In many problems throughout this class, we will find it useful to consider how the mass of an object is distributed throughout the object.

To do this, we will define a small piece of that object and then consider the mass that's contained within that small piece.

For an object in one dimension, the differential element of length is delta l.

And that length contains a certain amount of mass, delta m.

We could also have a linear object in the shape of an arc or just an arbitrary path.

For an object in two dimensions, we have an area element, delta A, that contains a mass delta m.

For our volume, we have a volume element, delta V, which contains a certain amount of mass.

In this case, we can write the volume element delta V as the area A times this delta x.