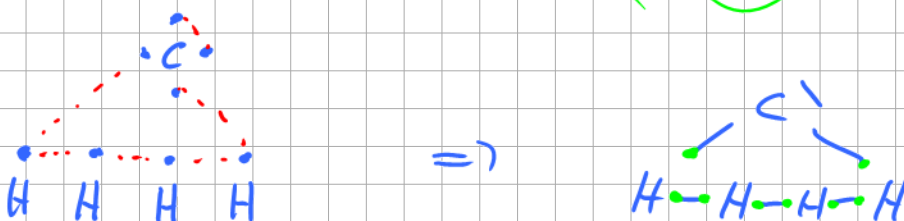
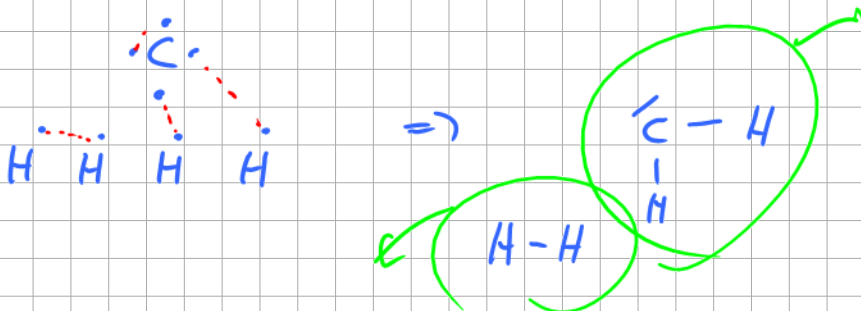
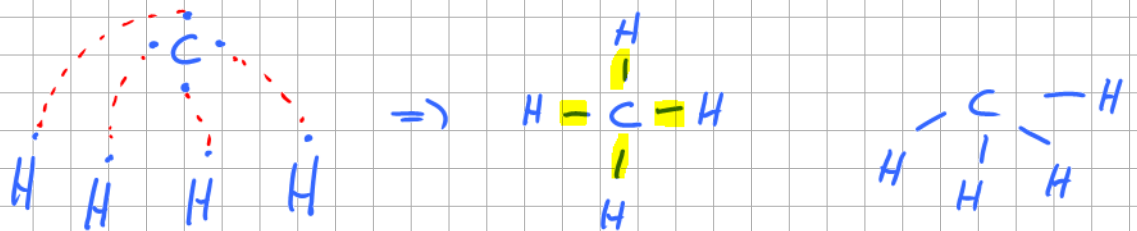
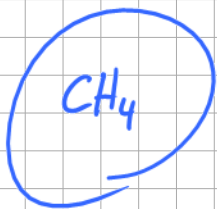
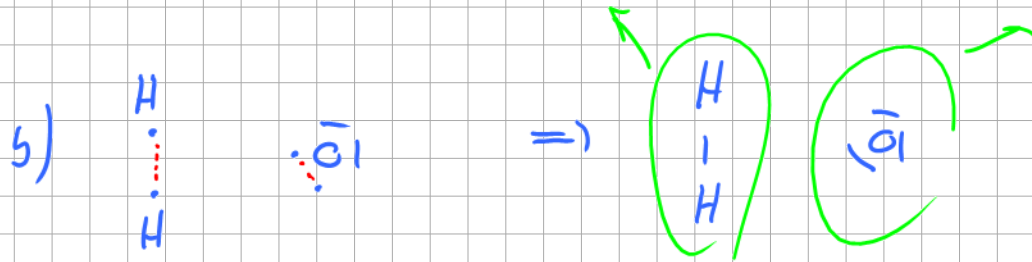
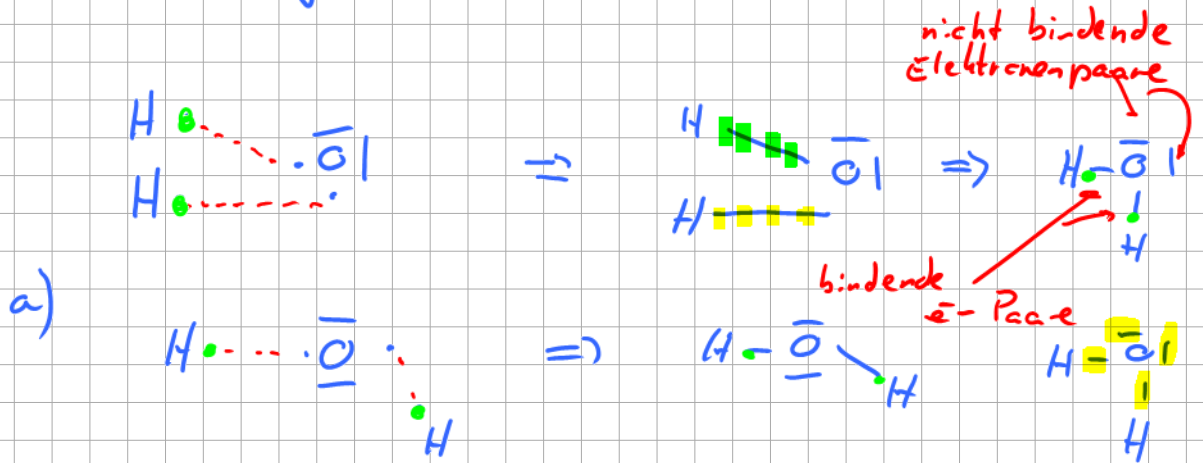
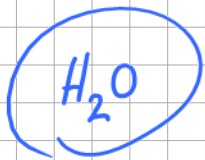
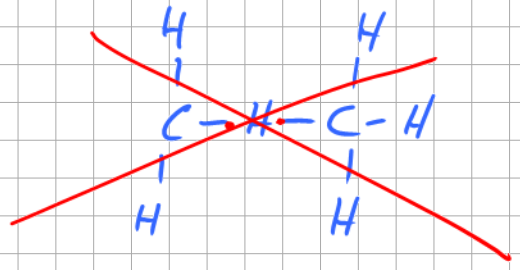
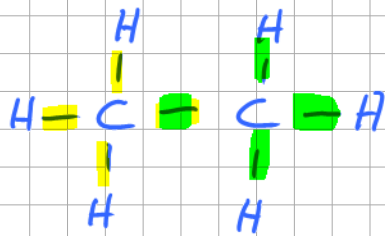
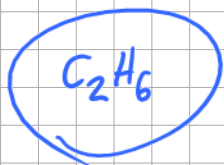


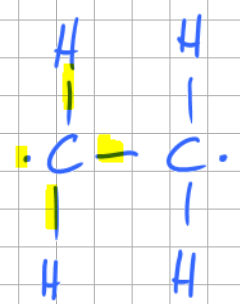
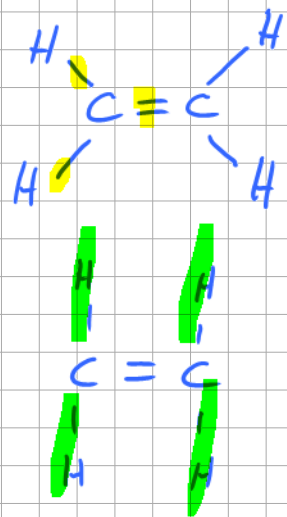


Idee:
 • Das Molekül weist keine Punkte auf
 • Alle beteiligten Atome halten zusammen



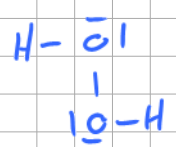
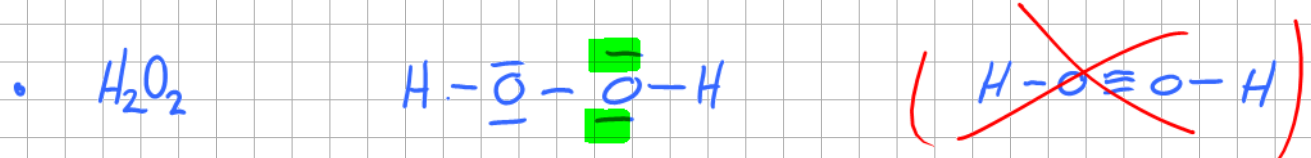


\Rightarrow

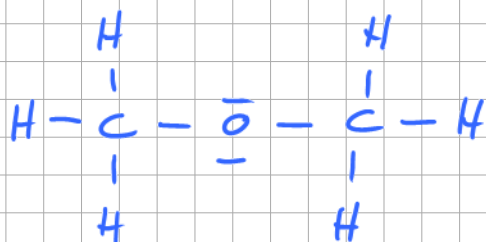
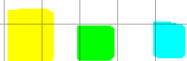
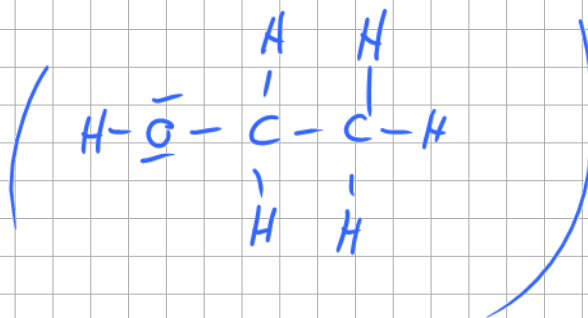
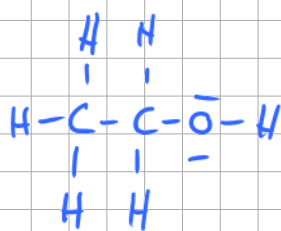
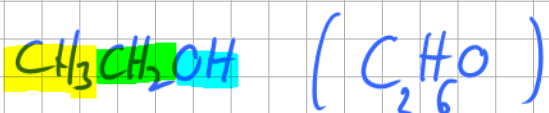
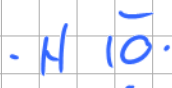
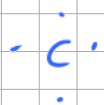
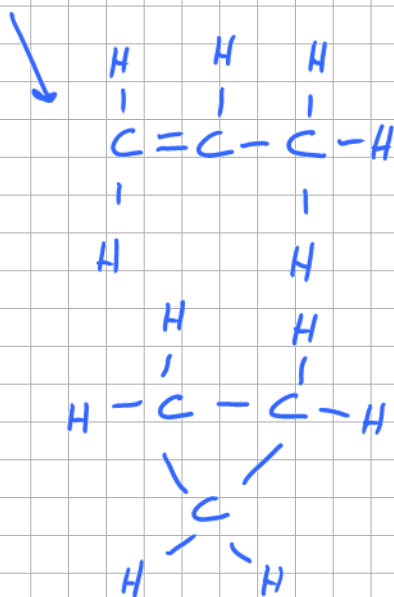
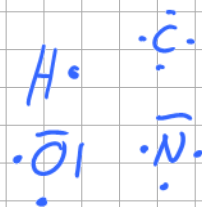


In einem Molekül muss jedes Atom - außer H - der Oktettregel gehorchen (bindende sowie auch nicht bindende Elektronenpaare berücksichtigen!)

H-Atom \rightarrow Duettregel



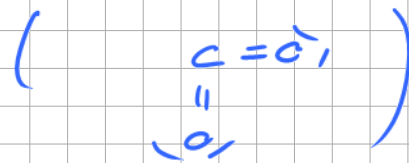
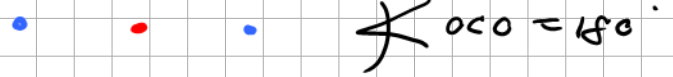
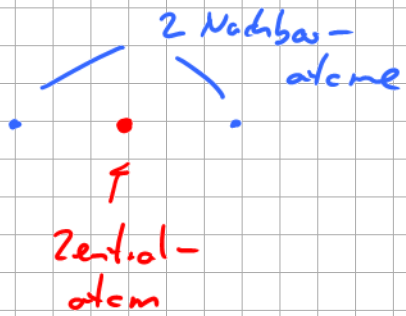
Anzahl der nicht bindenden Elektronenpaare bleibt gleich



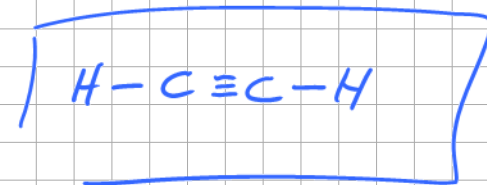
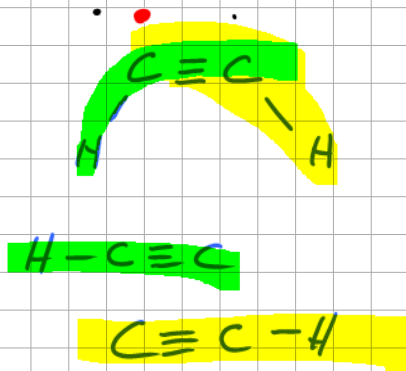
Moleküle zeichnen, Bindungswinkel

Montag, 10. Dezember 2018

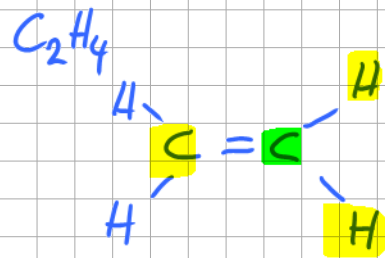
a)



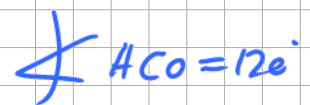
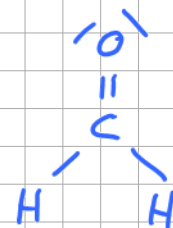
C_2H_2



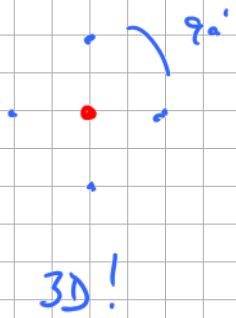
b) 3 Nachbarn



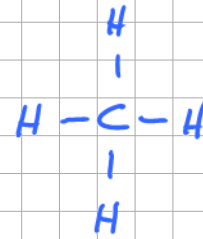
CH_2O



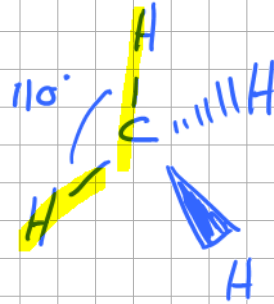
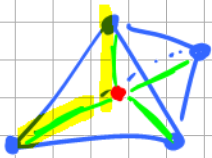
c) 4 Nachbarn CH_4



„zeichnerisch“

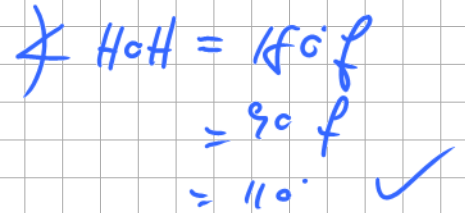


in der Realität

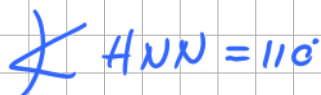
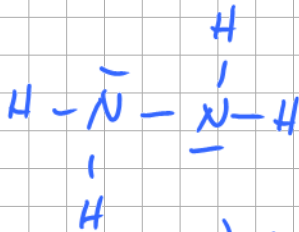
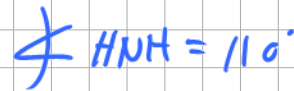
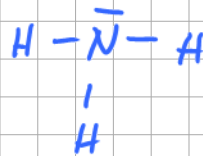


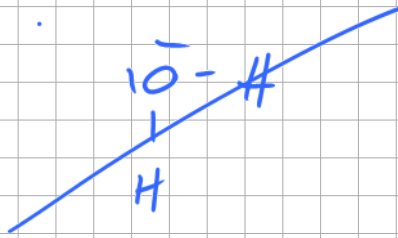
→ B. H_2O

4 Nachbarn!



• N_2H_4 / NH_3 $\cdot \bar{\text{N}} \cdot$ $\cdot \text{H}$





Montag, 7. Januar 2019

Elektronenverlaufstafel

z. B. C $6p \rightarrow 6e^-$

F $9e^-$

Arg: $12p \rightarrow 12e^-$

~~$1s$
 $2s$ $2p$
 $3s$ $3p$ $3d$
 $4s$ $4p$ $4d$~~

~~$1s$ $2s$ $2p$ $3s$ $3p$...~~

~~$6e^- : 1s^2 2s^2 2p^2 \hat{=} [He] 2s^2 2p^2$~~

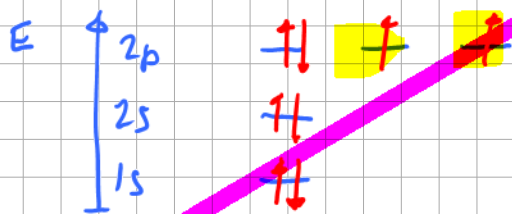
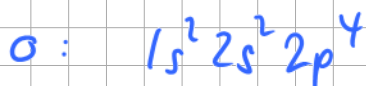
~~$9e^- : 1s^2 2s^2 2p^5 \hat{=} [Ne] 2s^2 2p^5$~~

~~$12e^- : 1s^2 2s^2 2p^6 3s^2 \hat{=} [Ne] 3s^2$~~

~~$21e^- : 1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^1 \hat{=} [Ar] 4s^2 3d^1$
(Sc)~~

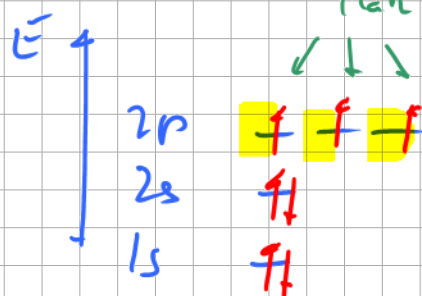
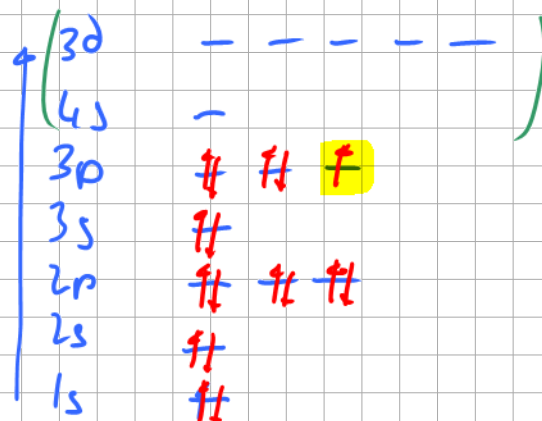
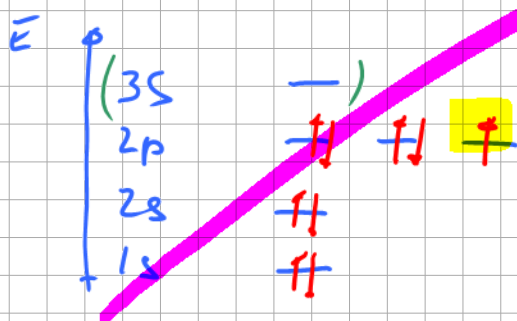
Energetische Abfolge

Donnerstag, 10. Januar 2019



↑ Elektron mit Spin α
 ↓ Elektron mit Spin β

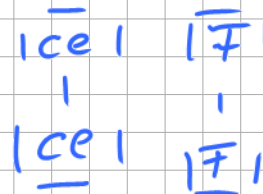
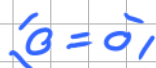
"Energieverlaufsplan der Orbitale"



Platz für $3e^-$
 ↓ ↓ ↓

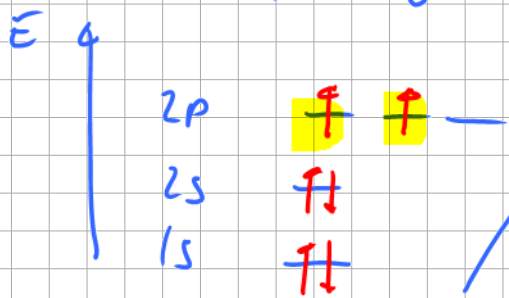


Lewis-Schreibweise

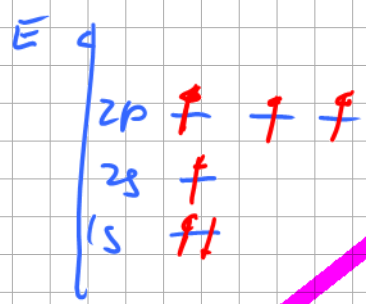
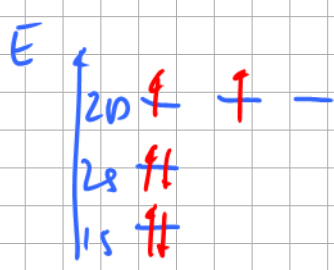


?!

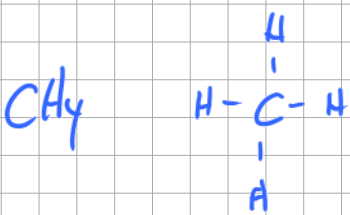
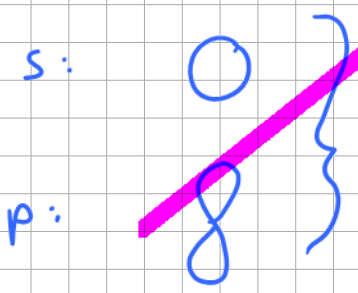
C Lewisstruktur
6p → 6e⁻



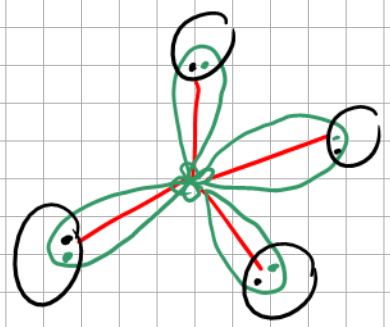
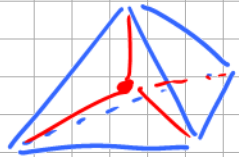
Hybridisierung (nur C!)



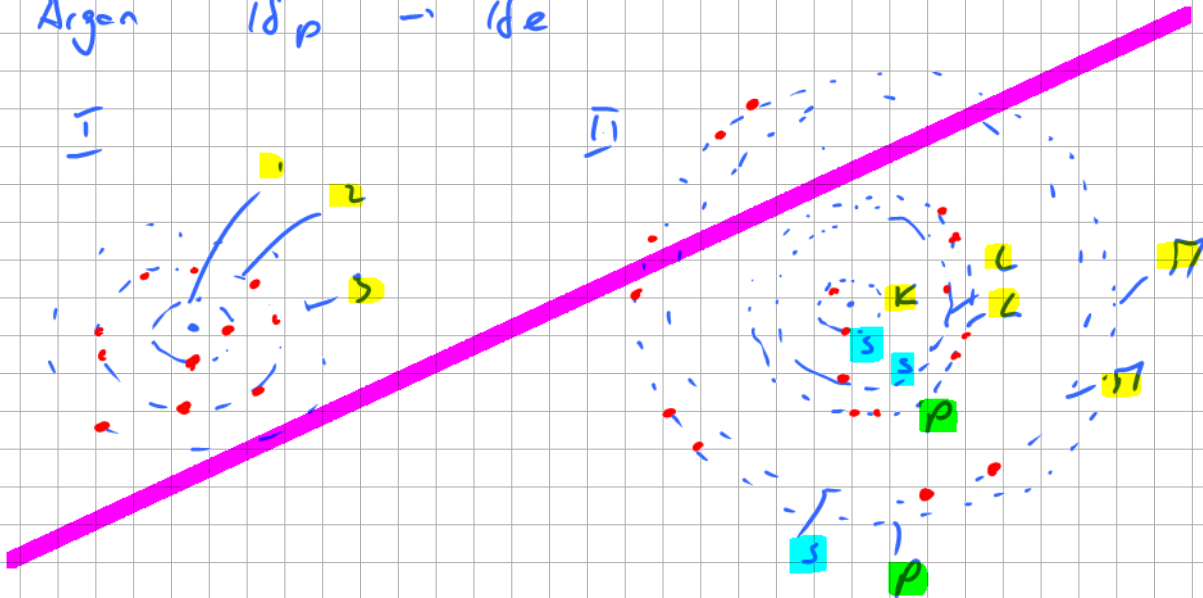
"Kohlenstoff macht nur sp³-Hybridisierung"
(O₂, E₂A sp, sp²-Hybridisierung etc.)



HCH = 109°



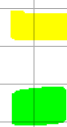
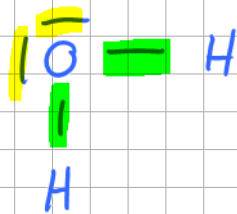
Argon $1s^2 p^6 - 1s^2 e^-$



EN

Donnerstag, 17. Januar 2019

bindende e^- anziehen

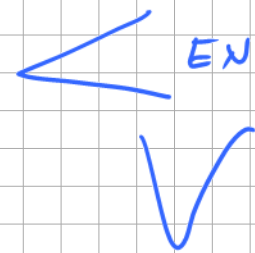


nicht bindende e^- -Paare

bindende e^- -Paare

Trend I: Anzahl Valenze⁻

Trend II: Atomradius



$$EN(F) = 4.0$$

$$EN(O) = 3.4$$

$$EN(C) = 2.6$$

$$EN(H) = 2.2$$



\Rightarrow



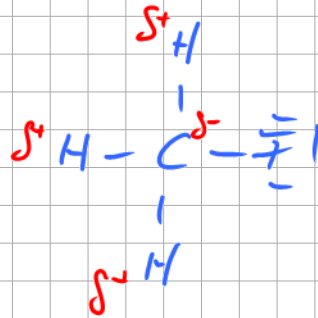
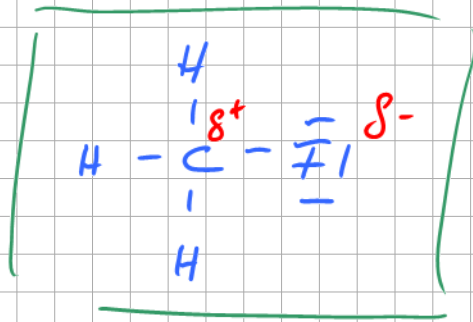
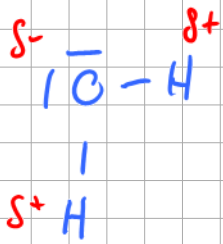
Teilweise, Partialladung

↑

bindende e^- werden stärker von F angezogen

!! Elektronen komplett ("ganz") verschoben

, z.B. F^- , Cl^- , Na^+



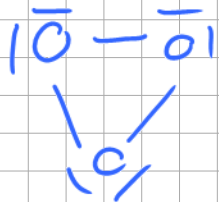
wenn EN sehr ähnlich sind resp. $\Delta EN \approx 0$
 → vernachlässigbar

(! C-H immer vernachlässigbar)

Ozon (O_3)

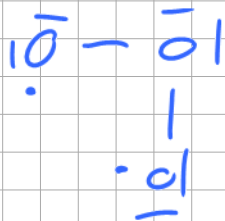
O^-

Montag, 21. Januar 2019

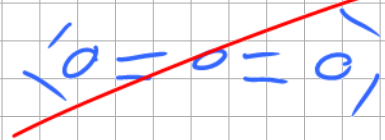


gleichseitiges Dreieck → 60°
 eigentlich keilförmig & $\ll 60^\circ$

instabil



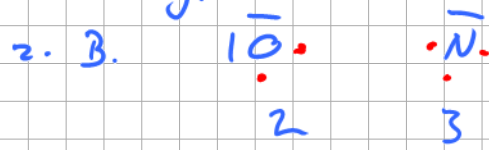
⇒
 total $18e^-$
 → $9e^-$ -Paare



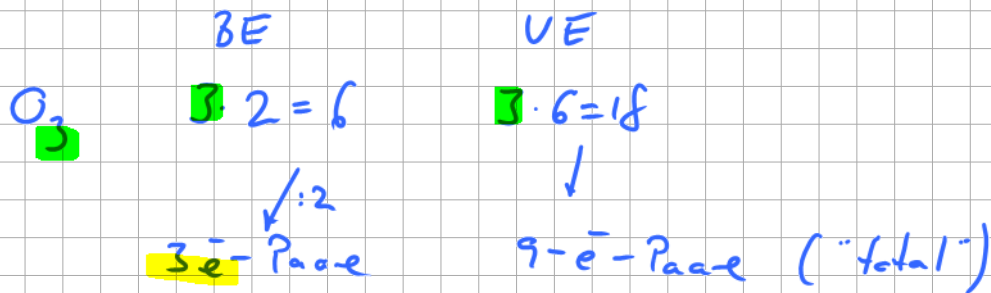
O^-
 $6e^-$

Schemata nach Pöble (neutrale Moleküle)

• Anzahl Bindungselektronen (BE)



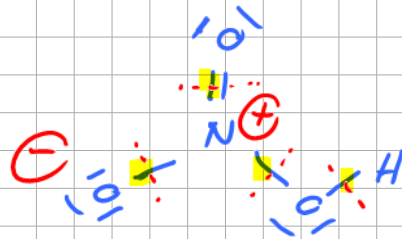
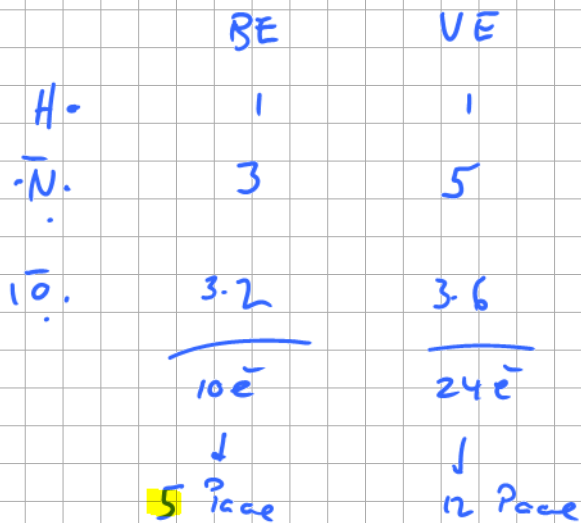
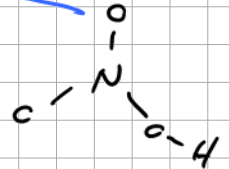
• Anzahl Valenzelektronen (VE) z. B. O: 6
N: 5



• Formalladung
• \neq

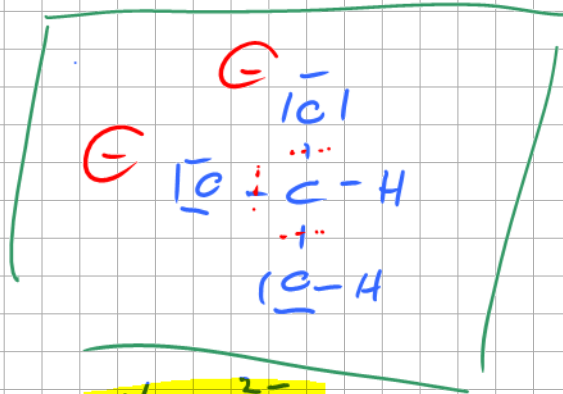
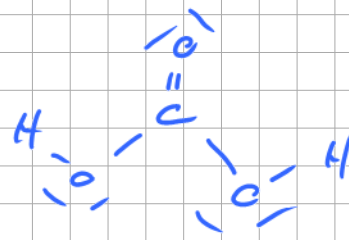
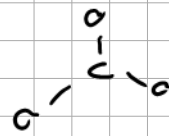
HNO₃ (Salpetersäure)

Grundstruktur



Kohlensäure (H₂CO₃)

| | BE | VE |
|---|----------|----------|
| H | 2 · 1 | 2 · 1 |
| C | 1 · 4 | 1 · 4 |
| O | 3 · 2 | 3 · 6 |
| | <hr/> 12 | <hr/> 24 |
| | 6 Paare | 12 Paare |

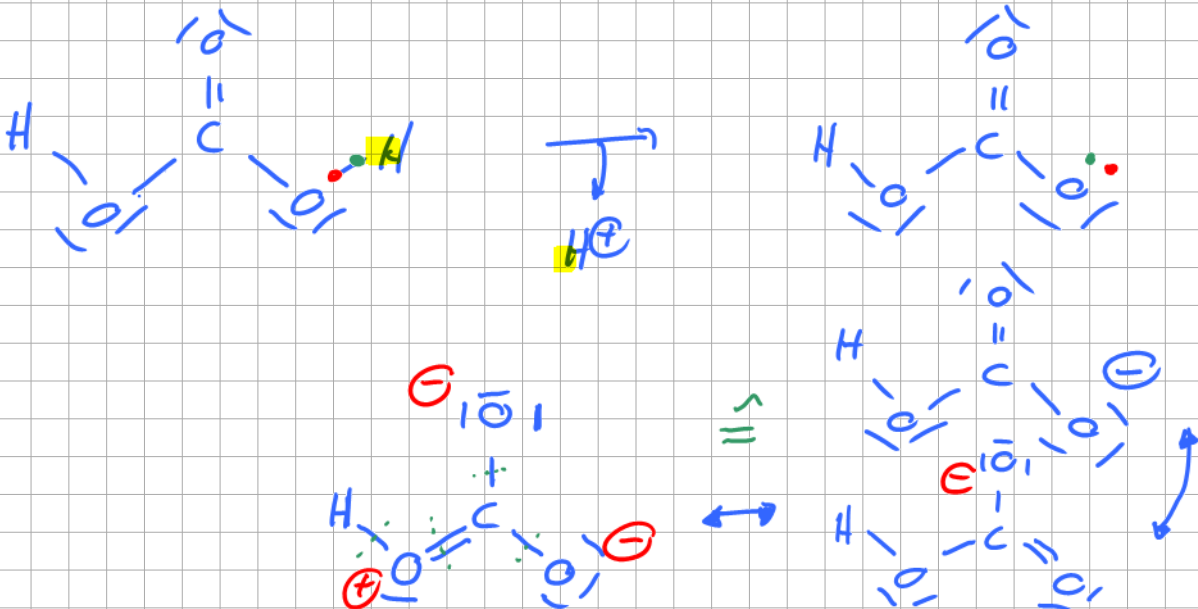


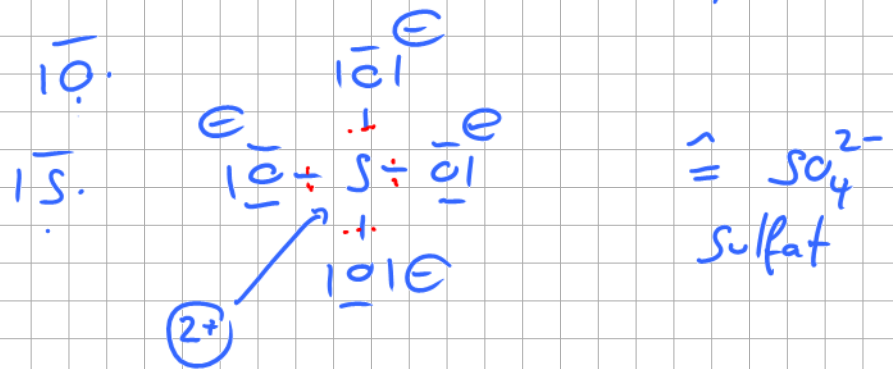
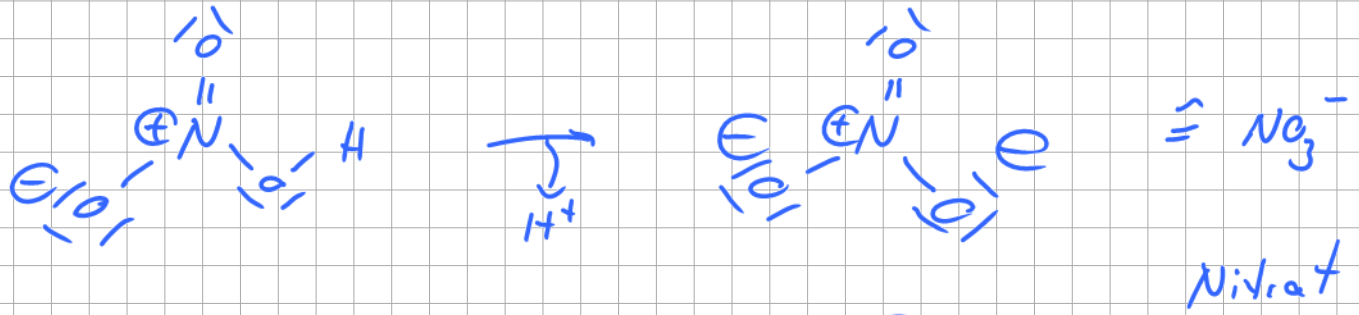
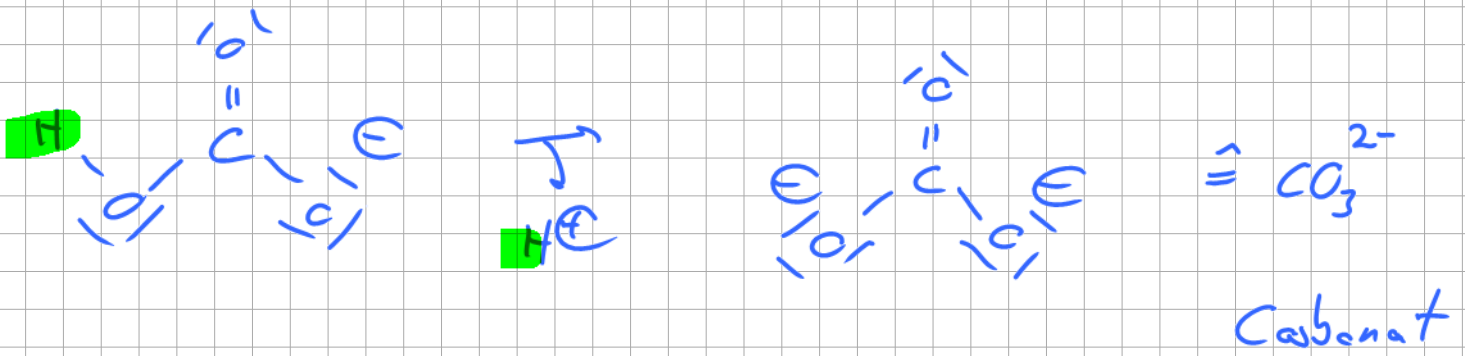
Donnerstag, 24. Januar 2019

H₂CO₃ : Kohlensäure (Bläuelinasse)



Säure : H⁺ - Spender (Synonym: Protonen-sender)
 (Base : H⁺ - Akzeptor)

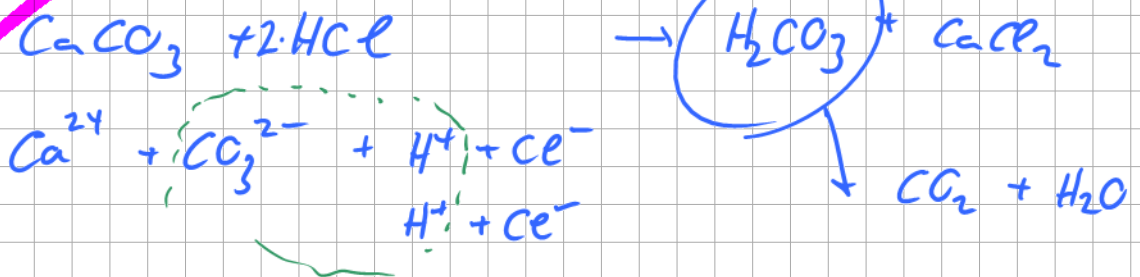




Alltag

Kalziumcarbonat : CaCO_3 (Kalk, Flussspat, Muscheln, Schneckenhäuse, kalkhaltige Gesteine)

z.B. Flussspat, Verwitterung, saurer Regen
 direkte indirekte Verwitterung



• zeichne das Molekül N_2O (Grundstruktur
 $N-N-O$)

(Blatt mit Schlüsselwerten)

~~... noch fertig machen~~