# Math Fact Fluency in Second Grade Learning Support

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**ED 495**

## Entry #1: Introduction (March 19, 2015)

I am in a learning support classroom in Hershey Primary School in Derry Township School District. The school district has 47.8% males and 52.2% females. The district is 99.2% one race and .8% two or more races. The total population is 88.8% white, 2.7% Hispanic or Latino, 1.9% African American, 5.2% Asian, .1% American Indian or Alaska Native, Asian, and .6% another race. (PA Department of Education, 2014)

In Hershey Primary School there are 571 total students with 269 males and 302 females enrolled. 77.2% are white, 10.2% are Asian, 5.4% are African American, 4.4% are Hispanic, 2.5% are Multiracial, and < .5% are Native American or Alaska Native. 16.1% of all students qualify for free or reduced-price lunches. (PA Department of Education, 2014)

My room serves students from second grade up to fifth grade, but fourth and fifth grade are there for extra support at the end of the day while second and third graders are there for instruction during the day. All of the students served in my classroom have varying needs, from specific learning disabilities to emotional support, which can make it a challenge for them to learn in the general education setting. The students I will be working with are a group of six second graders, two boys and four girls, who are struggling with math.

I have always been interested in math, either learning it in school or teaching it. Being able to work with students who struggle in this area of their education is so rewarding because I can share my passion and motivation for math with the students and hopefully make them more excited to learn about math. I have only worked with

students with specific math disabilities one other time and it was an incredible experience. The specific boy I worked with was in Kindergarten and some days he could not even recognize the number 1. Being passionate about math, it was hard for me to fathom how this could be possible, so it was a challenge for me to teach him how to actually recognize numbers and have that basic number sense. Since then, I have wanted to pursue this challenge even further, and this action research was the perfect time to do it.

Throughout my time working with my second grade special education students, it has been concerning, for both my cooperating teacher and I, that the current math program and curriculum do not serve our students best when it comes to math fact fluency. The current program has students practicing the facts over and over again until they can solve the basic math facts quickly and accurately. With students who need more help in math and more engaging ways to learn, just practicing math facts over again every day is not going to work well. They came into second grade not having a very good number sense or even being able to count fluently, so the current second grade math curriculum is not made for these students to catch them up not only on basic number sense but also math fact fluency. With this I came up with the following question: How can I plan and implement math lessons to increase second grade students' addition math fact fluency?

# Entry #2: Action Plan (March 26, 2015)

The overall goal of my action research is to increase second grade students' basic math fact fluency. There is a group of six students that have math class in my learning support classroom daily. I have noticed over the past few weeks these students have been struggling with math fact fluency. They usually have about 20 minutes at the end of the hour-long period that they can go on the computer and work on a website called stmath.com. This website is interactive and provides the students with more practice in areas they need it most. The program does not allow the teacher to set a specific program for them to do, so some are working on ordering numbers and some are working on math facts. I have seen all of them struggling with basic math facts so I want to give them extra practice and consistency with practicing their math facts so these students will be able to answer simple addition facts quickly without having to count up like they usually do.

I will start with addition fact fluency, but if after a check-in after a week all students are progressing with addition facts through an informal assessment using an ActivInspire flipchart, I will move on to subtraction facts. By implementing engaging and interactive content lessons focusing on basic addition facts, I hope to be able to increase the students' fluency. I will be planning every math lesson with half of the time being practice with math facts at the beginning and other content topics at the end. The math fact part of the lessons will include games with active participation from each student, ActivInspire flipcharts that require every student to participate using the Promethean Board, and modeling with manipulatives such as BINGO chips. My hope is all students

will be actively participating in each part of the lessons and the students will enjoy doing the activities. These lessons will start on April 6th during the second grade math content time from 1pm until 1:30pm and continue for two weeks.

To assess my student's growth, I will administer a timed addition fact probe at the beginning of the two-week period, a check-in half-way through, and will administer the same timed addition fact probe at the end of the implementation of content lessons. I will also be observing the students' behavior during the lessons to gauge what I think the students find engaging and interesting, as well as getting their feedback on what they like and what they do not like about the activities.

# Entry #3: Reflections on Intervention, Part I (April 9, 2015)

My original plan was to give a pre-test on Monday April 6th on math facts from plus 1 to plus 10s (see Appendix B). Unfortunately most of the students were not in class and I had to push the pre-test back one day. On Tuesday April 7th, I administered the pre-test of facts from plus 1 to plus 10s (see Appendix D). I gave them 25 problems and they had 2 minutes to answer as many as they could. After they were done I went over facts for plus 1s and plus 2s on a flipchart (see Appendix A), then did an activity with counting chips to further work on their basic facts. On Wednesday April 8th I administered a pre-test of just facts from plus 1s to plus 5s (see Appendix B) as most of the students did poorly on the first test with one student, Amanda, not completing any problems (see Appendix D). The students had 2 minutes again to answer as many problems and they could and they did a lot better (see Appendix C). On Thursday April 9th, I reviewed plus 2s with the class and moved on to plus 3s. I believe these will get harder for them the higher we go with the facts.

Table 3.1: Math Fact Pre-Tests

| Name | 1-10 pretest 4/7/15 # of problems correct | # of questions they answered in 2 minutes | % answered correctly | % answered correctly out of total 25 |
|---|---|---|---|---|
| Lorenzo | 23 | 25 | 92% | 92% |
| Jayden | 13 | 17 | 76% | 52% |
| Nicole | 4 | 10 | 40% | 16% |
| Nancy | 1 | 11 | 10% | 4% |
| Amanda | 0 | 0 | 0% | 0% |
| Gabriella | 11 | 14 | 79% | 44% |

| | 1-5 pretest 4/8/15 # of problems correct | # of questions they answered in 2 minutes | % answered correctly | % answered correctly out of total 25 |
|---|---|---|---|---|
| Lorenzo | 25 | 25 | 100% | 100% |
| Jayden | 21 | 22 | 95% | 84% |
| Nicole | 24 | 25 | 96% | 96% |
| Nancy | 23 | 25 | 92% | 92% |
| Amanda | 19 | 19 | 100% | 76% |
| Gabriella | 25 | 25 | 100% | 100% |

From the results of the pre-tests (See Table 3.1), the students have more practice with the lower addition facts but I still want to work on the higher addition facts. My original plan was to focus on all of the basic math facts, but after seeing their performance on the pre-tests I decided to focus on the lower math facts and build up to the higher facts. I was also planning on moving onto subtraction potentially but with my time frame and their ability levels I am going to just focus on addition facts. In the case of Lorenzo, he was the only one who did excellent on both of the pre-tests. He has expressed his fondness of the timed tests and truly wants to practice and learn more of his facts. Since Lorenzo is well above proficient on both of the pre-tests, I plan on giving him extra practice to do on harder problems then what I am doing with the whole class.

I believe the students are enjoying the extra activities and practice so far and it is a nice change for them and breaks up the math period for them. The students always seem so excited to do the review flipcharts and the ten frames flipcharts as it gets them up and moving to and from the board. They also always love when I do activities on the

Promethean Board, as do I. I do want to do more interesting activities for them as the same thing every day is going to get boring after a few days. I plan to do an activity called "I have, Who has" that involves the students working together to figure out who has the solution to each of the math problems. For example, one card would say, "I have 12, who has 5+2?" and the student with the card that says I have 7 will say what is on their card and this will continue until we go through all of the cards. I think this will be a fun activity for the students to do with each other and it has them interacting with others and is not just individual practice. I also want to do a math fact beach ball where I write the math facts on a small beach ball and we either throw or roll the ball to each other and answer one of the math facts on the ball. I have done this activity before with other second graders and they enjoyed it a lot.

I question now how far we are going to get in reviewing the many math facts. So far we have only really had time to go through one set of facts a day and I would want to do more later on. I also question how I will be able to instruct these students on facts when they are all on a different level of achievement. I would recommend continuing with the practice and including more review activities of multiple sets of facts and not just one set so I can get to more facts in a shorter amount of time. I also recommend enriching those students who are achieving greater than the other students in the class so they are not bored and the other students are not left behind.

## Entry #4: Reflections on Intervention, Part II (April 16, 2015)

For the past week I have been working with the second graders for about 15 minutes every day at the beginning of math. I have the students review their math facts up to +5 using a flipchart I created on ActivInspire, and I also have them work with tens frames on the Promethean board to assist them with solving problems up to +9 (see Appendix A). On Friday April 10th, 4 out of 6 of my students were not in class so I had to completely change my approach. I played interactive math fact games from the Internet on the Promethean board with the two girls who were there for about a half an hour. They seemed to enjoy the variety of games to help them practice their facts.

According to the pre-test I administered on April 7th, the students were not as proficient with math facts up to +9, but were more comfortable with facts up to +5. Each student is on a different ability level and I have found that most of the students who are not comfortable with their math facts will not participate as much in the review. When I ask for a volunteer, they will not raise their hand and will not come up to the board unless I specifically ask them to.

I think the students enjoy the change in pace because before I started having them practice math facts, they were doing the same topic for about a half an hour. Now they are excited to start math class and have told me the activities we do are really fun and different from what they used to do. It is broken up for them and they are not thinking about the same subject for a long amount of time like they were before. I have also included a lot of use of technology into math, specifically custom ActivInspire flipcharts that are interactive and engaging for the students.

I find that it is difficult to get into a pattern with the students only because sometimes they are not in school or did not come to class because of something happening in their general education classroom. Because the group is only six students, even when one is missing, they don't understand what is happening the following day and I have to catch them up. If it was a larger group I would still be able to get everyone else in the routine and it wouldn't be so hard to catch the missing student up. With this, since I am in a special education classroom, the student may not be in the room for many different reasons, not just being absent from school. So even when students are in school that day, it doesn't necessarily mean they will be in my class.

My preliminary findings make me wonder how much progress the students could make if I had done this for longer than two weeks. I also wonder how much they would progress if we had made this a part of the routine of math class from the very beginning of the year, or even from the beginning of my time with them.

Also based on my preliminary findings, I will be adding a post-test of the +1 through +5 math facts instead of just the +1 through +10 facts. My original plan was to do just the one post test for +1 through +10 facts, but from the data collected for my pre-test, those facts were too challenging for them to do, so I will be giving them a post-test on both the +1 through +5 math facts and the +1 through +10 math facts. I am interested in seeing how far they have progressed, if any, with their math fact fluency skills.

## Entry #5: Conclusions and Final Reflection (April 18, 2015)

The purpose of my action research was to find interactive and engaging ways to teach second graders basic math facts. My initial question was: How can I plan and implement math lessons to increase second grade students' addition math fact fluency? My question stayed the same throughout the time of my data collection. The plan to answer my research question was to implement engaging and interactive math lessons centered on basic addition math facts. I would use pre- and post-tests to measure the students' progress throughout the duration of the data collection period.

I found through the implementation of these lessons and activities, most of the students' math fact fluency increased from the pre-test to the post-test. As shown in Figure 5.1, all but one of the students did relatively poorly on the +1 through +10 pre-test, but all of the students answered more questions in 2 minutes showing more confidence in their ability (see Figure 5.2).

Figure 5.1: +1 Through +10 Math Fact Pre-Tests

|  | 1-10 pretest 4/7/15 # of problems correct | # of questions they answered in 2 minutes | % answered correctly | % answered correctly out of total 25 |
|---|---|---|---|---|
| Lorenzo | 23 | 25 | 92% | 92% |
| Jayden | 13 | 17 | 76% | 52% |
| Nicole | 4 | 10 | 40% | 16% |
| Nancy | 1 | 11 | 10% | 4% |
| Amanda | 0 | 0 | 0% | 0% |
| Gabriella | 11 | 14 | 79% | 44% |
| Average | 8.66666666 | 12.8333333 | 50% | 35% |

Figure 5.2: +1 Through +10 Math Fact Post-Tests

|  | 1-10 post-test 4/17/15 # of problems correct | # of questions they answered in 2 minutes | % answered correctly | % answered correctly out of total 25 |
|---|---|---|---|---|
| Lorenzo | 25 | 25 | 100% | 100% |
| Jayden | 9 | 25 | 36% | 36% |
| Nicole | 8 | 9 | 89% | 32% |
| Nancy | absent | absent | absent | absent |
| Amanda | 10 | 11 | 91% | 40% |
| Gabriella | 19 | 19 | 100% | 76% |
| Average | 14.2 | 17.8 | 83% | 57% |

As shown in Figure 5.3, all of the students did relatively well on the pre-test for +1 through +5 addition facts. Although two students decreased in accuracy on the post-test (see Figure 5.4 and 5.5), the rest either stayed the same or grew with their accuracy. This was surprising for me since everyone did so well on the pre-test I had thought the students would have all grown more. The class averaged a 33% increase in accuracy for +1 through +10 addition facts and a 2% decrease in accuracy for +1 through +5 addition facts (see Figure 5.5). I am not so worried about the 2% average decrease as this might just be due to outside circumstances. I am, however, pleased to see a dramatic increase in the class average in accuracy for +1 through +10 math facts. This tells me the students are becoming more comfortable with the harder addition facts than they were for the pre-test. Unfortunately one of the students, Nancy, was not present for the post-test and her data could not be included in the final class average and growth numbers.

Figure 5.3: +1 Through +5 Math Fact Pre-Tests

| | 1-5 pretest 4/8/15 # of problems correct | # of questions they answered in 2 minutes | % answered correctly | % answered correctly out of total 25 |
|---|---|---|---|---|
| Lorenzo | 25 | 25 | 100% | 100% |
| Jayden | 21 | 22 | 95% | 84% |
| Nicole | 24 | 25 | 96% | 96% |
| Nancy | 23 | 25 | 92% | 92% |
| Amanda | 19 | 19 | 100% | 76% |
| Gabriella | 25 | 25 | 100% | 100% |
| Average | 22.8333333 | 23.5 | 97% | 91% |

Figure 5.4: +1 Through +5 Math Fact Post-Tests

| | 1-5 post-test 4/17/15 # of problems correct | # of questions they answered in 2 minutes | % answered correctly | % answered correctly out of total 25 |
|---|---|---|---|---|
| Lorenzo | 25 | 25 | 100% | 100% |
| Jayden | 20 | 25 | 80% | 80% |
| Nicole | 25 | 25 | 100% | 100% |
| Nancy | absent | absent | absent | absent |
| Amanda | 24 | 25 | 96% | 96% |
| Gabriella | 25 | 25 | 100% | 100% |
| Average | 23.8 | 25 | 95% | 95% |

Figure 5.5: Accuracy Changes in Percentages

| Accuracy | | | |
|---|---|---|---|
| **Lorenzo** | Pre-Test | Post-Test | Change |
| 1-5 | 100% | 100% | 0% |
| 1-10 | 92% | 100% | 8% |
| **Jayden** | Pre-Test | Post-Test | Change |
| 1-5 | 95% | 80% | 15% |
| 1-10 | 76% | 36% | 40% |
| **Nicole** | Pre-Test | Post-Test | Change |
| 1-5 | 96% | 100% | 4% |
| 1-10 | 40% | 89% | 49% |
| **Nancy** | Pre-Test | Post-Test | Change |
| 1-5 | 92% | absent | absent |
| 1-10 | 4% | absent | absent |
| **Amanda** | Pre-Test | Post-Test | Change |
| 1-5 | 100% | 96% | 4% |
| 1-10 | 0% | 91% | 91% |
| **Gabriella** | Pre-Test | Post-Test | Change |
| 1-5 | 100% | 100% | 0% |
| 1-10 | 79% | 100% | 21% |
| **Class** | Pre-Test | Post-Test | Change |
| 1-5 | 97% | 95% | 2% |
| 1-10 | 50% | 83% | 33% |

One student, Jayden, had a surprising decrease in accuracy for both sets of tests. There could be many reasons for this like outside influences and his overall motivation to do work that day. I have found by working with Jayden his performance in school is directly related to his overall motivation and he could be very motivated one day and not motivated at all the next. This is true for most students I work with, but he goes to the extremes, mostly being unmotivated to do any schoolwork. I believe if we find a way to get him consistently motivated to learn his scores will level out and should rise.

The conclusion I came to through my analysis of the data is the extra practice with addition facts is helping the students' overall addition fact fluency. If I continue

with the extra practice at the beginning of the math instruction time, the overall fluency

growth should continue.

I believe my plan worked well overall. The students were visibly excited to do the

math fact practice at the beginning of each math class and were engaged throughout

the lessons. I did have to change my plan at the beginning based on the pre-test scores

for the +1 through +10 addition facts. I did not know they were so uncomfortable with

the harder addition facts so I focused on the lower addition facts (+1 through +5) at first

then gradually added in the harder facts over time. Something that did not go as

smoothly as I thought was implementing my lessons consecutively. By working in a

learning support classroom, students are frequently absent from school or do not come

to class because of an event going on in their general education classroom. With this I

did not have many days with all of the students there so I could implement my lessons

in an order that makes sense to them. I either played other games with the few students

I had or I continued with my lessons but the students who were absent did not get the

consistency I wanted them to get out of it.

If I were to implement this plan again, I would build more flexibility and more

choices of activities for the students to do. Since I was creating all of the flipcharts and

activities myself, I did not have much time left to create more activities to choose from.

In the future I would have started planning much earlier and would have looked more

into borrowing already-made resources and activities to use to save time in planning.

As a result of this action research project I learned how difficult it is to plan and

implement engaging and interactive lessons by myself, especially creating all of the

resources myself. It is a very time consuming process coming up with ideas of activities and lessons to do with the students that would be fun and interactive for them. I learned it is hard to motivate students to learn if there are things going on outside of school they are thinking about all day. Students regularly come into the classroom exhausted or unfocused and it is a difficult process to get their attention back to their school work.

Through doing this action research project I have learned that teachers do action research all of the time, especially special education teachers. We have to constantly assess the students and adjust instruction based on their needs. This project was just a glimpse into what a special education teacher needs to do on a weekly or even daily basis. General education teachers also assess their students but not as frequently and often do not have a choice in how to teach the content as they follow a specific curriculum. I have learned how difficult action research is to do, but also how rewarding it can be for the students when they learn the material to the best of their ability because the teacher knows what will work with them and what will not work based on research. Teaching is a rewarding experience, but only if your students are learning as best as they can.

# Appendix A: Flipchart and Activity Examples
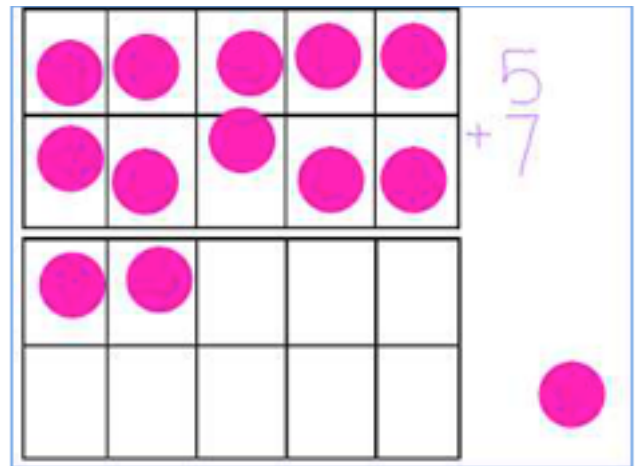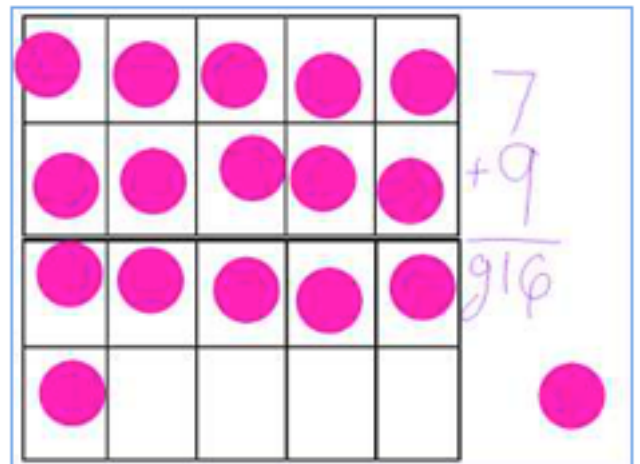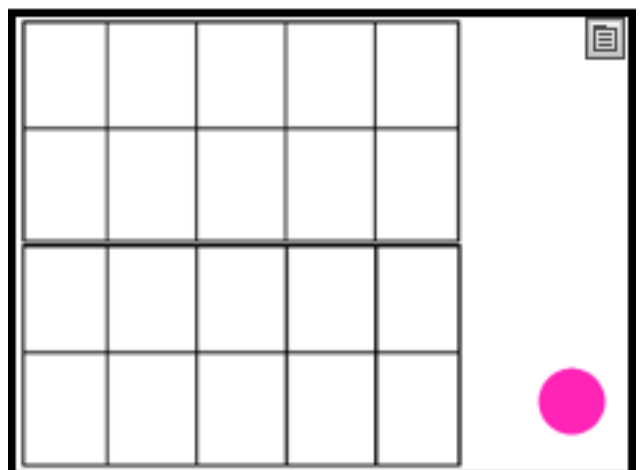












Review of +1 through +5 facts. When black boxes are clicked they disappear to reveal the correct answer in blue.

Tens frames with interactive chips. The first two pictures are of student work and the last one is of a blank slide.

**+ 1**    1 + 1    2

2 + 1    3    3 + 1

4    4 + 1    5

5 + 1    6    6 + 1

7    7 + 1    8

8 + 1    9    9 + 1

10    1+1 4+1 7+1 / 2+1 5+1 8+1 / 3+1 6+1 9+1

**+ 2**    1 + 2    3

2 + 2    4    3 + 2

5    4 + 2    6

5 + 2    7    6 + 2

8    7 + 2    9

8 + 2    10    9 + 2

11    1+2 4+2 7+2 / 2+2 5+2 8+2 / 3+2 6+2 9+2

Example of review slides for +1 and +2 facts. Slides were created up to +9 and +10 facts. The last slide has black boxes that disappear when you click them to reveal the correct answer.

| | |
|---|---|
| I have<br>**12**<br><br>Who has<br>**5 + 2?** | I have<br>**8**<br><br>Who has<br>**1 + 1?** |
| I have<br>**7**<br><br>Who has<br>**2 + 2?** | I have<br>**2**<br><br>Who has<br>**7 + 3?** |
| I have<br>**4**<br><br>Who has<br>**8 + 1?** | I have<br>**10**<br><br>Who has<br>**9 + 4?** |
| I have<br>**9**<br><br>Who has<br>**5 + 3?** | I have<br>**13**<br><br>Who has<br>**1 + 2?** |

| | |
|---|---|
| I have<br>**3**<br><br>Who has<br>**1 + 5?** | I have<br>**5**<br><br>Who has<br>**9 + 5?** |
| I have<br>**6**<br><br>Who has<br>**7 + 4?** | I have<br>**14**<br><br>Who has<br>**7 + 5?** |
| I have<br>**11**<br><br>Who has<br>**2 + 3?** | |

Cards for the "I have Who has" game for +1 through +5 facts.

# Appendix B: Blank Tests

**Math Worksheet**

Name: _____
Score: _____
Date: _____

| | | | | |
|---|---|---|---|---|
| 1) 2 + 5 | 2) 1 + 1 | 3) 0 + 3 | 4) 2 + 3 | 5) 2 + 4 |
| 6) 3 + 1 | 7) 5 + 0 | 8) 1 + 2 | 9) 3 + 1 | 10) 3 + 5 |
| 11) 4 + 4 | 12) 3 + 3 | 13) 4 + 4 | 14) 5 + 3 | 15) 2 + 4 |
| 16) 3 + 3 | 17) 3 + 2 | 18) 5 + 0 | 19) 2 + 5 | 20) 5 + 4 |
| 21) 2 + 5 | 22) 2 + 3 | 23) 4 + 1 | 24) 3 + 0 | 25) 2 + 5 |

**Math Worksheet**

Name: _____
Score: _____
Date: _____

| | | | | |
|---|---|---|---|---|
| 1) 9 + 5 | 2) 7 + 4 | 3) 6 + 5 | 4) 9 + 10 | 5) 3 + 4 |
| 6) 2 + 3 | 7) 3 + 10 | 8) 10 + 10 | 9) 3 + 7 | 10) 9 + 9 |
| 11) 5 + 5 | 12) 2 + 6 | 13) 10 + 1 | 14) 8 + 5 | 15) 4 + 5 |
| 16) 3 + 2 | 17) 7 + 5 | 18) 10 + 8 | 19) 10 + 9 | 20) 8 + 5 |
| 21) 3 + 8 | 22) 3 + 5 | 23) 5 + 1 | 24) 1 + 3 | 25) 4 + 6 |

I administered the same test for both the pre-tests and the post-tests. Above are blank tests for the +1 through +5 facts test and the +1 through +10 facts test.

# Appendix C: Student Pre-Tests for +1 through +5 Facts

The names of students have been covered and replaced with pseudonyms. These pseudonyms have been used throughout the rest of the document.

**Name:** Lorenzo
**Math Worksheet** — 25/25 — Math Fact Cafe™ © Math Fact Cafe
**Score:** 25
Pre-Test
**Date:** 4/8/15

| | | | | |
|---|---|---|---|---|
| 1) 2 + 5 = 7 | 2) 1 + 1 = 2 | 3) 0 + 3 = 3 | 4) 2 + 3 = 5 | 5) 2 + 4 = 6 |
| 6) 3 + 1 = 4 | 7) 5 + 0 = 5 | 8) 1 + 2 = 3 | 9) 3 + 1 = 4 | 10) 3 + 5 = 8 |
| 11) 4 + 4 = 8 | 12) 3 + 3 = 6 | 13) 4 + 4 = 8 | 14) 5 + 3 = 8 | 15) 2 + 4 = 6 |
| 16) 3 + 3 = 6 | 17) 3 + 2 = 5 | 18) 5 + 0 = 5 | 19) 2 + 5 = 7 | 20) 5 + 4 = 9 |
| 21) 2 + 5 = 7 | 22) 2 + 3 = 5 | 23) 4 + 1 = 5 | 24) 3 + 0 = 3 | 25) 2 + 5 = 7 |

**Name:** Jayden
**Math Worksheet** — 21/25 — Math Fact Cafe™ © Math Fact Cafe
**Score:** 21
Pre-Test
**Date:** 4/8/15

| | | | | |
|---|---|---|---|---|
| 1) 2 + 5 = 7 | 2) 1 + 1 = 2 | 3) 0 + 3 = 3 | 4) 2 + 3 = 5 | 5) 2 + 4 = 8 (circled) |
| 6) 3 + 1 = 4 | 7) 5 + 0 = 5 | 8) 1 + 2 = 3 | 9) 3 + 1 = 4 | 10) 3 + 5 = 8 |
| 11) 4 + 4 = 8 | 12) 3 + 3 = 6 | 13) 4 + 4 = 8 | 14) 5 + 3 = 8 | 15) 2 + 4 = |
| 16) 3 + 3 = 6 | 17) 3 + 2 = 5 | 18) 5 + 0 = 5 | 19) 2 + 5 = 7 | 20) 5 + 4 = |
| 21) 2 + 5 = 7 | 22) 2 + 3 = 5 | 23) 4 + 1 = 5 | 24) 3 + 0 = 3 | 25) 2 + 5 = |

**Name:** Nicole
**Score:** 24
**Date:** 4-8-15

**Math Worksheet**

Pre-Test

1) $\begin{array}{r} 2 \\ + 5 \\ \hline 7 \end{array}$
2) $\begin{array}{r} 1 \\ + 1 \\ \hline 2 \end{array}$
3) $\begin{array}{r} 0 \\ + 3 \\ \hline 3 \end{array}$
4) $\begin{array}{r} 2 \\ + 3 \\ \hline 5 \end{array}$
5) $\begin{array}{r} 2 \\ + 4 \\ \hline 6 \end{array}$

6) $\begin{array}{r} 3 \\ + 1 \\ \hline 4 \end{array}$
7) $\begin{array}{r} 5 \\ + 0 \\ \hline 5 \end{array}$
8) $\begin{array}{r} 1 \\ + 2 \\ \hline 3 \end{array}$
9) $\begin{array}{r} 3 \\ + 1 \\ \hline 4 \end{array}$
10) $\begin{array}{r} 3 \\ + 5 \\ \hline 8 \end{array}$

11) $\begin{array}{r} 4 \\ + 4 \\ \hline 8 \end{array}$
12) $\begin{array}{r} 3 \\ + 3 \\ \hline 6 \end{array}$
13) $\begin{array}{r} 4 \\ + 4 \\ \hline 8 \end{array}$
14) $\begin{array}{r} 5 \\ + 3 \\ \hline 8 \end{array}$
15) $\begin{array}{r} 2 \\ + 4 \\ \hline 6 \end{array}$

16) $\begin{array}{r} 3 \\ + 3 \\ \hline 0 \end{array}$
17) $\begin{array}{r} 3 \\ + 2 \\ \hline 5 \end{array}$
18) $\begin{array}{r} 5 \\ + 0 \\ \hline 5 \end{array}$
19) $\begin{array}{r} 2 \\ + 5 \\ \hline 7 \end{array}$
20) $\begin{array}{r} 5 \\ + 4 \\ \hline \end{array}$ (circled)

21) $\begin{array}{r} 2 \\ + 5 \\ \hline 7 \end{array}$
22) $\begin{array}{r} 2 \\ + 3 \\ \hline 5 \end{array}$
23) $\begin{array}{r} 4 \\ + 1 \\ \hline 5 \end{array}$
24) $\begin{array}{r} 3 \\ + 0 \\ \hline 3 \end{array}$
25) $\begin{array}{r} 2 \\ + 5 \\ \hline 7 \end{array}$

---

**Name:** Nancy
**Score:** 23
**Date:** 4-8-15

**Math Worksheet**

Pre-Test

1) $\begin{array}{r} 2 \\ + 5 \\ \hline 7 \end{array}$
2) $\begin{array}{r} 1 \\ + 1 \\ \hline 2 \end{array}$
3) $\begin{array}{r} 0 \\ + 3 \\ \hline 3 \end{array}$
4) $\begin{array}{r} 2 \\ + 3 \\ \hline 5 \end{array}$
5) $\begin{array}{r} 2 \\ + 4 \\ \hline 6 \end{array}$

6) $\begin{array}{r} 3 \\ + 1 \\ \hline 4 \end{array}$
7) $\begin{array}{r} 5 \\ + 0 \\ \hline 5 \end{array}$
8) $\begin{array}{r} 1 \\ + 2 \\ \hline 3 \end{array}$
9) $\begin{array}{r} 3 \\ + 1 \\ \hline 4 \end{array}$
10) $\begin{array}{r} 3 \\ + 5 \\ \hline 8 \end{array}$

11) $\begin{array}{r} 4 \\ + 4 \\ \hline 8 \end{array}$
12) $\begin{array}{r} 3 \\ + 3 \\ \hline 6 \end{array}$
13) $\begin{array}{r} 4 \\ + 4 \\ \hline 8 \end{array}$
14) $\begin{array}{r} 5 \\ + 3 \\ \hline 8 \end{array}$
15) $\begin{array}{r} 2 \\ + 4 \\ \hline 6 \end{array}$

16) $\begin{array}{r} 3 \\ + 3 \\ \hline 6 \end{array}$
17) $\begin{array}{r} 3 \\ + 2 \\ \hline 4 \end{array}$ (circled)
18) $\begin{array}{r} 5 \\ + 0 \\ \hline 5 \end{array}$
19) $\begin{array}{r} 2 \\ + 5 \\ \hline 7 \end{array}$
20) $\begin{array}{r} 5 \\ + 4 \\ \hline 9 \end{array}$

21) $\begin{array}{r} 2 \\ + 5 \\ \hline 7 \end{array}$
22) $\begin{array}{r} 2 \\ + 3 \\ \hline 4 \end{array}$ (circled)
23) $\begin{array}{r} 4 \\ + 1 \\ \hline 5 \end{array}$
24) $\begin{array}{r} 3 \\ + 0 \\ \hline 3 \end{array}$
25) $\begin{array}{r} 2 \\ + 5 \\ \hline 7 \end{array}$

**Math Worksheet**

Pre-Test

1)  2
   + 5
   ___
    7

2)  1
   + 1
   ___
    2

3)  0
   + 3
   ___
    3

4)  2
   + 3
   ___
    5

5)  2
   + 4
   ___
    6

6)  3
   + 1
   ___
    4

7)  5
   + 0
   ___
    5

8)  1
   + 2
   ___
    3

9)  3
   + 1
   ___
    4

10) 3
   + 5
   ___
    8

11) 4
   + 4
   ___
    8

12) 3
   + 3
   ___
    6

13) 4
   + 4
   ___
    8

14) 5
   + 3
   ___
    8

15) 2
   + 4
   ___
    6

16) 3
   + 3
   ___
    6

17) 3
   + 2
   ___
    5

18) 5
   + 0
   ___
    5

19) 2
   + 5
   ___
    7

20) 5
   + 4
   ___

21) 2
   + 5
   ___

22) 2
   + 3
   ___

23) 4
   + 1
   ___

24) 3
   + 0
   ___

25) 2
   + 5
   ___

# Appendix D: Student Pre-Tests for +1 through +10 Facts

Name: Lorenzo
Score:
Date: 4/7/15

**Math Worksheet**
Pre-Test
(23)

Math Fact Cafe™
© Math Fact Cafe

| 1) 9 + 5 = 14 | 2) 7 + 4 = 11 | 3) 6 + 5 = 11 | 4) 9 + 10 = 18 | 5) 3 + 4 = 7 |
|---|---|---|---|---|
| 6) 2 + 3 = 5 | 7) 3 + 10 = 13 | 8) 10 + 10 = 20 | 9) 3 + 7 = 10 | 10) 9 + 9 = 18 |
| 11) 5 + 5 = 10 | 12) 2 + 6 = 8 | 13) 10 + 1 = 11 | 14) 8 + 5 = 13 | 15) 4 + 5 = 9 |
| 16) 3 + 2 = 5 | 17) 7 + 5 = 12 | 18) 10 + 8 = 18 | 19) 10 + 9 = 18 | 20) 8 + 5 = 13 |
| 21) 3 + 8 = 11 | 22) 3 + 5 = 8 | 23) 5 + 1 = 6 | 24) 1 + 3 = 4 | 25) 4 + 6 = 10 |

Name: Jayden
Score:
Date: 4-7-15

**Math Worksheet**
Pre-Test
(13)

Math Fact Cafe™
© Math Fact Cafe

| 1) 9 + 5 = 15 | 2) 7 + 4 = 11 | 3) 6 + 5 = 11 | 4) 9 + 10 = 20 | 5) 3 + 4 = 7 |
|---|---|---|---|---|
| 6) 2 + 3 = 6 | 7) 3 + 10 = 13 | 8) 10 + 10 = 20 | 9) 3 + 7 = 10 | 10) 9 + 9 = 18 |
| 11) 5 + 5 = 10 | 12) 2 + 6 = 8 | 13) 10 + 1 = 11 | 14) 8 + 5 = 16 | 15) 4 + 5 = 9 |
| 16) 3 + 2 = 5 | 17) 7 + 5 = 12 | 18) 10 + 8 = | 19) 10 + 9 = | 20) 8 + 5 = |
| 21) 3 + 8 = | 22) 3 + 5 = | 23) 5 + 1 = | 24) 1 + 3 = | 25) 4 + 6 = |

**Math Worksheet**

Name: Nicole
Score:
Date: 4-7-15

Pre-Test  (4)

Math Fact Cafe™

*Subtracting?*

| | | | | |
|---|---|---|---|---|
| 1) 9 <br> + 5 <br> **4** | 2) 7 <br> + 4 <br> **3** | 3) 6 <br> + 5 <br> **1** | 4) 9 <br> + 10 <br> **7** | 5) 3 <br> + 4 <br> **1** |
| 6) 2 <br> + 3 <br> **5** | 7) 3 <br> + 10 <br> **13** | 8) 10 <br> + 10 <br> **20** | 9) 3 <br> + 7 <br> **10** | 10) 9 <br> + 9 <br> **0** |
| 11) 5 <br> + 5 | 12) 2 <br> + 6 | 13) 10 <br> + 1 | 14) 8 <br> + 5 | 15) 4 <br> + 5 |
| 16) 3 <br> + 2 | 17) 7 <br> + 5 | 18) 10 <br> + 8 | 19) 10 <br> + 9 | 20) 8 <br> + 5 |
| 21) 3 <br> + 8 | 22) 3 <br> + 5 | 23) 5 <br> + 1 | 24) 1 <br> + 3 | 25) 4 <br> + 6 |

---

**Math Worksheet**

Name: Nancy
Score:
Date: 4-7-15

7 Pre-Test  (1)

Math Fact Cafe™

| | | | | |
|---|---|---|---|---|
| 1) 9 <br> + 5 <br> **13** | 2) 7 <br> + 4 <br> **10** | 3) 6 <br> + 5 <br> **10** | 4) 9 <br> + 10 <br> **18** | 5) 3 <br> + 4 <br> **6** |
| 6) 2 <br> + 3 <br> **4** | 7) 3 <br> + 10 <br> **12** | 8) 10 <br> + 10 <br> **27** | 9) 3 <br> + 7 <br> **9** | 10) 9 <br> + 9 <br> **48** |
| 11) 5 <br> + 5 <br> **10** | 12) 2 <br> + 6 | 13) 10 <br> + 1 | 14) 8 <br> + 5 | 15) 4 <br> + 5 |
| 16) 3 <br> + 2 | 17) 7 <br> + 5 | 18) 10 <br> + 8 | 19) 10 <br> + 9 | 20) 8 <br> + 5 |
| 21) 3 <br> + 8 | 22) 3 <br> + 5 | 23) 5 <br> + 1 | 24) 1 <br> + 3 | 25) 4 <br> + 6 |

**Name:** Amanda
**Score:** _____
**Date:** 4-7-15

**Math Worksheet**

Pre-Test

( 0 )

Math Fact Cafe™

| 1) | 2) | 3) | 4) | 5) |
|---|---|---|---|---|
| 9 + 5 | 7 + 4 | 6 + 5 | 9 + 10 | 3 + 4 |

| 6) | 7) | 8) | 9) | 10) |
|---|---|---|---|---|
| 2 + 3 | 3 + 10 | 10 + 10 | 3 + 7 | 9 + 9 |

| 11) | 12) | 13) | 14) | 15) |
|---|---|---|---|---|
| 5 + 5 | 2 + 6 | 10 + 1 | 8 + 5 | 4 + 5 |

| 16) | 17) | 18) | 19) | 20) |
|---|---|---|---|---|
| 3 + 2 | 7 + 5 | 10 + 8 | 10 + 9 | 8 + 5 |

| 21) | 22) | 23) | 24) | 25) |
|---|---|---|---|---|
| 3 + 8 | 3 + 5 | 5 + 1 | 1 + 3 | 4 + 6 |

---

**Name:** Gabriella
**Score:** _____
**Date:** 4/7

**Math Worksheet**

Pre-Test

( 11 )

Math Fact Cafe™

| 1) | 2) | 3) | 4) | 5) |
|---|---|---|---|---|
| 9 + 5 = 14 | 7 + 4 = 11 | 6 + 5 = 12 | 9 + 10 = 18 | 3 + 4 = 7 |

| 6) | 7) | 8) | 9) | 10) |
|---|---|---|---|---|
| 2 + 3 = 5 | 3 + 10 = 13 | 10 + 10 = 20 | 3 + 7 = 11 | 9 + 9 = 18 |

| 11) | 12) | 13) | 14) | 15) |
|---|---|---|---|---|
| 5 + 5 = 10 | 2 + 6 = 8 | 10 + 1 = 11 | 8 + 5 = 13 | 4 + 5 |

| 16) | 17) | 18) | 19) | 20) |
|---|---|---|---|---|
| 3 + 2 | 7 + 5 | 10 + 8 | 10 + 9 | 8 + 5 |

| 21) | 22) | 23) | 24) | 25) |
|---|---|---|---|---|
| 3 + 8 | 3 + 5 | 5 + 1 | 1 + 3 | 4 + 6 |

# Appendix E: Student Post-Tests +1 through +5 Facts

## Lorenzo

Name: Lorenzo
Score:
Date: 4/17/15

**Math Worksheet**
Post-Test (25)

Math Fact Cafe™
© Math Fact Cafe

| 1) 2 + 5 = 7 | 2) 1 + 1 = 2 | 3) 0 + 3 = 3 | 4) 2 + 3 = 5 | 5) 2 + 4 = 6 |
|---|---|---|---|---|
| 6) 3 + 1 = 4 | 7) 5 + 0 = 5 | 8) 1 + 2 = 3 | 9) 3 + 1 = 4 | 10) 3 + 5 = 8 |
| 11) 4 + 4 = 8 | 12) 3 + 3 = 6 | 13) 4 + 4 = 8 | 14) 5 + 3 = 8 | 15) 2 + 4 = 6 |
| 16) 3 + 3 = 6 | 17) 3 + 2 = 5 | 18) 5 + 0 = 5 | 19) 2 + 5 = 7 | 20) 5 + 4 = 9 |
| 21) 2 + 5 = 7 | 22) 2 + 3 = 5 | 23) 4 + 1 = 5 | 24) 3 + 0 = 3 | 25) 2 + 5 = 7 |

## Jayden

Name: Jayden
Score:
Date: 4/17/15

**Math Worksheet**
Post-Test (20)

Math Fact Cafe™
© Math Fact Cafe

| 1) 2 + 5 = 7 | 2) 1 + 1 = 2 | 3) 0 + 3 = 3 | 4) 2 + 3 = 4 | 5) 2 + 4 = 8 |
|---|---|---|---|---|
| 6) 3 + 1 = 4 | 7) 5 + 0 = 5 | 8) 1 + 2 = 3 | 9) 3 + 1 = 4 | 10) 3 + 5 = 8 |
| 11) 4 + 4 = 8 | 12) 3 + 3 = 6 | 13) 4 + 4 = 8 | 14) 5 + 3 = 8 | 15) 2 + 4 = 8 |
| 16) 3 + 3 = 6 | 17) 3 + 2 = 4 | 18) 5 + 0 = 5 | 19) 2 + 5 = 7 | 20) 5 + 4 = 9 |
| 21) 2 + 5 = 7 | 22) 2 + 3 = 4 | 23) 4 + 1 = 5 | 24) 3 + 0 = 3 | 25) 2 + 5 = 4 |

**Name:** Nicole
**Score:**
**Date:** 4-7-15

**Math Worksheet**
Post-Test

(25)

Math
Fact
Cafe™

1)  2
   + 5
   ___
    7

2)  1
   + 1
   ___
    2

3)  0
   + 3
   ___
    3

4)  2
   + 3
   ___
    5

5)  2
   + 4
   ___
    6

6)  3
   + 1
   ___
    4

7)  5
   + 0
   ___
    5

8)  1
   + 2
   ___
    3

9)  3
   + 1
   ___
    4

10) 3
   + 5
   ___
    8

11) 4
   + 4
   ___
    8

12) 3
   + 3
   ___
    6

13) 4
   + 4
   ___
    8

14) 5
   + 3
   ___
    8

15) 2
   + 4
   ___
    6

16) 3
   + 3
   ___
    6

17) 3
   + 2
   ___
    5

18) 5
   + 0
   ___
    5

19) 2
   + 5
   ___
    7

20) 5
   + 4
   ___
    9

21) 2
   + 5
   ___
    7

22) 2
   + 3
   ___
    5

23) 4
   + 1
   ___
    5

24) 3
   + 0
   ___
    3

25) 2
   + 5
   ___
    7

---

**Name:** Amanda
**Score:**
**Date:**

**Math Worksheet**
Post-Test

(24)

Math
Fact
Cafe™

1)  2
   + 5
   ___
    7

2)  1
   + 1
   ___
    2

3)  0
   + 3
   ___
    3

4)  2
   + 3
   ___
    5

5)  2
   + 4
   ___
    6

6)  3
   + 1
   ___
    4

7)  5
   + 0
   ___
    5

8)  1
   + 2
   ___
    3

9)  3
   + 1
   ___
    4

10) 3
   + 5
   ___
    8

11) 4
   + 4
   ___
    8

12) 3
   + 3
   ___
    6

13) 4
   + 4
   ___
    8

14) 5
   + 3
   ___
    7

15) 2
   + 4
   ___
    6

16) 3
   + 3
   ___
    6

17) 3
   + 2
   ___
    5

18) 5
   + 0
   ___
    5

19) 2
   + 5
   ___
    7

20) 5
   + 4
   ___
    9

21) 2
   + 5
   ___
    7

22) 2
   + 3
   ___
    5

23) 4
   + 1
   ___
    5

24) 3
   + 0
   ___
    3

25) 2
   + 5
   ___
    7

1)  $\begin{array}{r} 2 \\ + 5 \\ \hline 7 \end{array}$

2)  $\begin{array}{r} 1 \\ + 1 \\ \hline 2 \end{array}$

3)  $\begin{array}{r} 0 \\ + 3 \\ \hline 3 \end{array}$

4)  $\begin{array}{r} 2 \\ + 3 \\ \hline 5 \end{array}$

5)  $\begin{array}{r} 2 \\ + 4 \\ \hline 6 \end{array}$

6)  $\begin{array}{r} 3 \\ + 1 \\ \hline 4 \end{array}$

7)  $\begin{array}{r} 5 \\ + 0 \\ \hline 5 \end{array}$

8)  $\begin{array}{r} 1 \\ + 2 \\ \hline 3 \end{array}$

9)  $\begin{array}{r} 3 \\ + 1 \\ \hline 4 \end{array}$

10) $\begin{array}{r} 3 \\ + 5 \\ \hline 8 \end{array}$

11) $\begin{array}{r} 4 \\ + 4 \\ \hline 8 \end{array}$

12) $\begin{array}{r} 3 \\ + 3 \\ \hline 6 \end{array}$

13) $\begin{array}{r} 4 \\ + 4 \\ \hline 8 \end{array}$

14) $\begin{array}{r} 5 \\ + 3 \\ \hline 8 \end{array}$

15) $\begin{array}{r} 2 \\ + 4 \\ \hline 6 \end{array}$

16) $\begin{array}{r} 3 \\ + 3 \\ \hline 6 \end{array}$

17) $\begin{array}{r} 3 \\ + 2 \\ \hline 5 \end{array}$

18) $\begin{array}{r} 5 \\ + 0 \\ \hline 5 \end{array}$

19) $\begin{array}{r} 2 \\ + 5 \\ \hline 7 \end{array}$

20) $\begin{array}{r} 5 \\ + 4 \\ \hline 9 \end{array}$

21) $\begin{array}{r} 2 \\ + 5 \\ \hline 7 \end{array}$

22) $\begin{array}{r} 2 \\ + 3 \\ \hline 5 \end{array}$

23) $\begin{array}{r} 4 \\ + 1 \\ \hline 5 \end{array}$

24) $\begin{array}{r} 3 \\ + 0 \\ \hline 3 \end{array}$

25) $\begin{array}{r} 2 \\ + 5 \\ \hline 7 \end{array}$

# Appendix F: Student Post-Tests +1 through +10 Facts

Name: Lorenzo
Score:
Date: 4/17/15

**Math Worksheet**

Post-Test  (26)

| 1) 9 <br> + 5 <br> 14 | 2) 7 <br> + 4 <br> 11 | 3) 6 <br> + 5 <br> 11 | 4) 9 <br> + 10 <br> 19 | 5) 3 <br> + 4 <br> 7 |
|---|---|---|---|---|
| 6) 2 <br> + 3 <br> 5 | 7) 3 <br> + 10 <br> 13 | 8) 10 <br> + 10 <br> 20 | 9) 3 <br> + 7 <br> 10 | 10) 9 <br> + 9 <br> 18 |
| 11) 5 <br> + 5 <br> 10 | 12) 2 <br> + 6 <br> 8 | 13) 10 <br> + 1 <br> 11 | 14) 8 <br> + 5 <br> 13 | 15) 4 <br> + 5 <br> 9 |
| 16) 3 <br> + 2 <br> 5 | 17) 7 <br> + 5 <br> 12 | 18) 10 <br> + 8 <br> 18 | 19) 10 <br> + 9 <br> 19 | 20) 8 <br> + 5 <br> 13 |
| 21) 3 <br> + 8 <br> 11 | 22) 3 <br> + 5 <br> 8 | 23) 5 <br> + 1 <br> 6 | 24) 1 <br> + 3 <br> 4 | 25) 4 <br> + 6 <br> 10 |

Name: Jayden
Score:
Date: 4/17/15

**Math Worksheet**

Post-Test  (9)

| 1) 9 <br> + 5 <br> 12 | 2) 7 <br> + 4 <br> 15 | 3) 6 <br> + 5 <br> 2 | 4) 9 <br> + 10 <br> 9 | 5) 3 <br> + 4 <br> 7 |
|---|---|---|---|---|
| 6) 2 <br> + 3 <br> 8 | 7) 3 <br> + 10 <br> 13 | 8) 10 <br> + 10 <br> 20 | 9) 3 <br> + 7 <br> 5 | 10) 9 <br> + 9 <br> 15 |
| 11) 5 <br> + 5 <br> 10 | 12) 2 <br> + 6 <br> 8 | 13) 10 <br> + 1 <br> 11 | 14) 8 <br> + 5 <br> 18 | 15) 4 <br> + 5 <br> 9 |
| 16) 3 <br> + 2 <br> 6 | 17) 7 <br> + 5 <br> 15 | 18) 10 <br> + 8 <br> 8 | 19) 10 <br> + 9 <br> 4 | 20) 8 <br> + 5 <br> 18 |
| 21) 3 <br> + 8 <br> 10 | 22) 3 <br> + 5 <br> 7 | 23) 5 <br> + 1 <br> 6 | 24) 1 <br> + 3 <br> 4 | 25) 4 <br> + 6 <br> 4 |

**Name:** Nicole  **Math Worksheet**  (8)
**Score:**  Post-Test
**Date:** 4-17-15

| 1) 9 + 5 = 14 | 2) 7 + 4 | 3) 6 + 5 | 4) 9 + 10 | 5) 3 + 4 = 7 |
|---|---|---|---|---|
| 6) 2 + 3 = 5 | 7) 3 + 10 = 14 | 8) 10 + 10 = 20 | 9) 3 + 7 = 10 | 10) 9 + 9 |
| 11) 5 + 5 = 10 | 12) 2 + 6 | 13) 10 + 1 = 11 | 14) 8 + 5 | 15) 4 + 5 = 9 |
| 16) 3 + 2 | 17) 7 + 5 | 18) 10 + 8 | 19) 10 + 9 | 20) 8 + 5 |
| 21) 3 + 8 | 22) 3 + 5 | 23) 5 + 1 | 24) 1 + 3 | 25) 4 + 6 |

**Name:** Amanda  **Math Worksheet**  (10)
**Score:**  Post-Test
**Date:** 4/17/15

| 1) 9 + 5 | 2) 7 + 4 = 11 | 3) 6 + 5 = 11 | 4) 9 + 10 = 19 | 5) 3 + 4 = 7 |
|---|---|---|---|---|
| 6) 2 + 3 = 5 | 7) 3 + 10 = 13 | 8) 10 + 10 | 9) 3 + 7 = 10 | 10) 9 + 9 |
| 11) 5 + 5 = 10 | 12) 2 + 6 = 8 | 13) 10 + 1 = 11 | 14) 8 + 5 = 12 | 15) 4 + 5 |
| 16) 3 + 2 | 17) 7 + 5 | 18) 10 + 8 | 19) 10 + 9 | 20) 8 + 5 |
| 21) 3 + 8 | 22) 3 + 5 | 23) 5 + 1 | 24) 1 + 3 | 25) 4 + 6 |

**Math Worksheet**

Post-Test

(19)

1) 
$$9$$
$$+\ 5$$
14

2) 
$$7$$
$$+\ 4$$
11

3) 
$$6$$
$$+\ 5$$
11

4) 
$$9$$
$$+\ 10$$
19

5) 
$$3$$
$$+\ 4$$
7

6) 
$$2$$
$$+\ 3$$
5

7) 
$$3$$
$$+\ 10$$
13

8) 
$$10$$
$$+\ 10$$
20

9) 
$$3$$
$$+\ 7$$
10

10) 
$$9$$
$$+\ 9$$
18

11) 
$$5$$
$$+\ 5$$
10

12) 
$$2$$
$$+\ 6$$
8

13) 
$$10$$
$$+\ 1$$
11

14) 
$$8$$
$$+\ 5$$
13

15) 
$$4$$
$$+\ 5$$
9

16) 
$$3$$
$$+\ 2$$
5

17) 
$$7$$
$$+\ 5$$
12

18) 
$$10$$
$$+\ 8$$
18

19) 
$$10$$
$$+\ 9$$
19

20) 
$$8$$
$$+\ 5$$

21) 
$$3$$
$$+\ 8$$

22) 
$$3$$
$$+\ 5$$

23) 
$$5$$
$$+\ 1$$

24) 
$$1$$
$$+\ 3$$

25) 
$$4$$
$$+\ 6$$

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