Name: _____ **Date:** _____

Temperature Tells All Activity – Temperature vs. Time Worksheet

Test: ___ First or ___ Second (place an "X" on which test this is for)

Time (minutes:seconds)	Time ID	Outside Temperature (°F)	Inside Temperature (°F)	Difference Between Inside and Outside Temperature (°F)	Change in Indoor Temperature (°F) (i.e., T2-T1)	Qualitative Analysis (how smoky does the house look?)
0:00	T1	79.0	77.1	-1.9	----	Slightly smoky
0:20	T2	78.2	92.8	14.6	15.7	
0:40	T3	78.1	93.8	15.7	1	
1:00	T4	78	94.1	16.1	.3	
1:20	T5	77.9	96.6	18.7	2.5	
1:40	T6	77.9	98.1	20.2	1.5	
2:00	T7	77.9	99.3	21.4	1.2	
2:20	T8	78	100.5	22.5	1.2	
2:40	T9	78	101.8	23.8	1.3	
3:00	T10	78.1	102.9	24.8	1.1	Smokier than original, but not completely smoky
Turn off lamp and remove incense from under the platform						
3:20	T11	77.9	103.8	25.9	.9	
3:40	T12	78	102.2	24.2	-1.6	
4:00	T13	77.8	101.1	23.3	-1.1	
4:20	T14	77.8	100.1	22.3	-1	
4:40	T15	77.9	97.7	19.8	-2.4	
5:00	T16	77.8	95.9	18.1	-1.8	
5:20	T17	77.9	94.2	16.3	-1.7	
5:40	T18	77.9	92.6	14.7	-1.6	
6:00	T19	77.8	91.3	13.5	13.5-1.3	Smoke is not very visible

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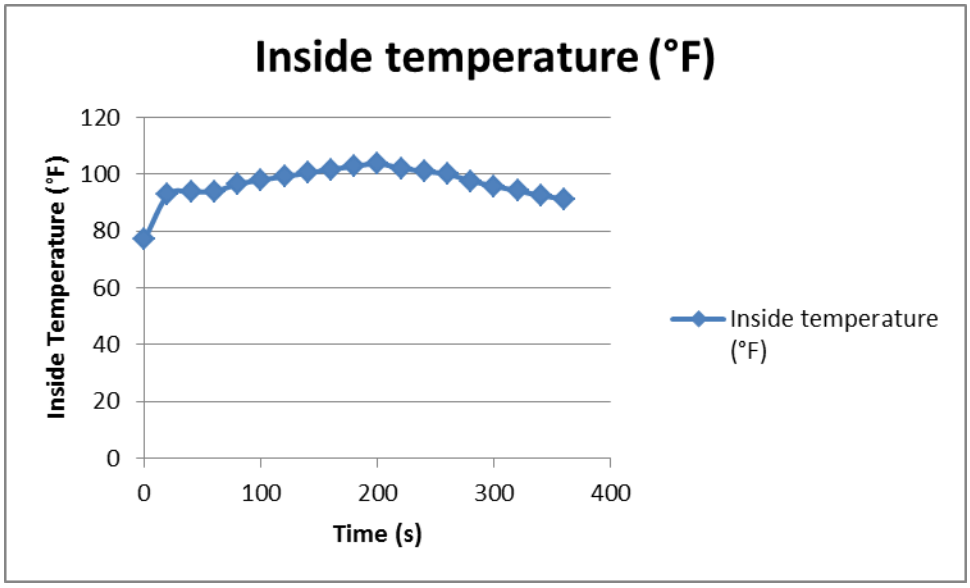
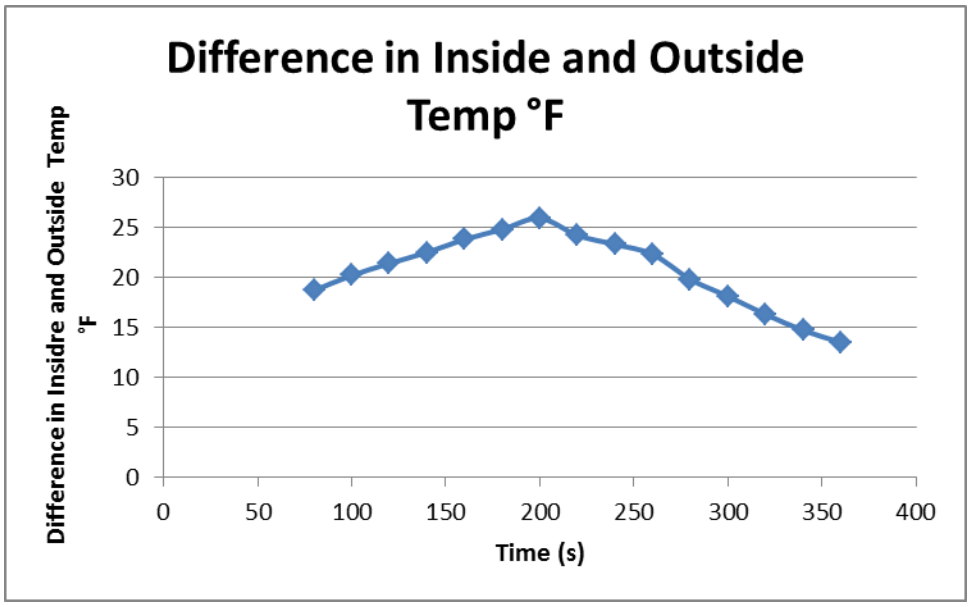
Directions

1. Graph the Inside Temperature versus time.



2. Graph the Difference in Inside and Outside Temperature versus time.



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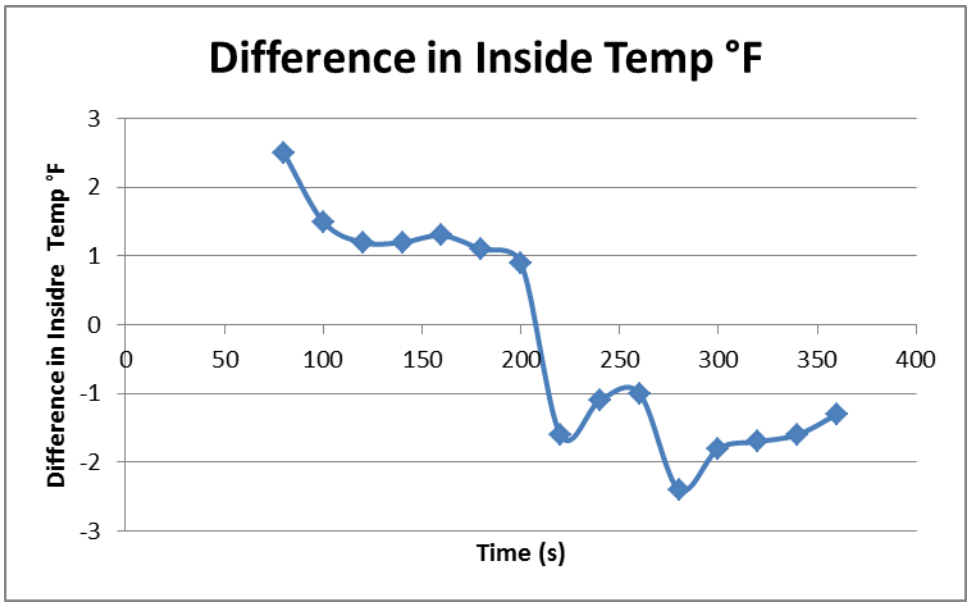
3. Graph the **change** in Inside Temperature versus time.



4. What is the **maximum** Inside Temperature? 103.8 F What is the **minimum** Inside Temperature? 77.1 degrees F What time do each occur at? The maximum temperature happens right after the lamp is turned on and the minimum temperature occurs right at the beginning of the experiment.

5. What is the **greatest** Change in the Inside Temperature? What is the **smallest** Change in Inside Temperature? Between what times do these occur? The greatest change in the inside temperature is between T1 and T2 at a difference of 15.7°F. The minimum change in the inside temperature occurs between T4 and T3 with a change of only .3 °F.

   Find where the greatest **change** in Inside Temperature occurs on the graph you made in #1. What do you notice about the line connecting the data points?

   The line connecting the two data points is very steep; they have the greatest slope.

   Do the same for the smallest Change in Inside Temperature.
   For the smallest change in inside temperature, the line connecting the two data points is very flat, meaning the slope is the smallest.

6. What factors do you think affect the **rate** of Change in Inside Temperature? (materials, orientation, etc…)
   One possible factor that could affect the rate of change in the inside temperature is whether or not the inside of the house has a heating system, in this case the lamp, turned

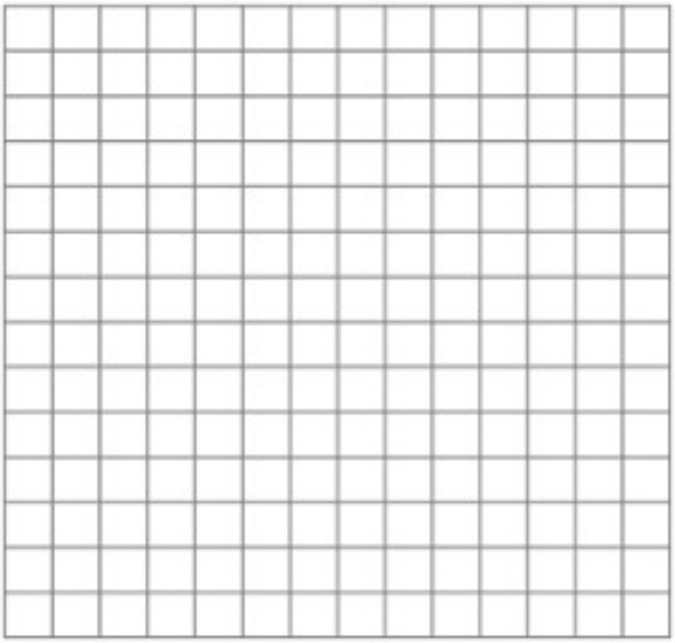
on. Another factor would be if the roof is not very insulated then the cold air that is being produced by the ice and the fan outside get in the house making the change in the inside temperature increase.

7. Compare with other groups!

Graph #1 - Indoor Temperature vs. Time

Name: _____ **Date:** _____

Graph #2 - Difference between Indoor and Outdoor Temperature vs. Time



Graph #3 - Change in Indoor Temperature vs. Time

Name: _____ **Date:** _____