

Mathematics Computation (M-COMP)

Development

A content blueprint was constructed for Mathematics Computation (M-COMP) on the basis of guidance from internal and external experts in math curriculum (see Table 27). Experienced mathematics item writers created items in accordance with the blueprint, and these items were reviewed and edited by **aimsweb** staff.

Table 27
Content Measured by M-COMP, by Grade

Domain	Grade							
	1	2	3	4	5	6	7	8
Column Addition	✓	✓	✓					
Basic Facts	✓	✓	✓	✓	✓	✓		
Complex Computation	✓	✓	✓	✓	✓	✓	✓	
Decimals				✓	✓	✓	✓	✓
Fractions				✓	✓	✓	✓	✓
Conversions					✓	✓	✓	✓
Percentages					✓	✓	✓	✓
Integers						✓	✓	✓
Expressions						✓		
Reducing						✓	✓	
Equations							✓	✓
Exponents							✓	✓

The revised items were sent to external reviewers, who were asked to ensure that:

- no errors existed in the item structure (stem, format, etc.),
- the item could be solved by students at the intended grade level, and
- the keyed answer was correct.

One preliminary anchor probe was then developed for each grade level (1 through 8) to serve as the template for all probes at the corresponding grade level. To enhance the sensitivity of the instrument by maximizing the number of items completed by less-able students, items were arranged in approximate order of estimated difficulty while maintaining item-to-item variation in format and domain.

The preliminary anchor probes underwent a series of pilot studies to evaluate item difficulty and validity, adequacy of scale floors and ceilings, administration times, and scoring criteria.

Pilot Study 1: Sixteen students were tested to ensure that all directions for administration and individual items were clear and grade-level appropriate, that no issues existed with item progression, and that all items were functioning properly. Qualitative and quantitative feedback led to minor adjustments in the anchor probes.

To provide our customers who are requesting additional information about Figure 4.1 Domains Evaluated with M-COMP by Grade on page 29 in the M-COMP Manual we have added this table that provides the percent of item type for each M-COMP domain by Grade.

	Percent of Item Type by Grade Level							
	Grade							
M-COMP	1	2	3	4	5	6	7	8
Column Addition	18%	29%	8%	—	—	—	—	—
Basic Facts	61%	36%	68%	29%	13%	8%	—	—
Complex Computation	21%	36%	24%	50%	31%	10%	8%	—
Decimals	—	—	—	11%	18%	20%	13%	10%
Fractions	—	—	—	11%	15%	18%	10%	23%
Conversions	—	—	—	—	10%	10%	15%	15%
Percentages	—	—	—	—	13%	3%	3%	10%
Integers	—	—	—	—	—	13%	15%	13%
Expressions	—	—	—	—	—	10%	—	—
Reducing	—	—	—	—	—	10%	13%	—
Equations	—	—	—	—	—	—	15%	20%
Exponents	—	—	—	—	—	—	10%	10%