More Math Games and Activities

Gordon Scott, November 1998

Apart from the first activity, all the rest are untested. They are closely related to others that have been tried in class, so they should be useful.

The Human Calculator: (Whole class activity)

I chose a group of ten children, each representing a different number from 0 to 9. The 0 child was the leader and the rest lined up in order to his or her left, facing the rest of the class. This formed the calculator.

Someone from the class asked the calculator to solve a question involving adding or subtracting a one figure number. For example, 34 + 7 = ?
The 0 child said 34 as the starting point, and pointed up.
The child being 1 counted on 1 and said 35.
The child being 2 counted on 1 more and said 36.
The child being 3 counted on 1 more and said 37.
This went on until the child being 7, the amount added, stepped forward to say 41.

If the question were 72 - 9 = ?, then the 0 child would say 72 and point down.
The child being 1 would count down and say 71.
The child being 2 would count down and say 70.
The child being 3 would count down and say 69.
This would go on until the child being 9 stepped forward to say 63.

We did this for short periods of time, changed the people at the front often, and took turns asking questions. It might be wise to let the 7, 8, and 9 children switch with the lower numbered children. The children enjoyed this class activity.

Possible Changes (untested):

An alternative would be to have 0 to 9 as before, but the 0 child would hold up 1 finger to direct all the others to count up, 1 at a time. But if 10 fingers were held up they would know they were to count up 10 at a time.

If the question were 34+52=?, then the 0 child could say 34 and hold up 1 finger while the 1 child and 2 child said 35 and 36.
At this point the 0 child would go back to the 1 child, say 36, and hold up 10 fingers. The children would then, in turn, count up 46, 56, 66, 76, 86, with the 5 child stepping forward to say the answer.

Multiplication Machine (largely untested): (Whole class activity)

I did try this a little with Grade Two children.
It is possible for older children to multiply as in the above activity.
You would have to decide if 3 x 7 meant three groups of 7, or 3 taken 7 times.
I preferred the first so I would have had 9 children up.
The first would say 7, the second would say 14, and the third would step forward and say 21. (The first could be given the job of checking on answers and helping out.)

With older children it is possible to create a division machine which works by repeated subtraction to see how many groups of a certain size are in a number. For instance, 32-:- 4 would be done by having the 0 child repeat the 32 and direct the 1 child to take away 4. The 1 child would say 28 and direct the 2 child to take away 4. This would go on until the 8 child said 0 and stepped forward. The leader would then go down the line counting each child who took away 4. Then the leader would state that 32 has 8 groups of 4.

The Change Machine (untested): (Whole class activity)

After children have had some instruction and practice in making change, they could try this. It would be much like the above activities, but you could have one child be a store clerk, one a penny counter, one a nickel counter, one a dime counter, one a quarter counter, and so on as high as you wished to go.
To the left of the store clerk I would place the penny person, and so on in order of increasing value.
A child from the rest of the class could stand and state that they had a certain amount of money and were buying a certain value of goods.
For example, a child could say he or she had $1.00 and wished to spend 45 cents on candy.

The store clerk would say 45 cents and point to the nickel person who would say 50. The clerk could then point to the quarter person who would say 75. The clerk could point to this person again and the quarter person would step forward and say $1.00.

I can see where signs could be made for the different characters. Cards to represent coins, and bills could be made. Play money could be used.
Instead of the 0 child directing, children from the main body of the class could be called on to suggest where to start and how many coins should be used.

Match an Answer Game (untested): Two addition and/or subtraction drill games.

Variation 1: (two or more players, best with two)

This game would use 10 cards with 0 to 9 on one side. This would be half a set of the cards described in the Games booklet.
An additional 10 cards would be made with questions printed on one side. These would be chosen so that the answers matched each of 0 to 9.
For example, 12- 12, 8-7, 6 -4, 1+2, 10 - 6, 2+3, 12-6, 4+3, 6+2, 11-2.
The 20 cards could be shuffled and then laid upside down in four rows of 5.

From then on the game could be played like the Matching Game in the Games booklet.

Each child in turn could try to turn over two cards that matched, one question card and one answer card.

If successful the child would keep that pair, and take another turn, stopping only when a pair was not found.

The child with the most legitimate pairs at the end would win.

If at the end it was found that the pair left did not match, then all pairs would be examined. The child with a mismatched pair would have to give it to the other child, along with the last pair.

Variation 2 (untested): For two players only.

This time a full set of 20 cards, ranging from 0 to 9, as in the Games booklet, would be needed.

As well another set of 20 cards having questions (as in the first variation) on one side of them would have to be made. There would have to be two questions to match each of 0 to 9.That is both a 3+3 and a 7-4 card to match with 6.

This would make a total of 40 cards, but the 0 to 9 cards would be kept separate. Each child would lay out a vertical row of 0 to 9 cards, face up, in front of him or her.

The 20 answer cards would be shuffled and placed face down between the two rows in 4 rows of 5.

Each child, in turn, would select one of the question cards and turn it over. He or she would then try to pair it with one of the 0 to 9 cards. It would then be set, face up, beside that card.

A child placing a question card beside a wrong answer would lose their turn, and have to turn that card over and place it back in its place between the two columns.

A child can only have one answer beside each 0 to 9 card.

A child making a pair would not keep the turn.

In the end, the child who first pairs up an answer card to each of their 0 to 9 cards is the winner.

The Question is the Answer (untested): (a class game)

This activity or game came to mind while watching Jeopardy on TV.
I can see it being done several ways, but here is one.
This would be like the Spelling Game in the Games Booklet.

One child at a time would go to the front and be up.
That child would choose a child sitting quietly with their hand raised.
This chosen child would stand and clearly state a number operation and a single number, the answer. For example, Subtract to make 4.

If the number was less than 10 this child would want a subtraction question, with the number being subtracted from 10 to 18. If it was from 10 to 18 this child would want an addition question, with both numbers less than 10.

The child at the front would attempt to give a proper question, with the challenger being the one to say if it were correct or not.
If a questions were declared correct when it was not, the child at the front would stay.
A wrong question, declared wrong by the challenger, would mean the two children would change places and the activity would proceed as before.
Again, if the challenger makes an error, the child at the front stays.
The teacher has to act as judge.

After 5 successful turns in a row, a child up at the front would change places with another of their own choosing, providing that child had not been up that day.

Of course the number limits given first could be changed to suit the ability of the children.

A variation (untested) would be to have two or three children up at the front competing to see who could be first to come up with the correct question.

Points could be kept, and lost, as in the real Jeopardy game, or children giving wrong answers could be simply replaced by the challenger.

NOTE: Whatever rules the game may have the children have to have a chance to try to understand them before the game starts, and they have to learn to accept the teacher, or someone else, as a fair judge or referee.

They have to become aware of the need to trust a judge or referee to do their best to be fair. I know there were times when my judgment was questioned, but it was encouraging to have other children defend my actions in a way that told me they knew it was a difficult job, and no one is perfect.

Using regular playing cards with Gordon's Games

A number of people have asked about using playing cards for the games. I prefer simple sets made from two groups of 0 to 9 cards, making 20 cards in all. I think important learning can happen if you have the 0 cards. At the same time I know regular playing cards can be much easier to get for a whole class.
The following are untried suggestions as to what could be done with regular playing cards in order to play many of the math card games in the Gordon's Games booklet.

First, I would divide the card into two sets by color, reds in one and blacks in the other. This will allow you to keep track of the math game sets more easily. Sometimes children get card sets mixed up and color cues make it easier to sort them out. And, rather than talk of Heart, Diamonds, Clubs, and Spades, I would just use color names.
Second, I would take out the Jacks, Queens, Kings, and Jokers, and throw them away. They have no numerical representation on them, their use will confuse some children, and some parents object to card games that could be associated with gambling.
Third, I would use some sort of indelible marker to form a 1 close to each A on the face of the Aces, and cover over the A so it is less noticeable. Using these makes 20 cards with the other 2 to 10 cards. They can be laid out in 4 rows of 5.
Using the Ace to represent 1 is not necessary, but if it is left out you will have 18 cards. These 18 would best be laid out in 3 rows of 6.

(Placing the cards in a regular way gives children a chance to become familiar with the horizontal and vertical grid pattern that will be useful to them in other areas. And seeing the 4x5, 3x6, or 4x4 has value. Think of some graphs, tables, and finding places on maps.)

Changes:
p. 6: The Matching Game, and Match a Goal need no changes.

p.7: The Counting Race will have a range of 1 to 10, or 2 to 10 without the aces.
p. 7: The Ten's Race. To make this work you might make up two double width cards with "10" printed in large numbers on each, one card for each player.

Players must pick up a small 10 card first. Then they will place it close to them and lay the large 10 card, face up, on top of the small 10 card.

From then on the playing cards picked up will be placed on top of the 1 on the large 10 card, so that the 0 can still be seen.
p. 7: The Teen's Race. Do everything as above, but place the playing cards picked up over the 0 and leave the 1 showing on the large card.

p. 8: The More or Less Game needs no changes.

p. 9: The Bigger or Smaller Number Game, one place, need no changes.

p.10: The Bigger or Smaller Number Game, two places. Leave out the cards with 10.

p. 10-11: **The Adding Game**. With all the cards, the range will be from 2 to 20.

p. 12: The Making Nines Game. Take out the cards with 10 and it becomes the Making Tens Game.
p. 12: The Adding Game, 2 or 3 cards. The range here is from 2 to 20.
p.12: The Adding Game with plus 10. This won't work well.
p.12: The Adding Game with 3 cards. The goal range is from 4 to 29.

p. 13: The Adding Race. The range is from 2 to 20.

p. 14: The Adding to 50 Game and Adding to 50 Race need no changes.

p. 15: The 50 or Under Game needs no changes.

p. 16: The Subtraction Games here need no changes.

p. 17: The Multiplication Games. The goals are from 1 to 100, or if you take out the cards with 10, the goals are from 1 to 81.

p. 18: The Dividing Game and Dividing Race. Take out the cards with 10.

p. 19: The Factors Game. The goals will be from 4 to 20.
p. 19: The Multiples Game. The goal pairs will be from 2 to 10.

p. 20: Fraction and Decimal Games. Remove cards with 10 to play with Decimals.