



# GRADE 6 MATHEMATICS

Grades 5 to 8 Blackline Masters



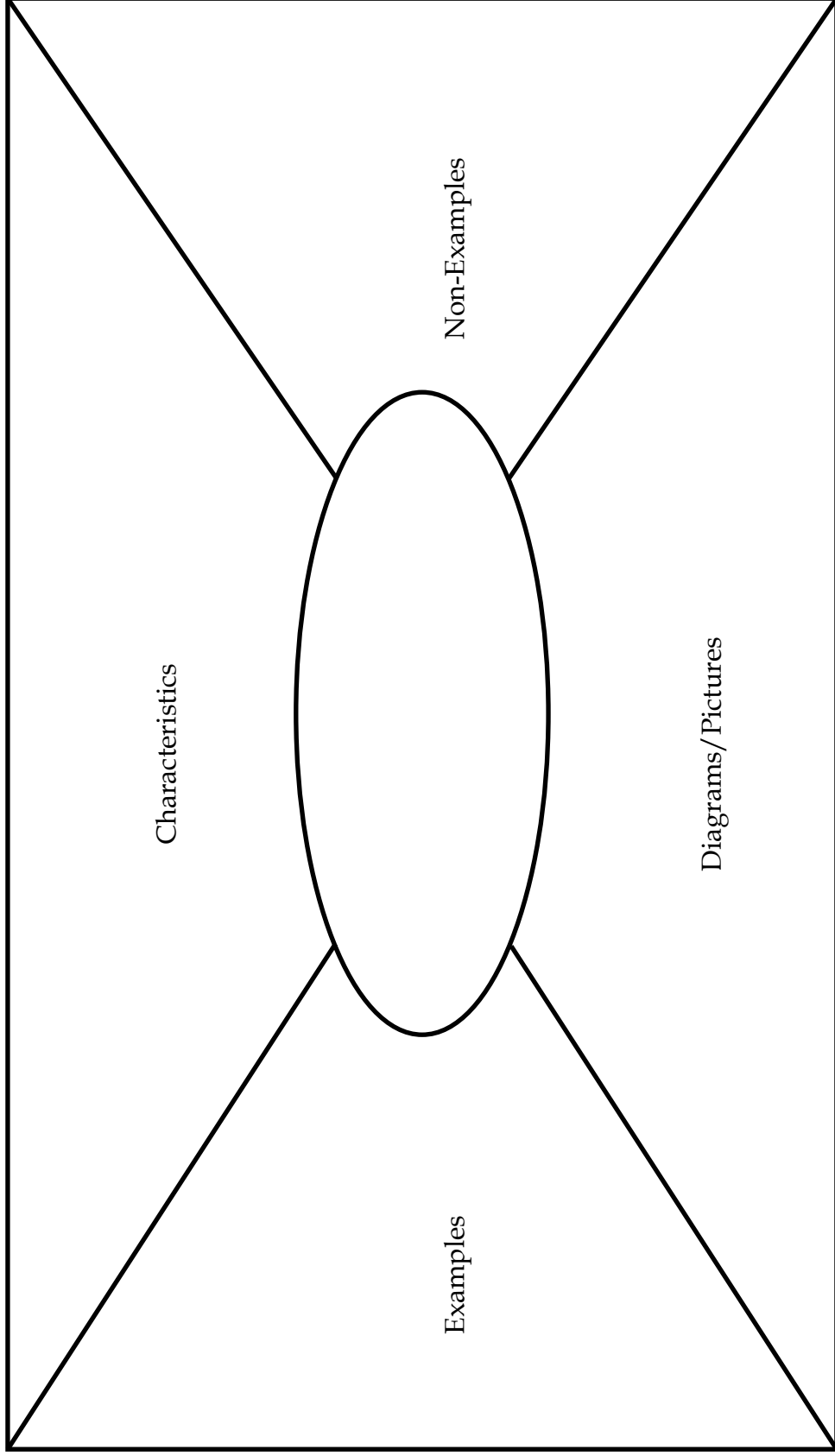
## BLM 5–8.1: Observation Form

Students:	Date:	Activity:
Observation:		
Possible Actions:		

Students:	Date:	Activity:
Observation:		
Possible Actions:		

Students:	Date:	Activity:
Observation:		
Possible Actions:		

# BLM 5–8.2: Concept Description Sheet #1



## BLM 5–8.3: Concept Description Sheet #2

Concept	
Description	Example
Diagram	Non-Example

Concept	
Description	Example
Diagram	Non-Example

# BLM 5–8.4: How I Worked in My Group

Name \_\_\_\_\_

Date \_\_\_\_\_

Task \_\_\_\_\_

## Comments

I took turns	
I participated	
I encouraged others	
I shared materials	
I stayed with my group	
I listened	
I accomplished the task	

**BLM 5-8.5: Number Cards**

0	1	2	3	4
5	6	7	8	9







## BLM 5–8.8: Mental Math Strategies

The following list compiles mental math strategies as found in the *Kindergarten to Grade 8 Mathematics: Manitoba Curriculum Framework of Outcomes*. **Note:** This resource is meant for teacher information, not as a list of strategies that students should memorize.

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
1.N.10.	2.N.8. 2.N.10.	3.N.6. 3.N.7. 3.N.10. 3.N.11. 3.N.12.	4.N.4. 4.N.5. 4.N.6. 4.N.11.	5.N.2. 5.N.3. 5.N.4.	6.N.8.	7.N.2.

Grade	Concept	Strategy	Meaning	Example
1	Addition	Counting on	Students begin with a number and count on to get the sum. Students should begin to recognize that beginning with the larger of the two addends is generally most efficient.	for $3 + 5$ think $5 + 1 + 1 + 1$ is 8; think 5, 6, 7, 8
1	Subtraction	Counting back	Students begin with the minuend and count back to find the difference.	for $6 - 2$ think $6 - 1 - 1$ is 4; think 6, 5, 4
1, 2	Addition	Using one more	Starting from a known fact and adding one more.	for $8 + 5$ if you know $8 + 4$ is 12 and one more is 13
1, 2	Addition	Using one less	Starting from a known fact and taking one away.	for $8 + 6$ if you know $8 + 7$ is 15 and one less is 14
1, 2,	Addition Subtraction	Making 10	Students use combinations that add up to ten and can extend this to multiples of ten in later grades.	$4 + \underline{\quad}$ is 10 $7 + \underline{\quad}$ is 10; so $23 + \underline{\quad}$ is 30

(continued)

## BLM 5–8.8: Mental Math Strategies (Continued)

Grade	Concept	Strategy	Meaning	Example
1	Addition Subtraction	Starting from known doubles	Students need to work to know their doubles facts.	$2 + 2$ is 4 and $4 - 2$ is 2
1, 2, 3	Subtraction	Using addition to subtract	This is a form of part-part-whole representation. Thinking of addition as: part + part = whole Thinking of subtraction as: whole - part = part	for $12 - 5$ think $5 + \underline{\quad} = 12$ so $12 - 5$ is 7
2	Addition Subtraction	The zero property of addition	Knowing that adding 0 to an addend does not change its value, and taking 0 from a minuend does not change the value.	$0 + 5 = 5$ ; $11 - 0 = 11$
2, 3	Addition Subtraction	Using doubles	Students learn doubles, and use this to extend facts: using doubles doubles plus one (or two) doubles minus one (or two)	for $5 + 7$ think $6 + 6$ is 12; for $5 + 7$ think $5 + 5 + 2$ is 12 for $5 + 7$ think $7 + 7 - 2$ is 12
2, 3	Addition Subtraction	Building on known doubles	Students learn doubles, and use this to extend facts.	for $7 + 8$ think $7 + 7$ is 14 so $7 + 8$ is $14 + 1$ is 15
3	Addition	Adding from left to right	Using place value understanding to add 2-digit numerals.	for $25 + 33$ think $20 + 30$ and $5 + 3$ is $50 + 8$ or 58

(continued)

## BLM 5–8.8: Mental Math Strategies (Continued)

Grade	Concept	Strategy	Meaning	Example
3	Addition Subtraction	Making 10	Students use combinations that add up to ten to calculate other math facts and can extend this to multiples of ten in later grades.	for $8 + 5$ <i>think</i> $8 + 2 + 3$ is $10 + 3$ or $13$
3	Addition Subtraction	Compensation	Using other known math facts and compensating. For example, adding 2 to an addend and taking 2 away from the sum.	for $25 + 33$ <i>think</i> $25 + 35 - 2$ is $60 - 2$ or $58$
3	Addition	Commutative property	Switching the order of the two numbers being added will not affect the sum.	$4 + 3$ is the same as $3 + 4$
3, 4 (decimals)	Addition Subtraction	Compatible numbers	Compatible numbers are friendly numbers (often associated with compatible numbers to 5 or 10).	for $4 + 3$ students may <i>think</i> $4 + 1$ is 5 and 2 more makes 7
3	Multiplication Division	Array	Using an ordered arrangement to show multiplication or division (similar to area).	for $3 \times 4$ think •••• •••• •••• for $12 \div 3$ think •••• •••• ••••
3	Multiplication	Commutative property	Switching the order of the two numbers being multiplied will not affect the product.	$4 \times 5$ is the same as $5 \times 4$
3	Multiplication	Skip-counting	Using the concept of multiplication as a series of equal grouping to determine a product.	for $4 \times 2$ <i>think</i> 2, 4, 6, 8 so $4 \times 2$ is 8
4	Multiplication	Zero property of multiplication	Multiplying a factor by zero will always result in zero.	$30 \times 0$ is 0 $0 \times 15$ is 0

(continued)

## BLM 5–8.8: Mental Math Strategies (Continued)

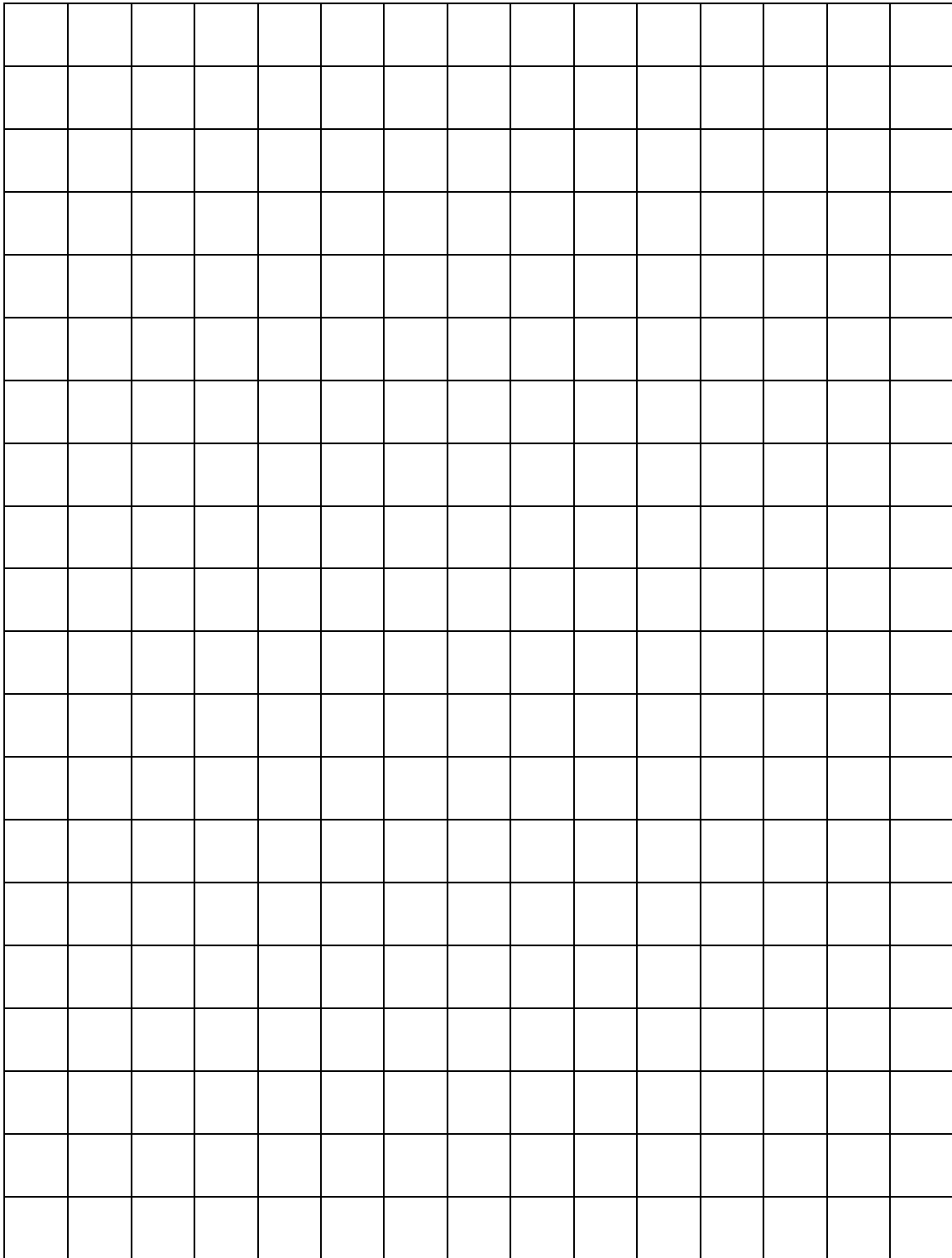
Grade	Concept	Strategy	Meaning	Example
4	Multiplication Division	Multiplicative identity	Multiplying (dividing) a factor (dividend) by one will not change its value.	$1 \times 12$ is 12 $21 \div 1$ is 21
4, 5	Multiplication Division	Skip-counting from a known fact	Similar to the counting on strategy for addition. Using a known fact and skip counting forward or backward to determine the answer.	for $3 \times 8$ think $3 \times 5$ is 15 and skip count by threes 15, 18, 21, 24
4, 5	Multiplication Division	Doubling or halving	Using known facts and doubling or halving them to determine the answer.	for $7 \times 4$ , think the double of $7 \times 2$ is 28 for $48 \div 6$ , think the double of $24 \div 6$ is 8
4	Multiplication Division	Using the pattern for 9s	Knowing the first digit of the answer is one less than the non-nine factor and the sum of the product's digits is nine.	for $7 \times 9$ think one less than 7 is 6 and 6 plus 3 is nine, so $7 \times 9$ is 63
4, 5	Multiplication	Repeated doubling	Continually doubling to get to an answer.	for $3 \times 8$ , think $3 \times 2$ is 6, $6 \times 2$ is 12, $12 \times 2$ is 24
4	Division	Using multiplication to divide	This is a form of part-part-whole representation. Thinking of multiplication as: part $\times$ part = whole Thinking of division as: whole $\div$ part = part	for $35 \div 7$ think $7 \times \underline{\quad} = 35$ so $35 \div 7$ is 5
4, 5	Multiplication	Distributive property	In arithmetic or algebra, when you distribute a factor across the brackets: $a \times (b + c) = a \times b + a \times c$ $(a + b) \times (c + d) = ac + ad + bc + bd$	for $2 \times 154$ think $2 \times 100$ plus $2 \times 50$ plus $2 \times 4$ is $200 + 100 +$ 8 or 308

(continued)

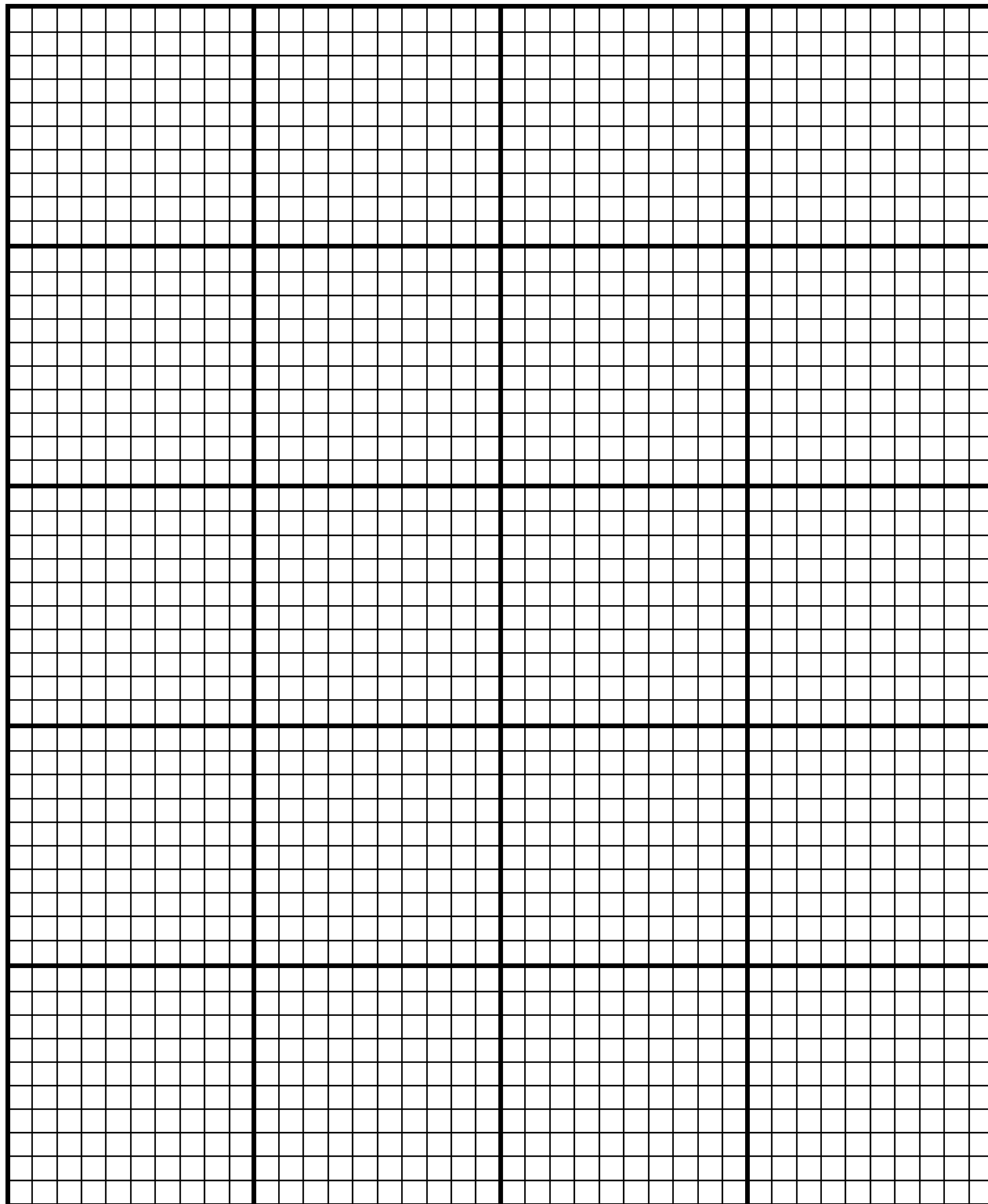
## BLM 5–8.8: Mental Math Strategies (Continued)

Grade	Concept	Strategy	Meaning	Example
5	Division	Repeated halving	Continually halving to get a number.	for $32 \div 4$ , think $32 \div 2$ is 16 and $16 \div 2$ is 8 so $32 \div 4$ is 8
5	Multiplication	Annexing zeros	When multiplying by a factor of 10 (or a power of ten), taking off the zeros to determine the product and adding them back on.	for $4 \times 700$ , think $4 \times 7$ is 28 and add two zeros to make 2800
5	Multiplication	Halving and doubling	Halving one factor and doubling the other.	for $24 \times 4$ , think $48 \times 2$ is 96
6, 7	Division	Dividing by multiples of ten	When dividing by 10, 100, etc., the dividend becomes smaller by 1, 2, etc. place value positions.	for $76.3 \div 10$ think 76.3 should become smaller by one place value position so $76.3 \div 10$ is 7.63

# BLM 5-8.9: Centimetre Grid Paper



**BLM 5-8.10: Base-Ten Grid Paper**

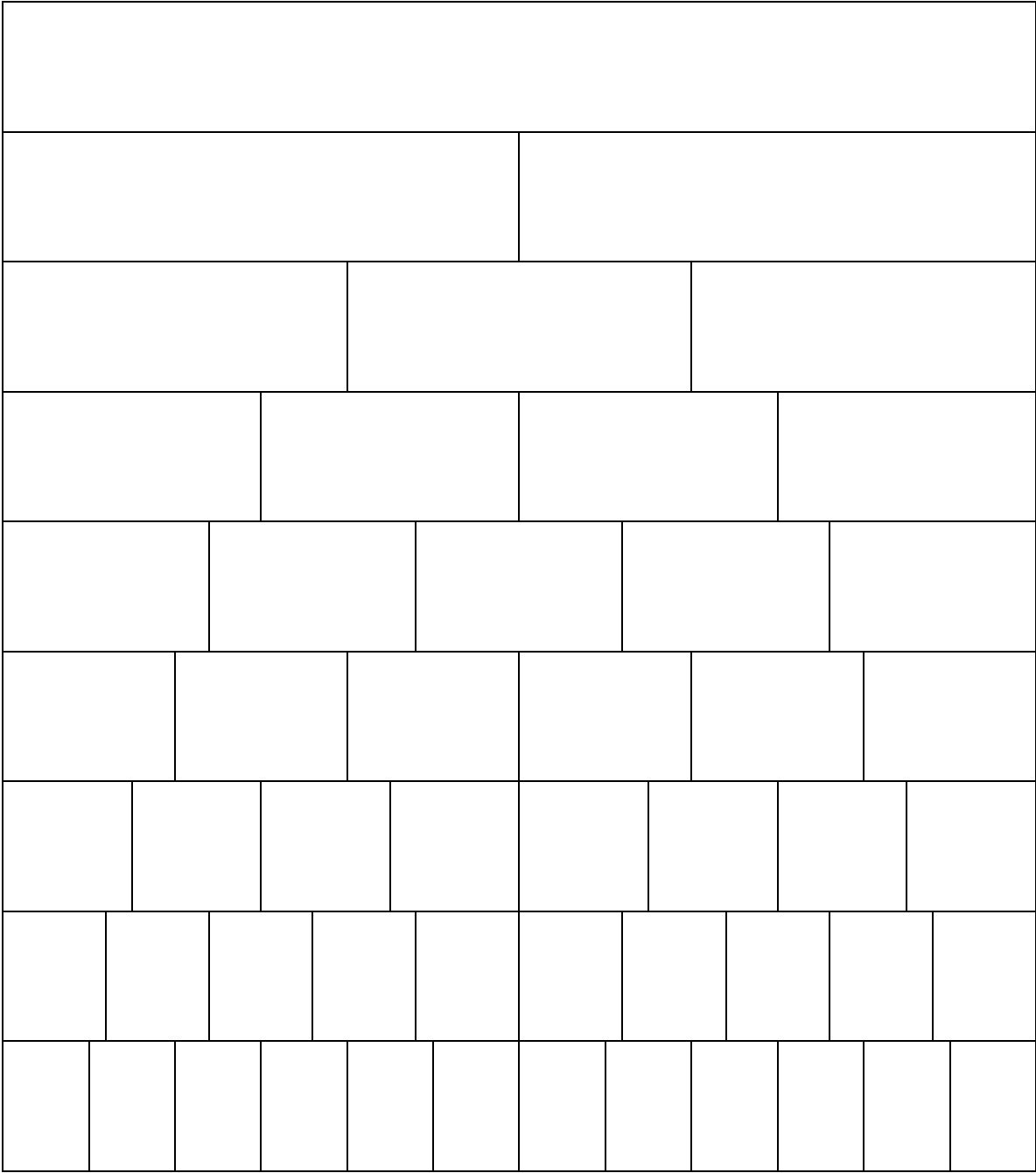




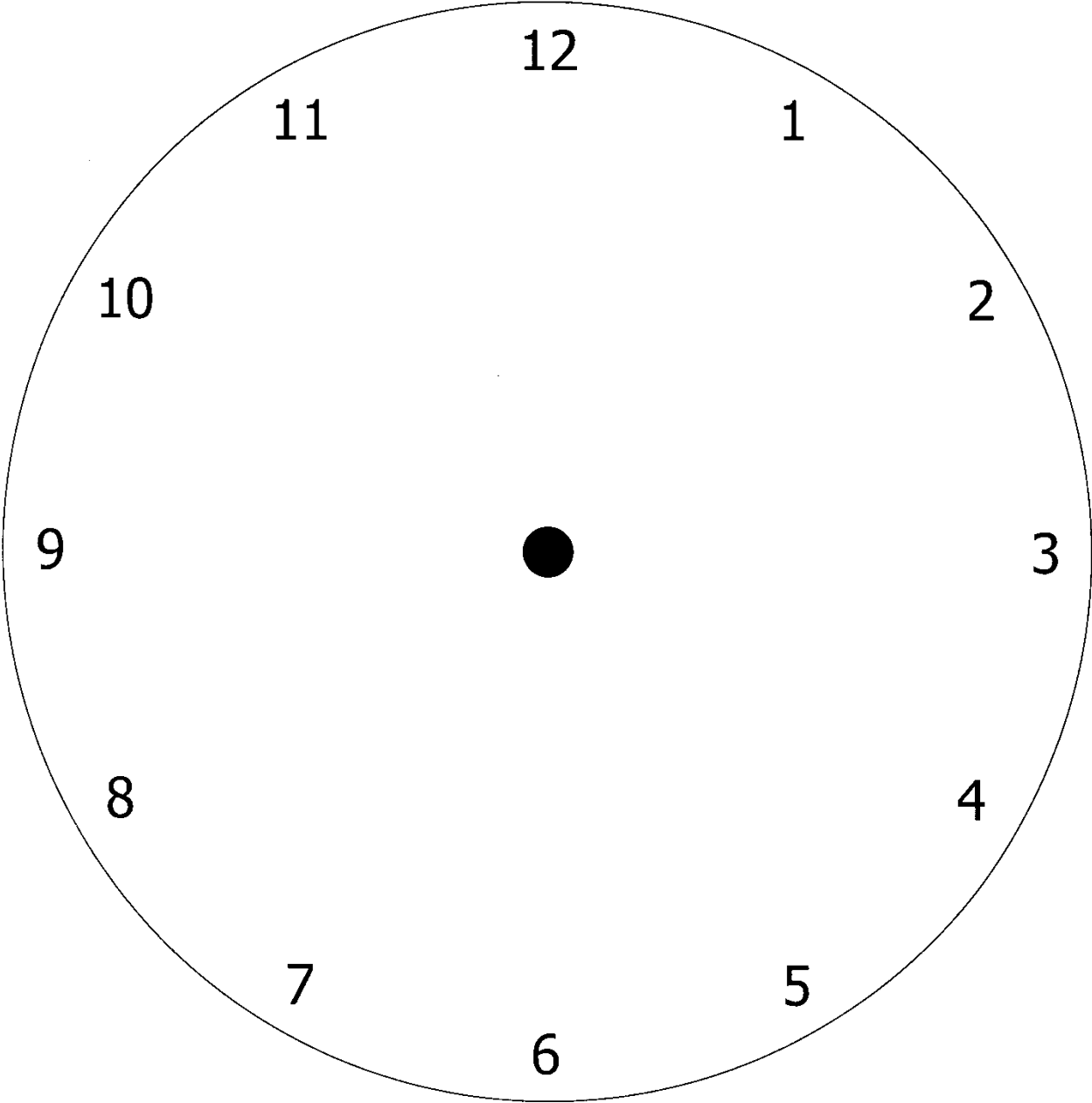
## BLM 5-8.11: Multiplication Table

×	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

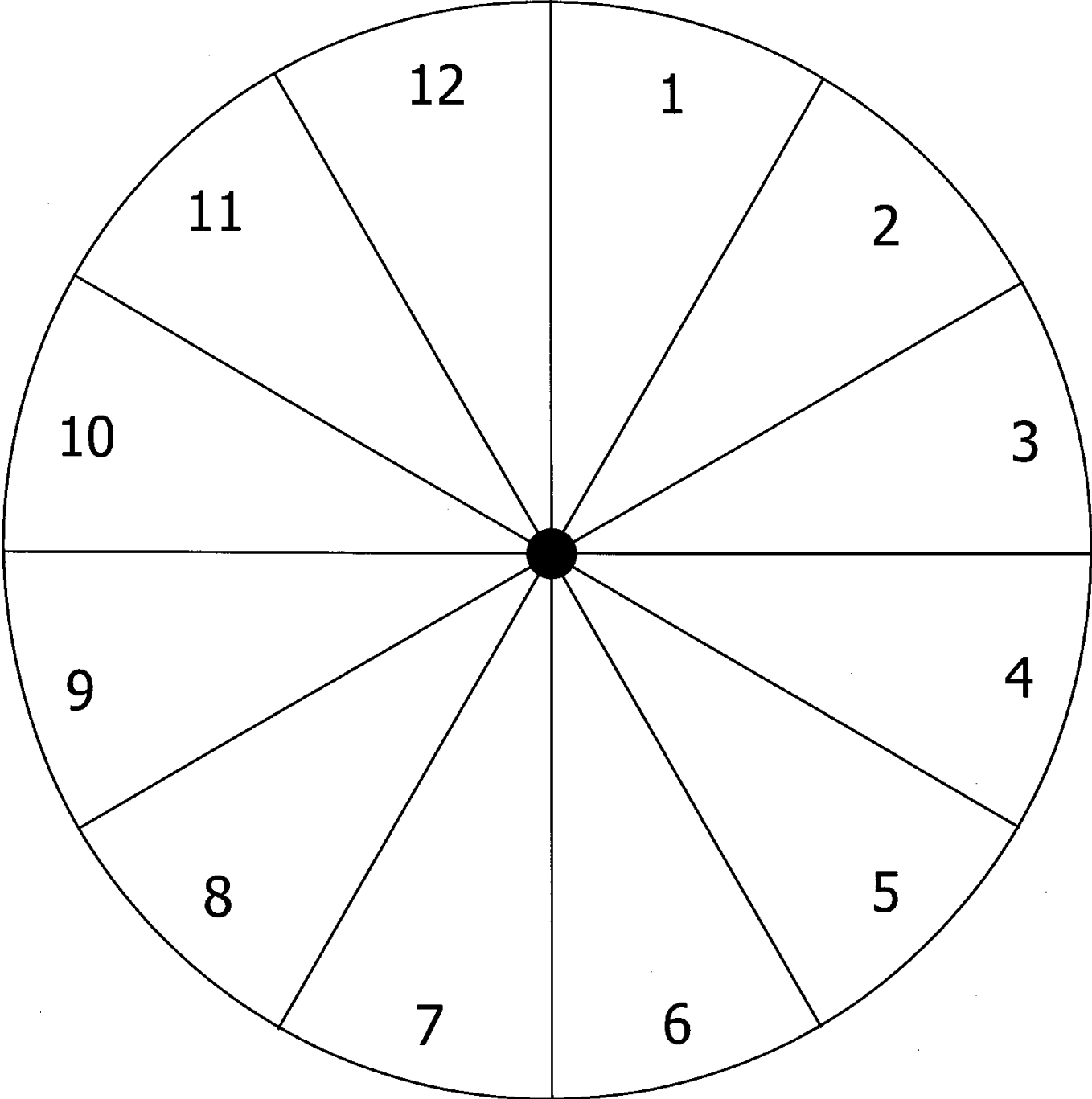
**BLM 5-8.12: Fraction Bars**



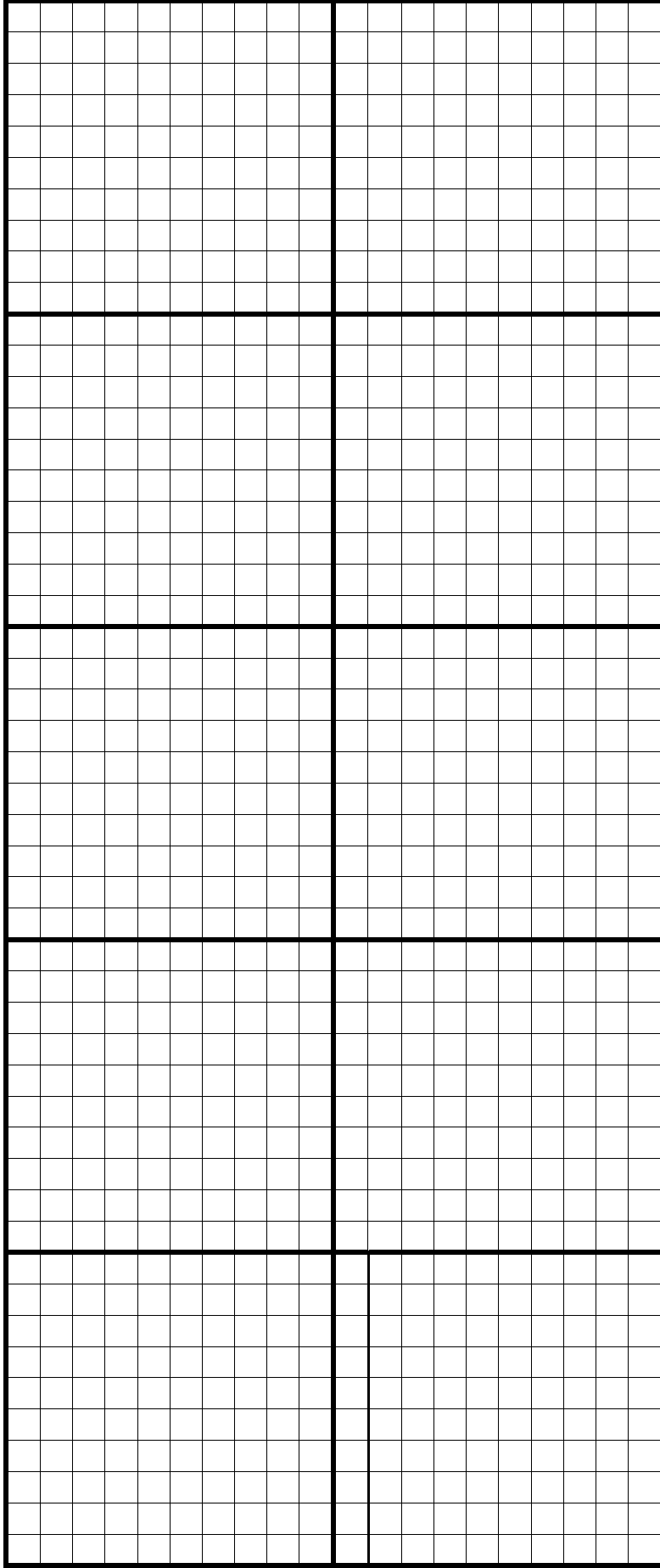
**BLM 5–8.13: Clock Face**



**BLM 5–8.14: Spinner**



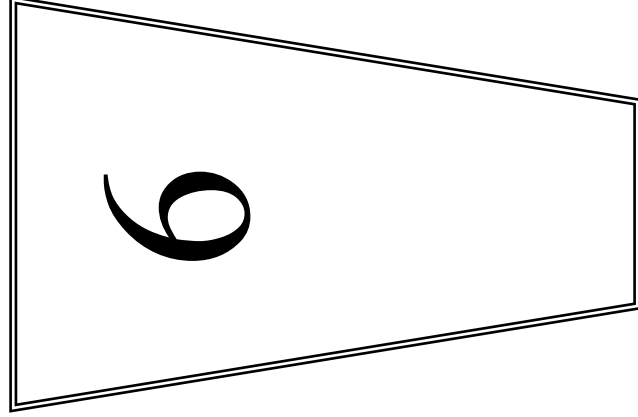
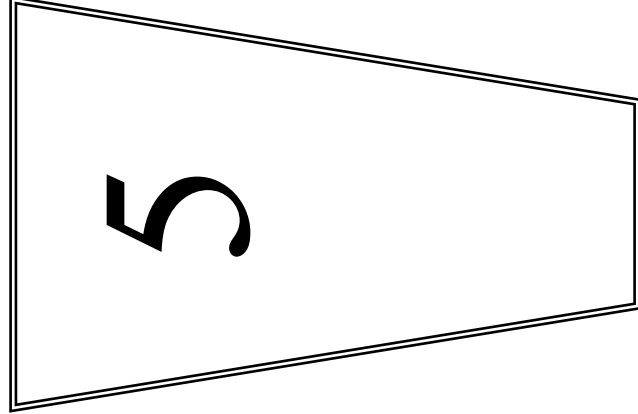
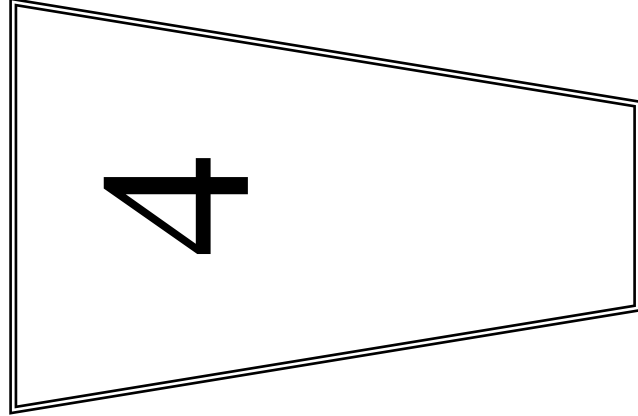
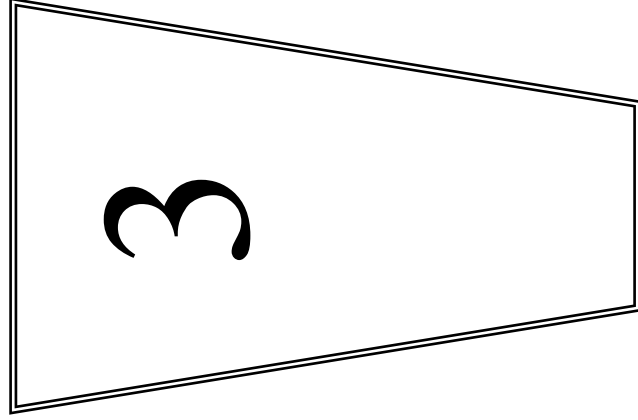
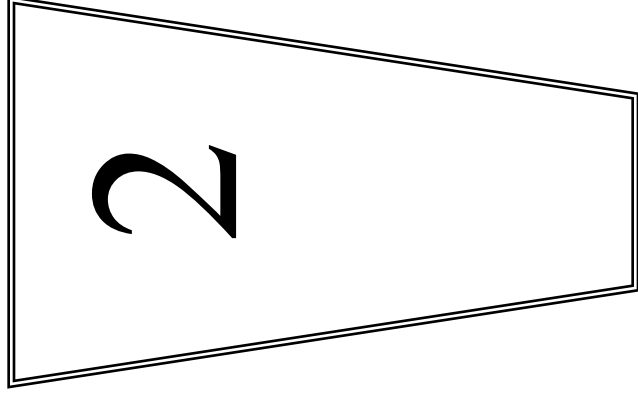
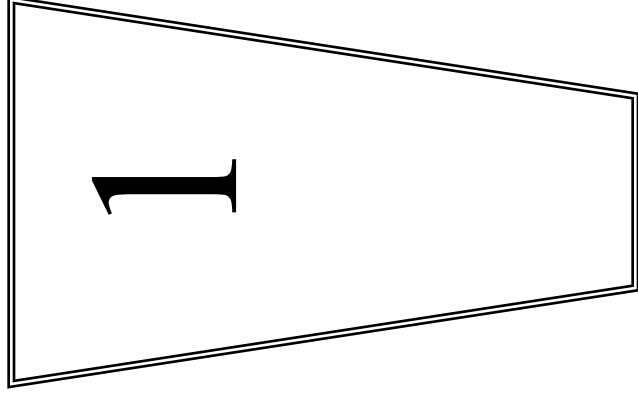
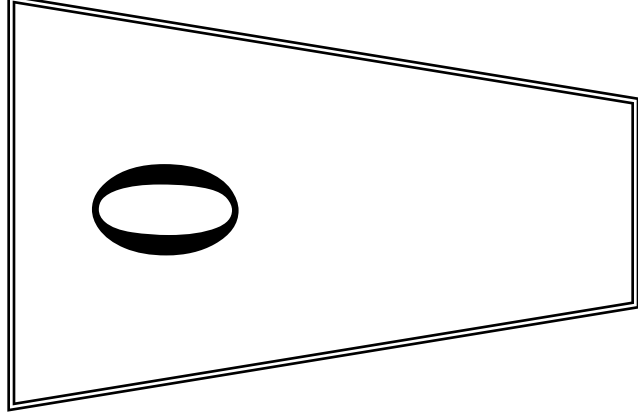
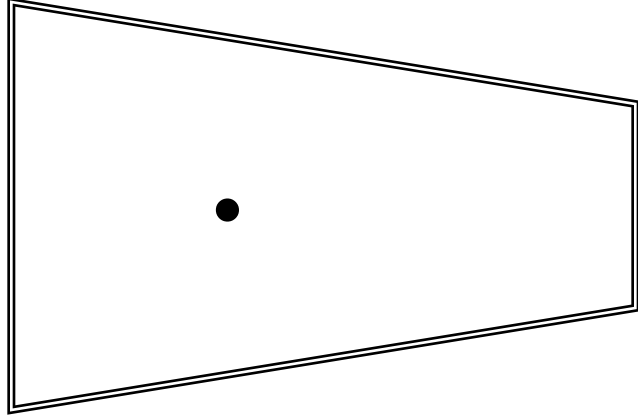
**BLM 5--8.15: Thousand Grid**



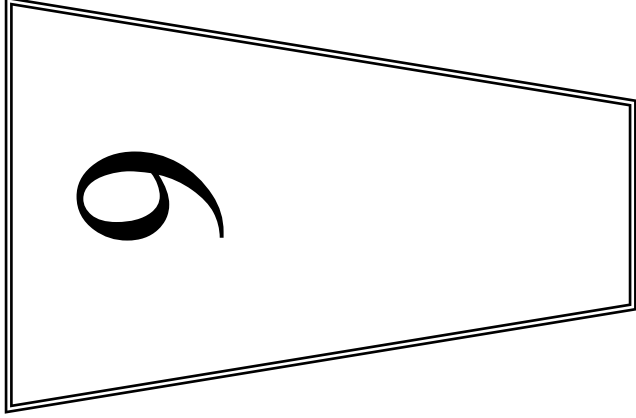
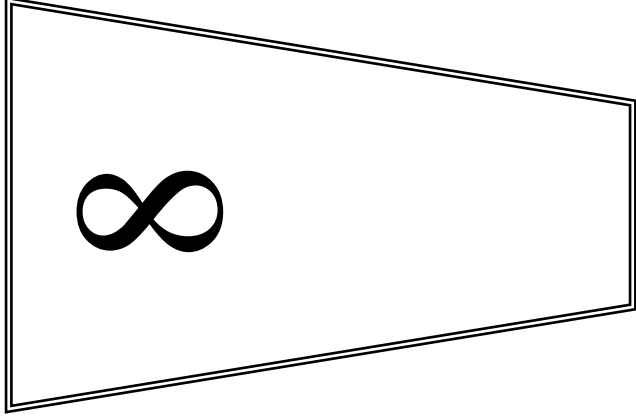
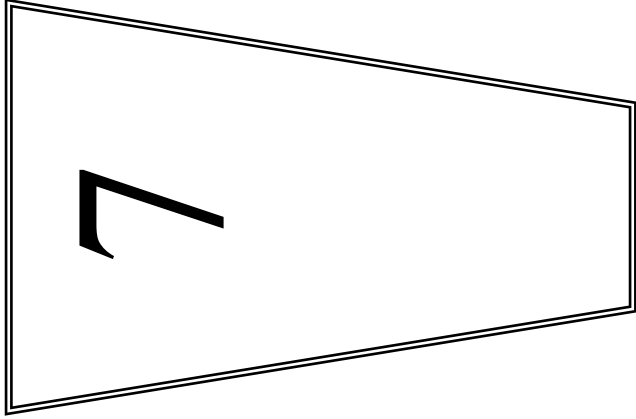
**BLM 5--8.16: Place-Value Mat—Decimal Numbers**

Ones	Tenths	Hundredths	Thousandths

**BLM 5–8.17: Number Fan**



**BLM 5–8.1.7: Number Fan (Continued)**





## BLM 5–8.18: KWL Chart

# K

What do you think you KNOW about \_\_\_\_\_?

# W

What do you WANT to know about \_\_\_\_\_?

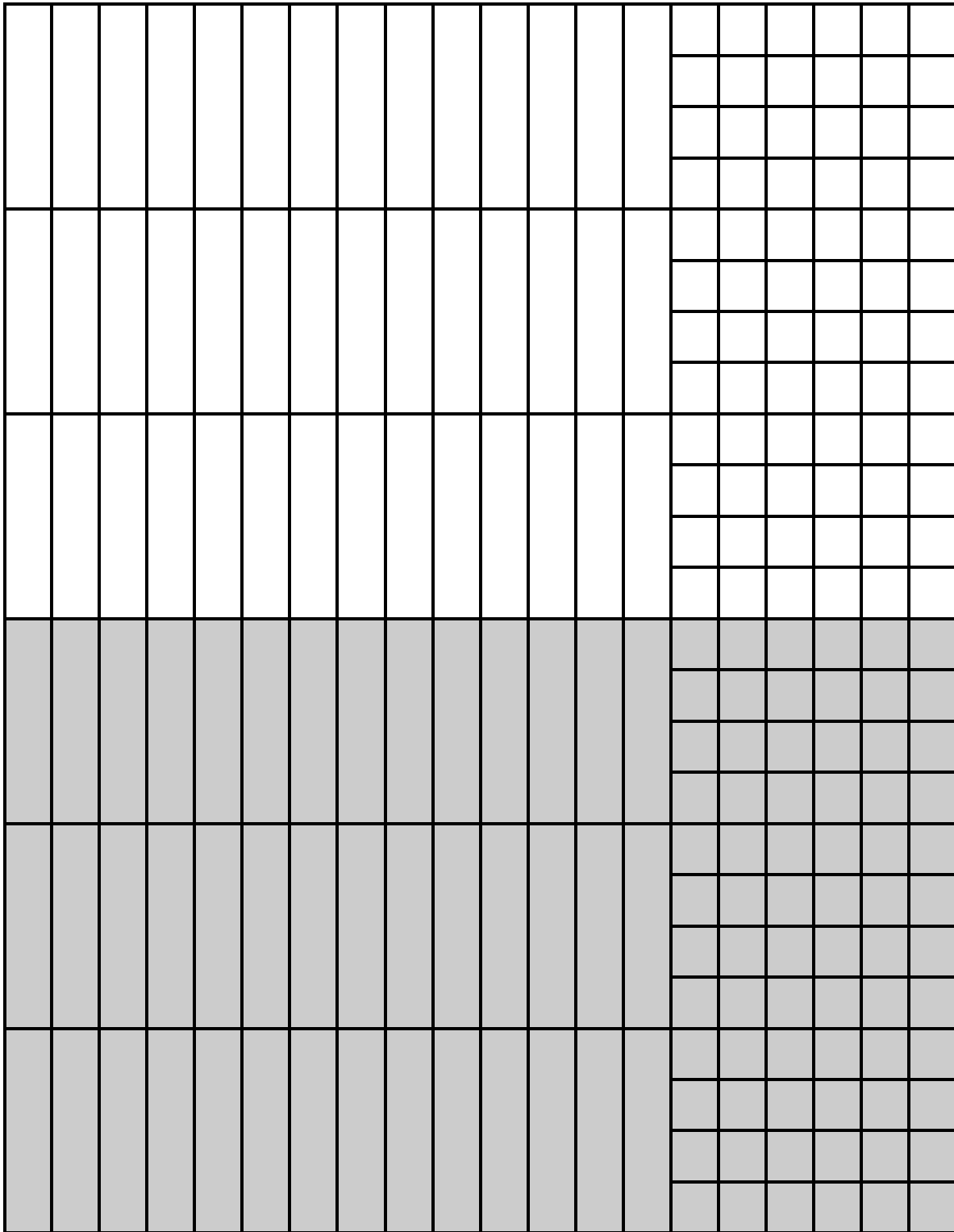
# L

What did you LEARN about \_\_\_\_\_?

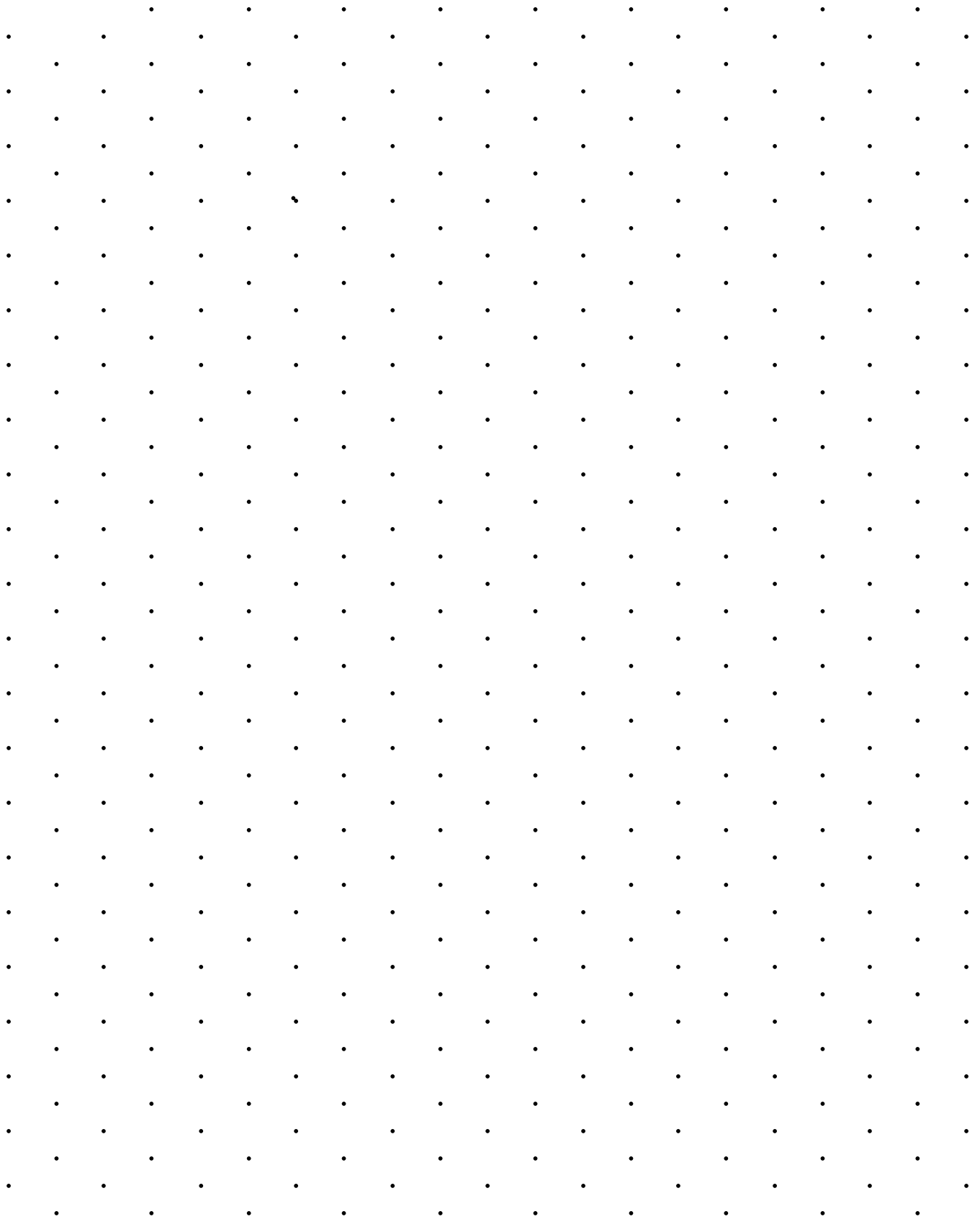
# BLM 5-8.19: Double Number Line

The image displays a grid of 20 horizontal double number lines. Each line consists of two parallel horizontal lines with 20 small square boxes between them, providing a structured space for mathematical work.

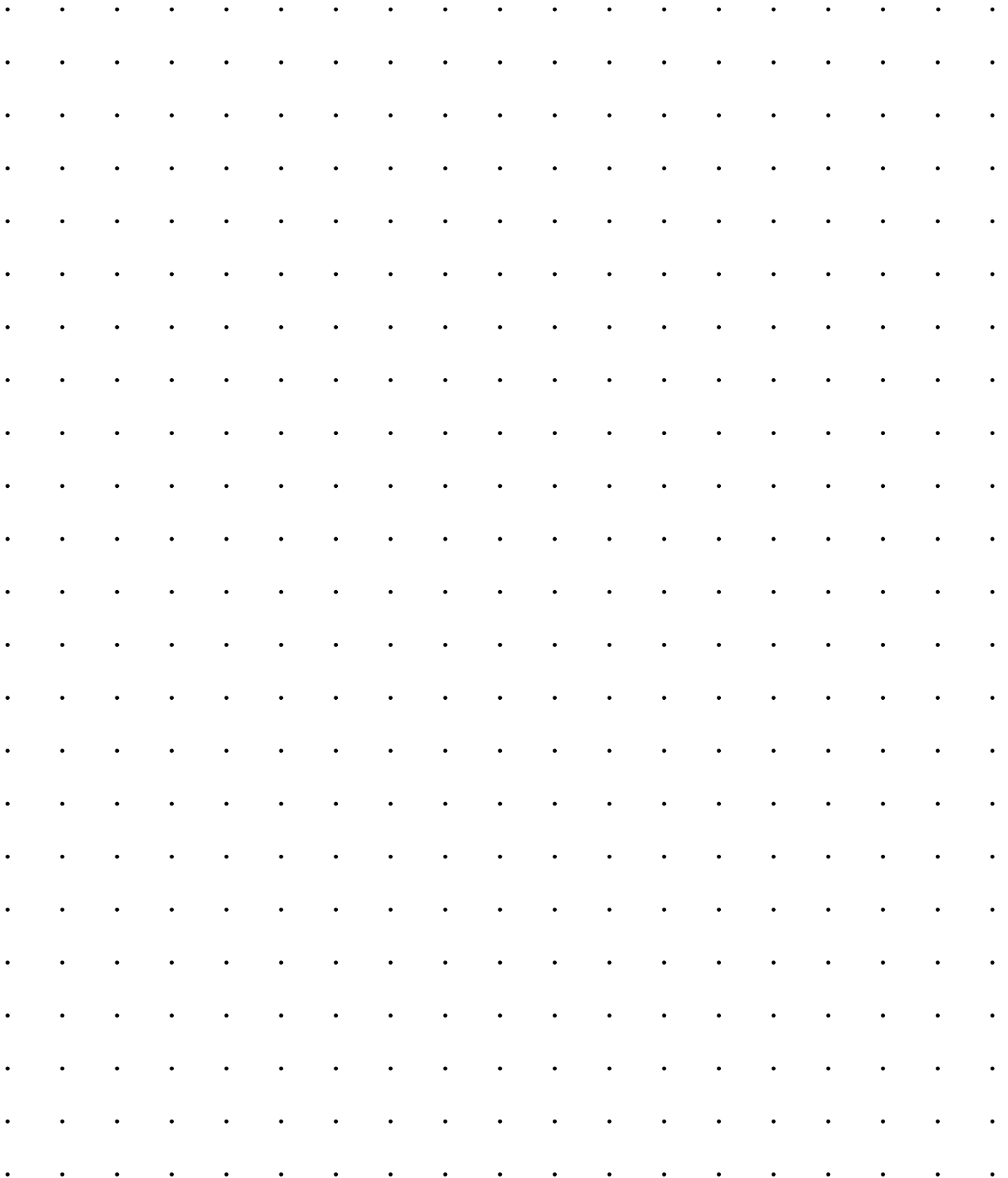
# BLM 5-8.20: Algebra Tiles



# BLM 5–8.21: Isometric Dot Paper



## BLM 5-8.22: Dot Paper



**BLM 5-8.23: Understanding Words Chart**

<b>What does it mean?</b>	<b>Word</b>	<b>Picture</b>
<b>Example</b>		

<b>What does it mean?</b>	<b>Word</b>	<b>Picture</b>
<b>Example</b>		

**BLM 5-8.24: Number Line**



# BLM 5-8.25: My Success with Mathematical Processes

Name \_\_\_\_\_ Date \_\_\_\_\_

Task \_\_\_\_\_

What are the mathematical processes?	How do I know that I have been successful?	How have I shown my successes?
<b>Communication</b>	<ul style="list-style-type: none"> <li>▪ I use mathematical language and symbols that I already know and that I am learning.</li> <li>▪ I use real things, pictures, symbols, talking, writing, and thinking to communicate.</li> </ul>	
<b>Connections</b>	<ul style="list-style-type: none"> <li>▪ I connect the math I am learning to math I already know.</li> <li>▪ I connect the math I am learning to my life.</li> </ul>	
<b>Mental Mathematics and Estimation</b>	<ul style="list-style-type: none"> <li>▪ I can quickly figure out the answers to questions with numbers by thinking about how numbers work (and I don't need to write down my steps).</li> <li>▪ I estimate to make sure my answer makes sense or when I don't need an exact answer or measurement.</li> </ul>	
<b>Problem Solving</b>	<ul style="list-style-type: none"> <li>▪ I listen to others, talk with others, and try many things when I am trying to answer a kind of question that I have never seen before.</li> </ul>	

(continued)



## BLM 5-8.25: My Success with Mathematical Processes (continued)

What are the mathematical processes?	How do I know that I have been successful?	How have I shown my successes?
<b>Reasoning</b>	<ul style="list-style-type: none"> <li>▪ When doing math, I see patterns, I use what I know to help me figure out something that I don't know, and I think about my answers.</li> </ul>	
<b>Technology</b>	<ul style="list-style-type: none"> <li>▪ I use calculators, computers, and other technology to               <ul style="list-style-type: none"> <li>▪ organize and show my work</li> <li>▪ figure out patterns</li> <li>▪ check something of which I am unsure</li> <li>▪ help me learn in new ways</li> </ul> </li> </ul>	
<b>Visualization</b>	<ul style="list-style-type: none"> <li>▪ I can make up, figure out, explain, and link together different pictures and 3-dimensional objects.</li> <li>▪ When thinking about numbers, I imagine them in my head.</li> <li>▪ When measuring, I know that sometimes I need an exact number and sometimes I need one that is close.</li> </ul>	

**BLM 5-8.26: Percent Circle**

