TRADING GAMES
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Trading games are very valuable games in helping students understand our numeration system. The later versions help students develop an understanding of both the addition and subtraction algorithms.

Stage 1: BASIC GAME (Bundling)

This level introduces the concept of Base 10 at the most concrete level.

Equipment:
Straws; rubber bands; a die marked 4,5,6,7,8 and 9 or cards made from scrap cardboard (18 cards, 2 of each number, marked 1 to 9); place value mats labeled 'Bundles of Ten' and 'Ones'.

Game:
All the material is placed on the table between the players. The players take turns to throw the die and collect the number of straws shown, placing them in the column marked 'Ones' on the board. When players have ten or more straws, they count out ten straws, put a rubber band around them to make a bundle and place them in the column marked 'Tens'. After each turn, players state how much they have altogether. The first player to collect five bundles is the winner.

Stage 2: RECORDING
(Linking to symbolic representation of numbers to 99)

This stage links the concrete to the symbolic. The score should be recorded on a very narrow piece of paper (labeled T and O to match the place value mats). This is important so that players start to link the amount of material on the mat with the symbolic recording.

Equipment: As before

Game:
This game is played in the same way as the basic game except that players record their final total at the end of each turn. The first player to reach 90 (not 100) or more is the winner.

Example of a scoring sheet:

			T	O
1.	threw 9,	record as		9
2.	threw 6,	record as	1	5
3.	threw 7,	record as	2	2

Stage 3: WIN 100 (Introducing 100)

Equipment:
Straws rubber bands; a die marked 4,5,6,7,8 and 9 or cards made from scrap cardboard (18 cards, 2 of each number, marked 1 to 9); place value mats labeled: Hundreds, Tens & Ones

Game:
This game is played in the same way as Stage 2 except that players play to 100. When 100 is reached, discussion needs to take place that there are now 10 bundles of 10, so we can make a "great big" bundle of 100. The first player to reach 100 or more is the winner.

Stage 4: WIN 350 (Recording three digit numbers)

At this stage children should be beginning to understand the "pattern" of Base 10 and the importance of the 0 as a place holder. Higher three digit numbers can be used as the "winning number" for faster players.

Equipment:
Straws or Base 10 material and numeral cards 0 to 9 (two of each card to make a pack of 20 cards)

Game: This game is played in the same way except that players play to 350 and record their results using three columns. At this stage, players draw two cards and "make" a big number by using place value. For example, if the player drew 2 and 5, he could either call it 52 or 25. This encourages children to "see" that the position of the numeral changes the value of the number. If using straws, some "bundles" already made up should be on the table at the beginning of the game and players should be encouraged to pick up bundles instead of counting out (say 53) single straws and bundling every ten. This encourages more efficient counting strategies.

Example of a scoring sheet:

			H	T	O
1.	drew 5 and 2 (52),	record as		5	2
2.	drew 6 and 3 (63),	record as	1	1	5
3.	drew 2 and 7 (72),	record as	1	8	7

Stage 5: **WIN 1000** (WIN A BLOCK)

At this stage, straws will become unmanageable, so either Base 10 materials need to be used or else play money such as Monopoly money (using only denominations of 1, 10, 100) can be used.

Equipment:
Base 10 material (or Monopoly money in $1; $10; $100 and $1 000 denominations only); numeral cards marked 0 to 9 (four of each card); place value mats labeled 'Thousands, 'Hundreds', 'Tens' and 'Ones'.

Game:
This game is played in the same way as Win 350 except that players win a Block (or $1000). It is important to include numeral cards with 0 , so that players learn that the 0 shows no tens or units (whichever the case may be in their number). This helps students learn to write numbers greater than 100 correctly.

Variation:
If using Monopoly money, the game can be extended up to $1 000 000, by using three, four or five numeral cards to give players experience creating larger numbers.

BACKWARDS GAME

The backwards version at each stage should not be played until the child is very confident with the forwards version. The backwards version is very important in developing the understanding needed for the "decomposition" subtraction algorithm. It needs to be played many times BEFORE teaching the algorithm.

Equipment:
Straws or Base 10 material; numeral cards 0 to 9; place value mats marked Tens & Ones

Game: This game is played in the same way as the basic game except that players start with a given amount of material (say 67) and return the amount shown on the die to the central pile or Base 10 container. The first player to lose all their material is the winner. It is important NOT to start with 100 as this involves a "double trade" on the first turn, before players have learned the "rules" of the game and can cause confusion.

Variations: Start with larger amounts of material and vary the cards to suit.

MULTIPLICATION GAME

Equipment: Base 10 material; a die marked 4, 5, 6, 7, 8, 9; place value mats labeled Hundreds, Tens and Ones.

Game: This game is played in the same way as the basic game except that players multiply the number thrown by the table to be practiced and collect that amount of material. For example, if the x4 table was to be practiced and a player threw a 7, s/he would say "7 x 4 makes 28" and collect the equivalent of 28 shorts.

NOTES

During the game, discussion should be encouraged. This should include discussing the recording of the totals and linking the number of straws to the symbolic recording. Also discussion of who is winning at any point during the game and justification of the decision made helps the child verbalise their mathematical understandings and allows the adult to assess the child's growing mathematical competence and confidence.

QUESTIONS

Useful questions to ask during the game to encourage discussion and deeper understanding include:

- "How many straws do you have now?"
- "How do you know?"
- "How many bundles of ten do you have?"

- "How many straws does that make?"
- "Who has the most bundles of 10?"
- "Are they winning at the moment?"
- "Who has the most single straws?"
- "Does that mean that they are winning?"
- "Who is winning at the moment?"
- "How do you know?"
- "How many more straws has the winner got than the next player?"
- "How could we find out?"
- "Who has more straws? me or you?"
- "How many more?"
- "How many straws do you need to pick up to be able to make a bundle?"
- "About how many straws do you still need to get to win?" (this develops estimation skills)
- "Which part of the number tells us how many bundles of ten we have?"
- "Which part of the number tells us how many loose straws we have?"

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