

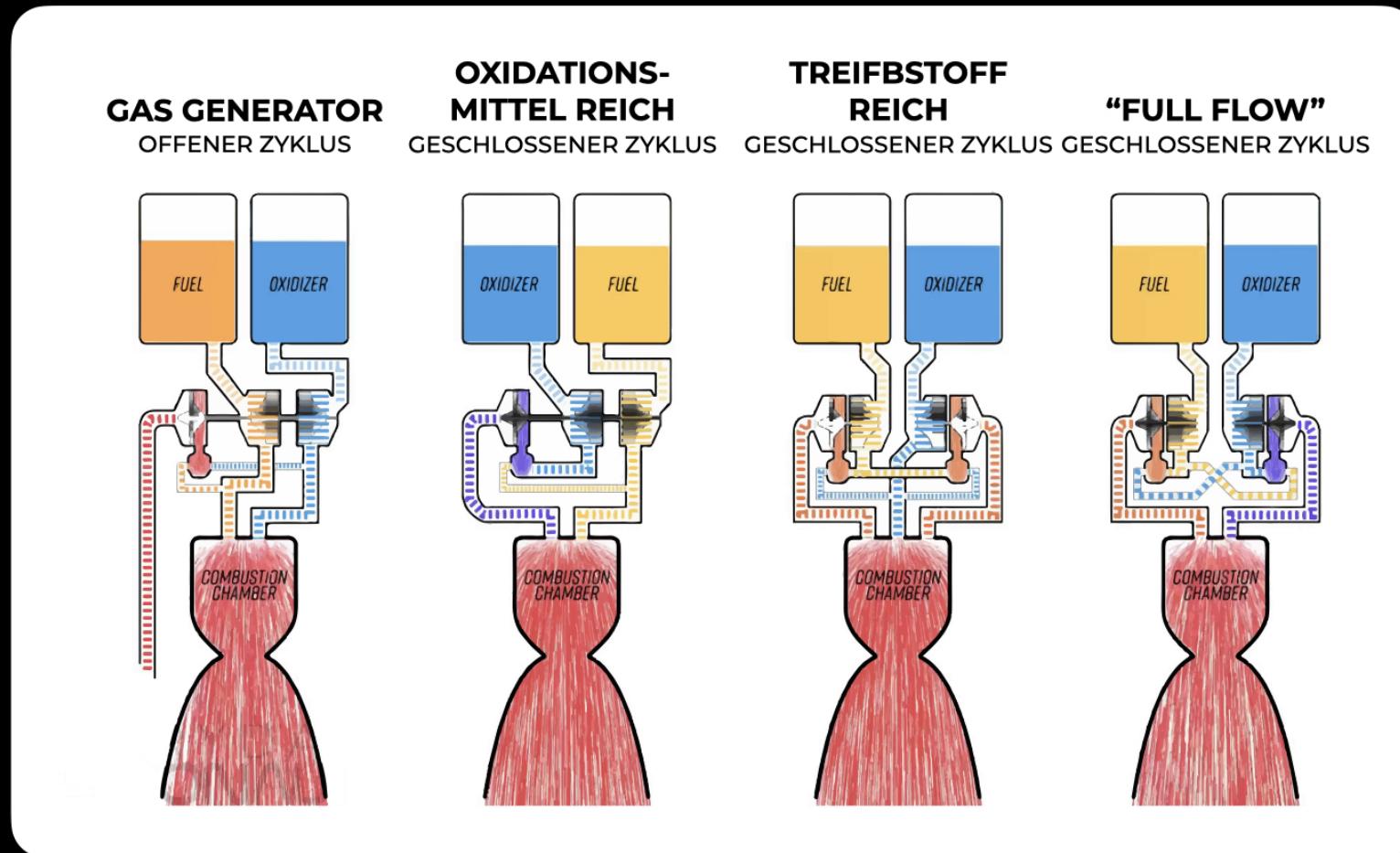


MEHRWEG RAKETEN



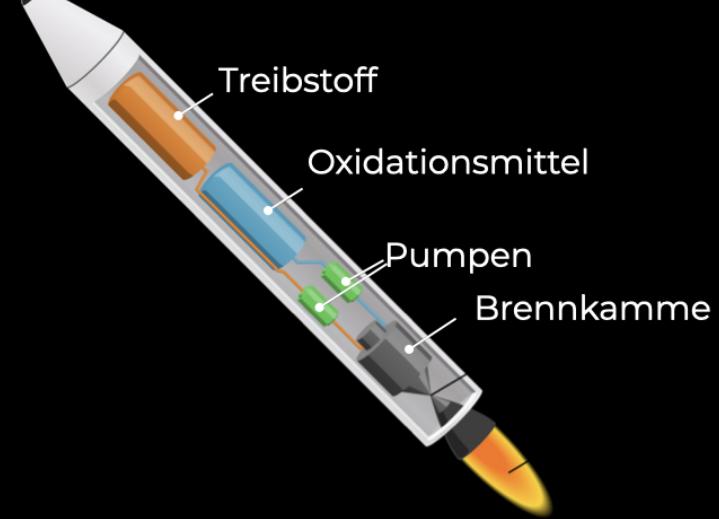
GFS Handout · Levi Berger · Physik

2 - ARTEN VON RAKETENTRIEBWERKEN

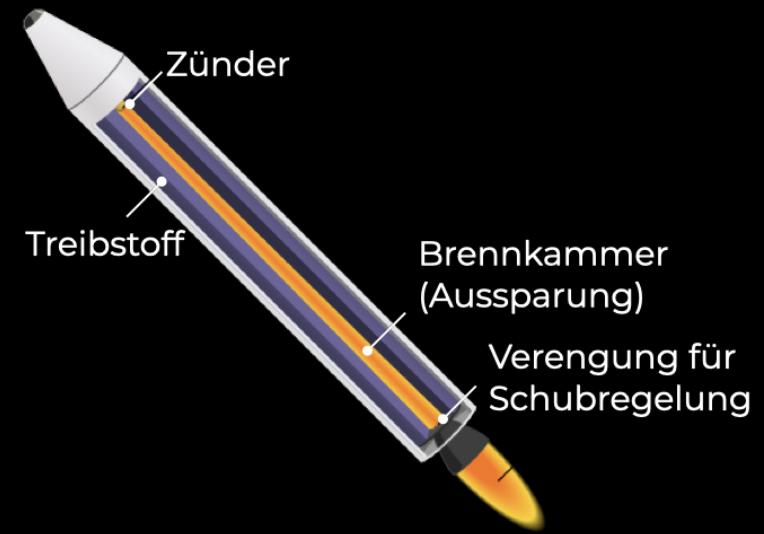


Quelle: Everydayastronaut

2 - SIMPLES RAKETENSCHEMA



FLÜSSIGTREIBSTOFF-RAKETE



FESTTREIBSTOFF-RAKETE

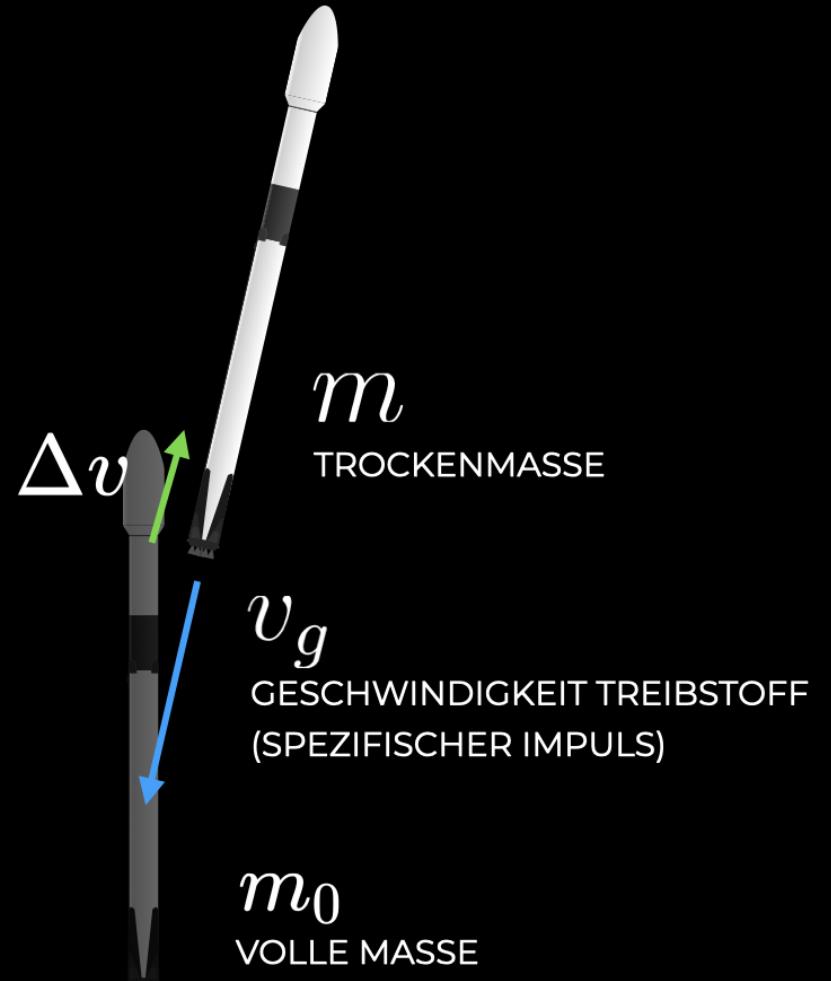
2 - RAKETENGLEICHUNG

$$m \cdot v = \frac{(m - dm) \cdot (v - dv)}{m} - \frac{dm(v - v_g)}{m}$$

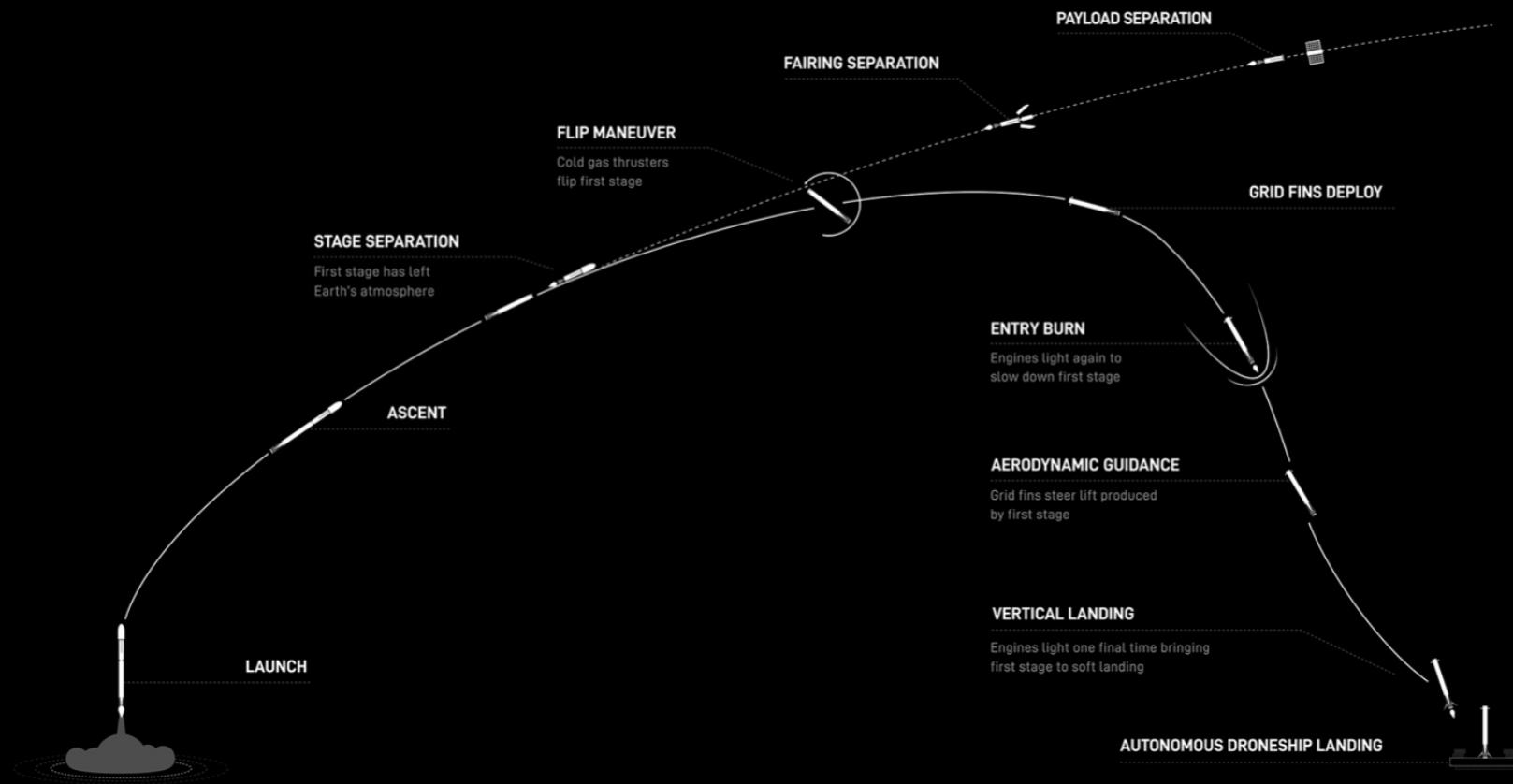
$$m \cdot dv = dm \cdot v_g$$

$$\int_{v_0}^v dv = \int_{m_0}^m dm \cdot \frac{v_g}{m}$$

$$\ln \frac{m_0}{m} = \frac{v}{v_g}$$



LANDEMANÖVER



Quelle: SpaceX



SUICIDE BURN FORMEL

$$s = v \cdot t$$

$$a \cdot t = v \Leftrightarrow t = \frac{v}{a}$$

$$v_t^2 - v_i^2 = 2as$$

$$h = \frac{v_i + v_t}{2} \cdot t$$

$$a = -\frac{v_i^2}{2s}$$

$$h = \frac{v_i^2}{2 \cdot a_{res}}$$

$$Throttle = \frac{a}{a_{thrust}}$$

$$a_{res} = a_{thrust} - g$$

$$a_{thrust} = \frac{F_{engine}}{m} - g$$