Beginning Activity:

Introduction-
On a hot sunny day, what have you noticed as you walk barefoot across the grass or the pavement or the sand or in the water? Each substance has a different specific heat which means that it can absorb different amounts of heatαwhich means that it can absorb different amounts of heat at a different rate.

Purpose-
During this investigation you will collect data to compare the specific heat of sand and water.

Materials-

TI 83 plus	100 gm. Sand
CBL2	100 gm. Water
2 temp. probes	heat source (lamp)
2 Styrofoam cups	

Standard Preparation- For each group

1. Mass out 100 gm. of water; pour into Styrofoam cup and label sample 1.
2. Mass out 100 gm. of sand; pour into second Styrofoam cup and label sample 2.
3. Connect TI 83 plus to CBL2.
4. C

Analysis-

1. Display graph on calculator.
2. Draw your graph below.

3. What is the independent variable?
4. What is the dependent variable?
5. What are the constants?

6. Press “trace” and use arrow keys to find the following values for water and sand?

Time (sec)	Water (C deg.)	Sand (C deg.)
0		
30		
60		
90		
120		
150		
180		

7. The faster a substance heats, the lower its specific heat. Which of the two substances tested has the lowest specific heat?

8. place a graph of water and asphalt here

Using the graph above, determine if the specific heat of asphalt is greater or less than water. _____

Explain what this means:

Extensions-

1. Choose another substance and repeat the experiment to determine the graph for specific heat.
2. Pick 3 substances and predict the order of specific heat from least to greatest and conduct the experiment to test your hypothesis.
3. Using the formula _____, and values from your graph, determine the specific heat values for all substances tested.
4. Using what you have discovered about the specific heat of water, discuss the impact of bodies of water on the temperatures of adjacent ecosystems.