NATIONAL STANDARDS EVALUATIONS
TOUCHMATH KITS
SUMMARY GRADES PREK-2

	KINDERGARTEN SET	1ST GRADE SET	2ND GRADE SET	UPPER GRADES SET 2007
A1	X	X	X	
A2	X	X	X	X
A3		X	X	X
A4		X	X	X
A5	X	X	X	
A6	X	X	X	
B1		X	X	X
B2		X	X	X
B3			X	X
C1	X	X	X	X
C2	X	X	X	X
C3	X	X	X	X
D1	X	X		
D2	X	X	X	X
D3				X
E2			X	
H1		X	X	
H2		X	X	
I1	X			
K1	X			
K2	X			
K4		X	X	
L1	X	X	X	X
L2		X	X	
L4				X
R1	X	X	X	X
R2	X	X	X	X
R3			X	
T1	X	X	X	X
T2	X	X	X	X
U1	X		X	X

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH KITS
SUMMARY GRADES 3-5

	KINDERGARTEN SET	1ST GRADE SET	2ND GRADE SET	UPPER GRADES SET 2007
A1				X
A2				X
A3				X
A4				X
A5				X
B1			X	
B2			X	X
B3				X
C1			X	
C2			X	X
C3				X
C4				
C5				X
C6			X	X
D1				X
E2				X
E3				X
M2				X
R1			X	X
R2			X	X
T1			X	X
T2			X	X
U1			X	X

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH KINDERGARTEN SET

	A1	A2	A5	A6	C1	C2	C3	D1	D2	I1	K1	K2	L1	R1	R2	T1	T2	U1
Readiness																		
1-40								X	X									
41-50										X								
51-90	X																	
Kit as Unit														X	X	X	X	X
Counting																		
1-80		X	X				X											
81-125		X	X															
Kit as Unit														X	X	X	X	X
Addition																		
1-10			X				X											
11-100					X	X	X											
Kit as Unit														X	X	X	X	X
Subtraction																		
1-25	X																	
26-100			X		X	X	X											
Kit as Unit														X	X	X	X	X
Gen Math																		
1-30													X					
31-45											X	X						
46-60				X														
61-90													X					
91-105											X	X						
106-120				X														
Kit as Unit														X	X	X	X	X

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH 1ST GRADE COUNTING KIT

	A1	A3	D1	D2	R1	R2	T1	T2									
1	X																
2-3	X		X														
4-5	X																
6	X			X													
7-8	X		X														
9	X			X													
10	X	X															
11	X																
12	X	X															
13	X		X														
14	X																
15	X	X															
16	X		X														
17-18	X			X													
19-20	X	X															
21-22	X																
23	X			X													
24-25	X	X															
26	X																
27	X			X													
28	X		X														
29-30	X	X															
31	X																
32	X			X													
33-35	X	X															
36-37	X			X													
38-40	X	X															
41	X																
42-43	X	X															
44-46	X	X	X														
47-48	X			X													
49-50	X	X	X														
51-54	X																
55	X	X															
56-58	X																
59	X		X														
60	X																
61-62	X	X															
63	X																
64	X			X													
65	X	X															
66	X																
67	X			X													
68	X	X															
69	X																
70	X			X													
71-72	X																
73	X			X													
74-75	X																
76	X		X														
77-78	X																
79	X			X													

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH 1ST GRADE COUNTING KIT

	A1	A3	D1	D2	R1	R2	T1	T2									
80-81	X																
82	X			X													
83-84	X																
85	X		X														
86-87	X																
88	X			X													
89-90	X																
91	X			X													
92-93	X																
94	X			X													
95-96	X																
97-98	X			X													
99-100	X																
Kit as unit					X	X	X	X	X								

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH 1ST GRADE ADDITION KIT

	A1	A2	A4	A5	B1	B2	C1	C2	C3	D2	R1	R2	T1	T2			
1-9	X			X					X								
10	X								X								
11-62					X	X	X	X	X								
63					X	X	X	X	X	X							
64-72					X	X	X	X	X								
73					X	X	X	X	X	X							
74-80					X	X	X	X	X								
81					X	X	X	X	X	X							
82-90					X	X	X	X	X								
91-92					X	X	X	X									
93					X	X	X	X		X							
94-98					X	X	X	X									
99					X	X	X	X		X							
100-108					X	X	X	X									
109					X	X	X	X		X							
110-140					X	X	X	X									
141-149	X	X	X														
150	X	X															
151-160		X			X	X	X	X									
161-166					X	X	X	X									
167					X	X	X	X		X							
168-170					X	X	X	X									
171					X	X	X	X		X							
172-175					X	X	X	X									
Kit as unit											X	X	X	X			

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH 1ST GRADE SUBTRACTION KIT

	A1	A2	A4	A5	B1	B2	C1	C2	C3	D2	R1	R2	T1	T2			
1-9	X			X					X								
10	X								X								
11-62					X	X	X	X	X								
63					X	X	X	X	X	X							
64-68					X	X	X	X	X								
69					X	X	X	X	X	X							
70-82					X	X	X	X	X								
83					X	X	X	X	X	X							
84-90					X	X	X	X	X								
91-92					X	X	X	X									
93					X	X	X	X		X							
94-98					X	X	X	X									
99					X	X	X	X		X							
100-140					X	X	X	X									
141-149	X	X	X														
150	X	X															
151-160		X			X	X	X	X									
161-166					X	X	X	X									
167					X	X	X	X		X							
168-170					X	X	X	X									
171					X	X	X	X		X							
172-175					X	X	X	X									
Kit as unit											X	X	X	X			

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH 1ST GRADE STORY PROBLEMS KIT

	C1	C2	C3	R1	R2	T1	T2
1-90		X	X				
91-110		X					
111-150	X	X					
Kit as unit				X	X	X	X

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH 1ST GRADE GENERAL MATH KIT

	A1	A5	A6	D2	H1	H3	K4	L1	L2	R1	R2	T1	T2
1-20								X					
21-25								X	X				
26								X					
27-29								X	X				
30								X					
31-35								X	X				
36								X					
37-40								X	X				
41								X					
42-45								X	X				
46								X					
47-50								X	X				
51-60					X								
61-62							X						
63-66					X								
67-68							X						
69-72					X								
73	X						X						
74							X						
75						X							
76-100			X										
101-110								X					
111-130								X	X				
131-133					X								
134	X						X						
135				X	X								
136							X						
137					X								
138							X						
139					X								
140	X						X						
141				X	X								
142							X						
143	X				X								
144-145					X								
146-158		X	X										
159-160			X										
Kit as Unit										X	X	X	X

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH 2ND GRADE ADDITION KIT

	A1	A2	A4	A5	B1	B2	C1	C2	C3	R1	R2	T1	T2				
1-9	X			X					X								
10	X								X								
11-75					X	X	X	X	X								
76-100																	
101-110	X	X	X														
111-130		X			X	X	X	X									
131-140		X	X														
141-150		X			X	X	X	X									
151-165		X	X														
166-175		X			X	X	X	X									
176-185					X	X	X	X									
Kit as unit										X	X	X	X				

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH 2ND GRADE SUBTRACTION KIT

	A1	A2	A4	A5	B1	B2	C1	C2	C3	R1	R2	T1	T2				
1-9	X			X					X								
10	X								X								
11-75					X	X	X	X	X								
76-100					X	X	X	X									
101-110	X	X	X														
111-130		X			X	X	X	X									
131-140		X	X														
141-150		X			X	X	X	X									
151-165		X	X														
166-175		X			X	X	X	X									
176-185					X	X	X	X									
Kit as Unit										X	X	X	X				

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH 2ND GRADE STORY PROBLEMS KIT

	B2	C1	C2	C3	R1	R2	R3	T1	T2
1-15			X	X					
16-22		X	X	X					
23-26		X	X						
27-30		X							
31-40	X	X							
41-55			X	X					
56-58		X	X	X					
59		X	X						
60		X	X	X					
61-65		X	X						
66-70		X							
71-110	X	X							
96-110/unit							X		
Kit as unit					X	X		X	X

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH 2ND GRADE SEQUENCE COUNTING/MULTIPLICATION KIT

2nd Grade	B3	C3	D2	R1	R2	T1	T2	U1
1-50	X		X					
1-50/unit				X	X	X	X	X

3rd Grade	B1	B2	C1	C2	C6	R1	R2	T1	T2	U1
51-55	X	X	X	X	X					
56	X	X	X	X						
57-63	X	X	X	X	X					
64	X	X	X	X						
65-71	X	X	X	X	X					
72	X	X	X	X						
73-79	X	X	X	X	X					
80	X	X	X	X						
81-84	X	X	X	X	X					
85	X	X	X	X						
86-99	X	X	X	X	X					
100	X	X	X	X						
51-100/unit						X	X	X	X	X

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH 2ND GRADE GENERAL MATH KIT

	A1	A2	A3	A5	A6	C1	D2	E2	H1	H2	K4	L1	L2	R1	R2	T1	T2
1-50												X	X				
51-52									X								
53									X		X						
54-55									X								
56									X	X							
57									X								
58									X	X							
59									X								
60									X								
61									X	X							
63									X								
64									X	X							
65									X								
66-67									X	X							
68									X								
69-70									X	X							
71									X								
72									X	X							
73									X								
74									X	X							
75									X	X	X						
76-92					X												
93				X	X												
94-97					X												
98-100				X	X												
101	X																
102-107	X		X														
108	X	X					X										
109-111	X		X														
112	X		X				X										
113-117	X		X														
118	X		X				X										
119-122	X		X														
123	X		X				X										
124-125	X		X														
126-152												X	X				
153-162									X								
163	X								X								
164-166									X								
167											X						
168-174					X												
175-179					X			X									
180-184					X												
185-192	X																
193	X	X															
194-195	X		X														
196	X					X											
197	X							X									
198	X					X											
199	X		X														
200	X																
Kit as Unit														X	X	X	X

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH UPPER GRADES 2007

Grade 3-5	A1	A2	A3	A4	A5	B1	B3	C2	C3	C5	C6	D1	E2	E3	M2	R1	R2	T2	T2
Addition Kit																			
1-35	X							X			X								
36-40	X	X						X			X								
41-96	X							X			X								
97-109	X	X						X			X								
110-127	X							X			X								
128	X	X						X			X								
129-162	X							X			X								
163-165	X	X						X			X								
Kit as unit																X	X	X	X
Subtraction Kit																			
1-30								X											
31-60	X							X			X								
61-75	X						X	X			X								
76-190	X							X			X								
Kit as a unit																X	X	X	X
Time Kit																			
1-132															X				
Kit as a unit																X	X	X	X
Money Kit																			
1-5	X				X					X									
6	X				X														
7-12	X				X					X									
13	X				X														
14-99	X				X					X									
100-130	X									X									
131-150	X																		
151-153	X									X									
154-168	X				X					X									
169-171	X				X														
172-180	X				X					X									
Kit as a unit																X	X	X	X
Fractions Kit																			
1-52			X	X															
53-80			X	X	X														
81-89										X									
90-91					X					X									
92-97					X														
98-102				X															
103-105				X	X														
106-126					X														
127-143					X					X									
144-156					X														
157-169					X					X									
170-190					X														
Kit as a unit																X	X	X	X

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH UPPER GRADES 2007

Grade 3-5	A1	A2	A3	A4	A5	B1	B3	C2	C3	C5	C6	D1	E2	E3	M2	R1	R2	T2	T2
Skip Counting Kit																			
1-130								X			X	X							
Kit as a unit																X	X	X	X
Mult. & Div. Kit 1																			
1-4						X													
5-14								X			X								
15-16							X	X			X								
17												X							
18														X					
19-20								X			X		X	X					
21-22					X														
23-28								X			X								
29					X		X	X			X	X	X	X					
30-37								X			X								
38-39							X	X			X								
40												X							
41														X					
42-43								X			X		X	X					
44-45					X														
46-51								X			X								
52					X		X	X			X	X	X	X					
53-60								X			X								
61-62							X	X			X								
63												X							
64														X					
65-66								X			X		X	X					
67-68					X														
69-74								X			X								
75					X		X	X			X	X	X	X					
76-83								X			X								
84-85							X	X			X								
86												X							
87														X					
88-89								X			X		X	X					
90-91					X														
92-97								X			X								
98					X		X	X			X	X	X	X					
99-106								X			X								
107-108							X	X			X								
109												X							
110														X					
111-112								X			X		X	X					
113-114					X														
115-120								X			X								
121					X		X	X			X	X	X	X					
122-129								X			X								
130-131							X	X			X								
132												X							
133														X					
134-135								X			X		X	X					

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH UPPER GRADES 2007

Grade 3-5	A1	A2	A3	A4	A5	B1	B3	C2	C3	C5	C6	D1	E2	E3	M2	R1	R2	T2	T2
Mult. & Div. Kit 1																			
136-137					X														
138-143								X			X								
144					X		X	X			X	X	X	X					
145-152								X			X								
153-154								X			X		X	X					
155												X							
156														X					
157-158								X			X		X	X					
159-160					X														
161-166								X			X								
167					X		X	X			X	X	X	X					
168-175								X			X								
176-177							X	X			X								
178												X							
179														X					
180-181								X			X		X	X					
182-183					X														
184-189								X			X								
190					X		X	X			X	X	X	X					
Kit as a unit																X	X	X	X
Mult. & Div. Kit 2																			
1-130	X							X			X								
131-150	X							X	X		X								
Kit as a unit																X	X	X	X

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH UPPER GRADES 2007

	PreK-2							Grade 3-5								
	B1	B2	B3	C1	C2	C3		B1	B2	B3	C1	C2				
Story Problems Kit 1																
1-20	X	X		X	X	X						X				
21-100	X	X		X	X							X				
Story Problems Kit 2																
101-110	X	X		X	X							X				
111-200	X	X		X	X							X				
201-240			X					X	X	X	X	X				
241-300								X	X	X	X	X				
301-340			X					X	X	X	X	X				
341-400								X	X	X	X	X				

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH UPPER GRADES COMPUTATION KIT A

PreK-2	A2	A3	A4	B1	B2	C1	C2	C3	D2	D3	R1	R2	T1	T2	U1		
1-75		X	X						X	X							
76-125		X	X						X	X							
126-155				X	X	X	X	X									
156-170	X																
171-215				X	X	X	X	X									
216-230	X																
231-275	X			X	X	X	X										
276-335				X	X	X	X	X									
336-347	X			X	X	X	X	X									
348-349				X	X	X	X										
350-380	X			X	X	X	X	X									
381-425	X			X	X	X	X										
Kit as unit											X	X	X	X	X		

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH UPPER GRADES COMPUTATION KIT B

Grade 3-5	A1	B1	B2	C1	C2	C6	D1	R1	R2	T1	T2	U1
1-125		X	X	X	X		X					
126-195		X	X	X	X	X						
196-275	X	X	X	X	X	X						
276-425		X	X	X	X							
Kit as unit								X	X	X	X	X

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH UPPER GRADES GENERAL MATH KIT C

	PreK-2					Grade 3-5							PreK-2 & Grade 3-5				
	B1	B2	L1	L4		A5	B1	B2	C2	C4	C5		R1	R2	T1	T2	U1
1-130			X														
131-220				X													
221-240	X	X															
241-260							X	X									
261-270	X	X															
271-280									X								
281-356						X				X							
357-430						X				X	X						
Kit as Unit													X	X	X	X	X

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH UPPER GRADES STORY PROBLEMS KIT D

	PreK-2							Grade 3-5									
	B1	B2	B3	C1	C2	C3		B1	B2	B3	C1	C2					
1-20	X	X		X	X	X						X					
21-100	X	X		X	X							X					
101-110	X	X		X	X							X					
111-200	X	X		X	X							X					
201-240			X					X	X	X	X	X					
241-300								X	X	X	X	X					
301-340			X					X	X	X	X	X					
341-400								X	X	X	X	X					

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH KITS
SUMMARY GRADES PREK-2

	KINDERGARTEN SET	1ST GRADE SET	2ND GRADE SET	UPPER GRADES SET 2000
A1	X	X	X	
A2	X	X	X	X
A3		X	X	X
A4		X	X	X
A5	X	X	X	
A6	X	X	X	
B1		X	X	X
B2		X	X	X
B3			X	X
C1	X	X	X	X
C2	X	X	X	X
C3	X	X	X	X
D1	X	X		
D2	X	X	X	X
D3				X
E1				
E2			X	
F1				
G1				
G2				
H1		X	X	
H2		X	X	
H3				
I1	X			
I2				
I3				
J1				
J2				
K1	X			
K2	X			
K3				
K4		X	X	
L1	X	X	X	X
L2		X	X	
L3				
L4				X
M1				
M2				
M3				
M4				
N1				
N2				
N3				
O1				
P1				
Q				
R1	X	X	X	X
R2	X	X	X	X
R3			X	
R4				
S1				
S2				
S3				
S4				
T1	X	X	X	X
T2	X	X	X	X
T3				
T4				
U1	X		X	X
U2				
U3				
V1				
V2				
V3				

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH KITS
SUMMARY GRADES 3-5

	KINDERGARTEN SET	1ST GRADE SET	2ND GRADE SET	UPPER GRADES SET 2000
A1				X
A2				
A3				
A4				
A5				X
A6				
A7				
B1			X	X
B2			X	X
B3				X
B4				
C1			X	X
C2			X	X
C3				
C4				X
C5				X
C6			X	X
D1				X
D2				
E1				
E2				
E3				
F1				
G1				
G2				
H1				
H2				
H3				
H4				
H5				
I1				
I2				
I3				
J1				
J2				
J3				
K1				
K2				
K3				
K4				
K5				
K6				
L1				
L2				
L3				
L4				
L5				
M1				
M2				
M3				
M4				
M5				
N1				
N2				
N3				
N4				
O1				
O2				
O3				
P1				
Q1				
Q2				
Q3				

NATIONAL STANDARDS EVALUATIONS
TOUCHMATH KITS
SUMMARY GRADES 3-5

	KINDERGARTEN SET	1ST GRADE SET	2ND GRADE SET	UPPER GRADES SET 2000
R1			X	X
R2			X	X
R3				
R4				
S1				
S2				
S3				
S4				
T1			X	X
T2			X	X
T3				
T4				
U1			X	X
U2				
U3				
V1				
V2				
V3				

National Standards

Number and Operations Standard for Grades Pre-K–2

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—
In prekindergarten through grade 2 all students should—

A.
Understand numbers, ways of representing numbers, relationships among numbers, and number systems
1. count with understanding and recognize "how many" in sets of objects;
2. use multiple models to develop initial understandings of place value and the base-ten number system;
3. develop understanding of the relative position and magnitude of whole numbers and of ordinal and cardinal numbers and their connections;
4. develop a sense of whole numbers and represent and use them in flexible ways, including relating, composing, and decomposing numbers;
5. connect number words and numerals to the quantities they represent, using various physical models and representations;
6. understand and represent commonly used fractions, such as 1/4, 1/3, and 1/2.

B.
Understand meanings of operations and how they relate to one another
1. understand various meanings of addition and subtraction of whole numbers and the relationship between the two operations;
2. understand the effects of adding and subtracting whole numbers;
3. understand situations that entail multiplication and division, such as equal groupings of objects and sharing equally.

C.
Compute fluently and make reasonable estimates
1. develop and use strategies for whole-number computations, with a focus on addition and subtraction;
2. develop fluency with basic number combinations for addition and subtraction;
3. use a variety of methods and tools to compute, including objects, mental computation, estimation, paper and pencil, and calculators.

Algebra Standard for Grades Pre-K–2

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—
In prekindergarten through grade 2 all students should—

D.
Understand patterns, relations, and functions
1. sort, classify, and order objects by size, number, and other properties;
2. recognize, describe, and extend patterns such as sequences of sounds and shapes or simple numeric patterns and translate from one representation to another;
3. analyze how both repeating and growing patterns are generated.

E.
Represent and analyze mathematical situations and structures using algebraic symbols
1. illustrate general principles and properties of operations, such as commutativity, using specific numbers;
2. use concrete, pictorial, and verbal representations to develop an understanding of invented and conventional symbolic notations.

F.
Use mathematical models to represent and understand quantitative relationships
1. model situations that involve the addition and subtraction of whole numbers, using objects, pictures, and symbols.

G.
Analyze change in various contexts
1. describe qualitative change, such as a student's growing taller;
2. describe quantitative change, such as a student's growing two inches in one year.

National Standards

Geometry Standard for Grades Pre-K–2

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—
In prekindergarten through grade 2 all students should—

H.
Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
1. recognize, name, build, draw, compare, and sort two- and three-dimensional shapes;
2. describe attributes and parts of two- and three-dimensional shapes;
3. investigate and predict the results of putting together and taking apart two- and three-dimensional shapes.

I.
Specify locations and describe spatial relationships using coordinate geometry and other representational systems
1. describe, name, and interpret relative positions in space and apply ideas about relative position;
2. describe, name, and interpret direction and distance in navigating space and apply ideas about direction and distance;
3. find and name locations with simple relationships such as "near to" and in coordinate systems such as maps.

J.
Apply transformations and use symmetry to analyze mathematical situations
1. recognize and apply slides, flips, and turns;
2. recognize and create shapes that have symmetry.

K.
Use visualization, spatial reasoning, and geometric modeling to solve problems
1. create mental images of geometric shapes using spatial memory and spatial visualization;
2. recognize and represent shapes from different perspectives;
3. relate ideas in geometry to ideas in number and measurement;
4. recognize geometric shapes and structures in the environment and specify their location.

Measurement Standard for Grades Pre-K–2

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—
In prekindergarten through grade 2 all students should—

L.
Understand measurable attributes of objects and the units, systems, and processes of measurement
1. recognize the attributes of length, volume, weight, area, and time;
2. compare and order objects according to these attributes;
3. understand how to measure using nonstandard and standard units;
4. select an appropriate unit and tool for the attribute being measured.

M.
Apply appropriate techniques, tools, and formulas to determine measurements
1. measure with multiple copies of units of the same size, such as paper clips laid end to end;
2. use repetition of a single unit to measure something larger than the unit, for instance, measuring the length of a room with a single meterstick;
3. use tools to measure;
4. develop common referents for measures to make comparisons and estimates.

National Standards

Data Analysis and Probability Standard for Grades Pre-K–2

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—
In prekindergarten through grade 2 all students should—

N.
Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them
1. pose questions and gather data about themselves and their surroundings;
2. sort and classify objects according to their attributes and organize data about the objects;
3. represent data using concrete objects, pictures, and graphs.

O.
Select and use appropriate statistical methods to analyze data
1. describe parts of the data and the set of data as a whole to determine what the data show.

P.
Develop and evaluate inferences and predictions that are based on data
1. discuss events related to students' experiences as likely or unlikely.

Q.
Select and use basic concepts of probability

Problem Solving Standard for Grades Pre-K–2

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—

R.
1. build new mathematical knowledge through problem solving;
2. solve problems that arise in mathematics and in other contexts;
3. apply and adapt a variety of appropriate strategies to solve problems;
4. monitor and reflect on the process of mathematical problem solving.

Reasoning and Proof Standard for Grades Pre-K–2

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—

S.
1. recognize reasoning and proof as fundamental aspects of mathematics;
2. make and investigate mathematical conjectures;
3. develop and evaluate mathematical arguments and proofs;
4. select and use various types of reasoning and methods of proof.

Communication Standard for Grades Pre-K–2

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—

T.
1. organize and consolidate their mathematical thinking through communication;
2. communicate their mathematical thinking coherently and clearly to peers, teachers, and others;
3. analyze and evaluate the mathematical thinking and strategies of others;
4. use the language of mathematics to express mathematical ideas precisely.

National Standards

Connections Standard for Grades Pre-K–2

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—

U.
1. recognize and use connections among mathematical ideas;
2. understand how mathematical ideas interconnect and build on one another to produce a coherent whole;
3. recognize and apply mathematics in contexts outside of mathematics.

Representation Standard for Grades Pre-K–2

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—

V.
1. create and use representations to organize, record, and communicate mathematical ideas;
2. select, apply, and translate among mathematical representations to solve problems;
3. use representations to model and interpret physical, social, and mathematical phenomena.

National Standards

Number and Operations Standard for Grades 3–5

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—
In grades 3–5 all students should—

A.
Understand numbers, ways of representing numbers, relationships among numbers, and number systems
1. understand the place-value structure of the base-ten number system and be able to represent and compare whole numbers and decimals;
2. recognize equivalent representations for the same number and generate them by decomposing and composing numbers;
3. develop understanding of fractions as parts of unit wholes, as parts of a collection, as locations on number lines, and as divisions of whole numbers;
4. use models, benchmarks, and equivalent forms to judge the size of fractions;
5. recognize and generate equivalent forms of commonly used fractions, decimals, and percents;
6. explore numbers less than 0 by extending the number line and through familiar applications;
7. describe classes of numbers according to characteristics such as the nature of their factors.

B.
Understand meanings of operations and how they relate to one another
1. understand various meanings of multiplication and division;
2. understand the effects of multiplying and dividing whole numbers;
3. identify and use relationships between operations, such as division as the inverse of multiplication, to solve problems;
4. understand and use properties of operations, such as the distributivity of multiplication over addition.

C.
Compute fluently and make reasonable estimates
1. develop fluency with basic number combinations for multiplication and division and use these combinations to mentally compute related problems, such as 3050;
2. develop fluency in adding, subtracting, multiplying, and dividing whole numbers;
3. develop and use strategies to estimate the results of whole-number computations and to judge the reasonableness of such results;
4. develop and use strategies to estimate computations involving fractions and decimals in situations relevant to students' experience;
5. use visual models, benchmarks, and equivalent forms to add and subtract commonly used fractions and decimals;

6. select appropriate methods and tools for computing with whole numbers from among mental computation, estimation, calculators, and paper and pencil according to the context and nature of the computation and use the selected method or tools.

Algebra Standard for Grades 3–5

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—
In grades 3–5 all students should—

D.
Understand patterns, relations, and functions
1. describe, extend, and make generalizations about geometric and numeric patterns;
2. represent and analyze patterns and functions, using words, tables, and graphs.

E.
Represent and analyze mathematical situations and structures using algebraic symbols
1. identify such properties as commutativity, associativity, and distributivity and use them to compute with whole numbers;
2. represent the idea of a variable as an unknown quantity using a letter or a symbol;
3. express mathematical relationships using equations.

F.
Use mathematical models to represent and understand quantitative relationships
1. model problem situations with objects and use representations such as graphs, tables, and equations to draw conclusions.

G.
Analyze change in various contexts
1. investigate how a change in one variable relates to a change in a second variable;
2. identify and describe situations with constant or varying rates of change and compare them.

National Standards

Geometry Standard for Grades 3–5

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—
In grades 3–5 all students should—

H.
Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
1. identify, compare, and analyze attributes of two- and three-dimensional shapes and develop vocabulary to describe the attributes;
2. classify two- and three-dimensional shapes according to their properties and develop definitions of classes of shapes such as triangles and pyramids;
3. investigate, describe, and reason about the results of subdividing, combining, and transforming shapes;
4. explore congruence and similarity;
5. make and test conjectures about geometric properties and relationships and develop logical arguments to justify conclusions.

I.
Specify locations and describe spatial relationships using coordinate geometry and other representational systems
1. describe location and movement using common language and geometric vocabulary;
2. make and use coordinate systems to specify locations and to describe paths;
3. find the distance between points along horizontal and vertical lines of a coordinate system.

J.
Apply transformations and use symmetry to analyze mathematical situations
1. predict and describe the results of sliding, flipping, and turning two-dimensional shapes;
2. describe a motion or a series of motions that will show that two shapes are congruent;
3. identify and describe line and rotational symmetry in two- and three-dimensional shapes and designs.

K.
Use visualization, spatial reasoning, and geometric modeling to solve problems
1. build and draw geometric objects;
2. create and describe mental images of objects, patterns, and paths;
3. identify and build a three-dimensional object from two-dimensional representations of that object;
4. identify and draw a two-dimensional representation of a three-dimensional object;
5. use geometric models to solve problems in other areas of mathematics, such as number and measurement;
6. recognize geometric ideas and relationships and apply them to other disciplines and to problems that arise in the classroom or in everyday life.

Measurement Standard for Grades 3–5

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—
In grades 3–5 all students should—

L.
Understand measurable attributes of objects and the units, systems, and processes of measurement
1. understand such attributes as length, area, weight, volume, and size of angle and select the appropriate type of unit for measuring each attribute;
2. understand the need for measuring with standard units and become familiar with standard units in the customary and metric systems;
3. carry out simple unit conversions, such as from centimeters to meters, within a system of measurement;
4. understand that measurements are approximations and how differences in units affect precision;
5. explore what happens to measurements of a two-dimensional shape such as its perimeter and area when the shape is changed in some way.

M.
Apply appropriate techniques, tools, and formulas to determine measurements
1. develop strategies for estimating the perimeters, areas, and volumes of irregular shapes;
2. select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles;
3. select and use benchmarks to estimate measurements;
4. develop, understand, and use formulas to find the area of rectangles and related triangles and parallelograms;
5. develop strategies to determine the surface areas and volumes of rectangular solids.

National Standards

Data Analysis and Probability Standard for Grades 3–5

Expectations

Instructional programs from prekindergarten through grade 12 should enable all students to—
In grades 3–5 all students should—

N.
Formulate qeustions that can be addressed with data and collect, organize, and display relevant data to answer them
1. design investigations to address a question and consider how data-collection methods affect the nature of the data set;
2. collect data using observations, surveys, and experiments;
3. represent data using tables and graphs such as line plots, bar graphs, and line graphs;
4. recognize the differences in representing categorical and numerical data.

O.
Select and use appropriate statistical methods to analyze data
1. describe the shape and important features of a set of data and compare related data sets, with an emphasis on how the data are distributed;
2. use measures of center, focusing on the median, and understand what each does and does not indicate about the data set;
3. compare different representations of the same data and evaluate how well each representation shows important aspects of the data.

P.
Develop and evaluate inferences and predictions that are based on data
1. propose and justify conclusions and predictions that are based on data and design studies to further investigate the conclusions or predictions.

Q.
Understand and apply basic concepts of probability
1. describe events as likely or unlikely and discuss the degree of likelihood using such words as certain, equally likely, and impossible;
2. predict the probability of outcomes of simple experiments and test the predictions;
3. understand that the measure of the likelihood of an event can be represented by a number from 0 to 1.

Problem Solving Standard for Grades 3–5

Instructional programs from prekindergarten through grade 12 should enable all students to—

R.
1. build new mathematical knowledge through problem solving;
2. solve problems that arise in mathematics and in other contexts;
3. apply and adapt a variety of appropriate strategies to solve problems;
4. monitor and reflect on the process of mathematical problem solving.

Reasoning and Proof Standard for Grades 3–5

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S.
1. recognize reasoning and proof as fundamental aspects of mathematics;
2. make and investigate mathematical conjectures;
3. develop and evaluate mathematical arguments and proofs;
4. select and use various types of reasoning and methods of proof.

Communication Standard for Grades 3–5

Instructional programs from prekindergarten through grade 12 should enable all students to—

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1. organize and consolidate their mathematical thinking through communication;
2. communicate their mathematical thinking coherently and clearly to peers, teachers, and others;
3. analyze and evaluate the mathematical thinking and strategies of others;
4. use the language of mathematics to express mathematical ideas precisely.

National Standards

Connections Standard for Grades 3–5

Instructional programs from prekindergarten through grade 12 should enable all students to—

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3. recognize and apply mathematics in contexts outside of mathematics.

Representation Standard for Grades 3–5

Instructional programs from prekindergarten through grade 12 should enable all students to—

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2. select, apply, and translate among mathematical representations to solve problems;
3. use representations to model and interpret physical, social, and mathematical phenomena.