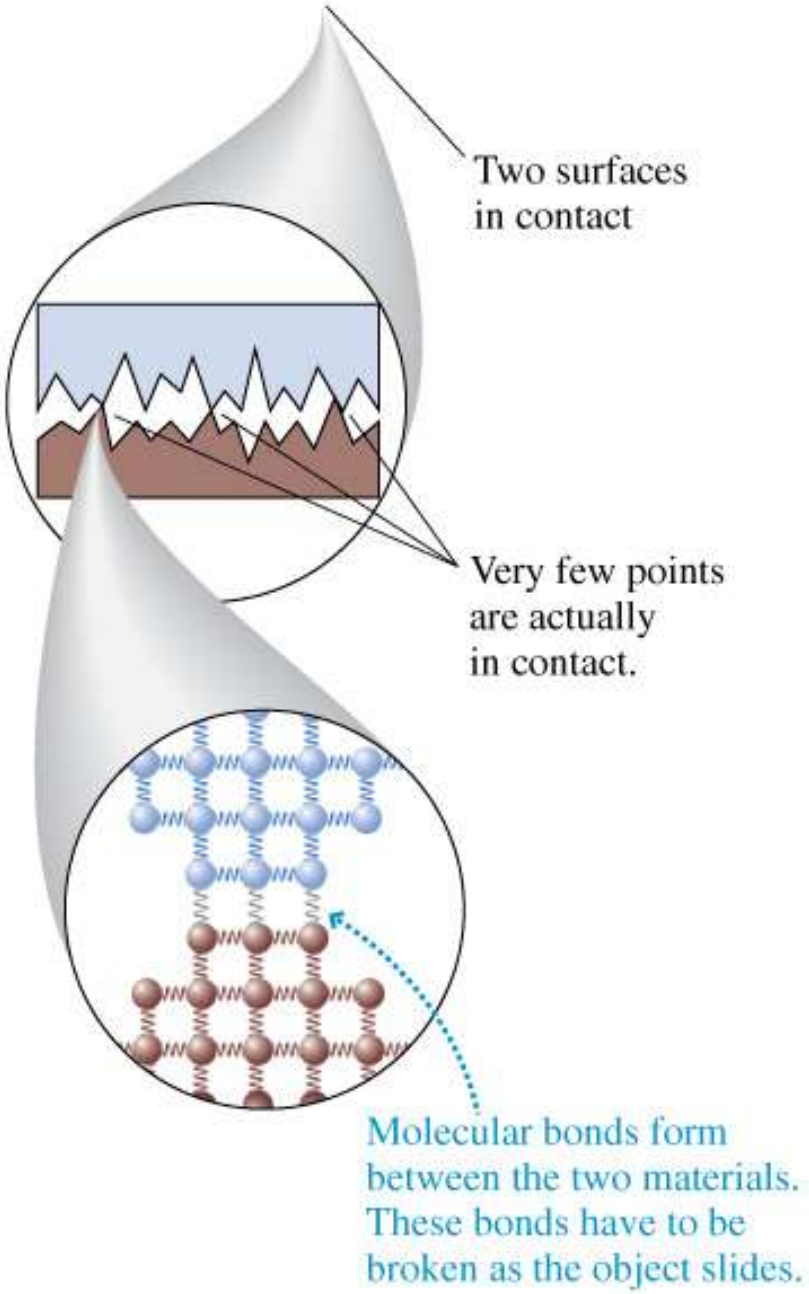

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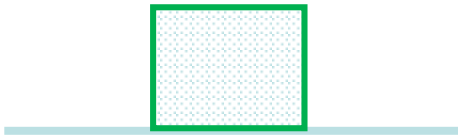
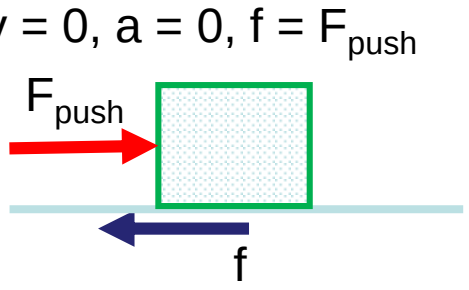
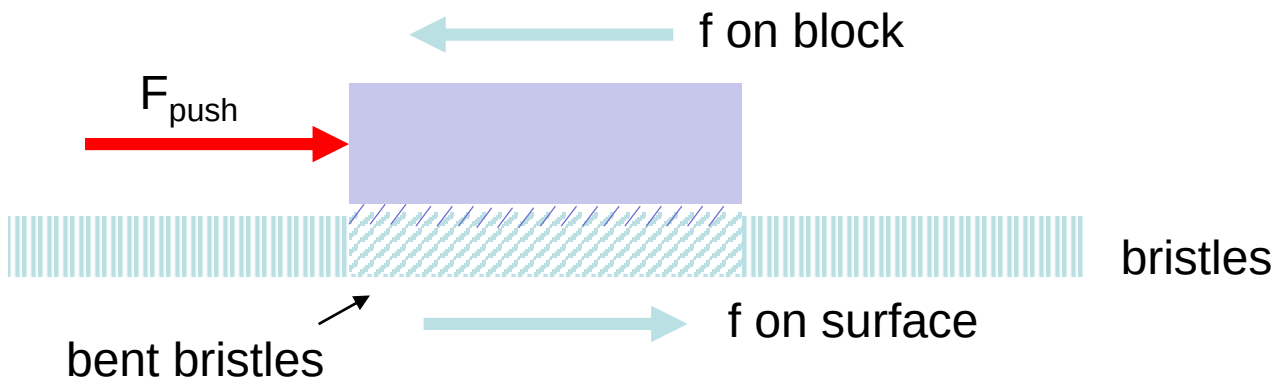
Object on Flat Surface



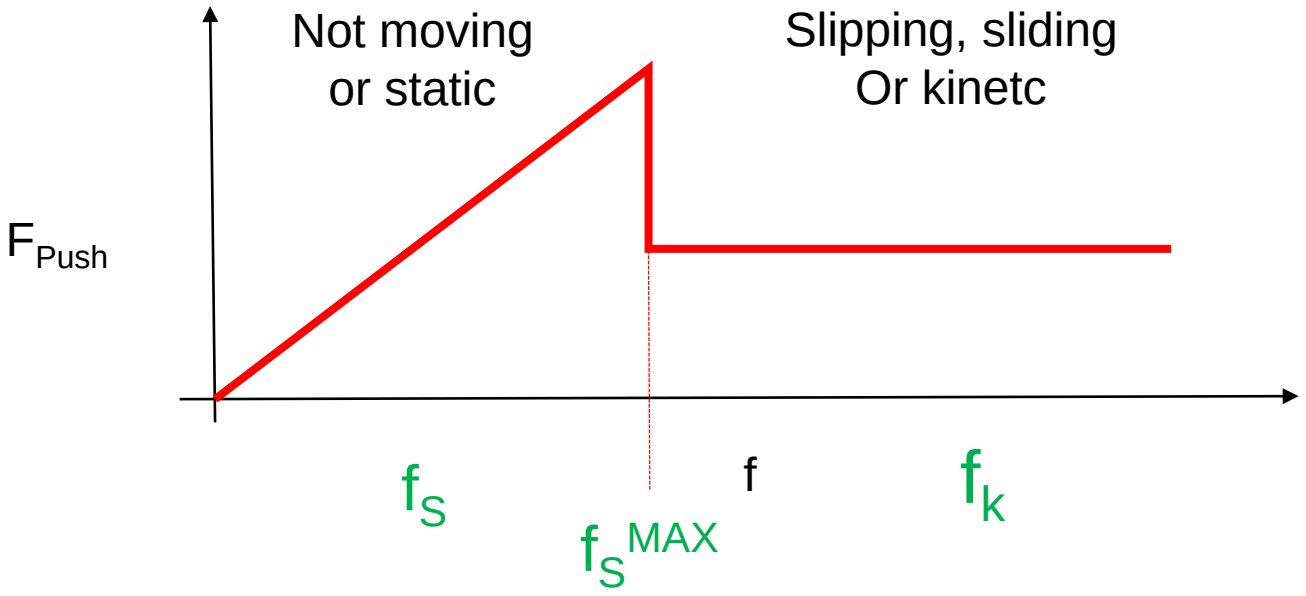
v = 0, a = 0, f = 0



- f directed along surface
- No push, no f.
- Until object starts to move f = F_{PUSH}
- Although nothing appears to move, microscopic bending at surface



- Can model friction with bristle brushes
- f is in direction that bristles bend
- Equal and opposite f on block & surface by NIII



- Most people notice it is easier to keep an object moving than to get it moving
- Talk of static friction, f_{static} or f_s
- Talk of kinetic friction, f_k
- Boundary is maximum static friction, f_s^{MAX}

- f_k, and f_s^{MAX} are determined by how surfaces are pressed together (N) and nature of surface expressed by "coefficients of friction"
- $f_k = \mu_k N$
- $f_s^{MAX} = \mu_s N$
- Usually $\mu_s < \mu_k$ and μ must be measured.
- No formula for f_s! (Common mistake)
- Determine f_s from Newtons' Laws.

OHQ