Falling Near the Earth's Surface
(Note: the "t" column has been corrected from the original handout.)

The governing equations:

$a = g = 9.8\,\mathrm{m/s^2}$ $\qquad$ $v = at = gt$ $\qquad$ $h = \frac{1}{2}at^2 = \frac{1}{2}gt^2$

The object is actually falling down toward the center of the earth. If we consider the upward direction to be positive, then downward is negative and we adjust the above equations accordingly:

$a = -g = -9.8\,\mathrm{m/s^2}$ $\qquad$ $v = at = -(9.8\,\mathrm{m/s^2})t$ $\qquad$ $h = \frac{1}{2}at^2 = -\frac{1}{2}(9.8\,\mathrm{m/s^2})t^2$

Using these, we can fill out a table that shows its fall second-by-second:

t (s)	a (m/s^2)	v (m/s)	h (m)
0	-9.8	0.0	0.0
1	-9.8	-9.8	-4.9
2	-9.8	-19.6	-19.6
3	-9.8	-29.4	-44.1
4	-9.8	-39.2	-78.4
5	-9.8	-49.0	-122.5
6			