

**A group of students each measured the temperature for a beaker of boiling water as shown below. The actual boiling point of pure water is  $100^{\circ}\text{C}$ .**

**Student 1 recorded  $97.5^{\circ}\text{C}$ .**

**Student 2 recorded  $97.1^{\circ}\text{C}$ .**

**Student 3 recorded  $97.2^{\circ}\text{C}$ .**

**CLAIM:** Is this data accurate and/or precise?

What is the percent error for the average of these measurements?

**EVIDENCE:** How far apart are the data points?

How close are they to the true value?

**REASONING:** Explain how you to set up the percent error equation.

How many significant figures did you need in your answer? Why?

**A group of students each measured the mass of a beaker on a triple beam balance. The actual mass of the beaker is 274.570 grams.**

**Student 1 recorded 274.612 g.**

**Student 2 recorded 275.119 g.**

**Student 3 recorded 273.989 g.**

**CLAIM:** Is this data accurate and/or precise?

What is the percent error for the average of these measurements?

**EVIDENCE:** How far apart are the data points?

How close are they to the true value?

**REASONING:** Explain how you to set up the percent error equation.

How many significant figures did you need in your answer? Why?

**A group of students each measured the volume of a rock by displacement.  
The actual volume of the rock was 7.82 ml.**

**Student 1 recorded 7.83 ml.**

**Student 2 recorded 7.85 ml.**

**Student 3 recorded 7.80 ml.**

**CLAIM:** Is this data accurate and/or precise?

What is the percent error for the average of these measurements?

**EVIDENCE:** How far apart are the data points?

How close are they to the true value?

**REASONING:** Explain how you to set up the percent error equation.

How many significant figures did you need in your answer? Why?

Three groups of students calculated the specific heat of copper based on data collected during a lab activity. The actual specific heat of copper is  $0.385 \text{ J/g}^\circ\text{C}$ .

Group 1 calculated the specific heat to be  $0.429 \text{ J/g}^\circ\text{C}$ .

Group 2 calculated the specific heat to be  $0.327 \text{ J/g}^\circ\text{C}$ .

Group 3 calculated the specific heat to be  $0.299 \text{ J/g}^\circ\text{C}$ .

**CLAIM:** Is this data accurate and/or precise?

What is the percent error for the average of these measurements?

**EVIDENCE:** How far apart are the data points?

How close are they to the true value?

**REASONING:** Explain how you to set up the percent error equation.

How many significant figures did you need in your answer? Why?

**A group of students each calculated the volume of a balloon using its circumference. The actual volume of the balloon is 1.5 Liters.**

**Student 1 calculated the volume to be 1.7 L.**

**Student 2 calculated the volume to be 1.4 L.**

**Student 3 calculated the volume to be 1.6 L.**

**CLAIM:** Is this data accurate and/or precise?

What is the percent error for the average of these measurements?

**EVIDENCE:** How far apart are the data points?

How close are they to the true value?

**REASONING:** Explain how you to set up the percent error equation.

How many significant figures did you need in your answer? Why?

**A chemistry student repeated the same chemical reaction three times.  
The theoretical yield for the reaction was 87.2 grams.**

**Reaction 1 produced 73.95 grams.**

**Reaction 1 produced 81.26 grams.**

**Reaction 3 produced 79.44 grams.**

**CLAIM:** Is this data accurate and/or precise?

What is the percent error for the average of these measurements?

**EVIDENCE:** How far apart are the data points?

How close are they to the true value?

**REASONING:** Explain how you to set up the percent error equation.

How many significant figures did you need in your answer? Why?