Chemistry Lecture #8: Rules for recognizing significant figures

We will need to know the number of significant figures in a measurement. This isn't too difficult. 2.3 g has two significant figures, and 435 mL has three significant figures. The tricky part occurs when there are zeros in the measurement. Then you have to follow the rules below.

1. Non-zero numbers are always significant. E.g., 72.3 g has 3 S.F. (Significant Figures).
2. Zeros between non-zero numbers are always significant. E.g., 600.5 g has 4 S.F.
3. Zeros that are behind a decimal *and a non-zero number* are significant. E.g., 6.0 g has 2 S.F.
4. Zeros that act as placeholders are not significant. Convert quantities to scientific notation to remove placeholder zeros. E.g., 0.0253 g and 4320 g have 3 S.F. and should be written as 2.53×10^{-2} g and 4.32×10^{3} g
5. Counting numbers and defined constants have an infinite number of significant figures. E.g., 5 students, 60 s = 1 min.

Let's try some for practice.

Measurement	Number of Significant Figures
25.1 g	3
135.56 g	5
0.52 km	2
8.75 km	3
8.750 km	4
8.7500 g	5
54300 g	3
2.6×10^3 m	2
2504 g	4
3.001 g	4
0.0003050 g	4
2000.0 g	5
190.0 g	4
12 cars	infinite
100 cm = 1 m	infinite