# Appalachian Steps

**Building Fluency:** read multi-digit whole numbers

**Materials:** number cards and game marker for each player

**Number of Players:** 2

**Directions:**

1. Put the number cards face down in a pile and place the markers on start.
2. When it is your turn, pick a digit card from the top of the pile and read the directions beside the step you are on.
3. Move up or down as directed. Do not move if you cannot follow the directions.
4. Put the card on the bottom of the pile.
5. Continue taking turns until someone reaches the END. This person is the winner of the game.

**Variation/Extension:** Students can create their own gameboard.

START

If your number is greater than 300,000, go down 1 step.

If the 10's digit in your number is greater than the 10,000's digit, move down one step.

If the 1,000's digit is less than 7, move down one step.

If the 10,000's digit is less than the 10's digit, move down one step.

If the number has a 5 in it, name its place. If the 5 means 5,000 or more, move down two steps. If the 5 means 500 or less, move back up one space.

If the 1's digit is less than the 100,000's digit, move down two steps.

Take two cards. Tell which number is larger. If you are correct, move down one step. If you are wrong, move back up two steps.

If the 1,000's digit is greater than 5, move down two steps. If it is 5, do not move. It is less than 5, move back up 2 steps.

Read your number. If you read it correctly, move down one step. If you read it incorrectly, move up one step.

If the 100,000's digit is greater than the 1's digit, move down one step. If it is less, move back up one step. If it is the same, do not move.

**END – You've climbed safely down the mountain!**

| | | | | | |
|---|---|---|---|---|---|
| 793,926 | 618,334 | 987,245 | 825,691 | 734,518 | 342,657 |
| 232,469 | 377,821 | 561,385 | 483,518 | 718,746 | 129,152 |
| 123,976 | 828,030 | 456,926 | 100,794 | 654,447 | 208,554 |
| 983,270 | 788,300 | 350,302 | 608,004 | 570,112 | 408,241 |
| 251,921 | 815,384 | 128,773 | 629,397 | 542,789 | 815,437 |
| 647,817 | 583,561 | 964,232 | 433,816 | 196,528 | |

# Valuable Digits!!

**Building Fluency:** review of place value and add multi-digit whole numbers

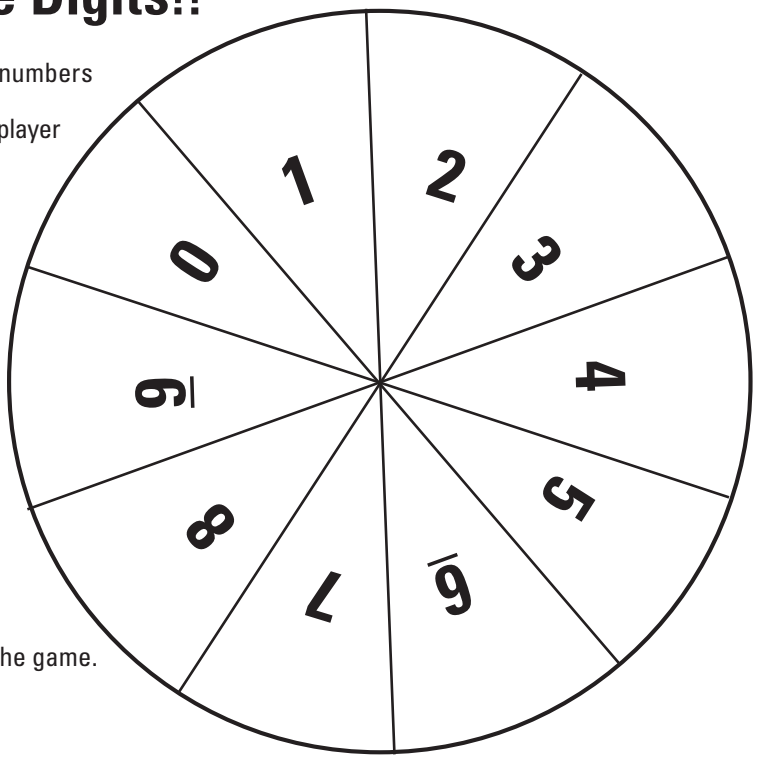
**Materials:** spinner with paperclip and pencil, paper, game marker per player

**Number of Players:** 2-4

**Directions:**

1. Each player puts a marker on any number on the board. This is the starting space.
2. Player 1 spins the spinner.
3. They can move one space in any direction (vertically, horizontally, or diagonally) but they must move to a space that contains the number shown by the spin.
   Example: If a player spins a "7" and the player's marker is on 5976, the player can move to 7890. The score for that spin would be 7000 since the "7" is in the thousand's place.
4. If a player cannot move after their spin, the player should record 0 score for that spin.
5. Players take turns until each player has five spins.
6. Players' total scores, the player with the highest score wins the game.

**Variation/Extension:** Player with the lowest sore wins.




| | | | | |
|---|---|---|---|---|
| 3861 | 7590 | 3546 | 2968 | 5371 |
| 7846 | 4289 | 1789 | 4709 | 6530 |
| 1527 | 6849 | 4285 | 3691 | 1824 |
| 3784 | 2968 | 1043 | 5976 | 4765 |
| 4095 | 3289 | 6453 | 7890 | 1289 |
| 5862 | 3724 | 5914 | 2639 | 6540 |

## PLAYER 1

| | |
|---|---|
| SPIN 1 | |
| SPIN 2 | |
| SPIN 3 | |
| SPIN 4 | |
| SPIN 5 | |
| **TOTAL** | |

## PLAYER 2

| | |
|---|---|
| SPIN 1 | |
| SPIN 2 | |
| SPIN 3 | |
| SPIN 4 | |
| SPIN 5 | |
| **TOTAL** | |

## PLAYER 3

| | |
|---|---|
| SPIN 1 | |
| SPIN 2 | |
| SPIN 3 | |
| SPIN 4 | |
| SPIN 5 | |
| **TOTAL** | |

## PLAYER 4

| | |
|---|---|
| SPIN 1 | |
| SPIN 2 | |
| SPIN 3 | |
| SPIN 4 | |
| SPIN 5 | |
| **TOTAL** | |

# Race to the Resort

**Building Fluency:** division with remainders, explain what the remainder means

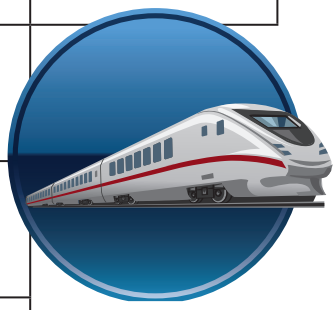
**Materials:** a die, game marker per player

**Number of Players:** 2

**Directions:**

1. Players take turns rolling a die, move that many spaces.
2. Player must find the quotient and remainder for the equation.
3. They must also come up with a context for that equation and explain what the remainder means.
   Example: 52 ÷ 5 = 10 r 2, Jim had 52 pieces of gum to share among he and his four finds? How many pieces of gum did they each get? The remainder of 2 represents the 2 pieces of gum left over after 52 pieces were shared equally among 5 people.
4. If player can do that correctly they can stay in that space, otherwise they lose their turn.
5. If you land on the same square as your opponent, you can send that player back to start!

**Variation/Extension:** Student can create another gameboard varying the level of difficulty of the division problems.

| | | | | | |
|---|---|---|---|---|---|
| START | $6\overline{)44}$ | | | | $9\overline{)75}$ |
| |  | | | | $62 \div 4$ |
| | | | | | **Out of Gas: Lose a Turn** |
| | | | | | $4\overline{)21}$ |
| | | | | | $23 \div 8$ |
| | $23 \div 5$ | $6\overline{)32}$ | $57 \div 9$ | | $5\overline{)34}$ |
| $10\overline{)103}$ | **Low on Fuel: Lose a Turn** | | **No Wind: Move Back 3 Spaces** | | $37 \div 9$ |
| $4\overline{)34}$ |  | | $62 \div 8$ | | **Bonus: Move Ahead 1 Space** |
| $53 \div 8$ | | | $3\overline{)35}$ | | $9\overline{)88}$ |
| $4\overline{)30}$ | | | $47 \div 6$ | | $6\overline{)19}$ |
| **Stormy Seas: Move Back 2 Spaces** | | $50 \div 7$ | $7\overline{)43}$ |  | $14 \div 4$ |
| $6\overline{)43}$ | | **YOU WIN!!** | | | **Flat Tire: Lose a Turn** |
| $46 \div 8$ | $3\overline{)16}$ | $8\overline{)79}$ | **Ship Ran Aground: Move Back 3 Spaces** | $27 \div 4$ | $5\overline{)23}$ |

# Mount Mitchell Rock

**Building Fluency:** division with remainders

**Materials:** a die and game marker

**Number of Players:** 2

**Directions:**

1. Place markers on start.
2. Take turns rolling the die, and moving the number on the die.
3. Divide the number under your marker by the number on the die.
4. The remainder tells the number of additional spaces you may move.
5. The first player to reach the top of the mountain is the winner.

**Variation/Extension:** Student may wish to create their own gameboard. This game may also be modified by using a die (or digit cards) with higher numbers.

FINISH

50 49 48 47 46

45

43

34 35 36 37 42

33 38 39 40 41

32

30 29 28 26

25

23

14 15 16 18 20 21

12

START

# Tangram Challenges

**Building Fluency:** fraction equivalence

**Materials:** gameboard

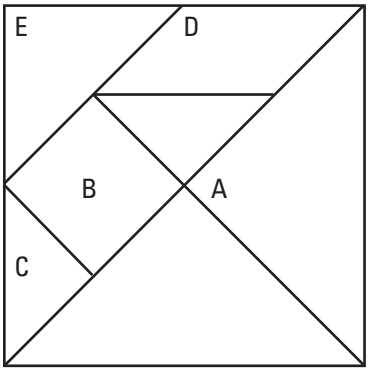
**Number of Players:** 2

**Directions:**

1. Complete the tables.
2. Be certain both players agree with the answers.
3. Compare your work with another team.
4. If your answers are different be ready to justify your thinking and critique the reasoning of others.

**Variation/Extension:** Instead of using the tangram pieces students could create their own shape with fractional parts.

If the entire tangram = 1, then . . .




| PIECE | FRACTION NAME |
|---|---|
| A | |
| B | |
| C | |
| D | |
| E | |

If part D costs 40¢, then. . .

| PIECE | COST |
|---|---|
| A | |
| B | |
| C | |
| D | 40¢ |
| E | |

If part A costs $2, then. . .

| PIECE | COST |
|---|---|
| A | $2 |
| B | |
| C | |
| D | |
| E | |

If part B is equal to 1, then . . .

| PIECE | FRACTION |
|---|---|
| A | |
| B | 1 or $\frac{1}{1}$ |
| C | |
| D | |
| E | |

**Bonus:** Suppose the value of the entire tangram is $32.00. What would be the value of the middle-sized triangle?

_____

How did you know this? _____

_____

_____

_____

_____

# Find the Fraction Model

**Building Fluency:** adding fractions

**Materials:** circle fractions cards and fraction equation cards

**Number of Players:** 2-4

**Directions:**

1. Place the equation cards face down in a pile between the players.
2. Spread out the circle fraction cards, face up.
3. Player 1 draws the top card from the equation pile. The first player to identify the matching circle fraction card, wins the cards.
4. Player 2 then draws the next card from the equation pile and players race to find the matching circle fraction card.
5. Play continues until all cards have been identified.
6. Player with the most cards is the winner!

**Variation/Extension:** Students can create their own cards. Add a timer is you dare!

| | | |
|---|---|---|
| $\frac{1}{5} + \frac{4}{5}$ | $\frac{2}{3} + \frac{2}{3}$ | $\frac{2}{3} + \frac{3}{3}$ |
| $\frac{1}{6} + \frac{3}{6}$ | $\frac{1}{8} + \frac{2}{8}$ | $\frac{8}{8} + \frac{2}{8}$ |
| $\frac{3}{4} + \frac{2}{4}$ | $\frac{1}{4} + \frac{1}{4}$ | $\frac{2}{5} + \frac{4}{5}$ |
| $\frac{7}{10} + \frac{6}{10}$ | $\frac{5}{10} + \frac{2}{10}$ | $\frac{4}{5} + \frac{4}{5}$ |