

2D structures of molecules

1 Drawing structural formulas of molecules

STEPS

1. 找出 molecule 里每个 atom 可拥有多少手

Group	VI	V	VI	VII
Period 2	4	3	2	1
Period 3	4	3/5	2/4/6	1/3/5/7

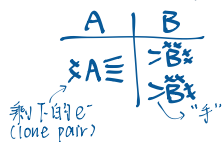
note: VI bond pairs the atom can form
Octet → others: non-octet
为什么可以容纳更多e-?
→ note of e- shell → size of e- shell
→ 容纳e-

- 决定 central atom: 数量最少 + 最多手

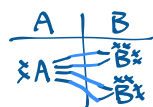
AB₂: A 只有 1 个 → central atom

- 决定 molecule 能否存在: central atom 须有足够手

2. 依据 atom 数量画表



3. 连手 → 组成 bond pair (b.p.)



- 特殊情况: 遇上 ions / dative C.B. 怎么办? → 看例子

- 决定 molecule:

> 是否 stable: central atom 有双数电子 ⇒ Octet → stable, but
> 是否 octet: central atom 有 8 颗电子 ⇒ stable → octet

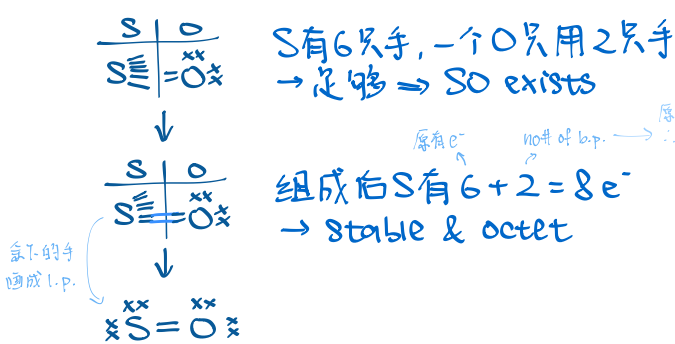
4. 画 structural formula



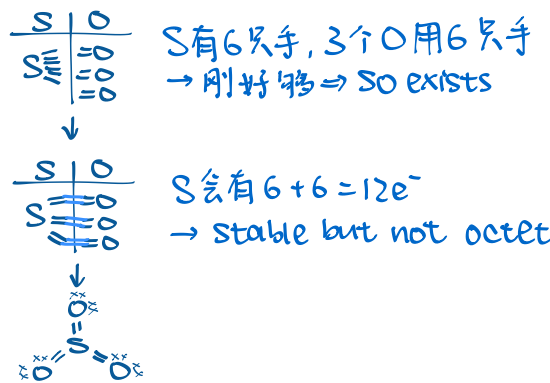
→ structural formula ≠ electron diagram!
- electron diagram 不能用线代表 bond

EXAMPLES

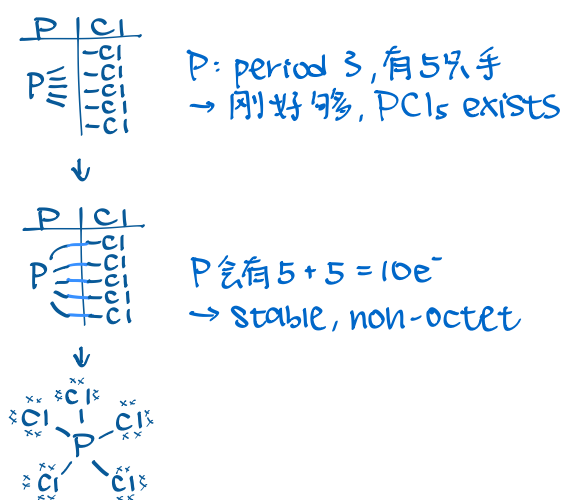
a. SO



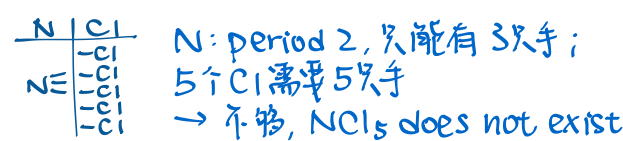
b. SO₃



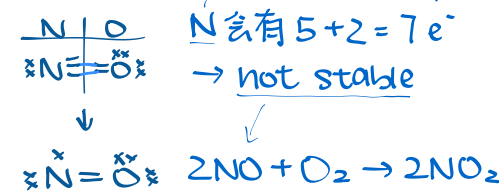
c. PCl₅



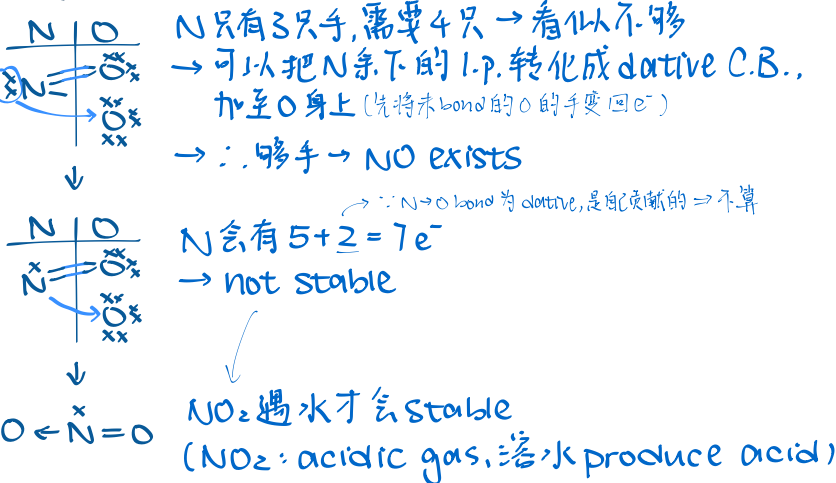
d. NCl₅



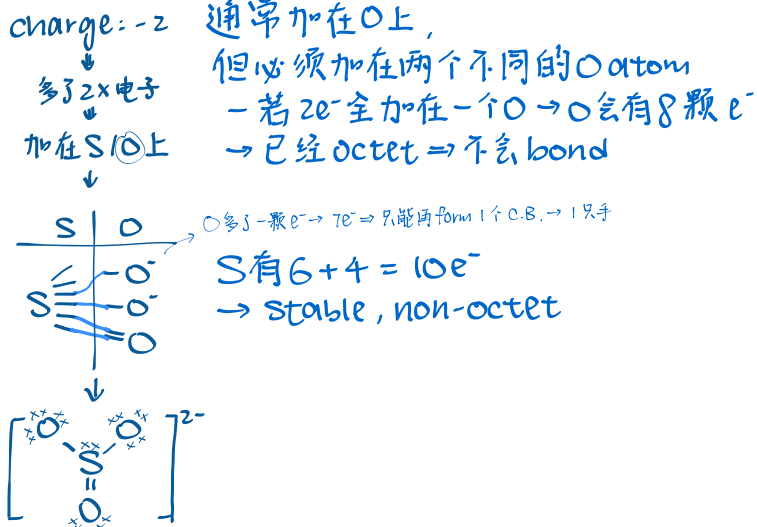
e. NO



f. NO₂



g. SO₃²⁻



h. ClO₄⁻

