

# MATH BREAKS

Grades 4-9



George Gadanidis, PhD  
2019

# CONTENTS

## 1 MATH BREAKS

- 1 Advance organizer
- 2 Concept attainment
- 3 Concept formation
- 4 Inquiry training
- 5 Question planner
- 6 Question game
- 6 Using the activities

## 7 WHOLE NUMBERS

### 7 Advance organizers

- 8 Sets of numbers
- 9 The numbers 1, 10 & 100
- 10 Place value
- 11 Large numbers
- 12 Rounding
- 13 Prime and composite numbers
- 14 Prime factors
- 15 Square numbers
- 16 Addition shortcuts
- 17 Multiplication shortcuts

### 18 Concept attainment

- 19 Multiples of three
- 20 Odd and even numbers
- 21 Place value recognition
- 22 Prime and composite numbers
- 23 Sums of 20
- 24 Multiples of 10
- 25 Factors
- 26 Addition puzzle
- 27 Multiplication puzzle

### 28 Concept Formation

- 29 The numbers 1-25: classifying
- 30 The numbers 1-16: sums of pairs
- 31 The numbers 1-16: differences of pairs
- 32 Inquiry training**
- 33 The numbers 1-25: classifying
- 34 The numbers 1-20: sums of pairs

## 35 DECIMALS

### 35 Advance organizers

- 36 Tenths & hundredths
- 37 Decimals from 0.01 to 100
- 38 Decimals & money
- 39 The metric system
- 40 Place value
- 41 Rounding
- 42 Addition shortcuts
- 43 Powers of ten

### 44 Concept attainment

- 45 Place value
- 46 Addition puzzle
- 47 Sums of ten
- 48 Multiplying decimals by two
- 49 Dividing by 0.3
- 50 Dividing decimals

### 51 Concept formation

- 52 Decimals 0.00 to 0.50: properties
- 53 Decimals 1.0 to 4.0: sums of pairs
- 54 Inquiry training**
- 55 Decimals from 0.00 to 0.50
- 56 Sums of decimals from 1.0 to 4.0

## 57 FRACTIONS

### 57 Advance organizers

- 58 Fractions from 1/100 to 1
- 59 Fractions from 1/1000 to 1
- 60 Fractions from zero to one
- 61 Parts of a whole
- 62 Equivalent fractions
- 63 Adding fractions
- 64 Subtracting fractions
- 65 Concept attainment**
- 66 Improper fractions
- 67 Reduced fractions
- 68 Equivalent fractions
- 69 Reciprocal fractions
- 70 Common denominators
- 71 Sums of one

### 72 Concept formation

- 73 Properties of fractions
- 74 Sums of pairs of fractions
- 75 Inquiry training**
- 76 Properties of fractions
- 77 Sums of pairs of fractions

## 78 INTEGERS

### 78 Advance organizers

- 79 Integers around us
- 80 Sets of numbers
- 81 Electrical charges
- 82 Integers number line
- 83 Adding on a number line
- 84 Reading integers
- 85 Multiplying integers
- 86 Dividing integers
- 87 Concept attainment**
- 88 Positive & negative words

89	Comparing integers	136	Mixed radicals
90	Perfect cubes	<b>137</b>	<b>Concept attainment</b>
91	Subtracting integers	138	Powers from $2^0$ to $9^5$
92	Sums of zero	139	Square roots of 1 to 40
93	Negative results	<b>140</b>	<b>Inquiry training</b>
<b>94</b>	<b>Concept formation</b>	141	The square patio
95	Integers	142	Powers from $2^0$ to $9^5$
96	Sums of integers	143	Square roots of 1 to 40
97	Products of integers	<b>144</b>	<b>COORDINATE GEOMETRY</b>
<b>98</b>	<b>Inquiry training</b>	<b>144</b>	<b>Advance organizers</b>
99	Integers	145	Ordered pairs
100	Sums of integers	146	Ordered pairs & patterns: Part 1
101	Products of integers	147	Ordered pairs & patterns: Part 2
<b>102</b>	<b>RATIO, RATE, PERCENT</b>	148	Ordered pairs & patterns: Part 3
<b>102</b>	<b>Advance organizers</b>	149	Ordered pairs & patterns: Part 4
103	Ratios & diagrams	150	Ordered pairs & patterns: Part 5
104	Ratios & fractions	151	Ordered pairs & patterns: Part 6
105	Price rates	152	Equations & graphs
106	Speed rates	<b>153</b>	<b>Concept attainment</b>
107	Percent	154	Patterns in ordered pairs: $y=x$
<b>108</b>	<b>Concept attainment</b>	155	Patterns in ordered pairs: $y=x+1$
109	Reduced ratios	156	Patterns in ordered pairs: $y=2x$
110	Equivalent ratios	157	Patterns in ordered pairs: $y=3$
111	Unit rates	158	Patterns in ordered pairs: $x=1$
112	Percent of a number = 6	<b>150</b>	<b>Concept formation</b>
113	Equivalent expressions	160	Ordered pairs
<b>114</b>	<b>Concept formation</b>	161	Equations
115	Properties of ratios	<b>162</b>	<b>Inquiry training</b>
116	Properties of percent	163	Ordered pairs
<b>117</b>	<b>Inquiry training</b>	164	Equations
118	Ratios	<b>165</b>	<b>ALGEBRA</b>
119	Percent	<b>165</b>	<b>Advance organizers</b>
<b>120</b>	<b>POWERS &amp; SQUARE ROOTS</b>	166	Algebra around us
<b>120</b>	<b>Advance organizers</b>	167	Like terms
121	Areas, volumes & powers	168	Patterns & algebra
122	Square roots	169	Multiplying polynomials
123	Inverse operations	170	Solving equations
124	Cube roots	171	Balancing equations
125	Exponential Growth	172	Simplifying equations
126	Multiplying powers	<b>173</b>	<b>Concept attainment</b>
127	Dividing powers	174	Like terms
128	Powers of powers	175	Common factors
129	Negative exponents	176	Equations: integer solutions
<b>130</b>	<b>Concept formation</b>	177	Equivalent equations (solution = 5)
131	Perfect squares	<b>178</b>	<b>Concept formation</b>
132	Perfect cubes	179	Algebraic terms
133	Rational square roots	<b>180</b>	<b>Inquiry training</b>
134	Triangular numbers	181	Algebraic terms
135	Perfect square fractions		