



Tutoring Assessment

Subject: Math

Grades: Upper Elementary Hands-on Assessment

(1) Alphabet Code

Let's play a game where we assign every letter of the alphabet a number. Can you help finish the alphabet chart?

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
3	6	9	12	15	18	21																			

The value of a word is found by changing its letters into numbers and adding them up. For example, the word BAG has the value of 30 because $6 + 3 + 21 = 30$.

Can you find the value of your name?

Can you find the value of your tutor's name?

What can you put in the box to make the following number sentences correct?

$$18 \square 12 = 6$$

$$F \square D = 6$$

$$M \square O = 84$$

$$A \square B = 9$$

Can you come up with your own number sentence?

Here's another alphabet chart.

A	B	C	D	E	F	G	H	I
2		5	9	17		65	129	257
J	K	L	M	N	O	P	Q	R
513	1,025	2,049	4,097	8,193	16,385	32,769	65,537	171,073
S	T	U	V	W	X	Y	Z	
262,145	542,289	1,048,577	2,097,153	4,194,305	8,388,609	16,777,217	33,554,433	

Can you fill in the blanks in this chart by using the following formulas?

$$B = (A \times 2) - 1$$

$$F = (E \times 2) - 1$$

Can you find the value of your name using this chart?

(2) Seven cookies

How can you share 7 cookies fairly among 4 people?

Using the cookies, figure out a way of cutting them to show how you would share them. When you finish cutting, glue the cookie pieces into the spaces below.

Dave's share

Esteban's share

Rosemary's share

Matt's share

Explain your picture:

How many cookies did each person get? _____

If you know some different ways to write this number, please write them here:

Write a number sentence that shows how you divided the cookies:

(3) Number Tables

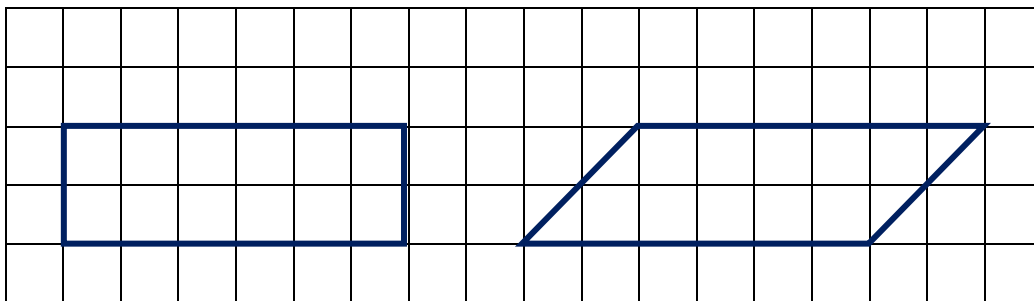
Can you help finish the number tables below?

A	3			$\frac{3}{4}$	900	
B	1	15	14	$\frac{1}{4}$		
A + B			109			8
A - B		17			400	4

C	3		15		20	
D	1	5		4		
C × D			45	12		8
C ÷ D		2			10	2

(4) Similarities and Differences

The two shapes below are alike in some ways and different in other ways. Examine the shapes carefully to find three ways they are alike and three ways they are different.



Using mathematical language, state three ways these two shapes are alike.

Using mathematical language, state three ways these two shapes are different.

Assessment guide

This assessment is designed to help you to understand your student's comfort level with the math skills and concepts they're expected to master in grades 3-5. Each problem in the assessment relates to the 3-5 math expectations on the SOW website. We've grouped these expectations into sets of related concepts that show the progression students are expected to make from grade to grade. The guide below will help you relate your student's responses to a specific grade level and give you an idea of where to start with your tutoring activities.

Problem #1: Alphabet Code

This problem will help you to understand your student's comfort level with the following mathematical concepts:

Algebra & Patterns

3rd Grade expectation: Can understand and solve simple number relationship problems (e.g. $4 + 3 = 12$)

4th Grade expectation: Can use formulas to solve problems (e.g. $\text{Area} = \text{Length} \times \text{Width}$)

5th Grade expectation: Can use a letter to represent a number and write and solve one-variable algebraic equations

Operations

3rd Grade expectation: Can multiply numbers 0-12 by numbers up to 12

Can divide a two-digit number by a one-digit number

4th Grade expectation: Can multiply and divide with two-digit numbers

5th Grade expectation: Can add, subtract, multiply and divide with large and small positive and negative numbers

Where to start:

- **2nd Grade:** If your student struggles to fill in the initial alphabet chart, you may want to revisit the 2nd Grade expectation "Can count by twos, threes, and fours."
- **3rd Grade:** Start here if your student struggles to find the answer to the number relationship problems or has difficulty putting together the addition problems required to find the value of their name.
- **4th Grade:** Start here if your student finds solutions to the number relationship problems but has difficulty with the formulas used in the second alphabet chart
- **5th Grade:** Start here if your student finds solutions to the arithmetic and number relationship problems and is able to generate their own unique number sentence
- **6th and 7th grade:** Your student successfully and easily completes the entire section and answers all or almost all of the questions correctly

Problem #2: Seven Cookies

This problem will help you to understand your student's comfort level with the following mathematical concepts:

Number Sense

3rd Grade expectation: Can find fractional parts of whole numbers and understands that fractions and decimals represent the same concept

4th Grade expectation: Can add, subtract and order fractions and decimals

5th grade expectation: Can multiply and divide simple fractions and decimals

Where to start:

- **3rd Grade:** Start here if your student struggles to physically model the task (e.g. only thinks to separate the cookies into wholes and halves)
- **4th Grade:** Start here if your student is able to physically model the task but struggles when trying to symbolically represent the fractional (or decimal) amounts
- **5th Grade:** Start here if your student physically models the task, shows a clear understanding of multiple ways to represent the fractional amounts and makes a reasonable guess at a number sentence
- **6th and 7th grade:** Your student successfully and easily completes the entire section and answers all or almost all of the questions correctly

Problem #3: Number Tables

This problem will help you understand your student's comfort level with the following mathematical concepts:

Operations

3rd Grade expectation: Can multiply numbers 0-12 by numbers up to 12

Can divide a two-digit number by a one-digit number

4th Grade expectation: Can multiply and divide with two-digit numbers

Can add, subtract and order fractions and decimals

5th Grade expectation: Can add, subtract, multiply and divide with large and small positive and negative numbers

Can multiply and divide simple fractions and decimals

Where to start:

- **3rd Grade:** Start here if your student fills the first three columns of each table, but struggles to go further

- **4th Grade:** Start here if your student is able accurately complete the majority of the tables, but isn't able to make a guess for the final column
- **5th Grade:** Start here if your student is able to accurately complete both tables and proposes possible solutions or formulas for the final column
- **6th and 7th grade:** Your student successfully and easily completes the entire assessment and answers all or almost all of the questions correctly

Problem #4: Similarities & Differences

This problem will help you to understand your student's comfort level with the following mathematical concepts:

Geometry

3rd Grade Expectation: Can identify geometric attributes of shapes (right angles, parallel sides) and solve simple perimeter problems

4th Grade Expectation: Can understand the properties of two-dimensional shapes and can solve problems involving length, perimeter & area

5th Grade Expectation: Can understand properties of three-dimensional shapes and can find surface area and volume

Where to start:

- **3rd Grade:** Start here if your student isn't able to use mathematical language to describe at least some similarities or differences (e.g. "they are not the same shape" or "one has sharp corners")
- **4th Grade:** Start here if your student uses mathematical language (e.g. "one has all right angles") but are not able to compare the perimeter and area of the two shapes
- **5th Grade:** Start here if your student describes specific aspects of each shape's measurements (i.e. the area of the two shapes is the same, the perimeter of the two shapes is different)
- **6th and 7th grade:** Your student successfully and easily completes the entire assessment and answers all or almost all of the questions correctly