

NCSM Great Tasks for Mathematics

*Engaging Activities for
Effective Instruction and Assessment that Integrate
the Content and Practices of the
Common Core State Standards for Mathematics*

A Resource from the
National Council of Supervisors of Mathematics

SAMPLE TASKS

SPRING 2012

LEADERSHIP IN MATHEMATICS EDUCATION
NCSM NETWORK
COMMUNICATE
SUPPORT
MOTIVATE

Teacher Notes

Piggy Banks

Task Title: Piggy Banks

Grade Level: 2nd

Task Overview:

The students will find the value of money in piggy banks using the coins, cents, and dollars. They will then arrange the value on a number line.

Prerequisite Understandings:

Students will need to know the value of the penny, nickel, dime, quarter, and dollar bill and recognize them. They will need to know how to add money up to \$2, represented in the three formats.

CCSSM Content Standards:

2.NBT.8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?*

CCSSM Mathematical Practices:

2. Reason abstractly and quantitatively.
4. Model with mathematics.
6. Attend to precision.

Supplies Needed:

Play money

Teaching Notes:

Launch activity:

Students need practice with money and the different representations.

Core task:

Provide coins and the handouts so that students can pull out the money to represent the different amounts. The key here is explaining how students counted and combined to find the totals.

Extension(s):

Students could draw banks and put different amounts of money on the banks. Values could range according to the student abilities. The class could then make a large money number line to contain the banks. Make sure they create banks using dollars and cents.

Launch

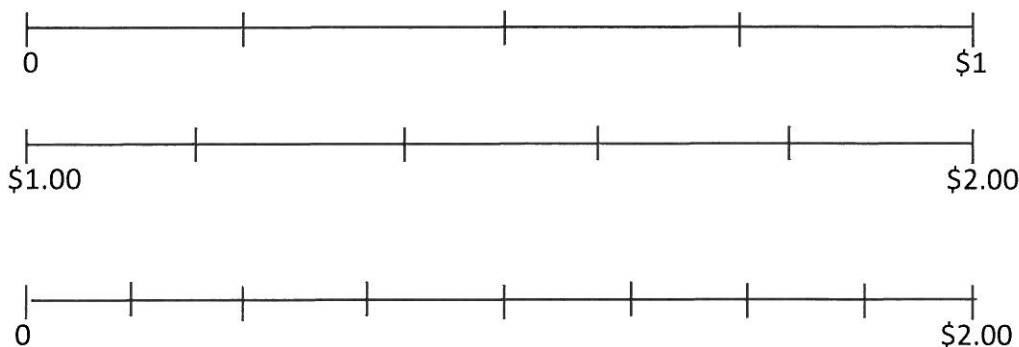
Piggy Banks

Counting the money:

1. Provide pairs of students with a small baggie full of (play) coins. Ask the students to count the money. After counting, the students can arrange themselves from least to greatest.
2. Make slips of paper with different amounts of money from 1¢ to 99¢. Ask each student to draw out two numbers, find a partner, and then add up the amounts of the four numbers. Repeat the line from least to greatest. Students can trade one number, find a new partner, and repeat.
3. Create index cards with money amounts written in dollars and cents (i.e. \$1.43, \$.78, \$.56). Give each pair of students a card and ask them to remove the correct amount of money to match the value on their card.

Dividing the line:

Create number lines that start a specific amount and ask students to label the intervals.

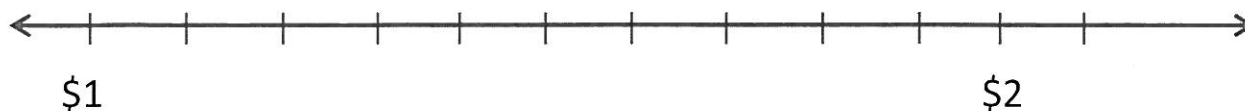


On the line:

Create sets of cards and ask children to place the cards on the number line in the correct order.

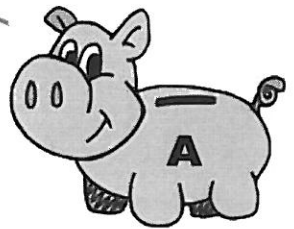
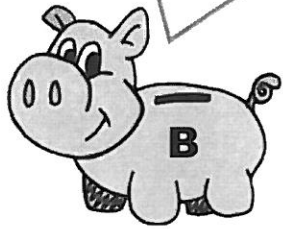
- a. Set 1 (40¢, 70¢, 30¢, 50¢, 10¢)
- b. Set 2 (45¢, 90¢, 20¢, 85¢, 77¢)
- c. Set 3 (\$1.00 \$1.20 \$1.60 \$1.40 \$1.80)
- d. Set 4 (\$1.50 \$2.25 \$2.00 \$1.75 \$1.25)
- e. Set 5 (\$2.40 \$2.70 \$1.50 \$1.80 \$2.10)

Each number line could be created to match the values given to the students.

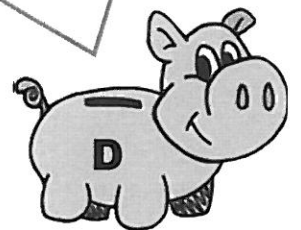
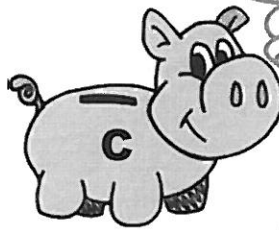


Piggy Banks

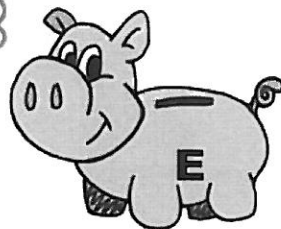
How much money is in each piggy bank?



\$.12 \$.33
\$.28
\$.51 \$.67

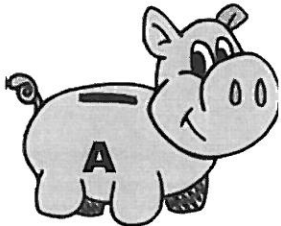


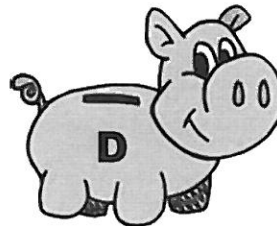
23¢ 45¢ 36¢
9¢ 11¢

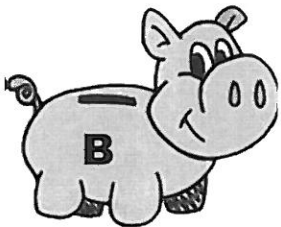


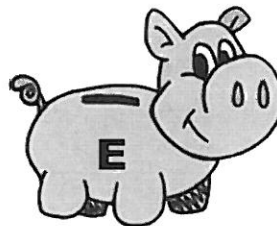
Piggy Banks

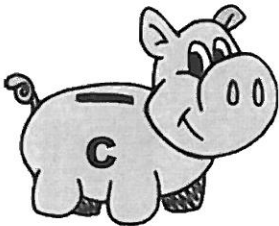
Record the amount of money you found in each bank.



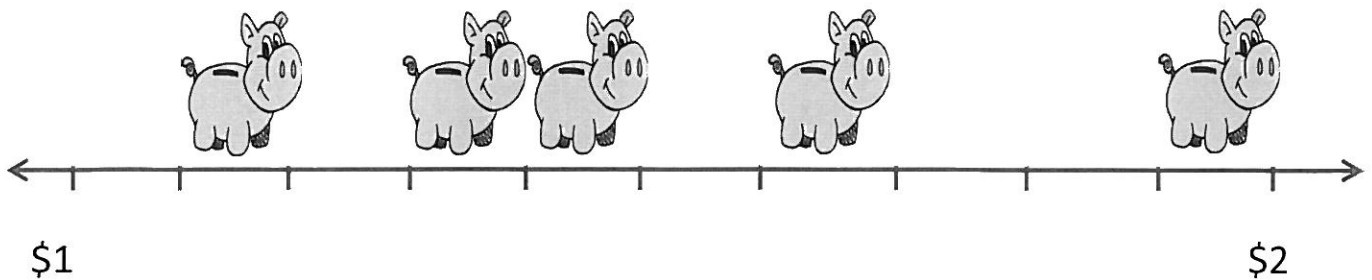








Write the letter on the piggy bank and the amount of money it contains to match its spot on the number line.



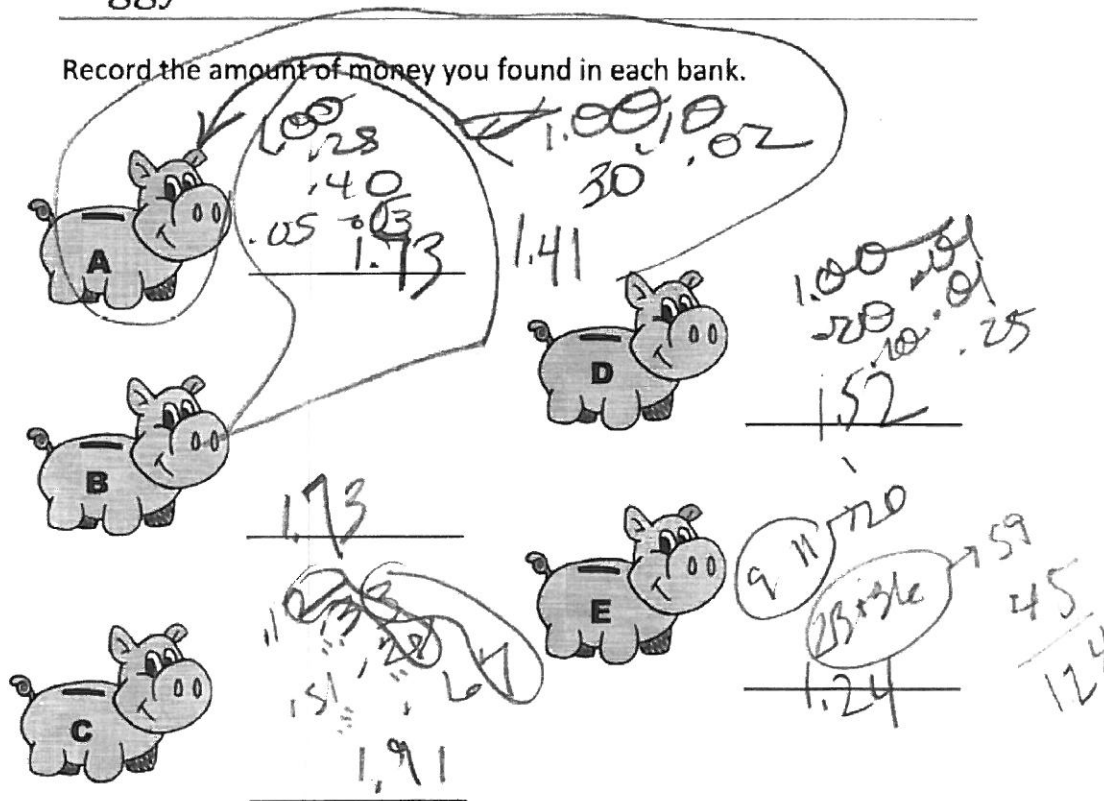
Piggy Banks

Student Work

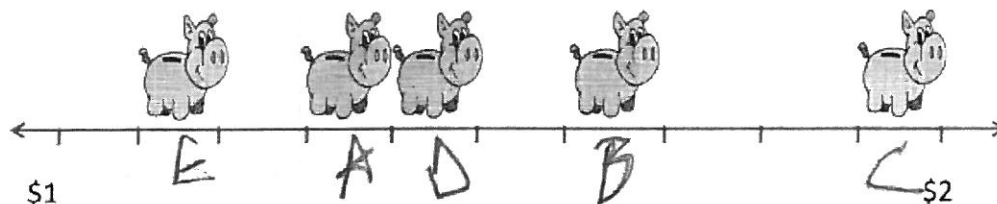
Jessica was able to add all of the amounts correctly using all three formats. Her problem came when she was matching up the banks and getting the answers in the correct location. She showed that she could use a compatible numbers strategy to add up the values. She did not attend to precision when she left out the appropriate money symbols. She was able to place all the banks on the number line in the correct locations.

Piggy Banks

Record the amount of money you found in each bank.



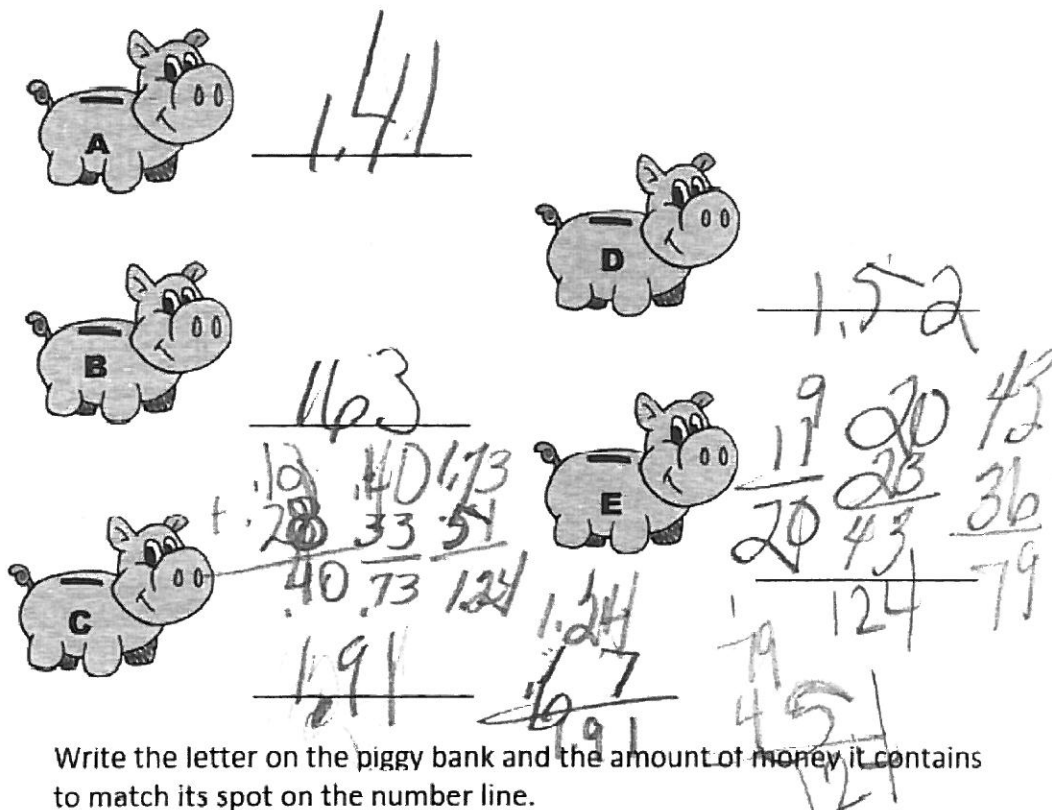
Write the letter on the piggy bank and the amount of money it contains to match its spot on the number line.



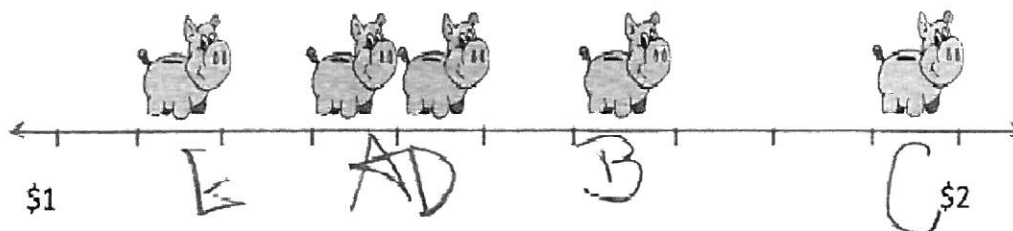
Hector did not show any of his work when adding the money from the pictorial representations. He was accurate on all except bank B. When he began to place the banks on the number line, he noticed that none of the banks were close to \$2 and went back to his work to discover he had left off the \$.67 on bank C. His work showed a different strategy for adding by working with two numbers at a time. He appeared to work from smallest to largest value. He is also lacking in precision by not noticing the error with bank B when placing the values on the number line and excluding the money symbols.

Piggy Banks

Record the amount of money you found in each bank.



Write the letter on the piggy bank and the amount of money it contains to match its spot on the number line.



Teacher Notes

The Missing Words

Task Title: The Missing Words

Grade Level: 6th

Task Overview:

Students should be able to explain a reasonable strategy for determining the number of missing words. They should accurately compute the mean and range, and select an appropriate graph for displaying the data. Students will explore the concepts of variability and distribution of a data set.

Prerequisite Understandings:

Students need some experience with estimation so that they are comfortable with the first part of the task. They need to have experience with multiple ways to represent data so that they will have a variety of choices when asked to create a graph.

CCSSM Content Standards:

6.SP.1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.

6.SP.2. Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

6.SP. 4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

CCSSM Mathematical Practices:

2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.

Teaching Notes:

Launch activity:

Make sure that students have computed measures of central tendency and range. Provide a format for students to report and defend their actions.

Core task:

Assure students that this is an actual page from the book, *Little House on the Prairie*. In providing lines to write a letter, students find it much easier to actually write words versus simply show mathematics. Student thinking is more transparent. Students will have a number of strategies for determining the number of missing words, and there will likely be a large range for the data.

Extension(s):

Locate a copy of *Little House on the Prairie* and share page 332 with students. Students can analyze the strength of their reasoning in estimating the number of missing words.