What Does a Dog Do That a Man Steps In?

Complete each table and graph and answer the questions. For table cells and questions that are numbered, find your answer at the bottom of the page and cross out the letter above it (some are rounded). When you finish, the answer to the title question will remain.

FALLING STUFF. Suppose an object is dropped and gravity is the only force acting on on it. The height h of the object (in feet) is modeled by: $h = -16t^2 + c$, where t is the time since the object was dropped (in seconds) and c is the initial height of the object (in feet). We are ignoring air resistance.

The Clumsy Eagle

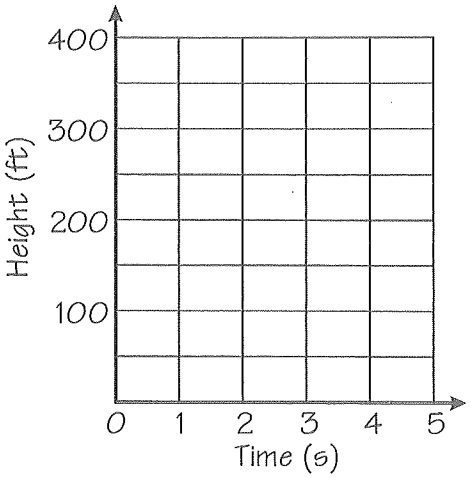
An eagle soaring over a river drops a stick from a height of 400 ft. Complete the table and graph to show how the height of the stick is related to the time since it was dropped.

Let t = Time since stick was dropped (s)

h = Height of stick (ft)

Does your graph show the flight path of the stick as it falls?

t (s)	h (ft)
0	
1	1
2	
3	2
4	
5	3



Freefallin'

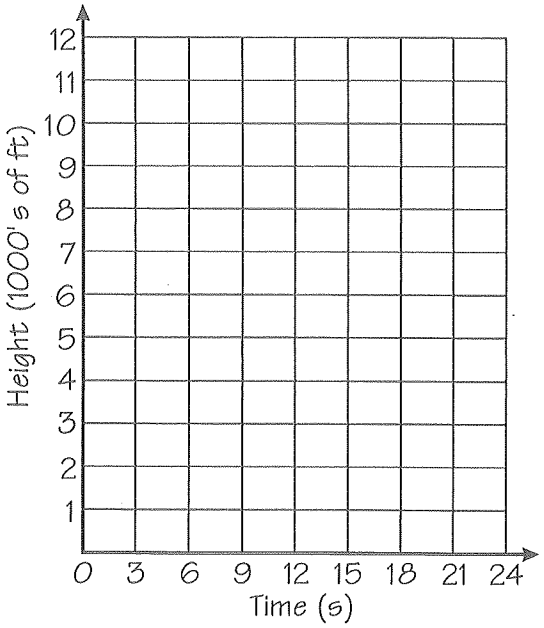
A skydiver jumps from a plane at an elevation of 12,000 ft. He waits 24 seconds before opening his parachute. Complete the table and graph to show how the height of the skydiver varies with the time since he jumped.

Let t = Time since skydiver jumped (s)

h = Height of skydiver (ft)

Why is this model not very accurate for this situation?

t (s)	h (ft)
0	
3	
6	4
9	
12	
15	5
18	
21	
24	6



7 Galileo dropped a cannonball from the top of the Leaning Tower of Pisa, which is 185 ft above the ground. How long did it take for the cannonball to hit the ground?

8 **Metric Units.** The height h of a falling object **in meters** is modeled by $h = -4.9t^2 + c$, where t is the time falling (in seconds) and c is the initial height (in meters). How long does it take for a diver to fall from a 10-meter platform to the water below?

P	U	P	M	C	A	N	O	I	T	U	S	E
8400	3.4 s	2760	0	1.4 s	8332	4.5 s	384	2784	2.1 s	11,424	248	256