

## Mathematical Practice Standards—3rd & 4th Grades

Questions to ask that stimulate students to become mathematically proficient:

1. **Make sense of problems and persevere in solving them.**
  - \* How would you describe the problem in your own words?
  - \* What do you know that is not stated in the problem?
  - \* Could you try this with simpler numbers? Fewer numbers?
  - \* Would it help to create a diagram? Make a table? Draw a picture?
2. **Reason abstractly and quantitatively.**
  - \* What does it mean when?
3. **Construct viable arguments and critique the reasoning of others.**
  - \* What do you think about what \_\_\_\_ said?
  - \* Do you agree? Why or why not?
  - \* Can you explain what \_\_\_\_ is saying?
  - \* Can you explain why his/her strategy works?
  - \* How is your strategy similar to \_\_\_\_'s strategy?
  - \* Can you convince us that your answer makes sense?
4. **Model with mathematics.**
  - \* What number sentence represents your drawing/picture/representation?
  - \* How could you use symbols to represent what's happening?
5. **Use appropriate tools strategically.**
  - \* How did using that tool or strategy help you solve the problem?
  - \* If you didn't have that tool, what other one would you have chosen?
6. **Attend to precision.**
  - \* Can you tell me why that is true?
  - \* How did you reach your conclusion?
  - \* How does your answer connect to the question? Does it make sense?
  - \* Can you make a model to show that?
  - \* Can you convince the rest of us that your answer makes sense?
  - \* What new words did you use today? How did you use them?
7. **Look for and make use of structure. (Deductive Reasoning)**
  - \* How do you know your rule/equation will always work?
8. **Look for and express regularity in repeated reasoning. (Inductive Reasoning)**
  - \* Is there a shortcut/algorithm you could use?

## More Practice: Look For A Pattern

Max is a very organized dog. He has a particular way that he plays with his toys. In order, he chews on a bone, a shoe, a piece of bark, and a rubber ball. He then repeats this sequence. If he repeats the whole sequence several times. What will be the twenty-second item he chews on?

April loves pretzels. She ate 13 pretzels on Monday, 17 on Tuesday, 21 on Wednesday, 25 on Thursday, and 29 pretzels on Friday. How many pretzels did she eat the following Friday?

Sophie's new puppy is really growing! When she first got him he weighed only 2 pounds. After one month he weighed 7 pounds. Then at two months he weighed 11 pounds. When I weighed him at three months old he weighed 14 pounds and I began to see a pattern to his weight gain. He will almost be fully grown at 5 months old. Following the pattern can you predict his weight at 5 months?

If the pattern below is continued, how many letters will be in the J row?

A  
BBB  
CCCCC  
DDDDDDD

**Bonus:**

Which row will contain 27 letters?

## More Practice: Guess & Check

I have 2 secret numbers. Each number has 2 digits. The secret numbers use the same digits, only reversed.

- The difference between the two secret numbers is 54.
- The sum of the digits in each secret number is 10.

What are my two secret numbers?

Kimber and Hannah were at the park clapping for a dog as it did tricks to music. When the dog was done, Kimber and Hannah placed 13 coins in the owner's box for money. Together they gave the dog 25 cents. What coins did they put in the box?

A farmer has goats, horses and chickens on his farm.

- The number of horses is double the number of goats.
- The number of chickens is five times as many goats.
- The animals have a total of 44 legs.

How many of each animal does the farmer have?

Twenty-five dolphins and killer whales perform each day at a local sea park. There are 13 more dolphins than killer whales. How many of each animal are there?

## More Practice: Draw A Picture

There is a house at the end of the street a man owns. It has a lot of stairs! From the first floor to the second floor there are 7 staircases. From the second floor to the third floor there are 8 staircases. How many ways can you get from the first floor to the third floor?

Taylor climbed a ladder to trim branches on her largest tree. She started 14 steps from the bottom. She went up two steps then down 6. She went up 8 steps then down one. Taylor climbed another 4 steps to the top. How many steps are on the ladder?

Shelly was planning the guest list for her birthday party. She had invited 22 classmates and needed to borrow small square tables that seat one person on each side. If she arranges the tables end to end to save space, how many tables will she need?

Josh places 8 pennies in a row on his desk. Starting with the second coin, he replaces every other one with a nickel. Every third coin is then replaced with a dime. Finally, he switches every fourth coin with a quarter. What is the total value of the 8 coins now on the table?

## More Practice: Organized List, Table or Chart

Chloe was visiting a neighbors garage sale. She was standing at a table with books divided into 3 piles. One pile was priced 10 cents, the second 5 cents, and the third pile was priced 1 cent. Chloe has 26 cents. How many different combinations of books could Chloe buy for 26 cents? (She doesn't have to buy one of every price)

Jayden and Anna were making ribbon necklaces to sell at their church craft fair. Jayden was able to make 7 necklaces a week, while Anna could make 13. How many will Anna have made when Jayden has made 49?

The Chinese calendar is based on a 12-year cycle with each year represented by an animal: rat, ox, tiger, rabbit, dragon, snake, horse, sheep, monkey, rooster, dog and pig. The order of the animals never changes. If 2005 is the year of the rooster, what animal will represent the year 2068?

Owen is 4 years old. Olivia is 3 times as old as he is. When Owen is 12, how old will Olivia be?

## More Practice: Working Backwards

Garrison gave one-half of his marbles to Landon. Then he gave two-thirds of the remaining ones to Jacob. If he ended up with 10 left, how many did Garrison have when he started?

A customer comes into a bakery and tells the owner he will buy half of his loaves of bread plus half a loaf. A second customer enters the bakery and makes the same purchase. So does a third customer. The baker then notices he only has 1 loaf left. How many loaves of bread did he start with?

Brooke has twice as much money as Carter. Brooke has four times as much money as Bella. Bella has \$3 more than Nick. If Carter has \$14, how much money do Nick, Bella and Brooke have?

If you add 8 to a number, then subtract 3, then add 5, then subtract 1, you get 10. What number did you start with?

## More Practice: Act It Out or Use Manipulatives

Jack, Timmy, Connor and Tyler loved to play checkers. They could be found at recess and lunch playing. During the week, if each boy played one game of checkers with each of the other boys, how many games would be played in all?

Jasmine is playing with blocks while babysitting. She decides to stack the blocks so that each row has one less block than the row below. There are a total of 55 blocks, and Jasmine wants to end up with just 1 block on top. How many should she put in the bottom row?

A group of people are standing in a circle. They are equal distance apart. The ninth person is directly opposite of the twenty-fifth person. How many people are in the circle?

Place 3 quarters, 3 dimes, and 3 nickels in three rows to form a square. Arrange them so that if you add the coins in any row or column you have a total of 40 cents.