Dancing Spaghetti Lab

Problem:
What physical and chemical changes occur when mixing Sodium bicarbonate, Acetic acid and Vermicelli?

No hypothesis

Materials
One 600mL beaker, 10g sodium bicarbonate, 45mL acetic acid, Ten 1cm pieces of vermicelli, One Scoopula, 50mL graduated cylinder, 250mL beaker

Procedure
1. Put safety goggles on.
2. Fill the 600mL beaker with 300 mL of H₂O.
3. Mass 10g of sodium bicarbonate (bring a folded up piece of paper to the front and estimate the amount using the scoopula, then mass it on the balance for an accurate measurement).
4. Make a mixture by adding the sodium bicarbonate to the water.
5. Make a solution by stirring the mixture very well with the scoopula, most of the sodium bicarbonate should be dissolved.
6. Put ten 1cm pieces of vermicelli in the solution.
7. Pour 50 ml of Acetic acid into a 250 mL beaker. Bring it to your station and pour 45 ml of it into the 50 ml graduated cylinder to get an accurate measurement.
8. Pour 45mL of acetic acid into the sodium bicarbonate solution.
9. For the next 5 minutes write down, in detail, observations of what is happening.

Observations (Keep these things in mind when you are writing down your observations: What happened at the moment you put the acetic acid in? What are the pieces of vermicelli doing? What are the bubbles doing? and any other things you may observe.)

*Make two or more observations under each column on your data table. +2 Each Column=+8
Data Table:

<table>
<thead>
<tr>
<th>Acetic Acid Added (+2)</th>
<th>Pieces of vermicelli (+2)</th>
<th>Bubbles (+2)</th>
<th>Other Observations (+2)</th>
</tr>
</thead>
</table>

**Chemical Equation:** (This will be posted for you to copy) (+5)

**Group Conclusion:** (The group conclusion will be posted once you have started the lab. copy it down here.) (+5)

**Conclusion Questions:**

1. Why did the sodium bicarbonate become a solution after you stirred it with the scoopula? (+2) What type of change occurred? (+1)
2. What did the vermicelli do when you put it in the solution of sodium bicarbonate? Explain using density. (+2)

3. What did the vermicelli do after you poured in the acetic acid and bubbles formed? Explain using density. (+2)

4. After you poured the acetic acid in, a reaction occurred. What chemical change(s) took place? (+2)

5. What is your observation that was your evidence for a chemical change? (+2)

6. What states of matter did you start with in the beginning of the lab? end? (+4)

7. What were the four different types of atoms involved in the reaction? (Hint: look at the chemical equation and use the Periodic Table of Elements in your book on pages______) (+4)

8. What were the five different types of molecules/compounds involved in the reaction? (Hint: look at the chemical equation.) (+5)