1. Complete the Worksheet 0 – Significant Figures.

2. Complete Reading Guide 0 for Chemistry: A Molecular Approach and write a thoughtful summary in the box at the bottom of the page.

3. Review the required mathematical skills and highlight any that you may need to review.

4. Assess other resources that you may access from time to time, such as

   http://www.bozeman science.com/ap-chemistry/

   or https://www.khanacademy.org/science/ap-chemistry

Be advised that these are good resources, but the primary resources should be your class notes and textbooks. Every effort has been made to carefully tailor our resources to the AP Chemistry exam.
<table>
<thead>
<tr>
<th>Chapter 1.7 Significant Figures</th>
<th><strong>Summary:</strong></th>
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<tbody>
<tr>
<td>p. 21 – Record the <strong>boldfaced</strong> rule for scientific measurements.</td>
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<tr>
<td>p. 21 – Record the proper measurement for each of the following.</td>
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<td><img src="image1.png" alt="Image" /></td>
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<td><img src="image3.png" alt="Meniscus" /></td>
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<td>p. 22 – Summarize the rules for determining significant figures in a measurement.</td>
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<td>pp. 23-24 – Summarize the rules for significant figures in calculations.</td>
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Worksheet 0 – Summer Assignment

1. Record the volume measurement indicated using the proper number of significant figures.

![Graduated cylinder]

2. A student must determine the density of a rectangular solid. The mass is determined on a balance and the length, width and height are measured with a ruler. The student collects the following data.

Mass: 24.26 g  
Length: 3.24 cm  
Width: 2.35 cm  
Height: 1.25 cm

3. A student determines the density of an irregular solid by finding the mass of the solid and its volume by water displacement. The mass of the solid is 225.3 g. Is the student able to calculate the density to three significant figures? Justify your answer.

Mass = 51.842 g  
“Final” volume = 19.8 mL  
“Initial” volume = 17.1 mL
I assumed that you are coming into this class with various scientific / mathematical skills:

**Metric System**
- You know the metric system.
- You know the meaning of the metric prefixes, kilo-, centi-, and milli-.
- You know that there are other metric prefixes and can look them up if needed (micro, mega, pico, etc.)
- You can convert one measurement into another (e.g., 0.532 cg = _____ mg).
- You can convert squared or cubed units (e.g., knowing that 2.54 cm = 1 inch, 38.5 in² = _____ cm²).

**Dimensional Analysis & Showing Your Work**
- When you convert one unit to another, you can show your work using dimensional analysis or unit analysis.
- You know that good examples of dimensional analysis are changing metric units, converting time units, or using density to convert mass to volume or volume to mass.
- You know that you should always show enough work so that if your answer is incorrect, I can tell where you went wrong.

**Scientific Notation**
- You can translate regular numbers into scientific notation and numbers written in scientific notation into normal notation.
- You know the distinction between exponential notation and scientific notation.

Skills that we will review as part of Chapter 1 are:

**Making Measurements**
- You can use a ruler or other measuring device to make a measurement to the correct number of significant figures, i.e. include all of the digits in the measurement that are a significant part of the measurement.
- You can correctly assign a ± value when making a given measurement.
- You always include a unit on a measurement.
- You know the distinction between a measurement and a defined number (e.g., 12 things in a dozen, pi).
- You can explain the difference between accuracy (how close a measurement is to a true or accepted value) and precision (how close a set of measurements are to each other).

**Significant Figures**
- You can determine the number of significant figures in a given measurement (i.e., You know whether a “0” in a measurement is significant or not.)
- You can determine the precision in a calculation involving measurements when the measurements are written with the correct number of significant figures.
- You can determine the precision in a calculation involving measurements when the measurements are written with ± notation.