

LESSON PLAN

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West Virginia University
Blue Ribbon Math Workshop**

Using Scientific Notation To Express Distances in Space

**Content Standards: Algebra (MA.S.2) Applied Mathematics I
Technology Research Tools (TEC.S.5) 9-12**

Objectives:

AM1.2.2 Write numbers in scientific notation and combine numbers in scientific notation to solve problems.

AM1.2.4 Solve practical problems and interpret results using rational numbers and vectors.

AM1.2.13 Collect, organize, interpret data, and predict outcomes using mean, median, mode, range, and standard deviation.

AM1.2.15 Use laws of exponents to perform operations on expressions with integral exponents.

TEC.9-12.5.1 Use a variety of strategies to acquire Information from electronic resources.

Preparation:

Students will participate in a review of concepts for mean, significant digits, and scientific notation with appropriate examples.

Students will be given vocabulary for this lesson which will include the following terms: “mean distance,” “significant digits,” and “scientific notation.”

Technology Component:	<p>Students will use computers to go to the following website to find the information needed for the lesson: http://www.idahoptv.org/ntti/nttilessons/lessons2000/lau4.html. Students will use a calculator for their work.</p>
Materials:	<p>Pencils, paper, rulers, calculators, computers, and prepared worksheet with list of planets.</p>
Procedures:	<p style="text-align: center;">2</p> <p>Students will work in groups of four. Students will use the Internet to find the mean distance of planets to the sun in miles. Students will organize the data into a chart, using the prepared worksheet listing names of the planets. There will be a column for mean distance in decimal notation. Students will then rewrite in scientific notation with correct labels of distances. Students will be required to round to 100th's place. Students will be required to define "mean distance" and explain what significant digits are, relating to really large numbers.</p>
Assessment:	<p>Each student will compile an individual portfolio of completed products that will demonstrate understanding of the procedures listed for this lesson. Teachers will assess each portfolio using a rubric. Teachers will discuss results of portfolios with each student. For grading purposes, a letter grade will also be recorded.</p>
Follow-up:	<p>Check for understanding. Students will discuss their work and what they have learned. Students will express in their own words the concepts covered in this lesson.</p>