Preparing Our Students to be Globally Competitive

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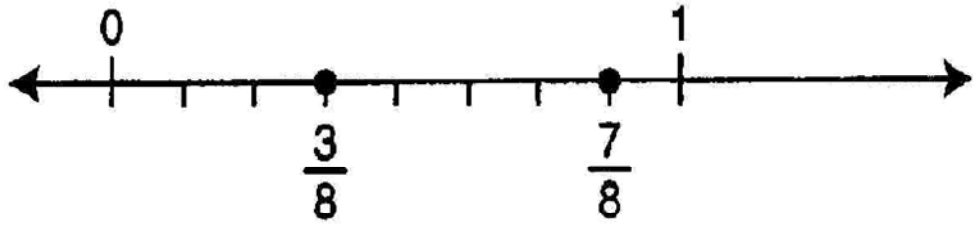
Elementary Students' Performance on a Fractions Problem

4. Which fraction is located between $\frac{3}{8}$ and $\frac{7}{8}$ on the number line?



A. $\frac{1}{4}$

B. $\frac{1}{2}$

C. $\frac{8}{8}$

D. $\frac{10}{8}$

Grade 3	Grade 4	Grade 5
19.1	39.8	50.8

Elementary & Middle School Students' Performance on a Fractions Problem

20. What is the value of $\frac{4}{5} - \frac{1}{3} - \frac{1}{15}$?

A. $\frac{1}{5}$

B. $\frac{2}{5}$

C. $\frac{7}{15}$

D. $\frac{3}{4}$

E. $\frac{4}{5}$

Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
14.1	21.2	16.7	28.4	37.7	51.2

Middle School Students' Performance on an Algebra Problem

16. If $3(2x-5)+5-(x+5)=2(3-x)$ what does x equal?

A. $\frac{6}{7}$

B. 1

C. 4

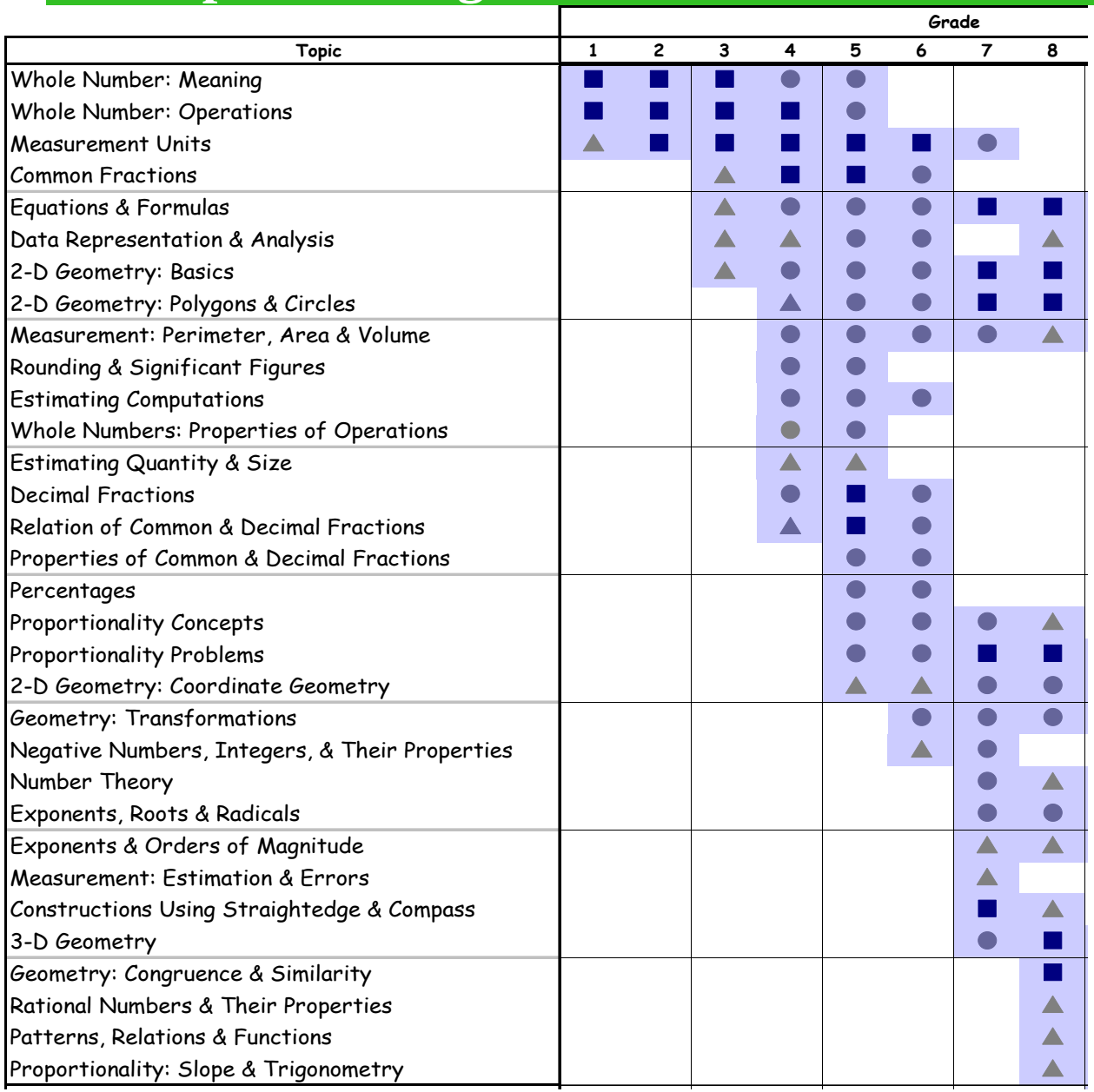
D. 3

Grade 6	Grade 7	Grade 8
19.9	31.5	31.6

Instructional Content Constructs

- **Curricular Coherence**
  - **Curricular Structure**
- **Curricular Focus**
  - **Exposure Time (OTL)**
- **Curricular Rigor**
  - **Level of Cognitive Complexity**

Top Achieving Countries' Mathematics Curriculum

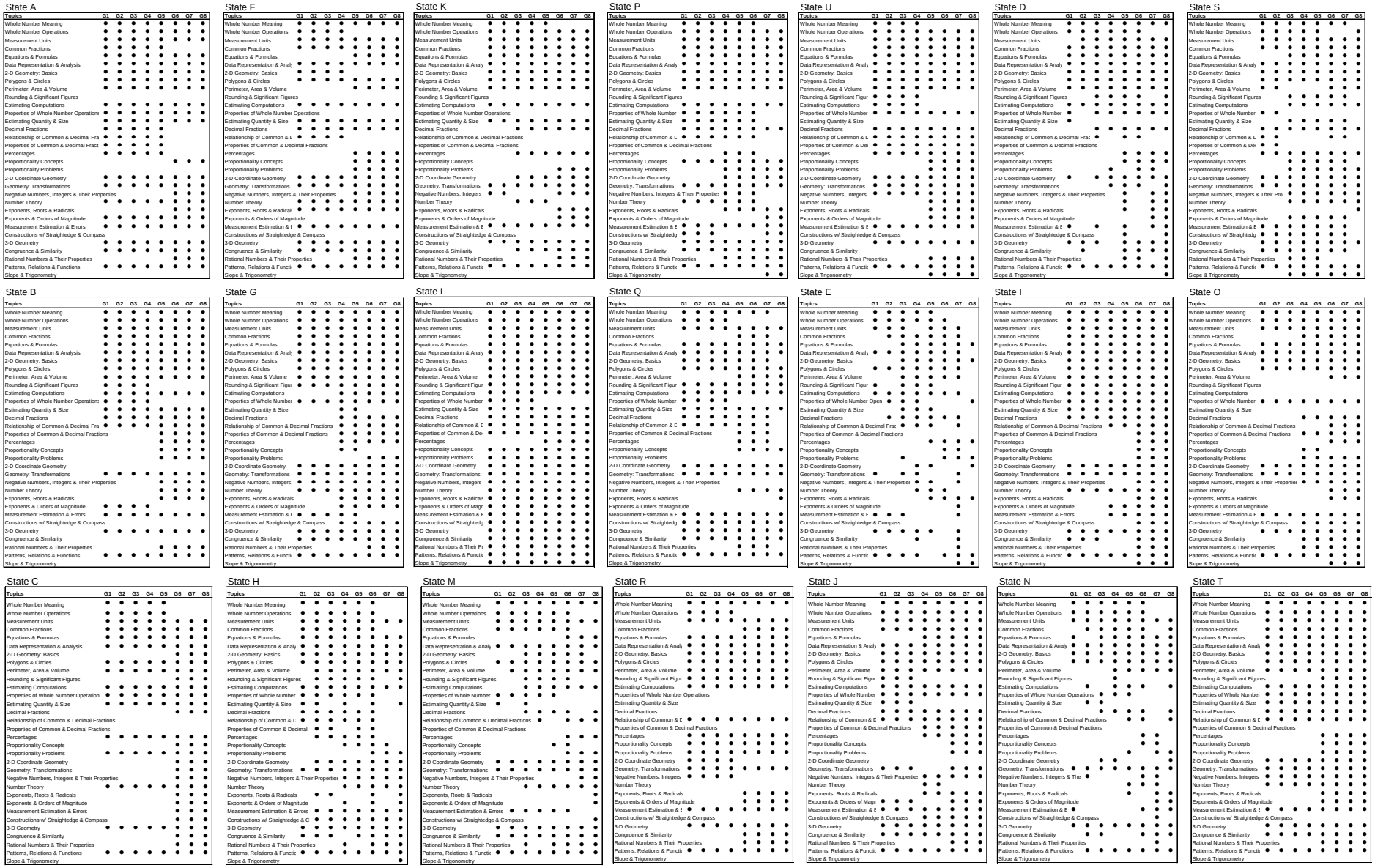


▲ Intended by 4 out of the 6 top-achieving countries

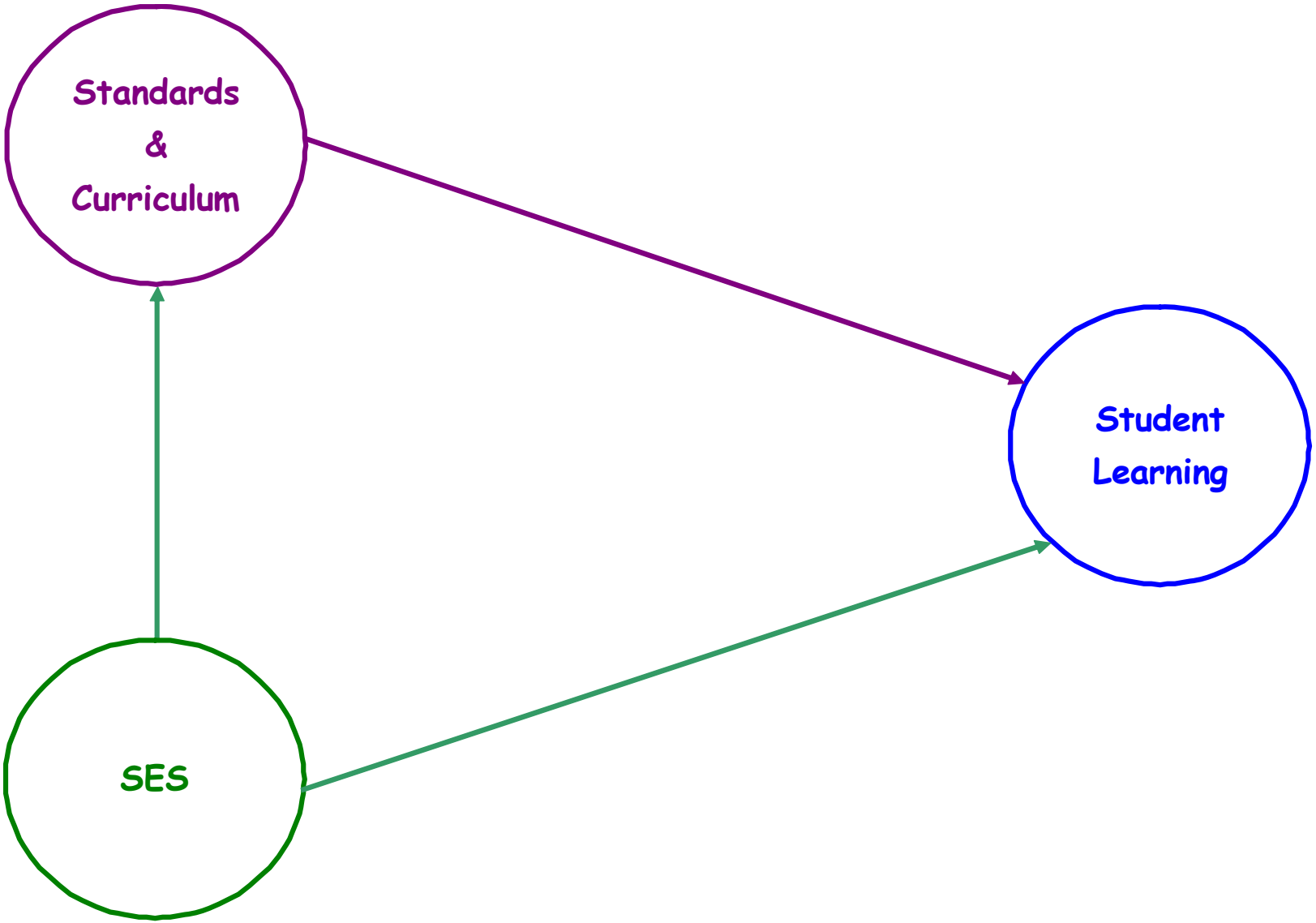
● Intended by all but *one* of the top-achieving countries (5 out of 6).

■ Intended by *all* of the top-achieving countries.

21 States' Mathematics Standards



Relationship between Curriculum, SES and Student Learning



Percent (standard error) of US eighth grade students attending schools offering each type of mathematics course

Course Type	Schools Offering Course
GEOMETRY	6 (1.9)
ALGEBRA I	66.5 (2.8)
PRE-ALGEBRA	37.1 (3.8)
ENRICHED	13.9 (2.2)
REGULAR	80.9 (3.1)
REMEDIAL	13.1 (2.3)

High School Students' Performance on a Functions Problem

28. The inverse of a function is a logarithmic function in the form $y = \log_b x$. Which equation represents the original function?

A. $y = b^x$

B. $y = bx$

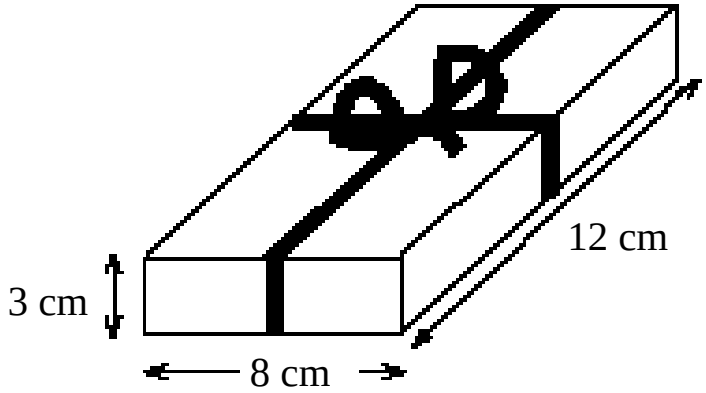
C. $x = b^y$

D. $by = x$

Grade 9	Grade 10	Grade 11	Grade 12
17.0	27.9	28.2	37.5

High School Students' Performance on a Mathematics Literacy Problem

29. Stu wants to wrap some ribbon around a box as shown below and have 25 centimeters left to tie a bow.



How long a piece of ribbon does he need?

A. 46 cm

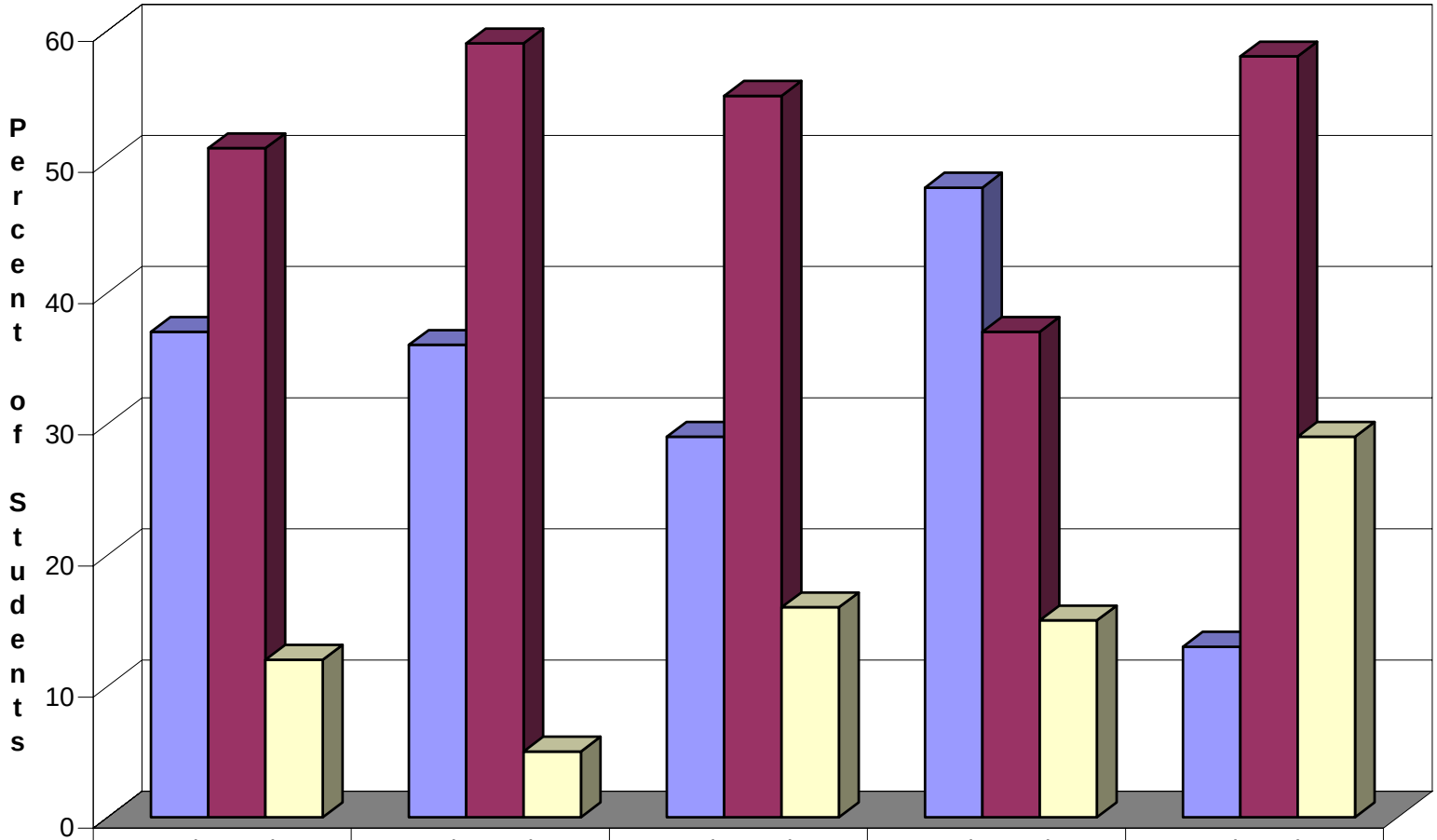
B. 77 cm

C. 65 cm

D. 71 cm

Grade 9	Grade 10	Grade 11	Grade 12
38.0	41.0	43.3	50.2

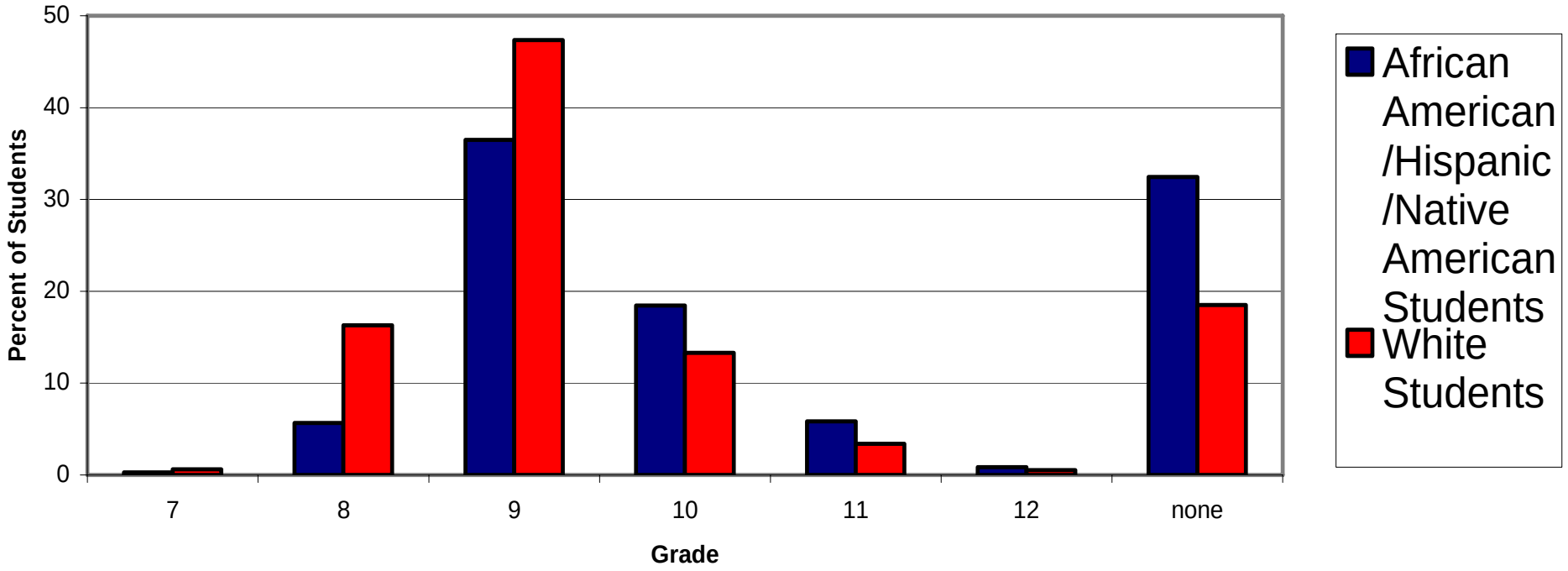
Level of First Mathematics Course in High School



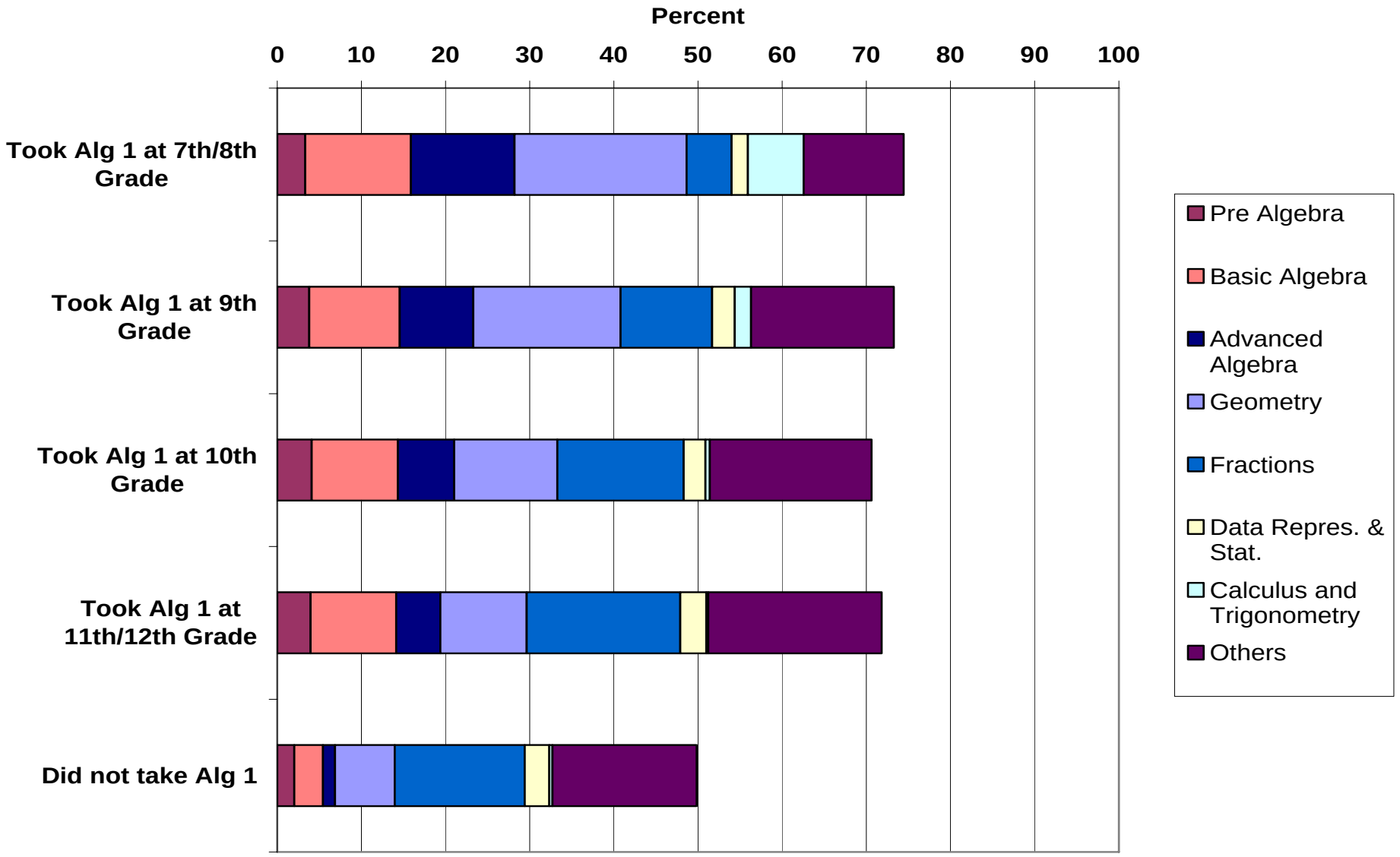
	A (n=142)	B (n=115)	C (n=348)	D (n=176)	E (n=48)
Below Algebra I	37	36	29	48	13
Algebra I	51	59	55	37	58
Above Algebra I	12	5	16	15	29

School Districts

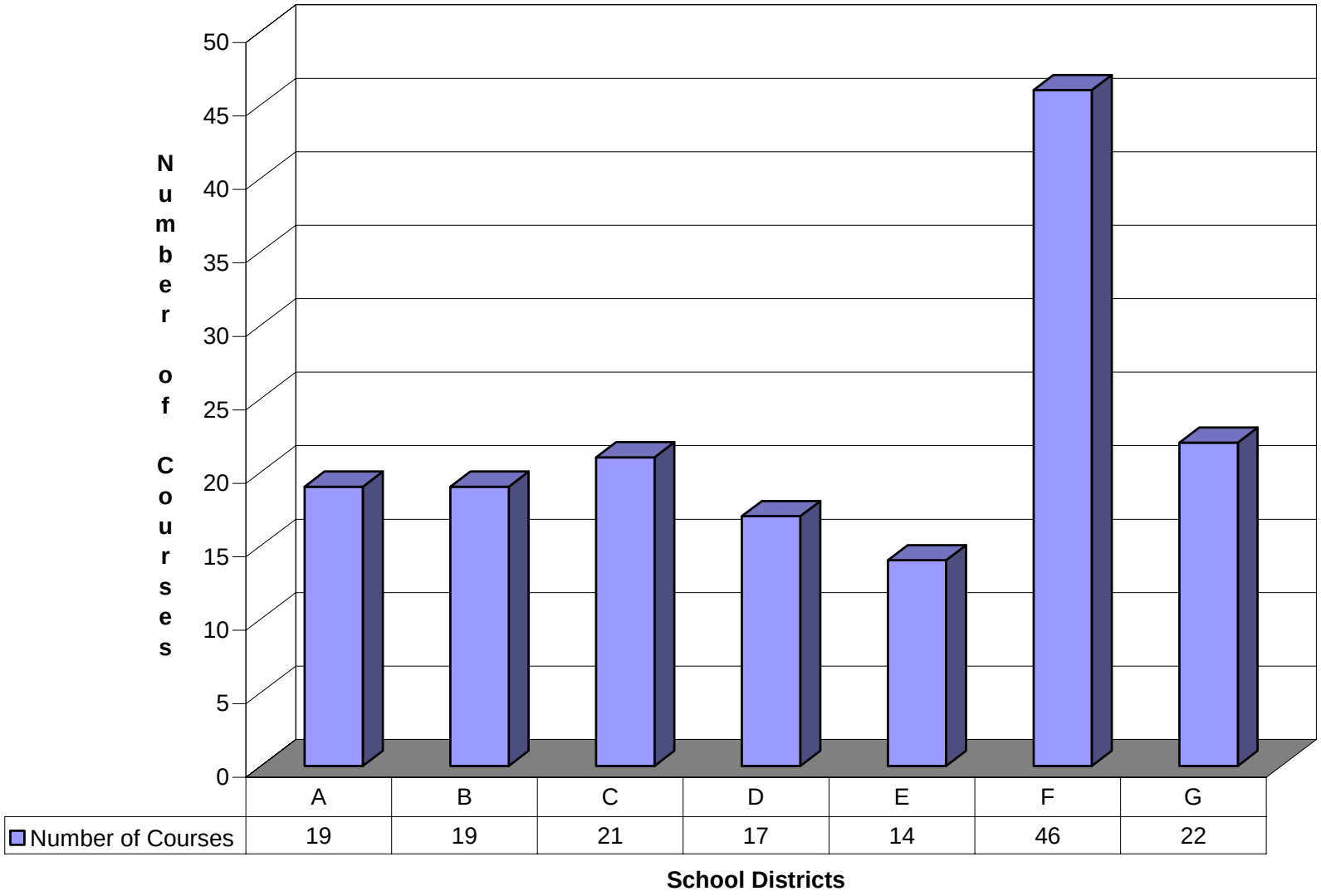
Percent of Students Taking Algebra I for the First Time



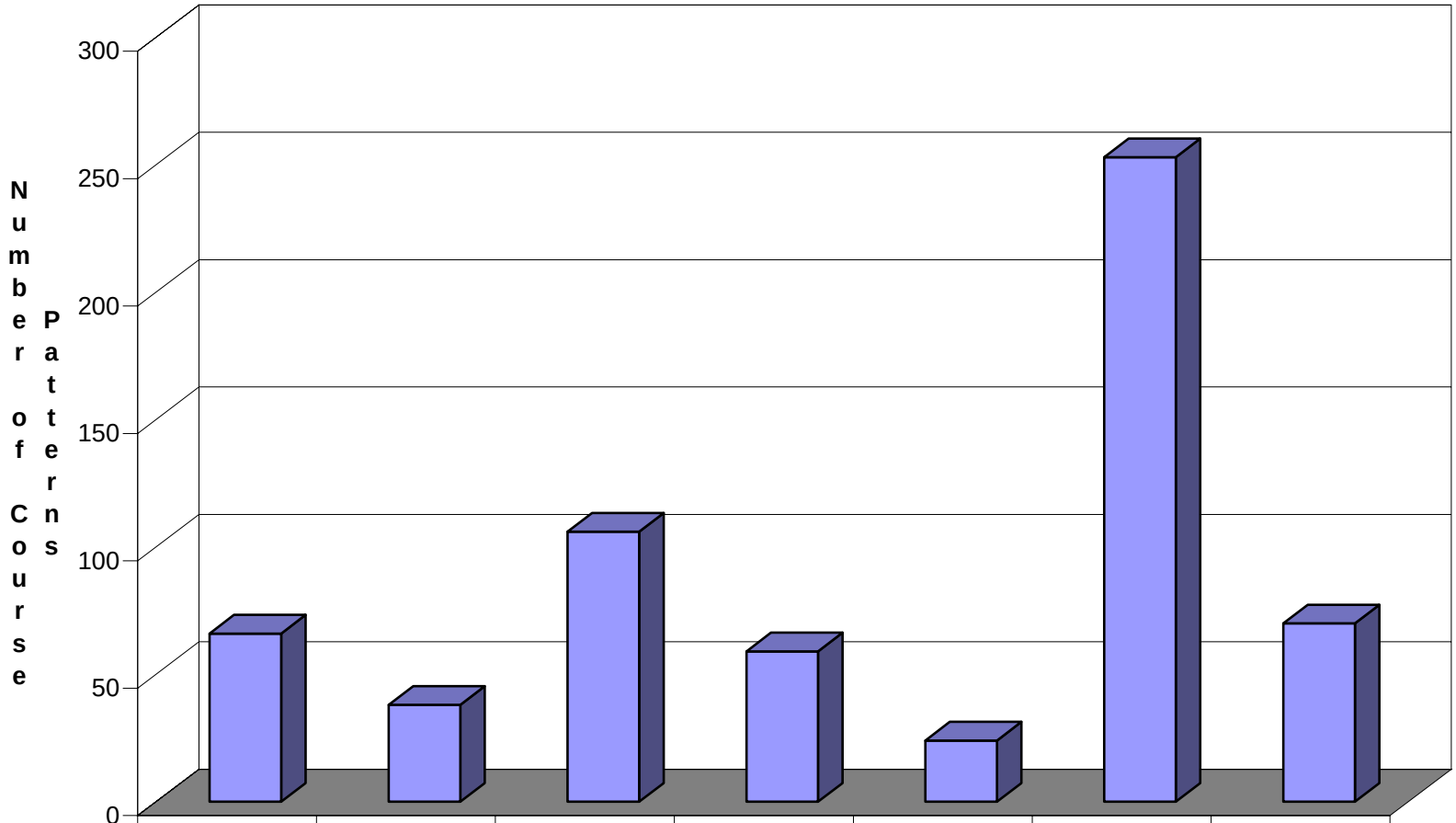
Amount of Mathematics Across Grades 7-12



Number of Mathematics Courses Offered in 7 Districts



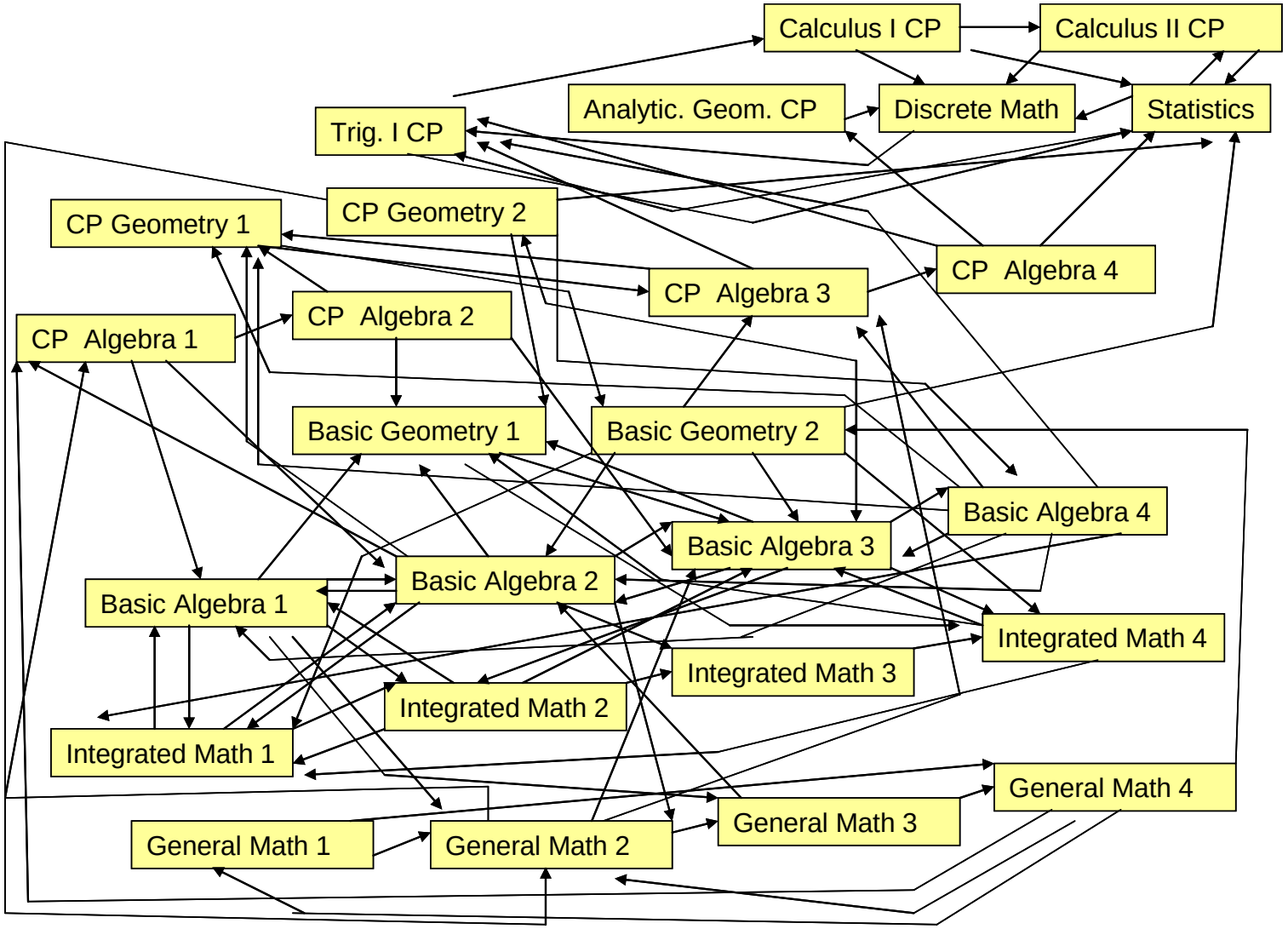
Number of Course Patterns for Meeting High School Mathematics Requirement in 7 Districts



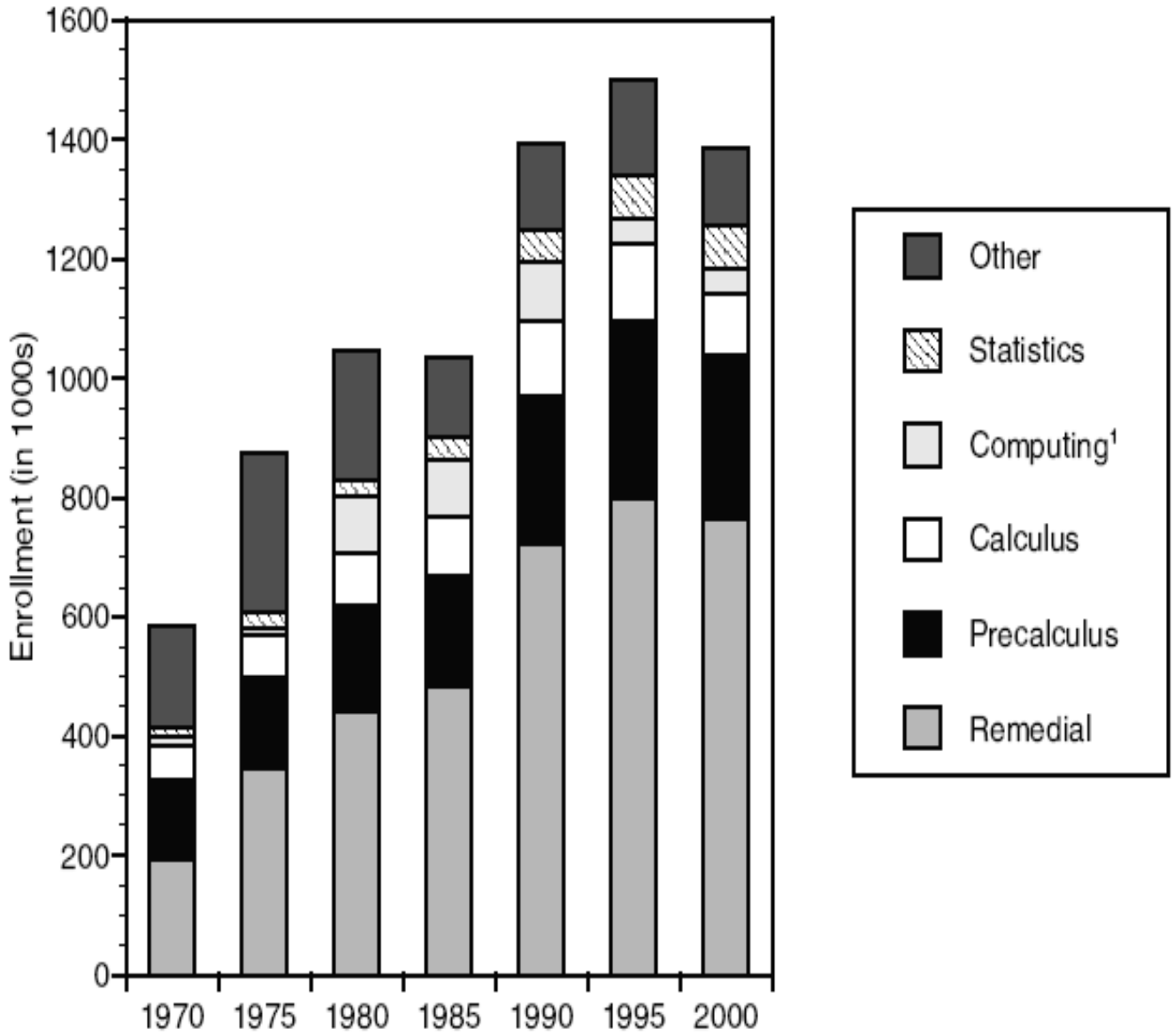
	A	B	C	D	E	F	G
Number of Course Patterns	66	38	106	59	24	253	70

School Districts

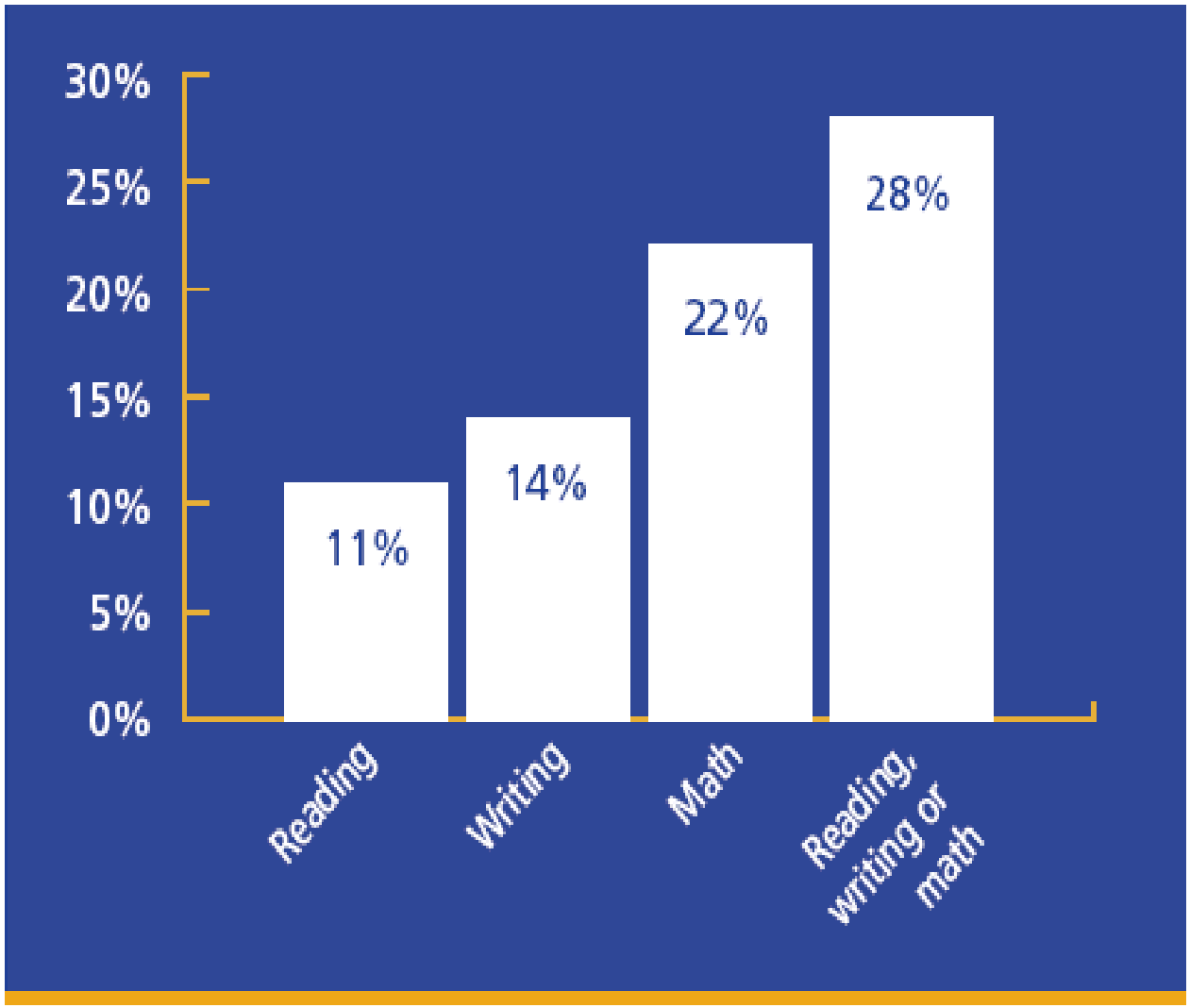
Diagram of Mathematics Course-Taking Sequences in District F



Enrollment in Types of Mathematics Courses at 2-year Colleges

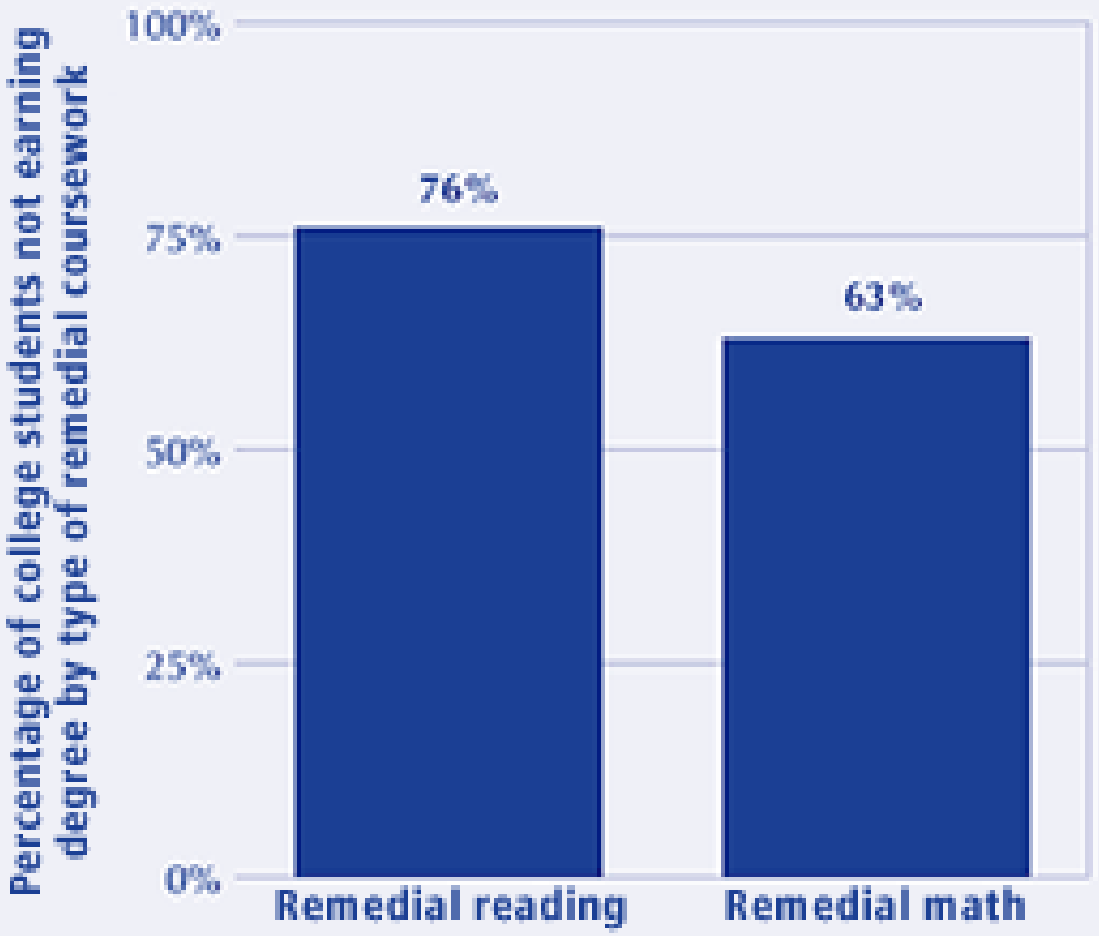


Percent of First Year College Students in 2-year and 4-year Institutions Requiring Remediation



Source: National Center for Education Statistics, *Remedial Education at Degree-Granting Postsecondary Institutions in Fall 2000*, 2003.

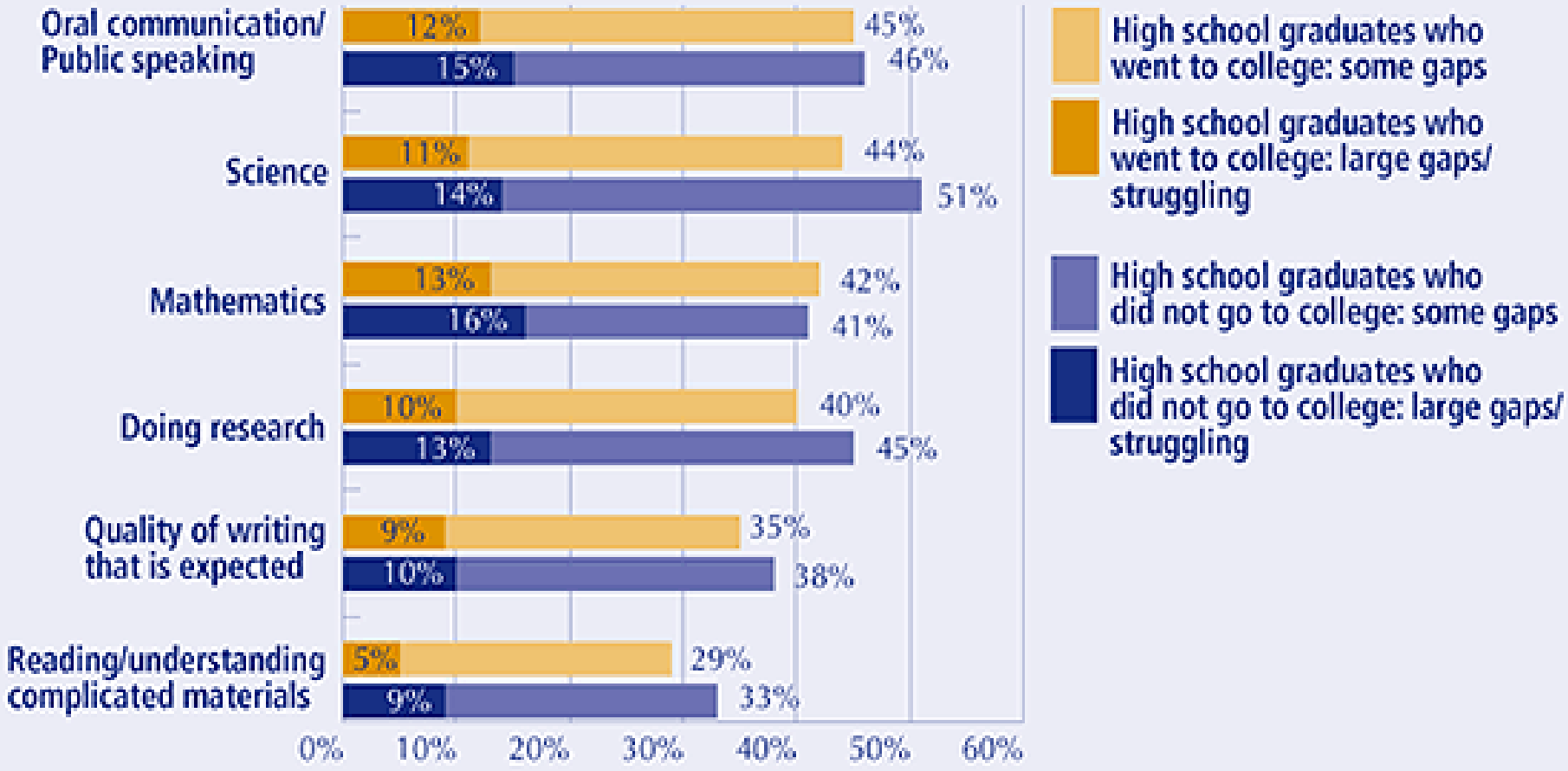
Those who require remediation in college often fail to earn a degree



Source: National Center for Education Statistics, The Condition of Education 2004, *2004.*

Many High School Graduates Report Gaps in Their Preparation

In each area, percentage saying there are at least some gaps in their preparation



Source: Peter D. Hart Research Associates, Inc./Public Opinion Strategies, Rising to the Challenge: Are High School Graduates Prepared for College and Work? *Prepared for Achieve, Inc., 2005.*