Numbers in Scientific Notation to Standard Form

I. Learning Objectives

    Cognitive: Write numbers in scientific notation to standard form
    Psychomotor: Use powers of 10 to write numbers in exponential form
    Affective: Show cooperation in group activities

II. Learning Content

    Skills: 1. Writing numbers in scientific notation
                        2. Using powers of 10 to write numbers in exponential form
    References: BEC-PELC I.D.6.2
                        textbooks in Math 4
    Materials: flash cards, chart, learning activity sheets
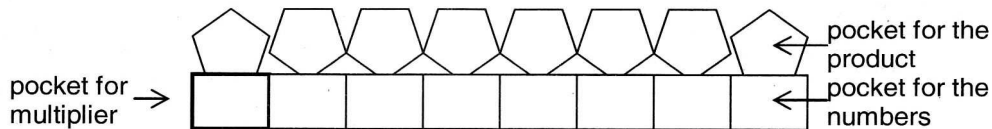   **Value:**   Cooperation

III. Learning Experiences

    A. Preparatory Activities

        1. Drill

           Mental computation using multiplication facts
           Materials: pocket chart, set of numbers (cut individually)

           The numbers can be changed.

        2. Review

           Write the numbers in exponential form.
           a. 6 000
           b. 7 000 000
           c. 80 000 000
           d. 860 000
           e. 3 800 000

        3. Motivation

           Mercury is the planet closest to the sun. It is about 60 000 000 km from the sun.
           a. How far is Mercury from the sun?
           b. What did we study yesterday?
           c. What did we do with the number?

    B. Developmental Activities

        1. Presentation

60 000 000 is in what form of the number?
6×10^7, what is this form?
How did we express the numbers?

Suppose, we do it this way:
$6 \times 10^7 \rightarrow 60\ 000\ 000$
How did I write the given number?
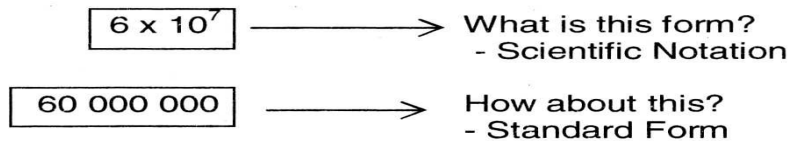Do you know how to do it?

2. **Group Activity**

a. Present this number.

$$6 \times 10^7 \rightarrow 60\ 000\ 000$$

What is the exponent?
Based on previous lesson, the exponent shows the number zeros 6 has.

6×10^7 $\longrightarrow$ What is this form?
  - Scientific Notation

$60\ 000\ 000$ $\longrightarrow$ How about this?
  - Standard Form

Pupils' Activity: Dyad
Example:
$4 \times 10^7 \rightarrow \quad 40\ 000\ 000$
$7 \times 10^6 \rightarrow \quad 7\ 000\ 000$
b. Show thechanging of exponential form to standard form.
$$1.2 \times 10^4 = 1.2\ 000 \rightarrow 12\ 000$$

1. The exponent is 4. Move the decimal point 4 places to the right.
2. What happened to the number when the decimal point is moved to the right using the exponent?
3. Give other examples for dyad activity

$$3.1 \times 10^6 \rightarrow 3.1\ 00000 \rightarrow 3\ 100\ 000$$

$$7.31 \times 10^6 \rightarrow 7.31\ 0000000 \rightarrow 7\ 310\ 000\ 000$$

3. **Practice Exercises**

Write in standard form (group activity)
a. 3×10^3
b. 4×10^6
c. 6×10^8
d. 6.1×10^3
e. 9.3×10^6

4. **Generalization**

How do we write numbers in scientific notation to standard form?

> To change scientific notation to standard numerals, move the decimal point to the right depending on the exponent. It makes it a whole number.

C. Application

Write in standard numerals:
8×10^4
9×10^2
1.2×10^5
2.81×10^3

IV. Evaluation

1. Match column A with column B

A	B
1. 6 x 102	a. 6 000
2. 6 x 104	b. 60 000
3. 6 x 103	c. 600
4. 6 x 105	d. 6 000 000
5. 6 x 106	e. 600 000

2. Write in standard form.
   a. 8×10^2
   b. 8.1×10^2
   c. 2.16×10^5
   d. 3.49×10^8
   e. 6.11×10^7

V. Assignment

Write in standard form.
1) 3 x 103
2) 4 x 104
3) 9.3 x 106
4) 12 x 103
5) The earth is about 1.5 x 108 km from the sun.