Magma, Volcanic Eruptions, and Viscosity

You are going to do a short experiment to see how different viscosities affect the ability of magma to flow through a vent. You will need two 10mL graduated cylinders and a cup of room temperature corn syrup, and a cup of cold corn syrup. Please place these on the tray provided for you to prevent the desks from getting too sticky.

Try pouring the room-temperature corn syrup into the graduated cylinder. Try to get as much in at once without spilling it.

1. How easily did the room temperature corn syrup flow into the graduated cylinder? Did it clog up or flow easily? Were there a lot of trapped air bubbles?

Try pouring the cold corn syrup into the other graduate cylinder. Try to get as much in at once without spilling it.

2. How easily did the cold corn syrup flow into the graduated cylinder? Did it clog up or flow easily? Were there a lot of trapped air bubbles?

3. Which corn syrup was more viscous? How could you tell?

4. Which corn syrup would more likely clog up the vent and trap gases?

5. Based on this experiment and the information provided, why do mafic magma cause non-explosive eruptions and felsic magma cause explosive eruptions?

6. Think about the following two volcanoes. Look up some videos and pictures of their eruptions. What type of magma do you think supplies each of these volcanoes, and why?
    a. Kilauea, Hawaii

    b. Mount St. Helens, Washington

7. What impact do you think water mixing with the magma beneath the surface would play in the type of eruption a volcano would have (think about the temperature of magma and how that would impact water)? Explain your reasoning.

Please clean your equipment in the sink!