

# ChemAP Playlist

Ch 01-02 – Intro

AP Chem Playlist:

Ch 1 – Sig figs:

1.5 Sig Figs: [https://www.youtube.com/watch?v=LEBSq\\_oC9Jk](https://www.youtube.com/watch?v=LEBSq_oC9Jk)

1.8 Density: <https://www.youtube.com/watch?v=REtBibhIqfo>

1.9a Unit Conversions - <https://www.youtube.com/watch?v=lbEn0G-7S4M>

1.9b Units – scale - <https://www.youtube.com/watch?v=-aYat9357mE>

Ch 2 – History of the Atom and Naming Compounds:

2.3 History of the atom part 1: <https://www.youtube.com/watch?v=sG6QoLxwIw4>

2.4 History of the atom part 2: <https://www.youtube.com/watch?v=GhAn8xZQ-d8>

2.5 - Atomic Numbers - <https://www.youtube.com/watch?v=7qrZti505B4>

2.5a – Avogadro’s Number - [https://www.youtube.com/watch?v=TSQIM72\\_MiU](https://www.youtube.com/watch?v=TSQIM72_MiU)

2.8a Naming ionic – part 1: <https://www.youtube.com/watch?v=G3PNjgeKhoM>

2.8b Naming ionic – part 2: <https://www.youtube.com/watch?v=KKAh8oamp94>

2.8c Naming covalent - <https://www.youtube.com/watch?v=OCT0MoBmT3w>

2.8d. Naming acids - [https://www.youtube.com/watch?v=AaYQ\\_ZiE7AY](https://www.youtube.com/watch?v=AaYQ_ZiE7AY)

2.8e – Strong acids - <https://www.youtube.com/watch?v=jPilrd7b1B8>

2.8f – Strong acids <https://www.youtube.com/watch?v=-M5xuzSJCjs>

Ch 3 – Stoichiometry...

3.1a Average atomic mass (isotopes): <https://www.youtube.com/watch?v=G6A4UQX7QRw>

3.1b Mass Spectrometry : Bozeman Sci 09 -

<https://www.youtube.com/watch?v=mBT73Pesio&list=PLlIVwaZQkS2op2kDuFifhStNsS49LaxkZ&index=10&t=0s>

3.2 Interconverting masses, moles and number particles :

<https://www.youtube.com/watch?v=tBbCX6dQZPo>

3.2 The Mole : Bozeman Sci 03 :

<https://www.youtube.com/watch?v=Pft2CASI0M0&list=PLlIVwaZQkS2op2kDuFifhStNsS49LaxkZ&index=3>

3.4 – Percent Composition from Formulas : <https://www.youtube.com/watch?v=L8lmtVPQDDQ>

3.5 – Empirical and Molecular Formulas : <https://www.youtube.com/watch?v=AFqwtY7m2PI>

3.5a – Emp and Mol. Formula - <https://www.youtube.com/watch?v=eHR9saDmeYk>

3.9a – Limiting Reagent - <https://www.youtube.com/watch?v=lvCPLCQ-YK0>

3.9b - Introduction to Limiting/Excess Reactant -

<https://www.youtube.com/watch?v=nZOVr8EMwRU>

3.9c - theoretical actual and percent yield practice problems -

<https://www.youtube.com/watch?v=mmsKDK9WXdE>

### 3.5b Bozeman Sci 02 – Chemical Analysis :

<https://www.youtube.com/watch?v=QcC4OsSxWYU&list=PLlIVwaZQkS2op2kDuFifhStNsS49LAXkZ&index=2>

### Ch 4 Solutions:

4.1 Dilution - <https://www.youtube.com/watch?v=v6dnEp58mVk>

4.2a Ionic solutions - <https://www.youtube.com/watch?v=7fHA17DOrBg>

4.2b Ionic solutions (more) - [https://www.youtube.com/watch?v=6APgDoZ\\_qJY](https://www.youtube.com/watch?v=6APgDoZ_qJY)

4.5 a – Ionic, Net Ionic and Spectator Ions - <https://www.youtube.com/watch?v=MJy5CNzd6sY>

4.5 b – Molecular, Ionic and Net Ionic Equations :

<https://www.youtube.com/watch?v=dvupBubB-HQ>

4.8 a – Acid base neutralization –

<https://www.youtube.com/watch?v=HdmCagtasYg&list=PLlIVwaZQkS2op2kDuFifhStNsS49LAXkZ&index=30>

4.8 b – Basic titrations – <https://www.youtube.com/watch?v=dLNsPqDGzms>

4.9 a – Redox – oxidation numbers: <https://www.youtube.com/watch?v=w0RfMRDy34w>

4.9 b – Redox – oxidation numbers part 2:

<https://www.youtube.com/watch?v=VXvtkwubQQg>

4.9 c – Redox – reactions -- <https://www.youtube.com/watch?v=RX6rh-eeFlM>

4.10a – Redox – Balance in Acidic solutions: <https://www.youtube.com/watch?v=IZ1tKxsqV74>

4.10b – Redox – another. [https://www.youtube.com/watch?v=HGzy\\_pRyej8](https://www.youtube.com/watch?v=HGzy_pRyej8)

4.10c – Redox – yet another: <https://www.youtube.com/watch?v=N6ivvu6xlog>

4.11 – Anode Rod - <https://www.youtube.com/watch?v=2IUNIUZz4Os>

Redox online lab – part 1. -- <https://www.youtube.com/watch?v=th6UI2SKIXU>

Redox online lab – part 2-- <https://www.youtube.com/watch?v=TQlgiD8qOFU>

### Ch 5 Gases:

5.1 Gases - Pressures - <https://www.youtube.com/watch?v=qv81QCGNnVo>

5.1 Gases – reading barometer - <https://www.youtube.com/watch?v=OeCvgRbbY1Q>

5.2 Pressure, V, T relationships: <https://www.youtube.com/watch?v=ir64EcRkf5Q>

5.3 Idea gas law - <https://www.youtube.com/watch?v=gmN2fRIQFp4>

5.3a PVT problems - <https://www.youtube.com/watch?v=xL9KclCmC1k>

5.3b PV-nRT problems -- <https://www.youtube.com/watch?v=TqLIhBFY08>

5.3c – R derived - <https://www.youtube.com/watch?v=kBgzzwCTddc>

5.5 Dalton's Law (go to 9:00 min) - <https://www.youtube.com/watch?v=JbqtqCunYzA>

5.7 Graham's Law Effusion/Diffusion. <https://www.youtube.com/watch?v=J2LNU9hGsHc>

5.7 Graham's Law another problem. <https://www.youtube.com/watch?v=NniisV69jYk>

5.8 Real gas (non-ideal ). <https://www.youtube.com/watch?v=8zJrjEV9n8o&t=90s>

5.9 Brownian motion - [https://www.youtube.com/watch?v=ZNzoTGv\\_XiQ](https://www.youtube.com/watch?v=ZNzoTGv_XiQ)

Virtual lab – Mg and HCl react.... -- [https://www.youtube.com/watch?v=QKMJpTG\\_YIs](https://www.youtube.com/watch?v=QKMJpTG_YIs)

## Ch 6 – Heat:

6. 2 –  $Q=mcT$  - <https://www.youtube.com/watch?v=eIBVimdYnDI>

6.3a Hess' Law - <https://www.youtube.com/watch?v=2q2u5sj4V00>

6.3b Hess law 2 - <https://www.youtube.com/watch?v=Z4ntAj7Gclo>

6.3c Hess law 3 - <https://www.youtube.com/watch?v=iETCSFit-zA>

6.3d Hess Law 4 - <https://www.youtube.com/watch?v=xkDkYX6eRbE>

6.4a Heat formation - [https://www.youtube.com/watch?v=PJweE3F\\_mPY](https://www.youtube.com/watch?v=PJweE3F_mPY)

6.4b Heat reaction - [https://www.youtube.com/watch?v=61fKkCwWu4s&list=PLp52f0A-IsC6yMHsGLejBroZ\\_6FUqJUNI&index=1](https://www.youtube.com/watch?v=61fKkCwWu4s&list=PLp52f0A-IsC6yMHsGLejBroZ_6FUqJUNI&index=1)

6.7 heating curve of water: Q1-Q5. --

[https://www.youtube.com/watch?v=NfIMkAkJUWI&list=PLp52f0A-IsC6yMHsGLejBroZ\\_6FUqJUNI&index=2](https://www.youtube.com/watch?v=NfIMkAkJUWI&list=PLp52f0A-IsC6yMHsGLejBroZ_6FUqJUNI&index=2)

Lab - heat of reaction –

Part 1 – calibrate cup – later tater

Part 2 - heat of reaction of Mg + HCl -- <https://www.youtube.com/watch?v=pjFV-A7wVJI>

Biofuels - <https://www.youtube.com/watch?v=OpEB6hCpIGM>

## Ch 7 The electron, periodicity.

7.1-7.3 Light, freq, wavelength, energy –

Light - problems  $c = \lambda\nu$  - <https://www.youtube.com/watch?v=goJI54Y1hio>

Quantized Energy  $E = h\nu$  : <https://www.youtube.com/watch?v=VLc20TF9jZw>

Microwaves - <https://www.youtube.com/watch?v=kp33ZprO0Ck>

7.4 Bohr model – <https://www.youtube.com/watch?v=au2HCVn9IJI>

7.5 -7.11 Quantum Mechanics, Quantum numbers, electron configuration

A - <https://www.youtube.com/watch?v=Aoi4j8es4gQ>

B - <https://www.youtube.com/watch?v=diCGRJskeDA>

Schrodinger equation - <https://www.youtube.com/watch?v=O6g-7rUgrdg>

Schrodinger's cat - <https://www.youtube.com/watch?v=UjaAxUO6-Uw&t=61s>

7.12 Periodic Trends:

a - <https://www.youtube.com/watch?v=hePb00CqvP0>

b - <https://www.youtube.com/watch?v=XK-WTYncldA>

c - ionic radius - <https://www.youtube.com/watch?v=lzKJWwTDU34>

d ☺ [https://www.youtube.com/watch?v=qc02d3G\\_wb4](https://www.youtube.com/watch?v=qc02d3G_wb4)

7.12 – Speed of light - <https://www.youtube.com/watch?v=pTn6Ewhb27k>

7.13 – PES diagrams – AP test - <https://www.youtube.com/watch?v=gyKD6QULa0A>

## 7.13a – another PES -

Ch 8 Bonding, Lewis structures, molecular shapes, VSEPR

8.1 – Ionic bonding (lattice energy) - [https://www.youtube.com/watch?v=hiyTfhjeF\\_U](https://www.youtube.com/watch?v=hiyTfhjeF_U)  
8-10

Lewis Structures -single bonds: <https://www.youtube.com/watch?v=qCOkHYYc4mE>

Lewis Structures – double/triple bonds : <https://www.youtube.com/watch?v=zEQeVvdjkBc>  
8-9

Sigma-pi <https://www.youtube.com/watch?v=nTujP4jCbsg>

VSEPR

a - <https://www.youtube.com/watch?v=Q9-JiyAEqnU&t=290s>

b <https://www.youtube.com/watch?v=nxebQZUVvTg&t=645s>

C. - <https://www.youtube.com/watch?v=Moj85zwdULg&t=2s>

D. <https://www.youtube.com/watch?v=umwN74a0A2g>

E. <https://www.youtube.com/watch?v=nLhmgF81Kqo>

Snowflake bonding - <https://www.youtube.com/watch?v=ao2Jfm35XeE>

8.8 Bond Energy

BOND ENERGIES - <https://www.youtube.com/watch?v=jr11SKQxBgc>

BOND ENERGIES ex 1 - <https://www.youtube.com/watch?v=eL6IS7uw7rc>

BOND ENERGIES ex 2 - <https://www.youtube.com/watch?v=HxWQOOBHcus>

## Ch 11 Colligative Properties – Solutions

11.1

11.2

11.3

Colligative Props 1

<https://www.youtube.com/watch?v=hOhgXRukRDg>

Colligative Props 2

<https://www.youtube.com/watch?v=c8dDLe37ONg>

Colligative Props 3

<https://www.youtube.com/watch?v=wzAToPL8Src>

## Ch 12 – Rate of Reaction –

12.1 – Intro to Rate Laws.... - <https://www.youtube.com/watch?v=WDXzVI8SmfE>  
12.1a – Rate Constant (k) - <https://www.youtube.com/watch?v=eOSRn0jPbTk>  
12.1b – Integrated Rate Laws - <https://www.youtube.com/watch?v=wYqQCojggyM>  
12.6a – Elementary Reactions - <https://www.youtube.com/watch?v=0g1YwEbwwfw>  
12.6b – Multistep Reactions - <https://www.youtube.com/watch?v=l64dUjEzrcw>  
12.6c – Rate Limiting Step - <https://www.youtube.com/watch?v=MEEg7aHqk6A>  
12.6d – Reaction Intermediate - <https://www.youtube.com/watch?v=tzpStGaLjSE>  
12.7a – Activation Energy - <https://www.youtube.com/watch?v=YacsIU97Ofc>  
12.7b – Lab Ea – The Reaction Pathway – <https://www.youtube.com/watch?v=0LjOXV4b-nk>  
12.8a – Catalyst classes – <https://www.youtube.com/watch?v=OfP5h1T2KJI>  
12.8b – Catalysts - <https://www.youtube.com/watch?v=KYD5LNVWne8>  
12.9 – Derivation of Integrated Rate Laws - <https://www.youtube.com/watch?v=BXSa-el0CkA>  
12.10 - Beer's Law for rate law lab - <https://www.youtube.com/watch?v=zuUvQN8KXOk>

### Ch 13 – Equilibrium

13.1 – Equilibrium - <https://www.youtube.com/watch?v=cHAjhM3y3ds>  
13.2 – Equilibrium Constant - <https://www.youtube.com/watch?v=xfGlEXWDRZE>  
13.3 – Equilibrium Disturbances - <https://www.youtube.com/watch?v=dd5p0VZ-MZg>  
13.7 – Le Chatelier's Principle - [https://www.youtube.com/watch?v=PciV\\_Wuh9V8](https://www.youtube.com/watch?v=PciV_Wuh9V8)  
13.7a – ditto -- <https://www.youtube.com/watch?v=XmgRRmxS3is>  
Haber Process - <https://www.youtube.com/watch?v=EvknN89JoWo>

### Acid Base

14.1 – Acid base pH pOH intro - <https://www.youtube.com/watch?v=NNXvokAcSuE>  
14.2 – pH pKa - <https://www.youtube.com/watch?v=2zhvaGNJiJ8>  
14.2a – another - <https://www.youtube.com/watch?v=kJTCuRSeh6g>  
14.2b – yet another - <https://www.youtube.com/watch?v=XAmMGNPYVZM>

### Ch 15 Ksp

15.1 – Ksp first - <https://www.youtube.com/watch?v=WjiXbemBXkE>  
15.2 – Common Ion - <https://www.youtube.com/watch?v=qawipem0LwA>  
15.3 – Selective Precipitation - <https://www.youtube.com/watch?v=6kAAXXHc4w8>  
15.4 – Problems PPT - <https://www.youtube.com/watch?v=TBtaeyKkykU>

### Ch 16 Free Energy Entropy Thermodynamics $G=H-TS$

16.1 Entropy - <https://www.youtube.com/watch?v=MALZTPsHSoo>  
16.1a – Spontaneity - <https://www.youtube.com/watch?v=hNSD0YDsPsE>  
16.2. Gibbs free energy - <https://www.youtube.com/watch?v=huKBuShAa1w>

16.3 – Gibbs again - <https://www.youtube.com/watch?v=8N1BxHgsoOw>  
16.3a – Gibbs problems - <https://www.youtube.com/watch?v=flCs5vjBuX0>  
16.4 – Thermo 0<sup>th</sup> Law - <https://www.youtube.com/watch?v=S2hsaTO0bO8>  
16.5 – Thermo 3 Laws - <https://www.youtube.com/watch?v=O7HwhkYt6YU>  
16.6 – Thermo problems worked - <https://www.youtube.com/watch?v=FmYVHN6IHdg>  
16.7 - Entropy explained... <https://www.youtube.com/watch?v=DxL2HoqLbyA>  
16.2.  
16.3.

## Electrochem

Lots problems - <https://www.youtube.com/watch?v=O1EKjTi8pA>

17.1 – Intro electrochem - <https://www.youtube.com/watch?v=2VT5rl8P84M>  
17.1a – dewitt intro elect - <https://www.youtube.com/watch?v=teTkvUtW4SA>

17.2 – aaa  
17.3 – bbb

<https://www.youtube.com/watch?v=tUJDbj9Vp5w>  
neil Armstrong lander

neil 2  
<https://www.youtube.com/watch?v=dNIZXso0-I4>

Colligative Props 1  
<https://www.youtube.com/watch?v=hOhgXRukRDg>

Colligative Props 2  
<https://www.youtube.com/watch?v=c8dDLe37ONg>

Colligative Props 3  
<https://www.youtube.com/watch?v=wzAToPL8Src>

alloys \_ AP Chem  
<https://www.youtube.com/watch?v=PaGJwOPg2kU>

physics – fluids drag

<https://www.youtube.com/watch?v=GMmNKUIXXDs>

In p2p1 video 1

<https://www.youtube.com/watch?v=5HzCXAfKA8c>

In p2p1 video 2

<https://www.youtube.com/watch?v=xSHDawWK30s>