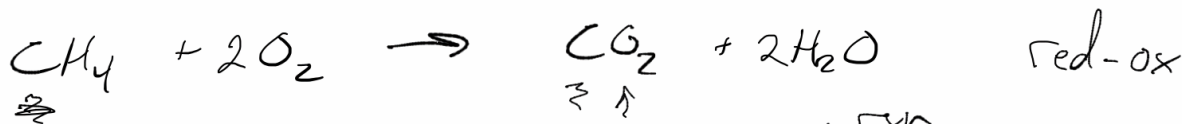


oxidized Mg lost $2e^-$

reduced each O atom gained $2e^-$

oxidation -

reduction reaction



Oxidation #'s if they change, then a red-ox rxn occurs

For ionic compounds, the oxidation # is the charge of the

Pretend ^{ion} molecular compounds/covalent bonds are ionic bonds

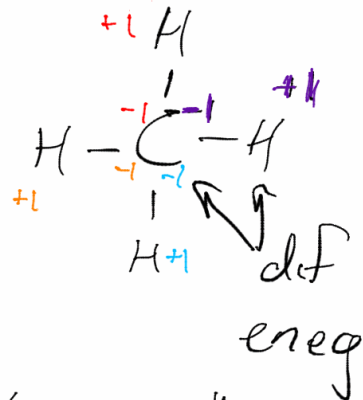


same eneg
O=O
even sharing

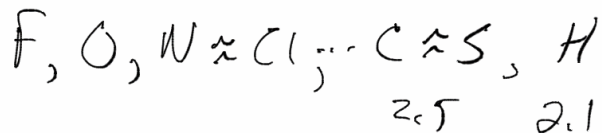
Pretend bonds are ionic if eneg's are different

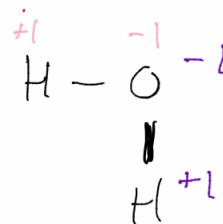
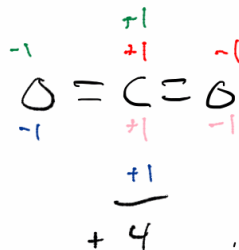
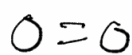
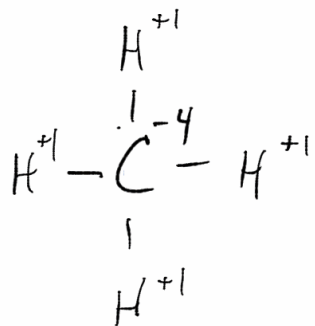
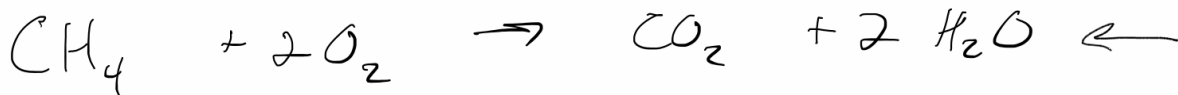
For each bond assign +1 or -1 based on eneg

Sum all of the +1's + -1's for each atom and you have the oxidation #



"ionic"
-1 -1 -1 -1
C is -4





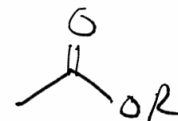
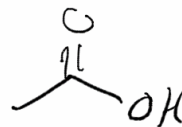
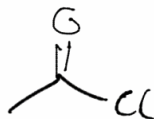
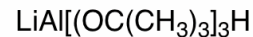
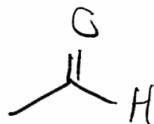
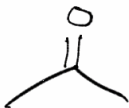
C atom is -4 (1 C atom)
 each H is +1 (4 H atoms)
 O atoms are 0 (4 of them)

C atom is +4 (1 C atom)
 each H atom is +1 (4 H atoms)
 O atoms are -2 (4 atoms)

each O atom got $2e^-$

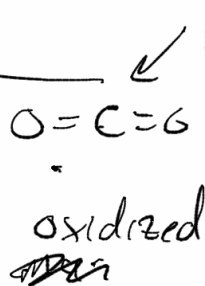
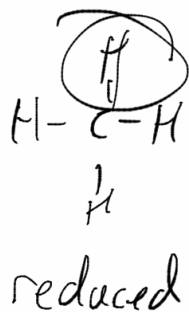
$$4 \times 2e^- = 8e^-$$

F, O, N ≈ Cl, ... C ≈ S, H
 2:5 2:1



2 π to σ
bonds

most oxidized
3 π to σ
bonds

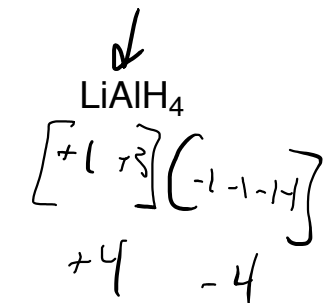


this π atom needs $\text{H}'\text{s} + \text{e}'\text{s}$
to become reduced

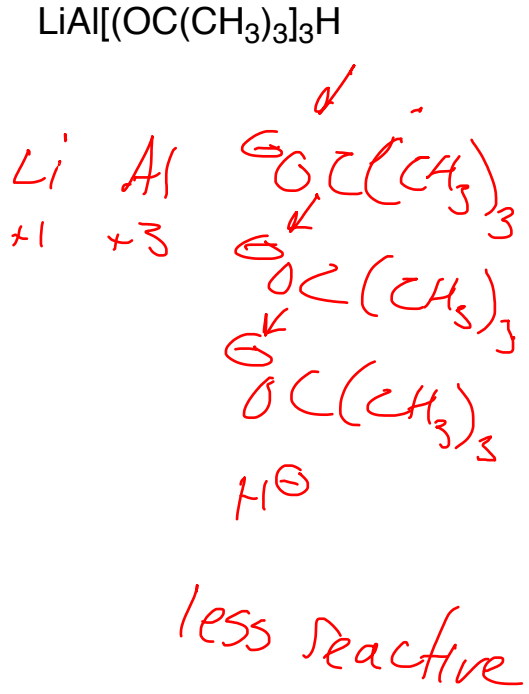
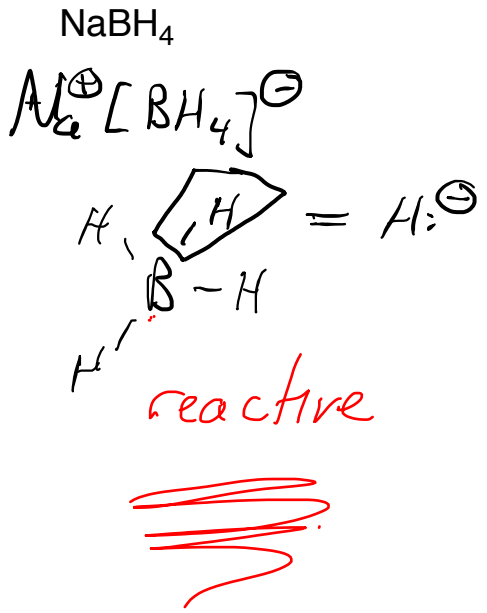
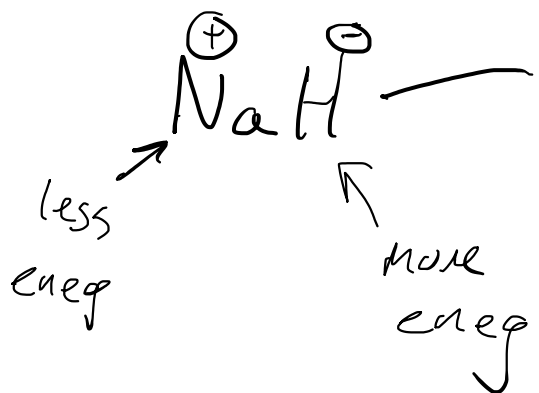
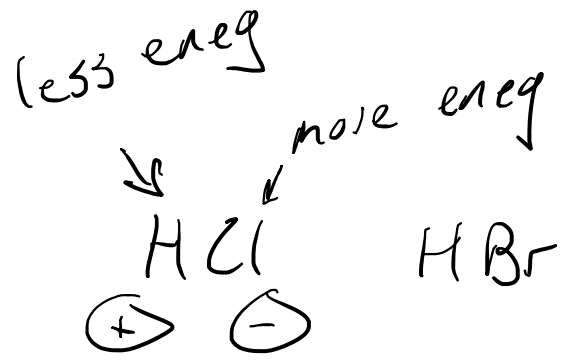
Reactions with "Hydride" ions

sodium borohydride

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crazy
 reactive
 pyrophoric

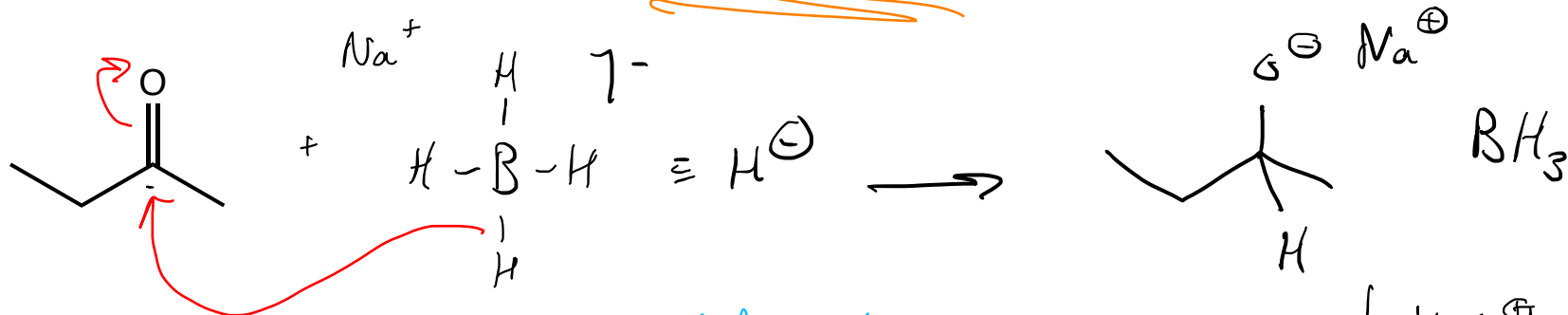


all are sources of H^-

"hydride ion" = H^- = $\text{H}:\ominus$
 very reactive!

Reactions with "Hydride" ions – Carbonyls Lacking a Leaving Group

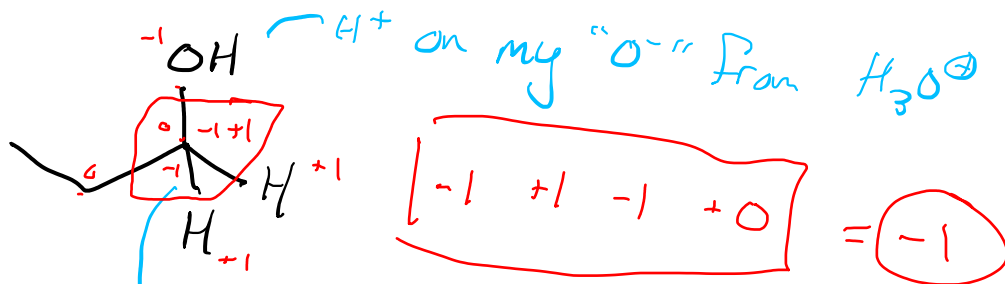
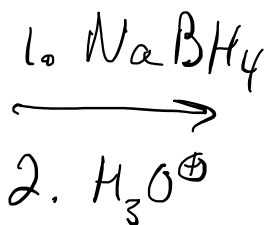
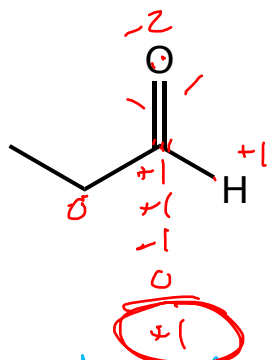
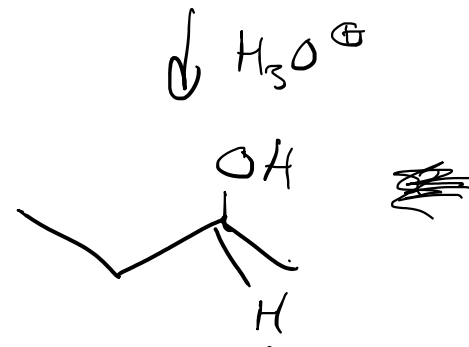
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the ketone was converted to a

H^- does a nucleophilic addition

secondary alcohol



aldehyde converted to a primary alcohol
sodium borohydride reduction

How can I tell this is a reduction rxn?

2 C to O bonds 1 C to O bond