5th PS 1 Addendum: Boiling Point and Freezing Point

1. Boiling Temperature and Volume Probe – Give students a copy of the probe and a few minutes to answer it. Have students write their answer choices on sticky notes of all the same color. Tell them to not write their names on the notes. Collect the sticky notes and make a bar graph on the board showing how many students selected each answer. Leave room between each column. Tell students that you will not tell them the answer yet. You will be doing some activities to help them figure it out.

2. Have students read the passage on boiling and melting points. Show them how to use the graphic to figure out what state water is at different temperatures. Call out a temperature and have them point to where that temperature falls on the graphic. For example, if you call out 75°C, they should be pointing between the melting point and boiling point and see that the water will be liquid. Make sure they notice that above 100°C water turns to gas. So, no matter how long water boils, it can't get hotter than 100°C. When it gets hotter than that, it turns to vapor and goes into the air. Ask them Have students work as pairs or groups to complete the sentences. (There are a few things that can change the boiling point of water. It is 100°C at sea level but if you go higher or lower, the air pressure changes causing water to boil at a different temperature. As you go higher, there is less pressure and water will boil at a lower temperature. If you increase the pressure, it will boil at a higher temperature. This is how pressure cookers work. If the water has impurities in it, that will also change the boiling point. If any of this comes up with students, make sure they know they must remember the BP as 100°C and FP as 0°C.)

3. Show students the cartoon, "Boiler got a perfect score but Freezer should have studied more." Have them add a copy to their science notebooks. You can use this as a call and response attention getter. You say, "Boiler got a perfect score." Students respond with, "Freezer should have studied more."

4. Have students go back to the probe and see if they want to change their answer. Give them sticky notes of a different color from the first one and have them answer again. Make new columns on your bar graph and see how answers have changed. Everyone should have chosen B. 100°C. Notice if you have hold outs that will need a little more convincing.