

# Division Dash

2 to 4 players

Reinforcing division strategies

## Purpose

In this game, the students are encouraged to look for ways of expanding the dividend to make it easier to divide, for example,  $627 \div 3$  is the same as  $600 \div 3$  plus  $27 \div 3$ .

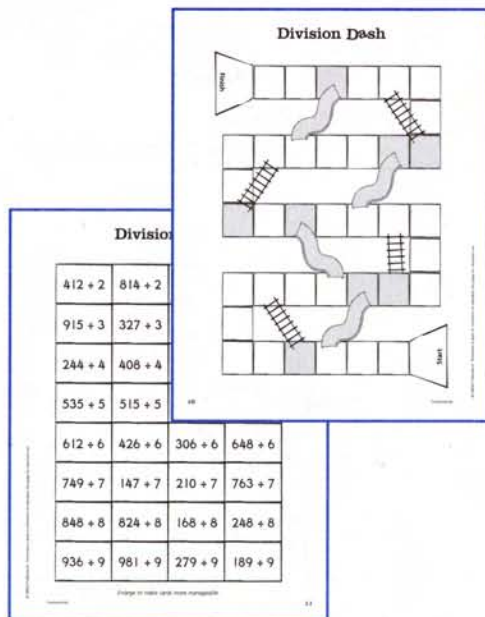
## Materials

Each group of players will need

- A 'Division Dash' game board (page 10) as shown below.
- One (1) standard number cube showing numerals 1-6.
- One (1) set of division cards. Copy page 11 (shown below). Cut out and laminate the cards to make one set.

Each player will need

- One (1) counter (a different color for each player).



## How to Play

The aim is to reach the finish line.

- The players' counters are placed in the start position on the game board.
- The cards are shuffled and placed face down in a stack.
- The first player draws a card and calculates the answer. If his or her opponent(s) agrees that the answer is correct, the player rolls the number cube and moves his or her counter forward that number of spaces. If the answer is incorrect, the player misses a turn. A calculator can be used if an answer is disputed.

*Example: Julia draws  $832 \div 4$  and mentally calculates the answer is 208. Her opponent(s) agrees her answer is correct, so she rolls 4 and advances four spaces on the game board.*

- The card is returned to the bottom of the stack.
- The other player(s) has a turn.
- If a player's counter finishes on the base of a ladder, the player must move his or her counter up to the top of the ladder.
- If a player's counter finishes at the top of a slide, the player must move his or her counter down to the bottom of the slide.
- More than one counter can occupy a space at one time.
- The first player to go beyond the finish line is the winner.

## Reading the Research

Many students enjoy modifying and developing rules for games. Not only does it allow for a sense of ownership of the game, but it develops a deeper understanding of the mathematical content behind the game (Bragg & McGeagh, 2002).



## Before the Game

Make a numeral expander as shown (right) to give the students practice expanding and reading three-digit numbers. The illustrations (right) show three different ways to expand 164. Invite a volunteer to show the arrangement that would best help to calculate  $164 \div 4$ . The students should see that expanding and treating 164 as 16 tens and 4 ones (as shown in Figure C) makes it easy to divide by 4. Repeat this discussion for other number sentences involving three-digit dividends such as  $426 \div 6$  and  $763 \div 7$ .

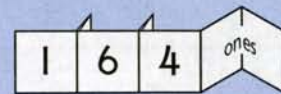


Figure A



Figure B



Figure C

## During the Game

Ask the players to share the strategies they use to divide mentally. Be aware that different students will use different strategies or expand dividends in different ways. For example, two students used these methods to calculate  $248 \div 8$ :

**Dana:** I figured that  $24 \div 8$  is 3 (tens) and  $8 \div 8$  is 1, so the answer is 31.

**Darcy:** I knew that  $25 \times 8 = 200$ . That leaves  $48 \div 8$  which is 6. The answer is  $25 + 6$ , that's 31.

## After the Game

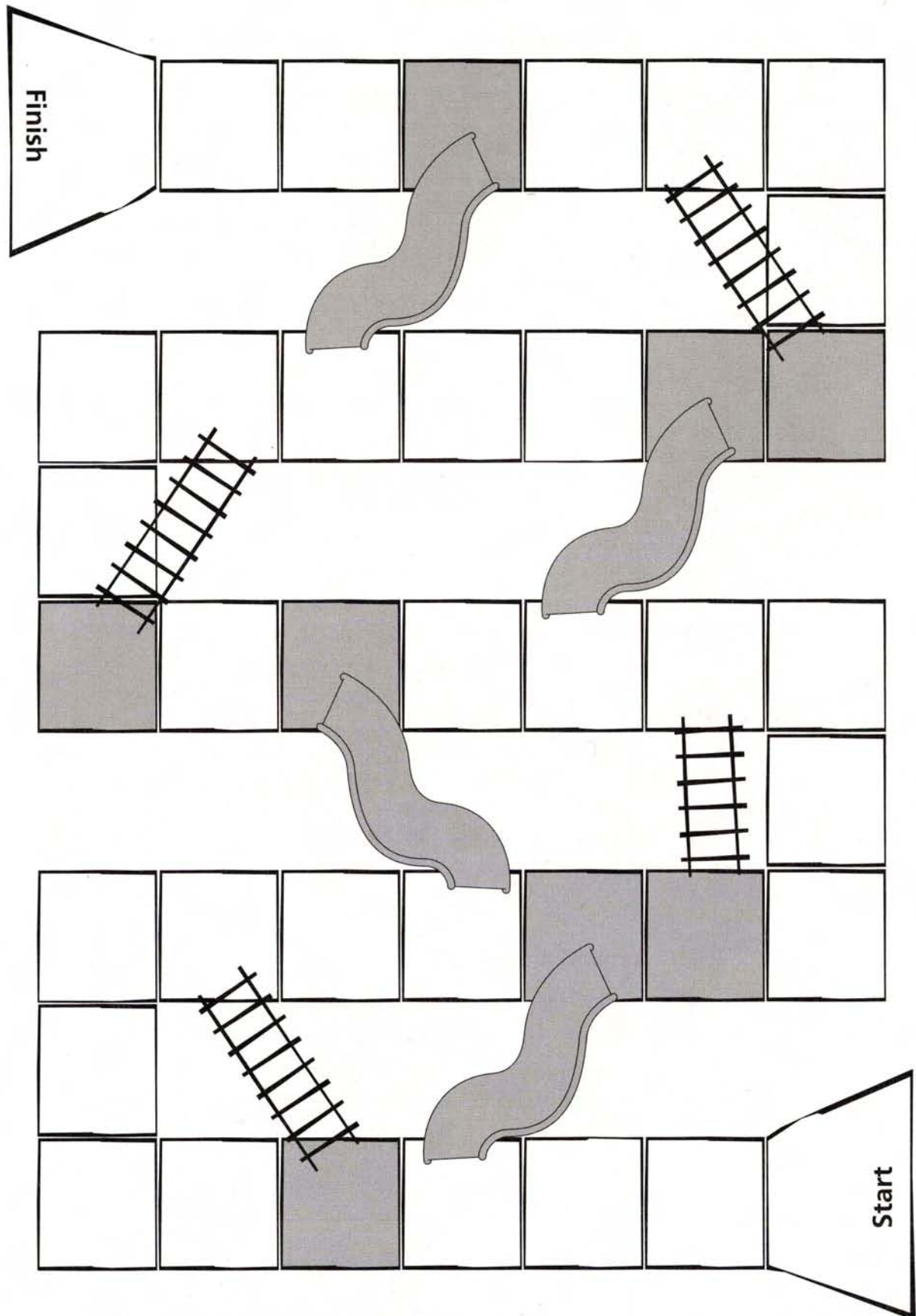
Have the students make more division cards to add to the set. Encourage them to create examples that can be solved by expanding the dividend. Allow them to use four-digit dividends or examples involving money if they want. For example, the students may want to use  $1656 \div 8$  or  $\$42.30 \div 6$ .

$117 \div 3$	$129 \div 3$	$228 \div 3$	$192 \div 3$
$156 \div 4$	$136 \div 4$	$176 \div 4$	$144 \div 4$
$175 \div 5$	$115 \div 5$	$375 \div 5$	$265 \div 5$
$192 \div 6$	$126 \div 6$	$156 \div 6$	$492 \div 6$
$231 \div 7$	$511 \div 7$	$224 \div 7$	$161 \div 7$
$112 \div 8$	$496 \div 8$	$272 \div 8$	$256 \div 8$
$198 \div 9$	$378 \div 9$	$846 \div 9$	$297 \div 9$
$365 \div 5$	$252 \div 6$	$301 \div 7$	$424 \div 8$

## Beyond the Game

- Allow the players to challenge an opponent if they believe an answer has been calculated incorrectly. If the challenger is correct, he or she can have two consecutive turns in the next round. If the challenger is incorrect, he or she must miss a turn.
- Make a new set of division cards (as shown) to reinforce a different strategy. The examples on these cards will require the students to break up the dividend. In this way,  $231 \div 7$  is the same as  $210 \div 7$  plus  $21 \div 7$ . The cards can be added to the original set or used on their own.

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$412 \div 2$	$814 \div 2$	$128 \div 2$	$184 \div 2$
$915 \div 3$	$327 \div 3$	$624 \div 3$	$315 \div 3$
$244 \div 4$	$408 \div 4$	$436 \div 4$	$164 \div 4$
$535 \div 5$	$515 \div 5$	$155 \div 5$	$305 \div 5$
$612 \div 6$	$426 \div 6$	$306 \div 6$	$648 \div 6$
$749 \div 7$	$147 \div 7$	$210 \div 7$	$763 \div 7$
$848 \div 8$	$824 \div 8$	$168 \div 8$	$248 \div 8$
$936 \div 9$	$981 \div 9$	$279 \div 9$	$189 \div 9$

*Enlarge to make cards more manageable.*