

EXPANDED NUMBERS

Performance Standard 6A.C

Listen to and write numbers in expanded form (e.g., $425 = 400+20+5$), use base-ten blocks to build each of those numbers, and solve problems using expanded notation accordingly:

- *Mathematical knowledge:* Record and build numbers using base-ten blocks and solve problems correctly.
- *Strategic knowledge:* Use appropriate strategies to build numbers and solve problems.
- *Explanation:* Explain completely and clearly what was done and why it was done; write a description of how expanded notation was used to solve the problems; explain a real-life application of expanded notation.

Procedures

1. *In order to demonstrate knowledge and use of numbers and their many representations in a broad range of theoretical and practical settings (6A)*, students should experience sufficient learning opportunities to develop the following:
 - Represent, order, and compare whole numbers to demonstrate an understanding of the base-ten number system.
 - Recognize equivalent representations of whole numbers and generate them by composing and decomposing numbers.
2. Have students review and discuss the task to be completed and how it will be evaluated with the rubric. Pass out “Expanded Numbers” recording sheets and base ten blocks to all students.
3. Direct students to listen to each number as you read it to them. Have each student write the number on his/her own individual recording sheet. Tell students to show the number with their base-ten blocks and write it in expanded form on their recording sheets.
4. Ask students to use expanded notation form to solve both problems on the student-recording sheet.
5. Evaluate each student’s work using the rubric as follows, and use the guide on the rubric to determine the performance level:
 - 4 = All work is correct; numbers are shown/recorded correctly; everything is explained correctly.
 - 3 = Building may be correct but not the recording; building errors are minor (e.g., student may have one ten where there should have been 2); calculating the problem solving has minor errors; explanation includes what was done and why, but some parts may be left out or unclear.
 - 2 = Building and recording contains errors; problem solving contains calculating and recording errors; explanation includes what was done or why it was done, but not both.
 - 1 = Task attempted but major errors in all aspects.
 - 0 = Task not attempted.

Examples of Student Work follow

Time Requirements

- 30 minutes

Resources

- Teacher’s “Expanded Numbers” task and answer sheet
- Copies of “Expanded Numbers” recording sheets
- 1 thousand cube, 5 hundred blocks, 9 ten sticks, and 9 unit cubes for each student
- Mathematics Rubric

NAME _____ DATE _____

EXPANDED NUMBER RECORDING SHEET

Part A: Listen to the number your teacher says. Write those numbers on the lines below. After each number, write it in expanded form.

1. _____
2. _____
3. _____
4. _____
5. _____

Part B: Using your base ten blocks, build each of the numbers you have written above.

Part C: Use expanded notation to solve each of the following problems. Be sure to show all of your work. Be sure to explain what steps you did to solve the problems and why you did them.

Tom's family drove 1,489 miles on their family vacation last year. This year they will drive 257 miles. How many miles have they driven on the two trips?

The family drove _____. I know this because _____

Jose climbed a mountain that was 4,268 feet tall. Sam climbed a mountain that was 5,763 feet tall. How much taller was Sam's mountain than Jose's mountain?

Sam's mountain was _____ taller than Jose's mountain. I know

this because _____

EXPANDED NUMBERS RECORDING SHEET – TEACHER’S COPY

Part A: Listen to the number your teacher says. Write those numbers on the lines below. After each number, write it in expanded form.

1. **$438 = 400 + 30 + 8$**

2. **$1,596 = 1,000 + 500 + 90 + 6$**

3. **$725 = 700 + 20 + 5$**

4. **$1,690 = 1,000 + 600 + 90$**

5. **$309 = 300 + 9$**

Part B: Using your base ten blocks, build each of the numbers you have written above.

Part C: Use expanded notation to solve each of the following problems. Be sure to show all of your work. Be sure to explain what steps you did to solve the problems and why you did them.

- A. Tom’s family drove 1,489 miles on their family vacation last year. This year, they will drive 257 miles. How many miles have they driven on the two trips?

The family drove **1,746 miles**

I know this because _____

$$\begin{array}{r} 1,000 + 400 + 80 + 9 \\ + \quad \quad 200 + 50 + 7 \end{array}$$

- B. Jose climbed a mountain that was 4,268 feet tall. Sam climbed a mountain that was 5,763 feet tall. How much taller was Sam’s mountain than Jose’s mountain?

Sam’s mountain was **1,495 feet** taller than Jose’s mountain. I know this because

$$\begin{array}{r} 5,000 + 700 + 60 + 3 \\ - 4,000 + 200 + 60 + 8 \end{array}$$

Name _____

Date 4-24-01

3rd Grade Expanded Number Recording Sheet

Part A: Students: Listen to the number your teacher says. Write those numbers on the lines below. After each number, write it in expanded form.

1. 438 $400+30+8$

2. 1,596 $1,000+500+90+6$

3. 725 $700+20+5$

4. 1,690 $1,000+600+90+0$

5. 309 $300+00+9$

Part B: Using your base ten blocks, build each of the numbers you have written above.

Part C: Use expanded notation to solve each of the following problems. Be sure to show all of your work. Be sure to explain how you solved each of the problems.

- A. Tom's family drove 1,489 miles on their family vacation last year. This year, they will drive 257 miles. How many miles have they driven on the two trips?

$$\begin{array}{r} 1,1 \\ 1,489 \\ + 257 \\ \hline 1,746 \end{array}$$

The family drove 1,746
I know this because to get the answer you have to add the numbers together and when I did that I came up with 1,746.

B. Jose' climbed a mountain that was 4,268 feet tall. Sam climbed a mountain that was 5763 feet tall. How much taller was Sam's mountain than Jose's mountain?

$$\begin{array}{r} 5,763 \\ - 4,268 \\ \hline 1,495 \end{array}$$

Sam's mountain was 1,495 ft. taller than Jose's mountain.

I know this because to get this answer you have to subtract the 2 numbers and when I did that I came up with 1,495 ft.

Part C: Write about a real-life time when using expanded notation would be useful.

A time you might need to use expanded form is when I have kids and one of my kids might ask me what expanded form is so I would have to write it out on paper and show them.

