

Sharper Minds Math Chart Instructions (Multiplication and Division)

Instructions for the Addition and Subtraction Charts are also included later in this document. Unless your children do not know how to add and subtract, we will be skipping those

To do the math charts is fairly straightforward. Vocabulary will be explained as you read.

By now you should be familiar with the 3 exercises: Cross Crawl Marching, Bean Bag Tossing, and the Ball & Stick exercises. You may chose to do the math charts using any one or more of these three exercises as you work through the numbers. All three methods will work with Skip Counting. Due to the irregular tempo of the Long Form (Multiplication and Division), use only Cross Crawl Marching or Bean Bag Tossing for those. The concept is similar to as before in that you synchronize the impact (foot on ground, bean bag being caught, ball hitting stick) with the saying of each number.

Skip Counting

First we do skip counting, numerically increasing three times, and then numerically counting down three times, both Looking and Looking Away until proficiency is reached.

For example with the twos, one would say,

2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24

2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24

2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24

Say the numbers with an even tempo. Do the sequence both Looking and Looking Away until proficiency is reached.

Then skip count numerically down or backwards. Add the zero (“0”) if you wish. For example:

24, 22, 20, 18, 16, 14, 12, 10, 8, 6, 4, 2, 0

24, 22, 20, 18, 16, 14, 12, 10, 8, 6, 4, 2, 0

24, 22, 20, 18, 16, 14, 12, 10, 8, 6, 4, 2, 0

Do the sequence both Looking and Looking Away until proficiency is reached.

Then move onto the threes column. Skip count by 3’s, saying each number as you synchronize with the impact.

3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36

3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36

3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36

Do the sequence both Looking and Looking Away until proficiency is reached.

Then skip count numerically down or backwards. Add the zero (“0”) if you wish.

36, 33, 30, 27, 24, 21, 18, 15, 12, 9, 6, 3, 0

36, 33, 30, 27, 24, 21, 18, 15, 12, 9, 6, 3, 0

36, 33, 30, 27, 24, 21, 18, 15, 12, 9, 6, 3, 0

Do the sequence both Looking and Looking Away until proficiency is reached.

Depending on the age and ability to reach proficiency, you may wish to do 1, 2 or 3 columns a day. Spend the usual 25-35 minutes per day working on the numbers, doing a review of the prior columns before beginning work on a new column of numbers.

After you have completed the 6's column with proficiency, do the Long Form (Multiplication and Division) with the same chart (see Section following).

Once that has been completed to proficiency, post the sheet for the number columns of 7 through 10 and do that to proficiency, both with Skip Counting and then with the Long Form. Lastly, do the 11s and 12s column of the next chart, and for teens and adults who need the challenge, also do the 13s and 14s. For younger kids or those who struggle with the math, skip the last 2 columns.

Long Form (Multiplication and Division)

With Long Form, we use a slightly different beat or cadence. Synchronize the impact to match the speaking of a number for the columns that are boldfaced (or highlighted in yellow or gray (depending if you have a color or black printer) in the tables below.

Repeat the entire sequence or table three times, both Looking and Looking Away.

2	times	1	is	2
2	times	2	is	4
2	times	3	is	6
2	times	4	is	8
2	times	5	is	10
2	times	6	is	12
2	times	7	is	14
2	times	8	is	16
2	times	9	is	18
2	times	10	is	20
2	times	11	is	22
2	times	12	is	24

Say the numbers with an steady, yet syncopated tempo. The “times __ 1 is” is going to be quickly stated, followed by a slight pause before moving onto the next line. Do the sequence both Looking and Looking Away until proficiency is reached.

Division

Now do the numbers using division numerically down or backwards. Since there are more syllables in “divided by __ is”, the syncopated tempo will be a bit slower. The sequence goes as follows:

24	divided by	2	is	12
22	divided by	2	is	11
20	divided by	2	is	10
18	divided by	2	is	9
16	divided by	2	is	8

14	divided by	2	is	7
12	divided by	2	is	6
10	divided by	2	is	5
8	divided by	2	is	4
6	divided by	2	is	3
4	divided by	2	is	2
2	divided by	2	is	1

Repeat the entire sequence or table three times, both Looking and Looking Away until proficiency is reached.

Quizzing: Once proficiency is reached, **quiz the student** on various number pairs, for example: “What is 2 times 6?” “What is 16 divided by 2?”

Once the student has mastered the 2’s, move on to the 3’s column. Repeat the entire sequence or table three times, both Looking and Looking Away.

3	times	1	is	3
3	times	2	is	6
3	times	3	is	9
3	times	4	is	12
3	times	5	is	15
3	times	6	is	18
3	times	7	is	21
3	times	8	is	24
3	times	9	is	27
3	times	10	is	30
3	times	11	is	33
3	times	12	is	36

Do the sequence both Looking and Looking Away until proficiency is reached.

Now do the column of numbers using division numerically down or backwards. The sequence goes as follows:

36	divided by	3	is	12
33	divided by	3	is	11
30	divided by	3	is	10
27	divided by	3	is	9
24	divided by	3	is	8
21	divided by	3	is	7
18	divided by	3	is	6
15	divided by	3	is	5
12	divided by	3	is	4

9	divided by	3	is	3
6	divided by	3	is	2
3	divided by	3	is	1

Do the sequence both Looking and Looking Away until proficiency is reached.

Quizzing: Once proficiency is reached, quiz the student on various number pairs, for example: “What is 3 times 7?” “What is 27 divided by 3?” Get more creative: “From what you have learned so far, what number pairs when multiplied go evenly into 24?” (answer: 2 times 12 and 3 times 8; and optionally 4 times 6). If necessary, see the Quizzing Details section later in this document.

Continue through the forgoing sequence for each column of numbers, both Looking and Looking Away until proficiency is reached. Test proficiency with quiz questions (like with the spelling exercises).

Do not move onto a new column until proficiency is reached. Vary the type of exercises (tossing, marching) to add variety.

Quizzing Details

Help your student become more adapt at processing numbers through creative quizzing. Here are some of the same questions phrased a little differently.

- What numbers go evenly into 12? **Answer:** 1, 2, 3, 4, 6, 12
- What numbers when multiplied together go evenly into 12? **Answer:** 1 and 12; 2 and 6; 3 and 4
- What numbers go evenly into 40? **Answer:** 1, 2, 4, 5, 8, 10, 20, 40
- What numbers when multiplied together go evenly into 40? **Answer:** 1 and 40; 2 and 20; 4 and 10; 5 and 8

Advanced (for down the road):

- What numbers go evenly into 108? **Answer:** 1, 2, 3, 4, 6, 9, 12, 24, 36, 54, 108
- What numbers when multiplied together go evenly into 108? **Answer:** 1 and 108, 2 and 54, 3 and 36, 4 and 27, 6 and 18, 9 and 12
- Or more likely the answers would be given as: **Answer:** 1 and 108, 2 and 54, 4 and 27, 9 and 12, 3 and 36, 6 and 18

Tip: If doing products or factors, to drive out all the pairs, start with a pair that one is familiar with, for example for the number 108: 1 and 108

- 108 is divisible by 2: $108 / 2 = 54$. Multiply the other number by 2 (e.g. $2 \times 1 = 2$) and there you have your pair (i.e. 2×54)
- Repeat the process: $54 / 2 = 27$. $2 \times 2 = 4$; pair is 4×27
- 27 is divisible by 3. $27 / 3 = 9$, $4 \times 3 = 12$; pair is 9×12 .
- 27 is also divisible by 9, so $27 / 9 = 3$, $4 \times 9 = 36$; and the pair is 3×36 .
- 36 is divisible by 2, so $36 / 2 = 18$; and multiply $3 \times 2 = 6$, and the pair is 6×18 .

Addition and Subtraction (Long Form only - Optional)

If your child isn't ready for the multiplication and division charts, you can request copies of our addition and subtraction charts. The concepts in doing these charts is similar to that of the Multiplication and Division Charts with some modifications.

With Addition and Subtraction charts, we use a slightly different beat or cadence than one would use for the skip counting in the Multiplication Charts. However, it is still important to synchronize the impact to match the speaking of a number for the columns that are boldfaced in the tables below.

You may wish to explain to your child or student that we have a number of words that mean the same as **addition**. These include “added to”, “plus”, “and”, etc. For young kids, “plus” or “added” is usually sufficient.

Repeat the entire sequence or table three times, both Looking and Looking away.

1	plus	1	is	2
1	plus	2	is	3
1	plus	3	is	4
1	plus	4	is	5
1	plus	5	is	6
1	plus	6	is	7
1	plus	7	is	8
1	plus	8	is	9
1	plus	9	is	10

Say the numbers with an even tempo (like a slow metronome). The “plus ___ is” is going to be bit quicker, followed by a silent pause before moving onto the next line. Do the sequence both Looking and Looking Away until proficiency is reached.

Next you will be working on subtraction. You may wish to explain to your student that we have a number of words that mean the same as **subtraction**. These include “subtracted from”, “taken away from”, “minus”, etc. For young kids, “subtracted” or “minus” is usually sufficient.

Do the numbers using **subtraction** numerically down or backwards. Since there is one more syllable in “minus ___ is”, the tempo will be just a bit slower. The sequence goes as follows:

10	minus	1	is	9
9	minus	1	is	8
8	minus	1	is	7
7	minus	1	is	6
6	minus	1	is	5
5	minus	1	is	4
4	minus	1	is	3

3	minus	1	is	2
2	minus	1	is	1

Repeat the entire sequence or table three times, both Looking and Looking Away until proficiency is reached. Once proficiency is reached, quiz the student on various number pairs, for example: “What is 1 plus 6?” “What is 10 minus 1?”

Once the student has mastered the 1’s, move on to the 2’s column. Do the column first doing the addition sequence. Repeat the entire sequence or table three times, both Looking and Looking Away.

2	plus	1	is	3
2	plus	2	is	4
2	plus	3	is	5
2	plus	4	is	6
2	plus	5	is	7
2	plus	6	is	8
2	plus	7	is	9
2	plus	8	is	10
2	plus	9	is	11

Do the sequence both Looking and Looking Away until proficiency is reached.

Now do the column of numbers using **subtraction** numerically down or backwards. The sequence goes as follows:

11	minus	2	is	9
10	minus	2	is	8
9	minus	2	is	7
8	minus	2	is	6
7	minus	2	is	5
6	minus	2	is	4
5	minus	2	is	3
4	minus	2	is	2
3	minus	2	is	1

Do the sequence both Looking and Looking Away until proficiency is reached. Once proficiency is reached, quiz the student on various number pairs, for example: “What is 2 plus 7?” “What is 8 minus 2?” Get more creative: “From what you have learned so far, what 2 numbers add up to 5?” (answer: 1 plus 4 and 2 plus 3). “What numbers subtracted will give you the number 4?” (answer 5 minus 1 and 6 minus 2).

Continue through the forgoing sequence for each column of numbers, both Looking and Looking Away covering addition and subtraction until proficiency is reached. Test proficiency with quiz questions (like with the spelling exercises).

Do not move onto a new column until proficiency is reached. Vary the type of exercises (tossing, marching, ball bunting) to add variety.

After you have completed the 5's column with proficiency, post the sheet for the number columns of 6 through 12.