

# Math Background

## Concept Building Activities

**Patterns in Multiplication and Division** Patterns are found by circling groups on the MathBoard and analyzing how the successive products (called the count-bys) fit with the tens in our place-value system. Students practice these count-bys for each number and learn strategies for remembering multiplications and divisions.

### Count-by 4s

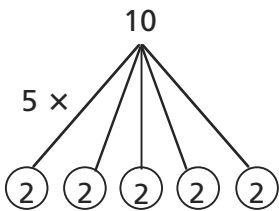


### 8s patterns

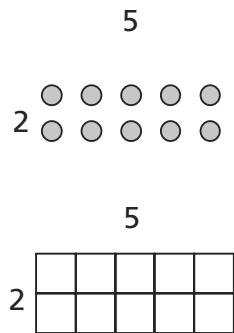
1	11	21	31	41	51	61	71
2	12	22	32	42	52	62	72
3	13	23	33	43	53	63	73
4	14	24	34	44	54	64	74
5	15	25	35	45	55	65	75
6	16	26	36	46	56	66	76
7	17	27	37	47	57	67	77
8	18	28	38	48	58	68	78
9	19	29	39	49	59	69	79
10	20	30	40	50	60	70	80

**Real-World Problem Situations** Students analyze real-world multiplication and division situations to see the repeated groups that are added to make the total. They relate the four kinds of situations to each other and differentiate multiplication situations (unknown product) from division situations (unknown factor). Students use algebraic expressions and equations as well as drawings to represent and solve problem situations.

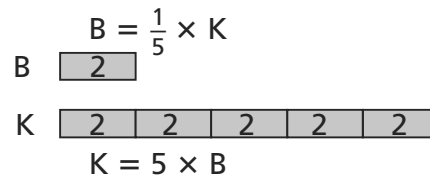
### Equal Groups



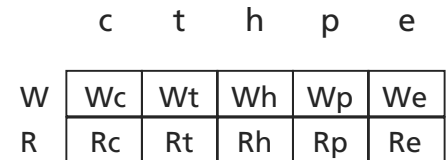
### Arrays and Area



### Comparisons



### Combinations



**Fluency Practice Activities** Quick Practices begin each lesson and are soon led by a Student Leader instead of by the teacher. In Unit 1, students are introduced to various *Math Expressions* materials to practice their multiplications and divisions in class and at home. In the later units, teachers may use these materials at any time to continue building fluency. See pages 225K and 225L for an in-depth description of these materials.