The area of a circle is $A = \pi r^2$, and that means that a small change in the area is given by:

$dA = 2 \pi r dr.$

$dA/dt = 2 \pi r dr/dt.$

This might be obvious after you think about it, since $2\pi r$ is just the diameter of the circle.

So you've got a hoop with a magnetic field B going through it. That means there's a flux through that field:

$\Phi = B A.$

This flux is changing in time! Its derivative is:

$d\Phi/dt = B dA/dt + A dB/dt$

Simple calculus, yes? But if B isn't changing, then $dB/dt = 0$, and:

$d\Phi/dt = B dA/dt = 2 \pi B r dr/dt.$

There has been very little physics, here, just calculus. But the physics is very easy! What does Faraday's law say about $d\Phi/dt$? That an EMF is produced in the ring equal exactly to $d\Phi/dt$.

$$\varepsilon = \frac{d\Phi}{dt} = 2 \pi B r \frac{dr}{dt} = 2 \cdot 3.14 \cdot 0.8 \cdot 0.1 \cdot 0.6 = 0{,}3V$$