Lab 1—Heat Transfer

Please complete the following homework using the information obtained from the Heat Transfer lab performed this week. Please keep your answers brief and direct.

Please fill out the following table:

<table>
<thead>
<tr>
<th>Circle temperature</th>
<th>Thermocouple $T$ ($^\circ$C)</th>
<th>LabScribe2 $T$ ($^\circ$C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Cup 1</td>
<td>Cold/Intermediate/Hot</td>
<td></td>
</tr>
<tr>
<td>Water Cup 2</td>
<td>Cold/Intermediate/Hot</td>
<td></td>
</tr>
<tr>
<td>Water Cup 3</td>
<td>Cold/Intermediate/Hot</td>
<td></td>
</tr>
</tbody>
</table>

Weight of dark model: __________  Weight of light model: __________

Was there a discrepancy between the weights of the two models? If so, do you believe this discrepancy may have played a role in any of the hypotheses you made that were not supported by your results?

_______________________________________________________________________________
_______________________________________________________________________________

Experiment 1: Heat Lamp
What type of heat transfer was demonstrated by the experiment involving the heat lamp? __________

List two other examples of this type of heat transfer:
1. ______________________________________________________
2. ______________________________________________________

State your hypothesis:
_______________________________________________________________________________
_______________________________________________________________________________

Was your hypothesis supported? If not, why?
_______________________________________________________________________________
_______________________________________________________________________________
How many trials did it take for you to achieve what would have been the expected results under that kind of heat transfer?

Explain any factors that could have led to results that deviated from your initial hypothesis:

When comparing the dark model against the light model, did you notice a different rate of change than was expected if their initial temperatures were not approximately the same? Please explain any potential reasons for these results.

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**Experiment 2: Cooling**
What type of heat transfer was demonstrated by the experiment involving the heat lamp? ________________
State your hypothesis:

Was your hypothesis supported? If not, why?

How many trials did it take for you to achieve what would have been the expected results under that kind of heat transfer?

Explain any factors that could have led to results that deviated from your initial hypothesis:

When comparing the dark model against the light model, did you notice a different rate of change than was expected if their initial temperatures were not approximately the same? Please explain any potential reasons for these results.

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**Experiment 3: Hands**
What type of heat transfer was demonstrated by the experiment involving the heat lamp? ________________
List two other examples of this type of heat transfer:

1. ______________________________
2. __________________________________________________________
State your hypothesis:
_________________________________________________________________________________________________
_________________________________________________________________________________________________
Was your hypothesis supported? If not, why?
_________________________________________________________________________________________________
_________________________________________________________________________________________________
How many trials did it take for you to achieve what would have been the expected results under that kind of heat transfer?
_________________________________________________________________________________________________
Explain any factors that could have led to results that deviated from your initial hypothesis:
_________________________________________________________________________________________________
_________________________________________________________________________________________________
When comparing the dark model against the light model, did you notice a different rate of change than was expected if their initial temperatures were not approximately the same? Please explain any potential reasons for these results.
_________________________________________________________________________________________________
_________________________________________________________________________________________________
_________________________________________________________________________________________________

Experiment 4: Blow dryer
What type of heat transfer was demonstrated by the experiment involving the heat lamp?
________________________________________________________________
List two other examples of this type of heat transfer:
1. __________________________________________________________________
2. __________________________________________________________________
State your hypothesis:
_________________________________________________________________________________________________
_________________________________________________________________________________________________
Was your hypothesis supported? If not, why?
_________________________________________________________________________________________________
_________________________________________________________________________________________________
How many trials did it take for you to achieve what would have been the expected results under that kind of heat transfer?
_________________________________________________________________________________________________
Explain any factors that could have led to results that deviated from your initial hypothesis:
_________________________________________________________________________________________________
_________________________________________________________________________________________________
When comparing the dark model against the light model, did you notice a different rate of change than was expected if their initial temperatures were not approximately the same? Please explain any potential reasons for these results.

________________________________________________________

Experiment 5: Your own design.
Explain the type of heat transfer you tested: _____________
How did you create your own experiment (i.e. what kind of materials did you use)?

_________________________________________________________________________________________________

_________________________________________________________________________________________________

State your hypothesis:

_________________________________________________________________________________________________

_________________________________________________________________________________________________

Did your results support your hypothesis? Why or why not?

_________________________________________________________________________________________________

_________________________________________________________________________________________________

How many different experiments did you create, and why?

_________________________________________________________________________________________________

_________________________________________________________________________________________________