LESSON 2

CONTENTS:

- 1) Professor Pig's lecture on "One More than Magic"
- 2) Games
 - 1. The Eleven Penny Game
 - 2. The Great Train Robbery Game
 - 3. The 7-11 Game
 - 4. Flash Card Game
- 3) Patterns for games and flash carfds
- 4) Mental math problems
- 5) Worksheet





FOR LESSON 2

The 11 Penny Game

You will need:

• 11 pennies

11?

This is the same as the "10 Penny Game" except that there are 11 pennies now!

The "Great Train Robbery" Game

You will need:

- a copy of the train pattern page, copied onto white card stock.
- a pair of scissors

Copy the pattern page onto white card stock, then cut apart the cards. Lay the cards out in a long line to form a train. You can start with the numbers in order, if you want to, but you can put them in any order as long as the engine is first and the caboose is last. There's been a train robbery and the bandit is escaping by running along the top of the train, jumping from car to car. Put the bandit on top of the engine to start. In order to jump down onto the next car without falling off, the bandit must say the number that goes with the train car number to make 11. For example, if the next car he wants to jump to is the boxcar with the 5 on it, the bandit must say "6" before he jumps. If he makes it to the caboose without falling, he wins the game. Play several times, putting the cars in a different order each time.

If you prefer not to use the bandit, you can make your own person, or use something like a Lego person.

The 7-11 Game

You will need:

- a copy of the 7-11 game pattern page for each player, on white card stock
- one copy of the cube and tetrahedron dice patterns, on white card stock
- a pair of scissors
- white glue
- optional: polyester pillow stuffing to put inside the dice if you want them to be more crush-proof

Cut out the L-shaped boards and the numbered cards. Each player will need their own L-shaped playing board, but you can stack the numbered cards together in the middle of the table. Put all the 1's in a stack, all the 2's in a stack, etc. Cut and assemble the cube and the tetrahedron dice using only a very small amount of white glue on the glue flaps. White glue is very strong and just a little bit goes a long way! If you use the glue sparingly and press and hold each bond for about 10 seconds before letting go, they should be assembled in only a few minutes. If you want your dice to last a little longer, put lightweight stuffing inside (but not so much that the sides bow out!).

The first part of the game uses only the cubic die. As an added twist, you must read the die from the bottom. That is, after you have rolled, pick up the cube and see what number is on the bottom side. That's your number. The tetrahedron must be read this way, so to be consistent, just read both from the bottom.

Let's say the first player rolls a 4. They pick up a 4 number card and place it in one of the rectangles marked with the cube shape. But 4 does not equal 7, so on their next turn, (this is a taking turns game, but we are following the moves of just this first player), the player must roll again. If he rolls a 3, he takes a 3 card and places it on another of the rectangles. Since 4 + 3 = 7, the player has finished the first stage of the game and can go on to the next phase. If he does not roll a 3, he has some options. Let's say he rolls a 2. He may keep the 2, put it on one of the rectangles, and hope for a 1 on his next roll. He will then end up with 4 + 2 + 1 = 7. He also has the option of keeping the 2 and putting back the 4. A legitimate move is to simply swap the card you just got for one of the ones you already have in your equation. There may not be much advantage to doing this (or maybe there will be, though?) but it keeps the action going for restless players.

Once you have two or three cards that add up to 7, you can go on to the next phase of the game. For this you will use the tetrahedron die. Make sure you use the word "tetrahedron" as much as possible so your student learns the name of this shape. The tetrahedron die is read from the bottom side. You can use one or two cards to get from 7 to 11. If you roll a 4, you don't need to roll again. If you roll a 1 or 2, keep this card and roll again on your next turn. The first player to get 11 wins.

This game can be played in just a few minutes. Play as many times as you can. The more the better!

Flash Card Game

You will need:

- a copy of the flash card page
- a pair of scissors

Copy the flash cards onto white card stock and cut cards apart. You will notice that the geometric shapes on these cards are the cube, tetrahedron and sphere, the three-dimensional versions of the shapes on the previous flash cards. The number pairs are all "one more than magic." Once again, the idea is to make the brain chunk this information, making the number pairs one piece of information, not two. The brain will gradually start to see the advantage of learning these pairs as a way to make tasks easier. The human brain often needs motivation to put things into long term memory storage.

After doing these flash cards several times, try adding in the first set.



PATTERN FOR TRAIN GAME. COPY ONTO WHITE CARD STOCK AND CUT CARDS APART.



COPY ONTO WHITE CARD STOCK. cut and assemble.



65	4	3	2	1
----	---	---	---	---

photocopy onto white card stock, one per player. cut out "I" shpated playing board and individual number cards.



PATTERN FOR FLASH CARDS. COPY ONTO WHITE CARD STOCK AND CUT CARDS APART.



MEMORY MOUSE'S MENTAL MATH

These problems should be read out loud to the student. "Mental math" means no paper and pencil allowed. If the problem does not give enough information to be able to solve it, the student should answer, "not enough information."

1) The three blind mice were born into a large family. Their litter had a total of eleven. How many siblings (brothers and sisters) do the three blind mice have? (8)

2) When Humpty Dumpty fell off the wall, his shell broke into eleven pieces. The King's men did a bad job at clean up and only picked up nine of the eleven pieces. How many pieces were still lying on the ground? (2)
3) Old Mother Hubbard went grocery shopping and restocked her cupboard. Now her dog has bones. On Monday she gave the dog two bones, on Tuesday she gave him three bones and on Wednesday she was a total softie and have him four bones. How many bones has the dog eaten? (9) If the cupboard started out with ten bones in it, how many are left? (1)

4) Jack and Jill decided never to go up the hill again. It was simply too steep and dangerous. They decided to hire a plumber to install a faucet in the kitchen so they wouldn't have to bring buckets from the well anymore. It took the plumber three hours to install the faucet. The plumber charged them two dollars per hour. How much money did Jack and Jill have to pay the plumber? (6 dollars)

5) Little Jack Horner got tired of pie on his thumb and asked for cookies instead. They passed the tray of cookies to him and he ate half of the cookies. If the tray had 8 cookies when they passed it to him, how many did he eat? (4)

6) Little Miss Muffet crushed two of the spider's legs when she sat on him. How many good legs does the spider still have left? (6) (You can solve this one if you know how many legs a spider has. If you don't know how many legs a spider has, there is not enough information to solve the problem.)

7) Little Boy Blue slept on the haystack all afternoon. When he woke up, not only were the sheep in the meadow and the cows in the corn, but he discovered he had squashed all the marshmallows he had put in his pants pocket. If he had eaten three marshmallows before he went to sleep, how many are in his pocket? (not enough information)

8) The Eensy Weensy spider heard about what happened to Miss Muffet's spider and decided to stay away from humans altogether. He ran up the water spout to hide from the gardener. Suddenly it started to rain. Four rain drops rolled by on his left, five rain drops rolled by on his right, and one rolled right down the middle between his legs. How many drops of rain rolled by, altogether? (10)

9) The little star that twinkled in the sky went supernova, then it collapsed into a black hole. It sucked in all of the planets that had been orbiting around it, plus three comets that were passing by. How many things went into the black hole? (not enough information)

10) Peter Piper picked 11 pickled peppers. He ate one of them, and then three fell out of the basket without him noticing. How many were left in the basket when he got back to the house? (7)

CHALLENGE QUESTIONS:

1) If you have a cube and a tetrahedron and you want to put a sticker on each side of both shapes, how many stickers will you need? (6 + 4 = 10)

2) How many sides does a sphere have? (1)

3) On Monday, the Muffin Man baked one muffin. On Tuesday he baked two muffins. On Wednesday he baked three. He continued on like this throughout the week. Friday and Saturday's batches of muffins were given to Little Jack Horner, who was still refusing to eat pie for dessert. How many muffins did Jack get? (11)

LEVEL TWO WORKSHEET

(you may photocopy, or you may want to insert it into a plastic sheet and use dry erase markder or wipe-able crayons)

All these vehicles want to merge onto highway 11. However, only those with numbers that add up to 11 are allowed to travel on the highway. Cross out the cars that cannot get on the highway.



Add the numbers on the puzzle pieces on the bottom and then draw a line to the puzzle piece on top that has the correct answer.



Do the math... then eat the treat!

First, put a treat in the box on the right (whatever you like-- a candy, a piece of dired fruit, etc.). Now for the math! First, look for all the problems that are magic numbers and write the answer 10. Then, look for the problems that are One More than Magic and write in the answer 11 for all of them. Then, look for any problems that you think are really easy and fill in the answers. Save the problems you think are the most difficult till the end and work on them last. Then when you are done, eat the treat!

9 + 1 =	5 + 2 =	6 + 0 =	6 + 4 =	7 + 4 =
2 + 2 =	9 + 2 =	8 + 1 =	5 + 3 =	5 + 5 =
7 + 3 =	1 + 5 =	5 + 6 =	2 + 8 =	4 + 2 =
8 + 3 =	4 + 4 =	3 + 2 =	6 + 2 =	7 + 1 =
6 + 4 =	5 + 0 =	2 + 9 =	1 + 4 =	10 + 1 =
4 + 7 =	5 + 5 =	4 + 4 =	7 + 2 =	3 + 3 =
4 + 6 =	1 + 2 =	3 + 5 =	6 + 5 =	7 + 4 =

More math... and another treat!

Put another treat in the box on the right. Then use the same strategy you used above to solve the problems below. Pick out the Magic pairs, first. Then go after the One More than Magics, then the easy ones, saving the hardest for last. Then reward yourself for a job well done, and eat the treat.

4 + = 10	5 + = 10	+ 6 = 9	
8 + = 11	9 + = 11	3 + = 10	4 + = 8
+ 7 = 11	+ 8 = 10	+ 5 = 9	3 + = 7
9 + = 10	3 + = 6	+ 4 = 11	2 + = 10
+ 3 = 11	2 + = 7	1 + = 8	9 + = 11
+ 3 = 5	9 + = 9	6 + = 11	+ 2 = 10
1 + = 11	+ 5 = 11	+ 3 = 8	+ 6 = 10