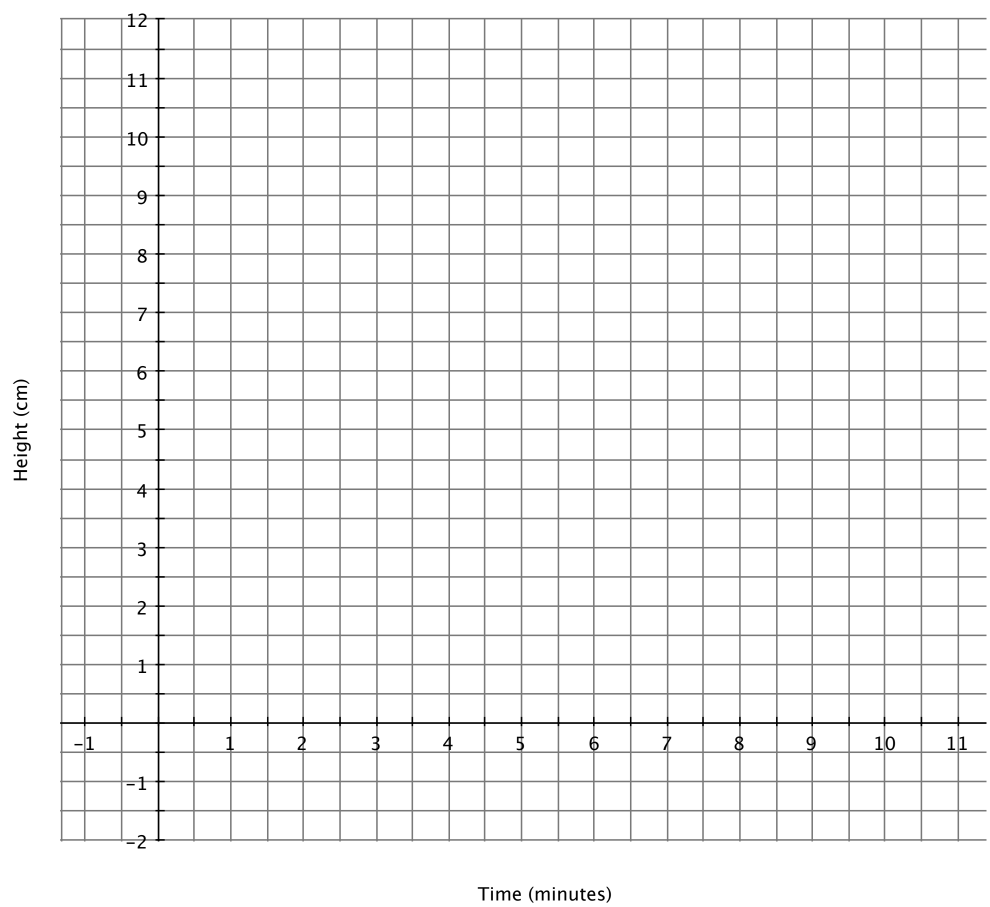
Burn Baby Burn

Part 1

Directions:

1) Place the candle in the play-doh so that the candle is standing upright.
2) Record the height of the candle excluding the wick. Record this height in your table where time is equal to zero.
3) Wait for your teacher to light the birthday candle and measure its height in centimeters every 30 seconds for 5 minutes. Exclude the wick when measuring.
4) Record your data in the table and plot your points below.

Time (*min*) x	Height (*cm*) y
0.0	
0.5	
1.0	
1.5	
2.0	
2.5	
3.0	
3.5	
4.0	
4.5	
5.0	



Part 2

Writing an Equation:

1) Pick two coordinate points that are on your line.

a) Find the slope by drawing a slope triangle on your graph. **Slope =** ____

b) The slope of the line is ________________ because as time passes, the
(positive or negative)

burning candle gets _______________________.
(smaller or bigger)

c) My "starting point" or point on the graph where time (x) = 0.0 minutes is (____ , ____). This point is called the y-________________________ because ____.

d) Write an equation to represent your **function** using your slope and y-intercept.

$$y = \underbrace{\_\_\_\_\_\_}_{\text{slope}}\, x + \underbrace{\_\_\_\_\_\_\_}_{y\text{-intercept}}$$

2) Making predictions:

a) Extend the trend line on your graph. Predict how long it would take for the candle to burn down completely (height of zero).

I predict, when time (x) =_____minutes, my candle height will be (y) = <u>0</u> .

b) The point on the graph where the height (y) = 0.0 is (____ , ____). This point is called the ***<u>x</u>*<u>-intercept</u>** because my graph ___________________ ____.

Part 3

Domain & Range:

3) Use your extended trend line on your graph to do the following.

a) Choose a coordinate that has a negative value for x. (______ , ______)
time (*min*) height (*cm*)

b) This coordinate point _______________ make sense because __________
(does or does not)

____.

c) For x coordinates (time), all values greater than _______ make sense for the function. So we can say:

x must be _____________________ zero.

greater than or less than

x ____ 0

$>$ or $<$

d) Describe the **domain** of a function in your own words.

e) For y coordinates (height), all values greater than or equal to ______ and less than or equal to _______make sense for the **function**. So we can say:

y must be ________________ zero, but _____________ ________ .

greater than or equal to or less than or equal to	greater than or equal to or less than or equal to	max height

0 ______ y ______ _______

$\geq$ or $\leq$ | $\geq$ or $\leq$ | max height

f) Why do the y values (height) have two restrictions, but the x only one?

g) Why do the y values (height) include "or equal to", but the x values do not?

h) Describe the **range** of a function in your own words.