

2  
~~1.5 mm~~  
~~4 mm~~  
~~1 mm~~  
~~2 mm~~



2 mm  
2 mm  
2



2.5  
3  
2.5

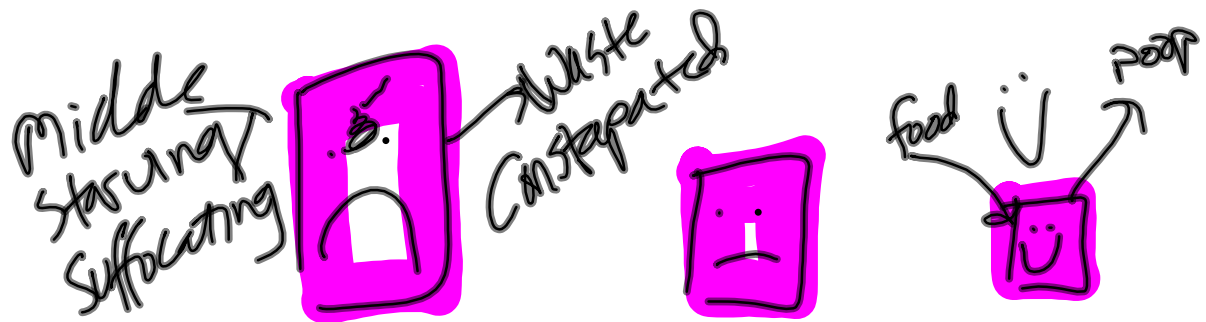
Diffusion happens at the same rate  
Regardless of size.

**Q** What does this have to do w/ cells?  
B/c cells

B/C Cells rely on diffusion for nutrients, waste, and gas exchange. Therefore The little cell get enough food to feed it, was able poop all its poop, and get  $O_2$  in and  $CO_2$  out.

Better to be small and have more than be large and have less.

**SMALL CELLS HAVE A GREATER  
SURFACE AREA, RELATIVE TO THEIR  
VOLUME**

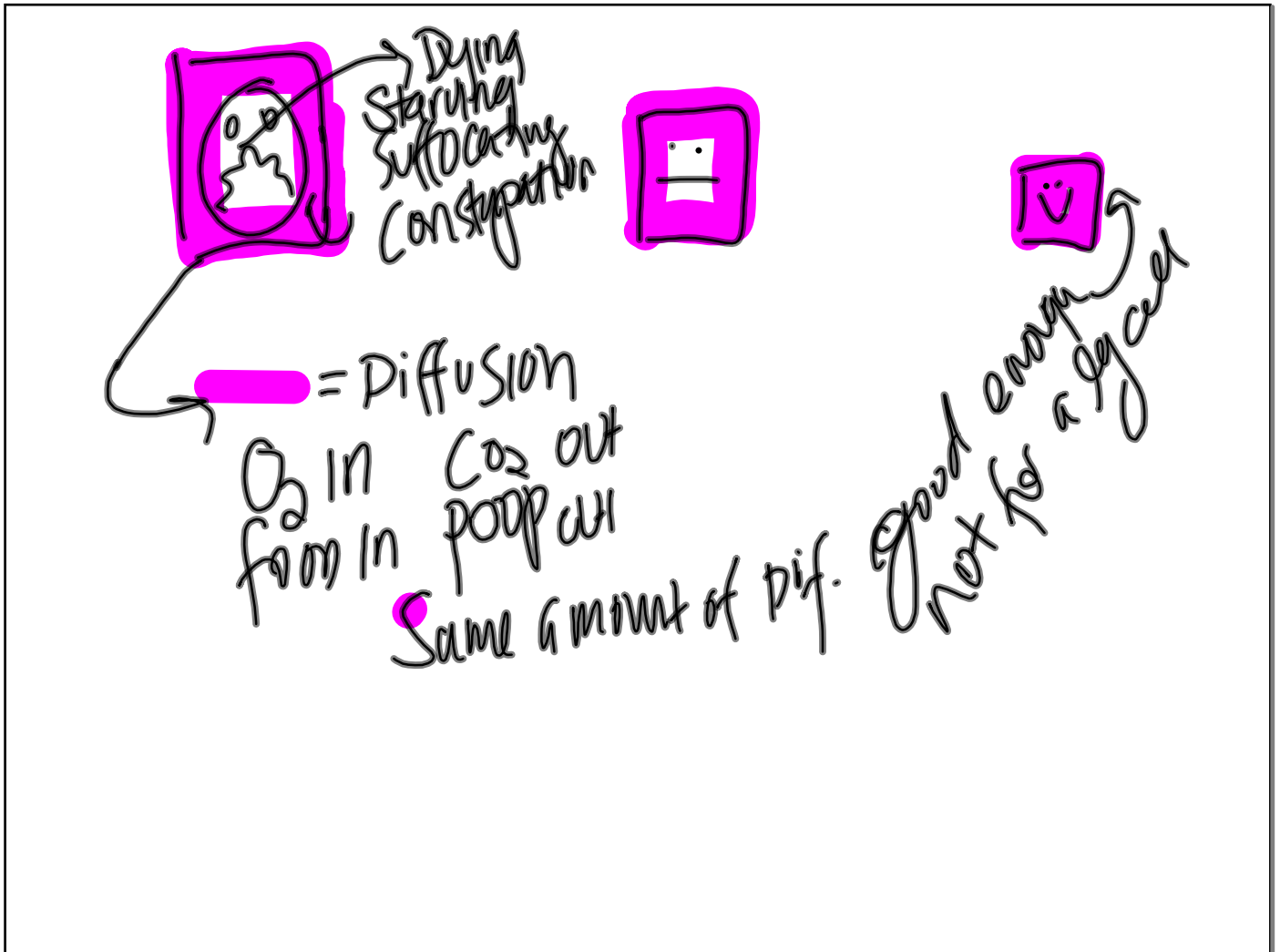


— : Diffusion  $\left[ \begin{array}{c} \uparrow \\ \downarrow \end{array} \right] \rightarrow \left[ \begin{array}{c} \downarrow \\ \uparrow \end{array} \right]$

↳ movement of  $\text{NaCl}$  into cube

$\square$  / cell : Cells are small but

The Rate of Diffusion is the same for all cell sizes



~~fact~~ The rate of diffusion is the same for all cell sizes

Q: why are cells so small?

Maximize Diffusion!

enough for small cell to get all the food into the mitochondria +  $\text{CO}_2$

