Tables of Estimates

Table A1. Percent of U.S. schools that offer full-day and half-day kindergarten programs, by school type: 1998–99

	All schools		Public		Catholic		Other private	
School characteristics	Full-day	Half-day	Full-day	Half-day	Full-day	Half-day	Full-day	Half-day
All schools	61	47	57	52	78	29	63	40

NOTE: Percent offering full-day and half-day programs totals more than 100 because some schools have both full-day and half-day programs.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; School Administrator Questionnaire and Kindergarten Teacher Questionnaires, Base-Year Public-Use Data Files.

Table A2. Percent of U.S. schools that offer full-day and half-day kindergarten programs, by school type and school characteristics: 1998–99

	All schools		Public		Private	
School characteristics	Full-day	Half-day	Full-day	Half-day	Full-day	Half-day
All schools	61	47	57	52	67	37
Region						
Northeast	50	57	37	73	70	30
Midwest	57	55	57	56	58	54
South	80	25	84	22	71	31
West	49	56	38	69	69	32
Location						
Large/mid-sized cities	68	41	64	49	73	31
Suburbs/large town	53	54	46	62	64	40
Small town/rural	61	44	63	43	56	48
School minority enrollment[1]						
Less than 10%	51	55	48	58	54	49
10–24%	55	54	44	67	74	30
25–49%	65	44	63	48	‡	‡
50–75%	71	38	69	42	‡	‡
75% +	81	26	76	32	93	13
Concentration of low-income children in public schools[2]						
0–49%	—	—	48	61	—	—
50% +	—	—	69	41	—	—

‡ Reporting standards not met.

— Not available.

[1]All children who are not identified as White, non-Hispanic are classified as minority children.

[2]A school's concentration of poverty is based on a composite of free and reduced-priced lunch and participation in a "school-wide" Title I program. This is calculated only for public schools with a kindergarten program.

NOTE: Percent offering full-day and half-day programs totals more than 100 because some schools have both full-day and half-day programs.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; School Administrator Questionnaire and Kindergarten Teacher Questionnaires, Base-Year Public-Use Data Files.

Table A3. Percent of U.S. kindergarten children enrolled in a full-day kindergarten program, by school type and school characteristics: 1998–99

School characteristics	All kindergartners	Public	Catholic	Other private
All kindergartners	56	54	77	65
Region				
Northeast	48	41	81	71
Midwest	47	45	71	38
South	82	83	93	70
West	31	23	52	79
Location				
Large and mid-sized cities	61	59	79	67
Suburbs/large town	48	45	70	65
Small town/rural	65	65	84	59
School minority enrollment[1]				
Less than 10%	50	47	71	47
10–24%	46	41	78	69
25–49%	58	56	76	75
50–74%	63	62	64	84
75% or more	68	66	93	87
Concentration of low-income children in public schools[2]				
0–49%	—	43	—	—
50% or more	—	65	—	—

— Not available.

[1]All children who are not identified as White, non-Hispanic are classified as minority children.

[2]A school's concentration of poverty is based on a composite of free and reduced-priced lunch and participation in a "school-wide" Title I program. This is calculated only for public schools with a kindergarten program.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; School Administrator Questionnaire and Kindergarten Teacher Questionnaires, Base-Year Public-Use Data Files.

Table A4. Percent of U.S. kindergarten children enrolled in a full-day program, by school type and child and family characteristics: 1998–99

Child and family characteristics	All kindergartners	Public	Catholic	Other private
All kindergartners	56	54	77	65
Child's sex				
Male	56	54	77	64
Female	57	54	76	66
Mother's education				
Less than high school	58	58	79	77
High school diploma or equivalent	59	58	81	60
Some college, including vocational/technical	55	51	78	63
Bachelor's degree or higher	54	48	71	67
Primary language spoken in home				
Non-English	48	45	82	78
English	57	55	76	64
Child's race/ethnicity				
White, non-Hispanic	52	49	74	59
Black, non-Hispanic	80	79	96	91
Hispanic	49	46	79	76
Asian	46	40	71	75
Hawaiian Native/Pacific Islander	73	72	55	91
American Indian/Alaska Native	77	75	88	94
More than one race, non-Hispanic	46	42	66	71
Diagnosed disability				
Yes	57	56	78	59
No	56	54	72	63
First time-kindergartner				
Yes	55	53	73	61
No	69	68	72	75
Poverty status[1]				
Below poverty threshold	63	62	80	78
At or above poverty threshold	55	51	76	65
Child's age at entry				
4 yrs, 8 mos — 4 yrs, 11 mos	48	42	79	70
5 yrs, 0 mos — 5 yrs, 3 mos	55	52	75	64
5 yrs, 4 mos — 5 yrs, 7 mos	56	54	77	68
5 yrs, 8 mos — 5 yrs, 11 mos	60	59	77	63
6 yrs, 0 mos — 6 yrs, 7 mos	61	59	76	61

[1]Poverty status is determined by comparing the child's household income to the national poverty threshold.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; School Administrator Questionnaire, Teacher Questionnaires and Parent Interviews, Base-Year Public-Use Data Files.

Table A5.　Percent of U.S. public kindergarten children enrolled in a full-day program, by poverty status and primary home language: 1998–99

Child characteristics	Below poverty threshold	At or above poverty threshold
Primary home language		
English	68	52
Non-English	43	46

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Teacher Questionnaires and Parent Interviews, Base-Year files.

Table A6.　Percentage distribution of U.S. public kindergarten classes with various enrollment characteristics, by program type: 1998–99

Class composition	Full-day	Half-day
All public school kindergarten classes	51	49
Percent minority[1]		
0–10%	24	34
11–25%	17	20
26–75%	30	28
More than 75%	30	19
Percent limited English proficient (LEP)		
0%	65	59
1–10%	14	15
11–50%	15	16
More than 50%	6	10

[1]All children who are not identified as White, non-Hispanic are classified as minority children.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Teacher Questionnaires and Parent Interviews, Base-Year Public-Use Data Files.

Table A7. Percentage distribution of various teacher characteristics in U.S. public kindergarten classes, by program type: 1998–99

Teacher characteristic	Full-day	Half-day
Teacher's race		
White, non-Hispanic	80	87
Black, non-Hispanic	10	2
Hispanic	7	7
Other, non-Hispanic or multiracial	3	3
Teacher's highest degree		
Bachelor's	62	60
Master's	31	33
Doctorate/Specialist	7	7
Teacher's certification		
Early Childhood	61	47
Elementary	85	90
Teacher's certification type		
Other than fully certified	10	12
Fully certified	90	88
Years teaching kindergarten		
Less than 3	26	26
3–9	39	34
10–19	23	29
20+	12	12

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics. Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Kindergarten Teacher Questionnaires, Base-Year Public-Use Data File.

Table A8. Percentage distribution of class sizes and percent of classes with classroom aides in U.S. public kindergarten classes, by program type: 1998–99

Class characteristic	Full-day	Half-day
All public school kindergarten classes	51	49
Class size levels		
Up to 17	21	31
18–24	62	59
25+	16	10
Classroom aides		
Regular instructional aide	61	44
Special ed. instructional aide	13	13
English as a second language (ESL) instructional aide	9	7

NOTE: Detail may not sum to totals because of rounding. A class is classified as having an aide if the aide spends at least one hour per day in the class working directly with the children in the class.

SOURCE: U.S. Department of Education, National Center for Education Statistics. Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Kindergarten Teacher Questionnaires, Base-Year Public-Use Data File.

Table A9. Average minutes per day and percent of total time that U.S. public kindergarten classes spend in various classroom organizations, by program type: Spring 1999

	Full-day	Half-day
Minutes per day		
Teacher directed whole class activities	111	73
Teacher directed small-group activities	80	50
Teacher directed individual activities	43	25
Child selected activities	57	32
Percent of total		
Teacher directed whole class activities	38	40
Teacher directed small-group activities	27	28
Teacher directed individual activities	15	14
Child selected activities	20	18

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A10. Percentage distribution of the frequency that U.S. public kindergarten classes use various grouping strategies for reading and mathematics instruction, by program type: Spring 1999

Grouping strategies	Full-day	Half-day
Reading		
Work in mixed level groups		
Less than weekly	22	25
Weekly	30	33
Daily	48	42
Achievement groups		
Less than weekly	38	50
Weekly	35	36
Daily	26	14
Peer tutoring in reading		
Less than weekly	39	58
Weekly	38	27
Daily	23	15
Mathematics		
Work in mixed level groups		
Less than weekly	26	30
Weekly	39	41
Daily	35	29
Achievement groups		
Less than weekly	58	68
Weekly	28	25
Daily	14	7
Peer tutoring in reading		
Less than weekly	46	65
Weekly	36	25
Daily	18	9

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A11. Percent of U.S. public kindergarten classes that spend time daily, weekly or less than weekly in various subject areas, by program type: Spring 1999

	Full-day	Half-day
Reading and language arts		
Never/less than weekly	1	1
Weekly	2	4
Daily	97	96
Mathematics		
Never/less than weekly	0	0
Weekly	10	26
Daily	90	73
Social studies		
Never/less than weekly	3	9
Weekly	66	73
Daily	30	18
Science		
Never/less than weekly	4	11
Weekly	72	79
Daily	24	10
Music		
Never/less than weekly	6	7
Weekly	65	57
Daily	30	36
Art		
Never/less than weekly	4	6
Weekly	66	73
Daily	30	21
Dance/creative movement		
Never/less than weekly	41	47
Weekly	46	44
Daily	13	9
Theater/creative dramatics		
Never/less than weekly	59	69
Weekly	36	28
Daily	6	3

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A12.   Percent distribution of the amount of time per day U.S. public kindergarten classes spend on reading/language arts and mathematics activities, by program type: Spring 1999

	Full-day	Half-day
Reading and language arts		
1–30	6	15
31–60	26	49
61–90	37	27
91+	31	10
Mathematics		
1–30	19	49
31–60	60	43
61–90	17	7
91+	4	2

NOTE: 'Minutes per day' refers to the time spent per day on those days when the subject is taught. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A13. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various reading activities, by program type: Spring 1999

Reading activity	Full-day	Half-day
Learning letter names		
Less than weekly	1	1
Weekly	8	12
Daily	91	88
Work on phonics		
Less than weekly	0	2
Weekly	13	19
Daily	86	79
Discuss new vocabulary		
Less than weekly	1	3
Weekly	35	42
Daily	64	55
Choose to read books		
Less than weekly	6	10
Weekly	32	43
Daily	62	48
Read aloud		
Less than weekly	10	19
Weekly	41	48
Daily	49	33
Read silently		
Less than weekly	28	36
Weekly	29	35
Daily	43	29
Work in reading workbook/worksheet		
Less than weekly	26	34
Weekly	40	46
Daily	33	21
Use basal reading texts		
Less than weekly	68	80
Weekly	20	15
Daily	13	5

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Full-day and Half-day Kindergarten in the United States

Table A14. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various reading skills, by program type: Spring 1999

Reading skill	Full-day	Half-day
Letter recognition		
Less than weekly	1	1
Weekly	8	13
Daily	91	87
Letter/sound match		
Less than weekly	#	1
Weekly	12	20
Daily	88	79
Conventions of print		
Less than weekly	4	6
Weekly	19	24
Daily	78	70
Vocabulary		
Less than weekly	22	33
Weekly	27	29
Daily	52	38
Make predictions based on text		
Less than weekly	8	10
Weekly	49	54
Daily	43	36
Using context cues for comprehension		
Less than weekly	18	23
Weekly	43	49
Daily	39	28
Rhyming words and word families		
Less than weekly	11	15
Weekly	61	66
Daily	28	18
Reading aloud fluently		
Less than weekly	47	66
Weekly	29	22
Daily	24	13
Reading multi-syllable words		
Less than weekly	58	69
Weekly	29	23
Daily	13	7
Alphabetizing		
Less than weekly	75	87
Weekly	17	9
Daily	8	4

Rounds to zero

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A15. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various writing activities, by program type: Spring 1999

Writing activities	Full-day	Half-day
Writing alphabet		
Less than weekly	1	4
Weekly	22	41
Daily	76	56
Invented spelling		
Less than weekly	13	19
Weekly	34	49
Daily	53	32
Write in journal		
Less than weekly	28	39
Weekly	38	44
Daily	34	17
Write stories/reports		
Less than weekly	41	60
Weekly	40	32
Daily	19	8
Write from dictation		
Less than weekly	51	67
Weekly	36	29
Daily	13	5
Publish own writing		
Less than weekly	72	84
Weekly	22	14
Daily	6	2

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A16. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various writing skills, by program type: Spring 1999

Writing skills	Full-day	Half-day
Writing name		
Less than weekly	3	8
Weekly	12	17
Daily	85	74
Use capitalization and punctuation		
Less than weekly	26	36
Weekly	32	38
Daily	42	27
Compose sentences		
Less than weekly	34	48
Weekly	34	36
Daily	32	16
Conventional spelling		
Less than weekly	51	66
Weekly	28	22
Daily	21	12
Compose and write stories with a beginning, middle and end		
Less than weekly	69	86
Weekly	22	11
Daily	9	3

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A17. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various receptive and expressive language activities, by program type: Spring 1999

Receptive and expressive language activities	Full-day	Half-day
Hear story/See print		
Less than weekly	3	4
Weekly	18	34
Daily	79	62
Hear story/Don't see print		
Less than weekly	35	36
Weekly	24	22
Daily	41	42
Retell stories		
Less than weekly	16	32
Weekly	63	57
Daily	21	11
Dictate stories		
Less than weekly	25	40
Weekly	54	51
Daily	21	9

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A18. Percent of U.S. kindergarten classes that work daily, weekly or less than weekly on various receptive and expressive language skills, by program type: Spring 1999

Receptive and expressive language skills	Full-day	Half-day
Identify main idea and parts of story		
Less than weekly	22	35
Weekly	47	44
Daily	31	21
Remember and follow directions that include a series of actions		
Less than weekly	6	7
Weekly	32	32
Daily	63	61
Communicate complete ideas orally		
Less than weekly	5	5
Weekly	28	33
Daily	68	62

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A19. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics activities, by program type: Spring 1999

Mathematics activities	Full-day	Half-day
Play math games		
Less than weekly	11	20
Weekly	61	65
Daily	28	16
Do math worksheets		
Less than weekly	23	35
Weekly	52	53
Daily	26	12
Explain how math problem is solved		
Less than weekly	30	46
Weekly	46	40
Daily	24	13
Solve real-life math problems		
Less than weekly	28	44
Weekly	53	42
Daily	19	13
Solve math problem in small group or partner		
Less than weekly	37	58
Weekly	50	36
Daily	13	6
Do math problems in textbook		
Less than weekly	72	87
Weekly	17	10
Daily	11	4
Complete math problems on chalkboard		
Less than weekly	55	72
Weekly	35	22
Daily	10	6
Use music to learn math		
Less than weekly	64	69
Weekly	29	25
Daily	7	6
Use creative movement or drama to understand math concepts		
Less than weekly	70	74
Weekly	26	22
Daily	4	3

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A20. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving counting and quantities, by program type: Spring 1999

Counting and quantity skills	Full-day	Half-day
Count out loud		
Less than weekly	#	1
Weekly	18	18
Daily	82	81
Number/quantity correspondence		
Less than weekly	5	6
Weekly	46	54
Daily	49	39
Count by 2's/5's/10's		
Less than weekly	27	35
Weekly	40	42
Daily	33	23
Ordinal numbers (first, second, third)		
Less than weekly	35	51
Weekly	40	28
Daily	25	21
Count beyond 100		
Less than weekly	58	65
Weekly	19	18
Daily	23	17
Estimate quantities		
Less than weekly	59	69
Weekly	34	27
Daily	8	4
Recognize fractions		
Less than weekly	84	96
Weekly	13	4
Daily	3	#

Rounds to zero.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A21.   Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving number systems, by program type: Spring 1999

Number systems skills	Full-day	Half-day
Read 2-digit numbers		
Less than weekly	20	21
Weekly	33	35
Daily	46	45
Write numbers 1-10		
Less than weekly	11	22
Weekly	50	58
Daily	38	20
Place value		
Less than weekly	58	64
Weekly	13	11
Daily	29	26
Read 3-digit numbers		
Less than weekly	64	70
Weekly	15	13
Daily	21	17
Value of coins and cash		
Less than weekly	45	67
Weekly	37	23
Daily	18	10
Write numbers 1-100		
Less than weekly	76	88
Weekly	17	10
Daily	7	2

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A22. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving operations, by program type: Spring 1999

Mathematics operations skills	Full-day	Half-day
Work with counting manipulatives to learn operations		
Less than weekly	4	10
Weekly	60	68
Daily	36	22
Relative quantity (equal, more, less)		
Less than weekly	19	26
Weekly	55	55
Daily	26	19
Add single-digit numbers		
Less than weekly	27	42
Weekly	50	47
Daily	23	11
Subtract single-digit numbers		
Less than weekly	41	60
Weekly	43	33
Daily	17	7

NOTE: Detail may not sum to totals because of rounding.

Table A23. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving measurement, by program type: Spring 1999

Measurement skills	Full-day	Half-day
Calendar activities		
Less than weekly	2	2
Weekly	5	5
Daily	94	93
Tell time		
Less than weekly	49	69
Weekly	34	22
Daily	18	8
Use measuring instruments		
Less than weekly	75	87
Weekly	21	11
Daily	4	1

NOTE: Detail may not sum to totals because of rounding.

Table A24. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving data analysis, by program type: Spring 1999

Data analysis skills	Full-day	Half-day
Read simple graphs		
Less than weekly	39	48
Weekly	40	34
Daily	20	19
Simple data collection/graphing		
Less than weekly	57	67
Weekly	32	21
Daily	10	11
Estimate probability		
Less than weekly	89	94
Weekly	8	5
Daily	3	1

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A25. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving geometry, by program type: Spring 1999

Geometry skills	Full-day	Half-day
Name geometric shapes		
Less than weekly	28	37
Weekly	48	47
Daily	24	16
Work with geometric manipulatives		
Less than weekly	17	27
Weekly	60	61
Daily	22	12

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A26.   Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving patterns and sorting, by program type: Spring 1999

Patterns and sorting skills	Full-day	Half-day
Copy/extend patterns		
Less than weekly	23	29
Weekly	50	48
Daily	28	24
Sort into subgroups using rule		
Less than weekly	32	43
Weekly	55	51
Daily	13	6
Order objects by property		
Less than weekly	37	51
Weekly	53	44
Daily	10	5

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table A27.   Public school first-time kindergartners' mean reading fall, spring and gain scores (unadjusted), by program type: Fall 1998 to spring 1999

| Program type	Reading gain	Fall score	Spring score
All public kindergartners	10.04	21.72	31.76
Half-day	9.45	21.88	31.33
Full-day	10.55	21.59	32.14

NOTE: Estimates are based on public school, first-time kindergarten children attending a regular kindergarten program (no transitional or multi-grade classes). Only children who stayed with the same teacher in both the fall and spring and who are assessed in English in both the fall and the spring are included in the analysis.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Teacher Questionnaires and Child Assessment, Base-Year Public-Use data.

Table A28.   Public school first-time kindergartners' mean mathematics fall, spring and gain scores (unadjusted), by program type: Fall 1998 to spring 1999

Program type	Math gain	Fall score	Spring score
All public kindergartners	8.20	19.36	27.56
Half-day	7.77	19.79	27.56
Full-day	8.57	18.99	27.55

NOTE: Estimates are based on public school, first-time kindergarten children attending a regular kindergarten program (no transitional or multi-grade classes). Only children who stayed with the same teacher in both the fall and spring and who are assessed in mathematics in both the fall and the spring are included in the analysis.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Teacher Questionnaires and Child Assessment, Base-Year Public-Use data.

# Supplemental figures: Reading and mathematics activities and skills

Figure B1. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various reading activities, by program type: Spring 1999


Learning letter names
- Full-day: Daily 91, Weekly 8, Less than weekly 1
- Half-day: Daily 88, Weekly 12, Less than weekly 1

Work on phonics
- Full-day: Daily 86, Weekly 13, Less than weekly #
- Half-day: Daily 79, Weekly 19, Less than weekly 2

Discuss new vocabulary
- Full-day: Daily 64, Weekly 35, Less than weekly 1
- Half-day: Daily 55, Weekly 42, Less than weekly 3

Read books they have chosen
- Full-day: Daily 62, Weekly 32, Less than weekly 6
- Half-day: Daily 48, Weekly 43, Less than weekly 10

Read aloud
- Full-day: Daily 49, Weekly 41, Less than weekly 10
- Half-day: Daily 33, Weekly 48, Less than weekly 19

Read silently
- Full-day: Daily 43, Weekly 29, Less than weekly 28
- Half-day: Daily 29, Weekly 35, Less than weekly 36

Work in reading workbook/worksheet
- Full-day: Daily 33, Weekly 40, Less than weekly 26
- Half-day: Daily 21, Weekly 46, Less than weekly 34

Read from basal reading texts
- Full-day: Daily 13, Weekly 20, Less than weekly 68
- Half-day: Daily 5, Weekly 15, Less than weekly 80

Percent

Legend: ■ Daily ■ Weekly □ Less than weekly

Rounds to zero.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Figure B2. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various reading skills, by program type: Spring 1999

Skill / Program type	Daily	Weekly	Less than weekly
Letter recognition			
Full-day	91	8	1
Half-day	87	12	1
Letter/sound match			
Full-day	88	12	#
Half-day	79	20	1
Conventions of print			
Full-day	78	19	4
Half-day	70	24	6
Vocabulary			
Full-day	52	27	22
Half-day	38	29	33
Make predictions based on text			
Full-day	43	49	8
Half-day	36	54	10
Using context cues for comprehension			
Full-day	39	43	18
Half-day	28	49	23
Rhyming words and word families			
Full-day	28	61	11
Half-day	18	66	15
Reading aloud fluently			
Full-day	24	29	47
Half-day	13	22	66
Reading multi-syllable words			
Full-day	13	29	58
Half-day	7	23	69
Alphabetizing			
Full-day	8	17	75
Half-day	4	9	87

Percent

Legend: ■ Daily ■ Weekly □ Less than weekly

Rounds to zero.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Full-day and Half-day Kindergarten in the United States
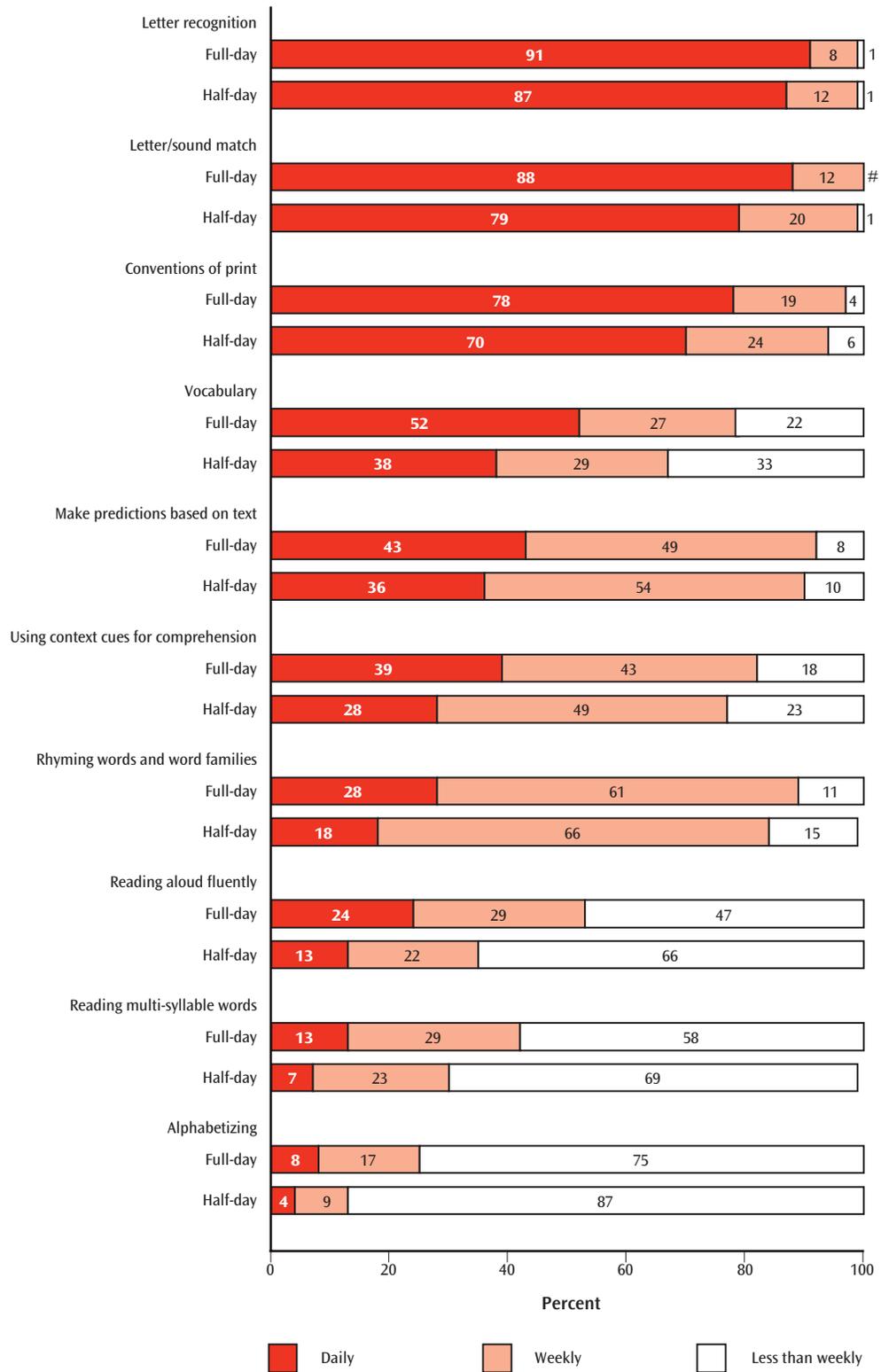
Figure B3. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various writing activities, by program type: Spring 1999

Activity		Daily	Weekly	Less than weekly
Write alphabet	Full-day	76	22	1
	Half-day	56	41	4
Write with invented spelling	Full-day	53	34	13
	Half-day	32	49	19
Write in journal	Full-day	34	38	28
	Half-day	17	44	39
Write stories/reports	Full-day	19	40	41
	Half-day	8	32	60
Write from dictation	Full-day	13	36	51
	Half-day	5	29	67
Publish own writing	Full-day	6	22	72
	Half-day	2	14	84

Percent

■ Daily   ■ Weekly   □ Less than weekly
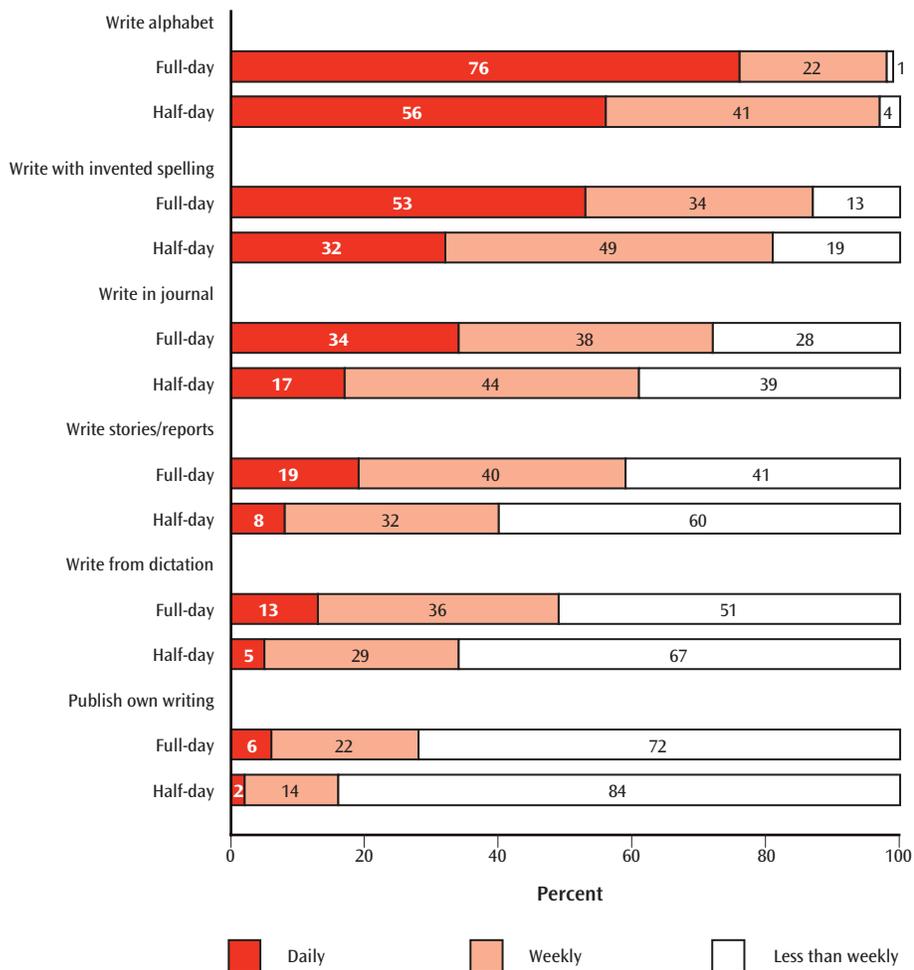
NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Figure B4. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various writing skills, by program type: Spring 1999

Writing name

	Daily	Weekly	Less than weekly
Full-day	85	12	3
Half-day	74	17	8

Use capitalization and punctuation

	Daily	Weekly	Less than weekly
Full-day	42	32	26
Half-day	27	38	36

Compose sentences

	Daily	Weekly	Less than weekly
Full-day	32	34	34
Half-day	16	36	48

Conventional spelling

	Daily	Weekly	Less than weekly
Full-day	21	28	51
Half-day	12	22	66

Compose stories

	Daily	Weekly	Less than weekly
Full-day	9	22	69
Half-day	3	11	86

Percent

■ Daily   ■ Weekly   □ Less than weekly
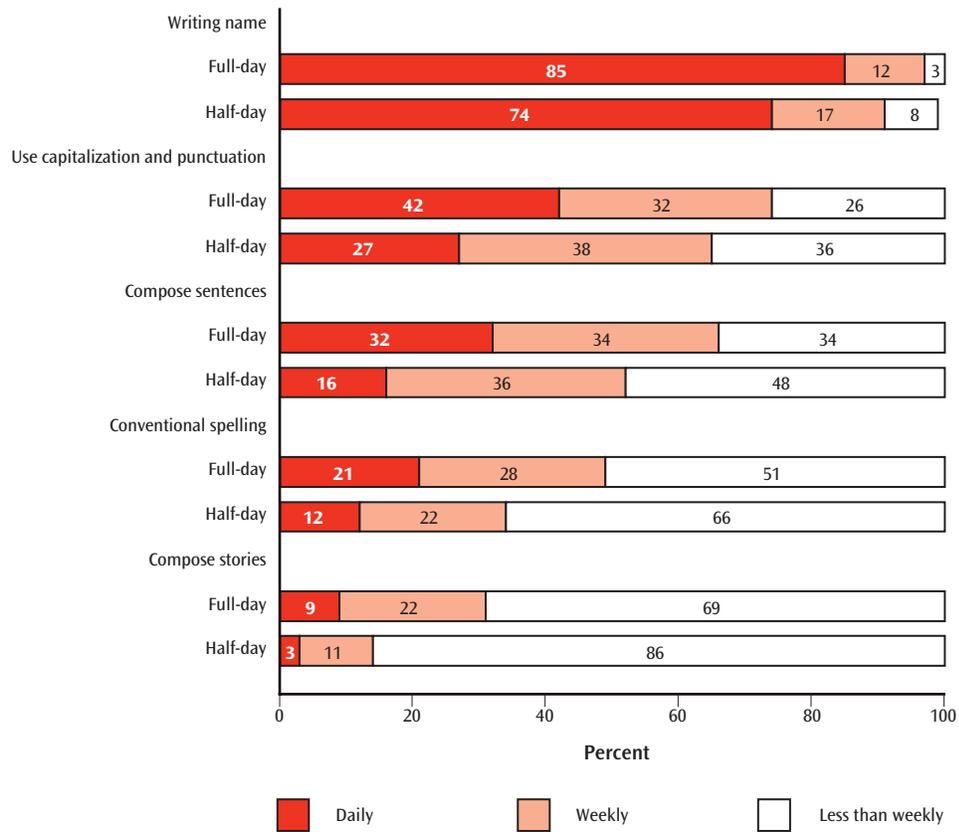
NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Figure B5. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various receptive and expressive language activities, by program type: Spring 1999
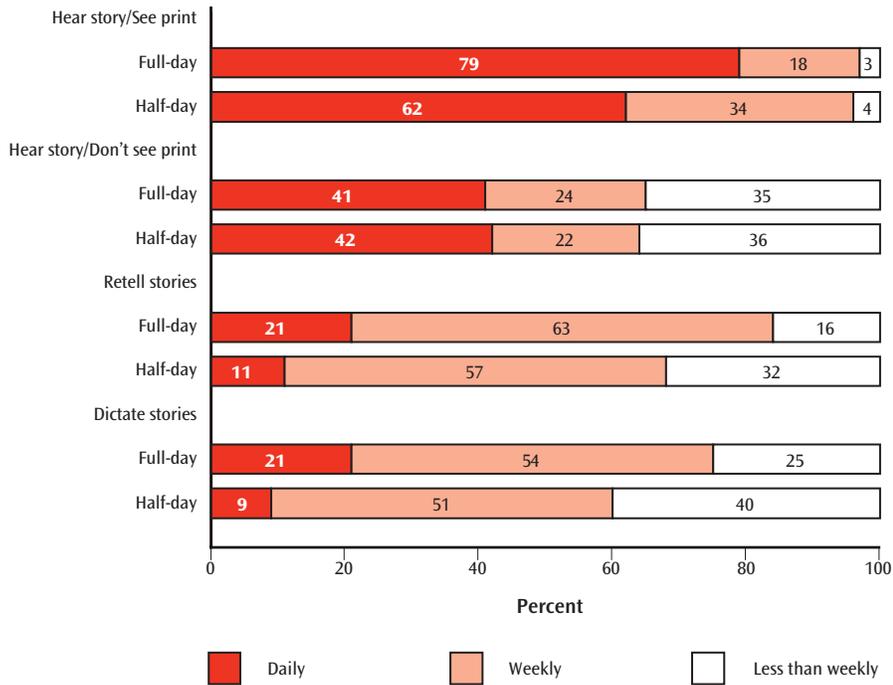
NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Figure B6. Percent of U.S. kindergarten classes that work daily, weekly or less than weekly on various receptive and expressive language skills, by program type: Spring 1999
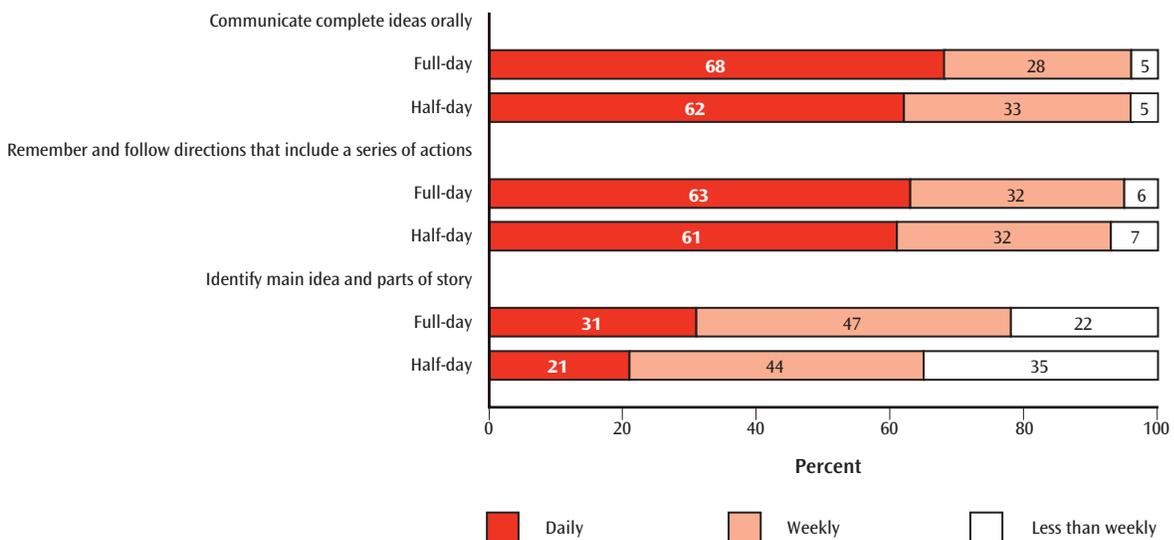
NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Figure B7.   Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics activities, by program type: Spring 1999

Play math games
Full-day	28	61	11
Half-day	16	65	20

Do math worksheets
Full-day	26	52	23
Half-day	12	53	35

Explain how math problem is solved
Full-day	24	46	30
Half-day	13	40	46

Solve real-life math problems
Full-day	19	53	28
Half-day	13	42	44

Solve math problems in small groups
Full-day	13	50	37
Half-day	6	36	58

Do math problems in textbook
Full-day	11	17	72
Half-day	4	10	87

Do math problems on chalkboard
Full-day	10	35	55
Half-day	6	22	72

Use music to learn math
Full-day	7	29	64
Half-day	6	25	69

Use creative movement or drama
Full-day	4	26	70
Half-day	3	22	74

Percent: 0   20   40   60   80   100

■ Daily   ■ Weekly   □ Less than weekly

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Full-day and Half-day Kindergarten in the United States
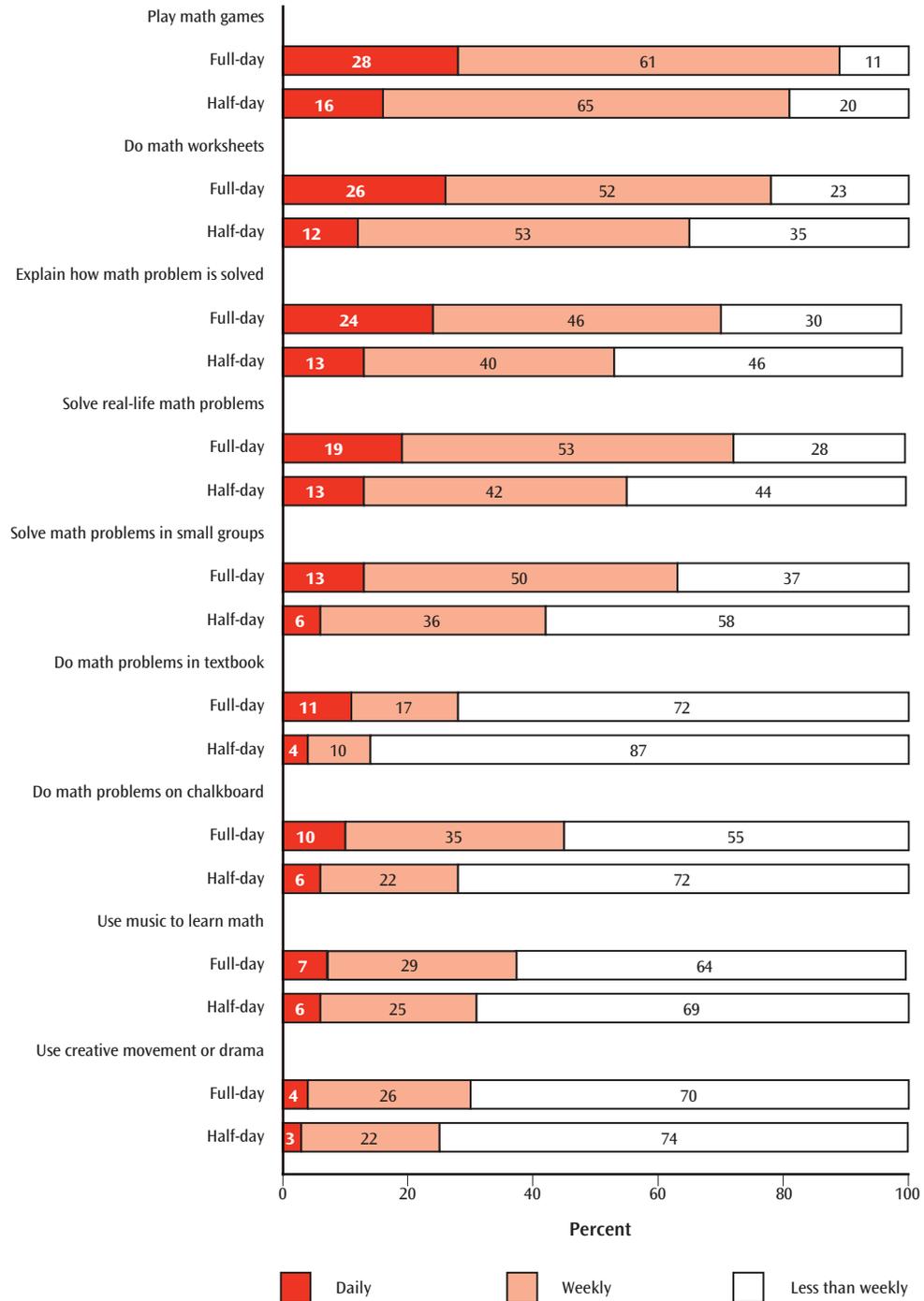
Figure B8. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving counting and quantities, by program type: Spring 1999
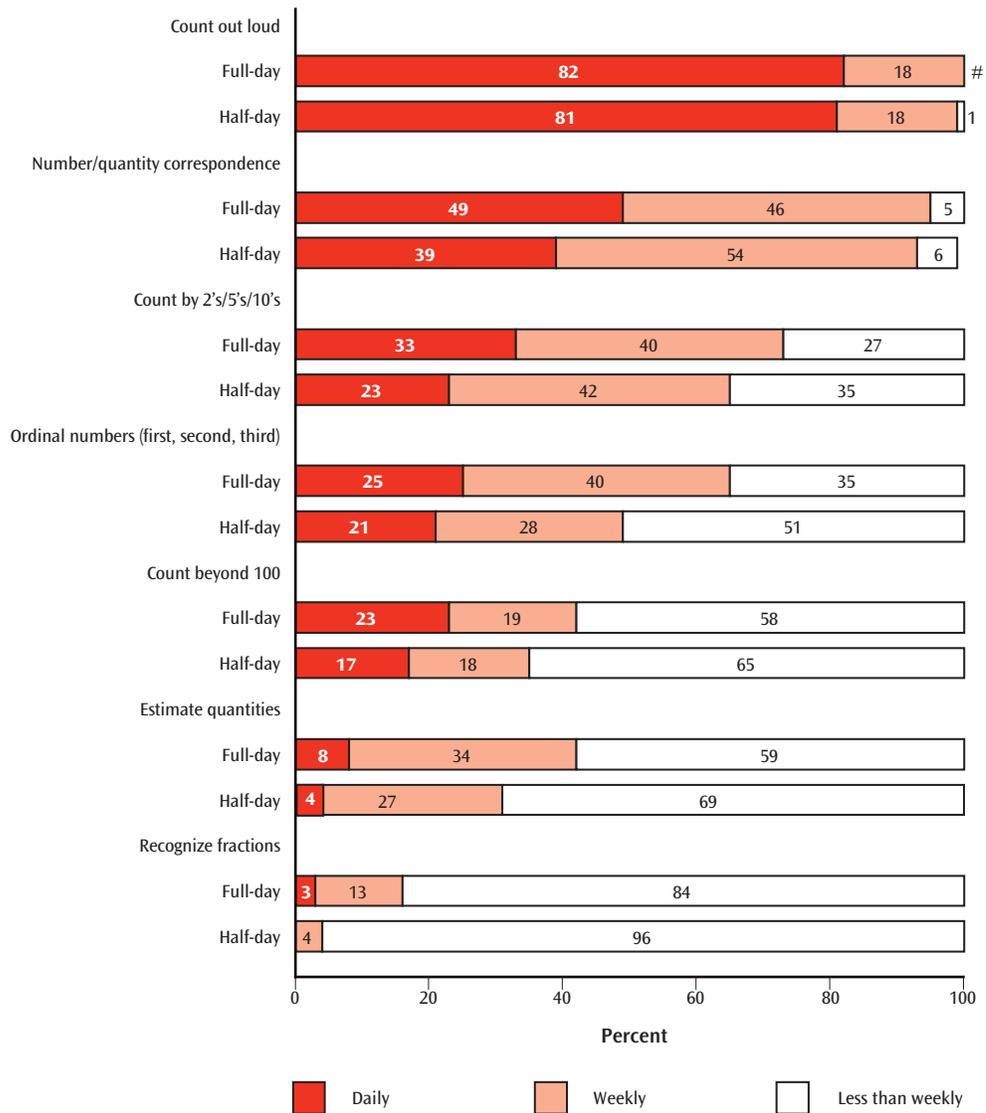
Rounds to zero.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Figure B9. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving number systems, by program type: Spring 1999

Read 2-digit numbers

	Daily	Weekly	Less than weekly
Full-day	46	33	20
Half-day	45	35	21

Write numbers 1–10

	Daily	Weekly	Less than weekly
Full-day	38	50	11
Half-day	20	58	22

Place value

	Daily	Weekly	Less than weekly
Full-day	29	13	58
Half-day	26	11	64

Read 3-digit numbers

	Daily	Weekly	Less than weekly
Full-day	21	15	64
Half-day	17	13	70

Know value of coins and cash

	Daily	Weekly	Less than weekly
Full-day	18	37	45
Half-day	10	23	67

Write numbers 1–100

	Daily	Weekly	Less than weekly
Full-day	7	17	76
Half-day	2	10	88

Percent

Legend: ■ Daily ■ Weekly □ Less than weekly
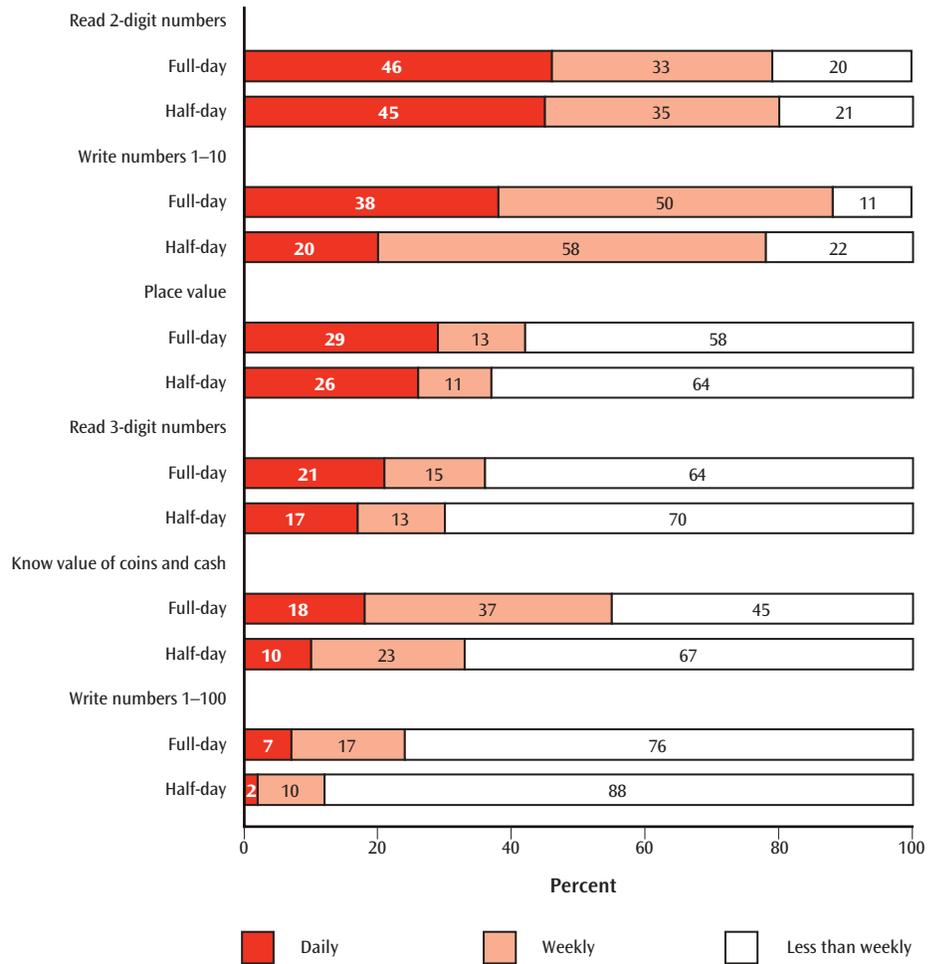
NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Figure B10. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving operations, by program type: Spring 1999

Use counting manipulatives to learn operations

	Daily	Weekly	Less than weekly
Full-day	36	60	4
Half-day	22	68	10

Relative quantity (equal, more, less)

	Daily	Weekly	Less than weekly
Full-day	26	55	19
Half-day	19	55	26

Add single digit numbers

	Daily	Weekly	Less than weekly
Full-day	23	50	27
Half-day	11	47	42

Subtract single-digit numbers

	Daily	Weekly	Less than weekly
Full-day	17	43	41
Half-day	7	33	60

Percent

■ Daily   ■ Weekly   □ Less than weekly
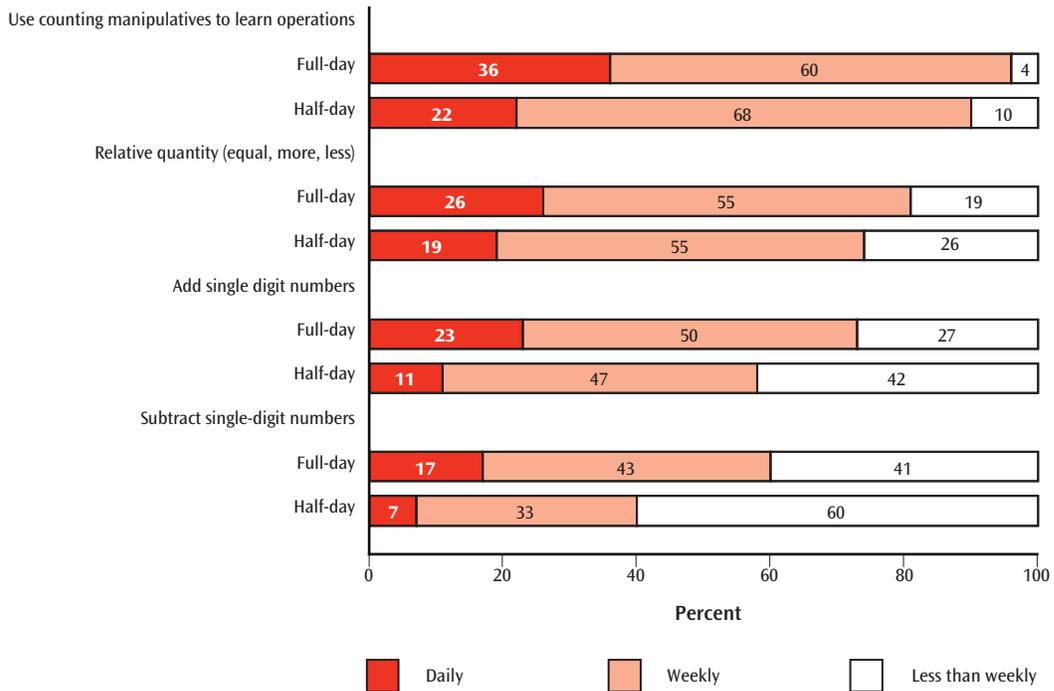
NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Figure B11. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving measurement, by program type: Spring 1999
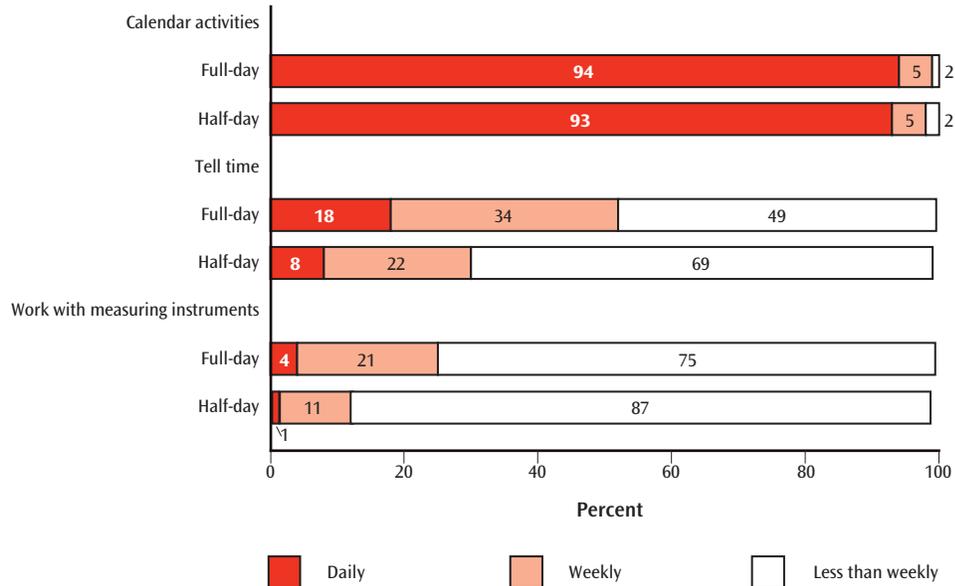
NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Figure B12. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving data analysis, by program type: Spring 1999
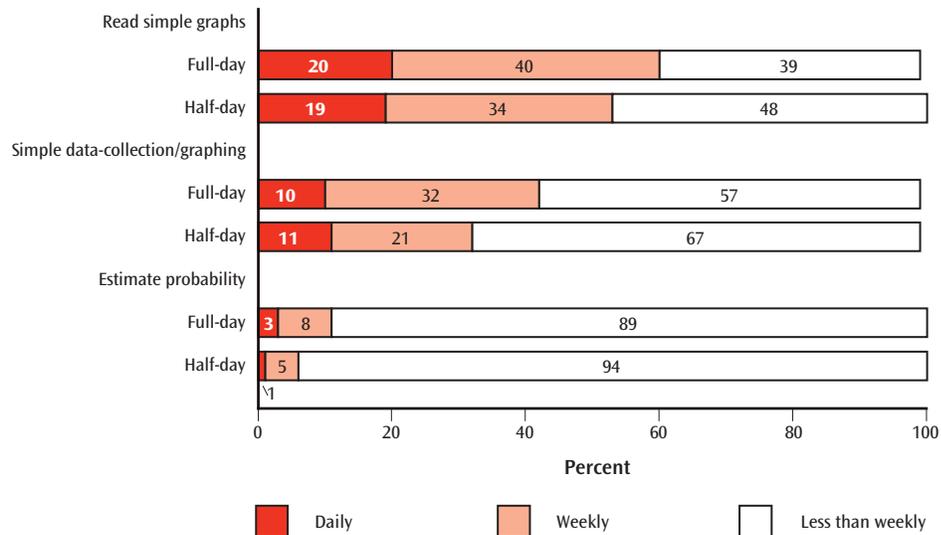
NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Figure B13. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving geometry, by program type: Spring 1999

Name geometric shapes

	Daily	Weekly	Less than weekly
Full-day	24	48	28
Half-day	16	47	37

Work with geometric manipulatives

	Daily	Weekly	Less than weekly
Full-day	22	60	17
Half-day	12	61	27

Percent

■ Daily   ■ Weekly   □ Less than weekly
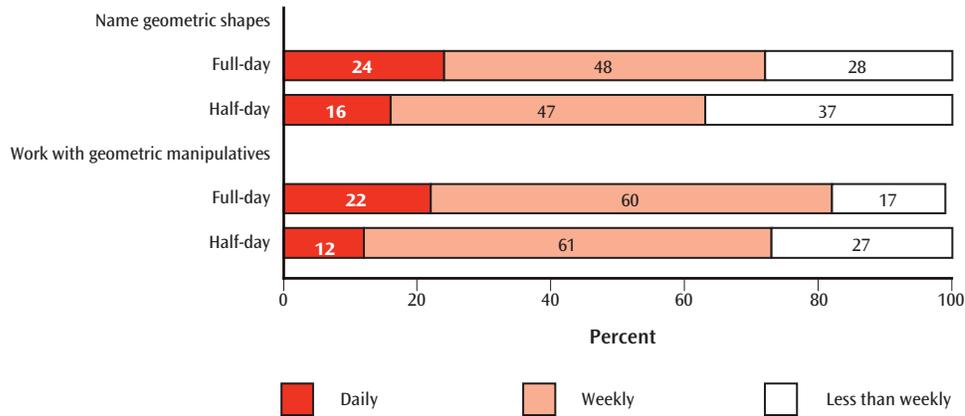
NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Figure B14. Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving patterns and sorting, by program type: Spring 1999

Copy/extend patterns

	Daily	Weekly	Less than weekly
Full-day	28	50	23
Half-day	24	48	29

Sort into subgroups using rule

	Daily	Weekly	Less than weekly
Full-day	13	55	32
Half-day	6	51	43

Order objects by property

	Daily	Weekly	Less than weekly
Full-day	10	53	37
Half-day	5	44	51

Percent

■ Daily   ■ Weekly   □ Less than weekly
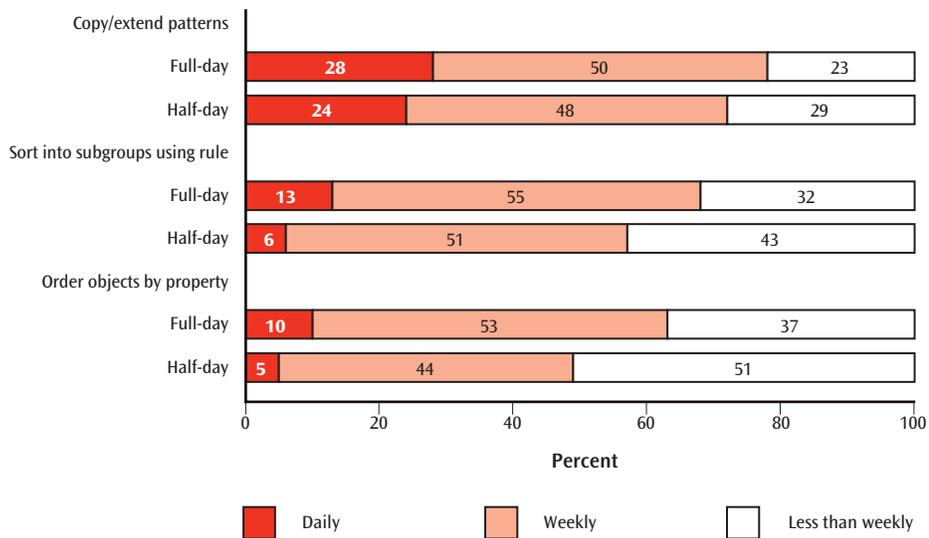
NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Standard Error Tables

Table C1. Standard errors for table A1, figures A and 2—Percent of U.S. schools that offer full-day and half-day kindergarten programs, by school type: 1998–99

	All schools		Public		Private Catholic		Other private	
School characteristics	Full-day	Half-day	Full-day	Half-day	Full-day	Half-day	Full-day	Half-day
All schools	2.30	2.38	2.91	3.04	3.56	4.33	4.61	4.77

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; School Administrator and Kindergarten Teacher Questionnaires, Base-Year Public-Use Data Files.

Table C2. Standard errors for table A2, figures 3, 4, 5, and 6—Percent of U.S. schools that offer full-day and half-day kindergarten programs, by school characteristics: 1998–99

	All schools		Public		Private	
School characteristics	Full-day	Half-day	Full-day	Half-day	Full-day	Half-day
All schools	2.30	2.38	2.91	3.04	3.71	3.64
Region						
Northeast	4.30	4.62	5.03	5.39	8.47	8.47
Midwest	4.73	4.16	5.25	5.29	8.65	7.41
South	4.16	5.18	4.74	6.26	6.77	7.03
West	6.02	5.90	9.51	9.50	6.09	5.97
Location						
Large and mid-sized cities	4.22	4.07	5.86	5.32	4.74	4.70
Suburbs/large town	3.54	3.70	3.94	4.17	6.08	6.49
Small town/rural	5.24	5.05	4.86	5.49	13.21	11.00
School minority enrollment[1]						
Less than 10%	3.56	3.53	4.59	4.66	7.00	7.07
10–24%	5.44	5.56	5.64	5.91	8.20	8.05
25–49%	5.67	6.22	6.81	7.69	‡	‡
50–75%	5.81	6.17	6.30	6.65	‡	‡
75% or more	4.74	4.80	5.39	5.45	4.56	6.01
Concentration of low-income children in public schools[2]						
0–49%	—	—	3.78	3.36	—	—
50% or more	—	—	4.40	4.87	—	—

‡ Reporting standards not met.

— Not available.

[1]All children who are not identified as White, non-Hispanic are classified as minority children.

[2]A school's concentration of poverty is based on a composite of free and reduced-priced lunch and participation in a "school-wide" Title I program. This is calculated only for public schools with a kindergarten program.

NOTE: Percent offering full-day and half-day programs totals more than 100 because some schools have both full-day and half-day programs.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; School Administrator Questionnaire and Kindergarten Teacher Questionnaires, Base-Year Public-Use Data Files.

Table C3.   Standard errors for table A3, figures B, 7, and 8—Percent of U.S. kindergarten children enrolled in a full-day kindergarten program, by school characteristics: 1998–99

School characteristics	All kindergartners	Public	Catholic	Other private
All kindergartners	2.17	2.41	3.78	4.30
Region				
Northeast	4.18	4.84	4.61	10.58
Midwest	3.78	4.16	6.79	9.37
South	3.83	4.12	6.11	6.77
West	5.32	5.75	11.87	7.54
Location				
Large and mid-sized cities	3.17	3.76	4.59	6.30
Suburbs/large town	3.36	3.76	7.35	7.10
Small town/rural	6.51	6.76	8.64	14.60
School minority enrollment[1]				
Less than 10%	3.28	3.87	6.57	8.68
10–24%	4.76	5.32	9.79	8.10
25–49%	5.72	6.25	13.14	15.86
50–75%	5.46	5.75	26.67	14.83
75% or more	3.14	3.49	5.02	7.68
School enrollment in poverty[2]				
0–49%	—	3.09	—	—
50% or more	—	3.93	—	—

— Not available.

[1]All children who are not identified as White, non-Hispanic are classified as minority children.

[2]A school's concentration of poverty is based on a composite of free and reduced-priced lunch and participation in a "school-wide" Title I program. This is calculated only for public schools with a kindergarten program.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; School Administrator Questionnaire and Kindergarten Teacher Questionnaires, Base-Year Public-Use Data Files.

Full-day and Half-day Kindergarten in the United States

Table C4. Standard errors for table A4, figures 9, 10, 11, and 12—Percent of U.S. kindergarten children enrolled in a full-day program, by school type and child and family characteristics: 1998–99

Child and family characteristics	All kindergartners	Public	Catholic	Other private
All kindergartners	2.17	2.41	3.78	4.30
Child's sex				
Male	2.26	2.47	3.93	4.46
Female	2.14	2.42	3.87	4.51
Mother's education				
Less than high school	3.15	3.20	7.58	9.58
High school diploma or equivalent	2.66	2.80	4.04	6.44
Some college, including vocational/technical	2.41	2.70	3.84	5.02
Bachelor's degree or higher	2.37	2.85	4.72	4.78
Primary Language spoken in home				
Non-English	3.21	3.32	6.46	7.48
English	2.31	2.61	3.96	4.45
Child's race/ethnicity				
White, non-Hispanic	2.52	2.84	4.35	5.08
Black, non-Hispanic	3.19	3.49	1.75	3.37
Hispanic	3.23	3.44	6.63	7.06
Asian	3.37	3.88	11.42	9.53
Hawaiian Native/Pacific Islander	11.41	11.50	28.50	8.10
American Indian/Alaska Native	8.58	9.17	9.98	2.79
More than one race, non-Hispanic	4.57	4.94	10.33	8.38
Diagnosed disability				
Yes	3.03	3.37	4.60	6.04
No	2.25	2.57	3.91	4.63
First time-kindergartner				
Yes	2.30	2.62	3.89	4.67
No	3.59	4.08	9.34	6.53
Poverty status[1]				
Below poverty threshold	3.19	3.23	4.74	7.48
At or above poverty threshold	2.12	2.40	3.89	4.38
Child's age at entry				
4 yrs, 8 mos — 4 yrs, 11 mos	2.89	3.54	6.04	5.75
5 yrs, 0 mos — 5 yrs, 3 mos	2.42	2.68	4.08	4.64
5 yrs, 4 mos — 5 yrs, 7 mos	2.15	2.41	3.92	4.92
5 yrs, 8 mos — 5 yrs, 11 mos	2.69	2.91	4.78	5.63
6 yrs, 0 mos — 6 yrs, 7 mos	2.83	3.14	7.75	8.46

[1]Poverty status is determined by comparing the child's household income to the national poverty threshold.

SOURCE: U.S. Department of Education, National Center for Education Statistics. Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; School Administrator Questionnaire, Kindergarten Teacher Questionnaires and Parent Interview, Base-Year Public-Use Data Files.

Table C5. Standard errors for table A5 and figure 13—Percent of U.S. public kindergarten children enrolled in a full-day program, by poverty status and primary home language: 1998–99

Child characteristics	Below poverty threshold	At or above poverty threshold
Primary home language		
English	3.49	2.58
Non-English	4.46	3.24

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Teacher Questionnaires and Parent Interviews, Base-Year files.

Table C6. Standard errors for table A6 and figure 14—Percentage distribution of U.S. public kindergarten classes with various enrollment characteristics, by program type: 1998–99

Class composition	Full-day	Half-day
All public school kindergarten classes	2.68	2.68
Percent minority		
0–10%	3.10	2.63
11–25%	2.09	1.85
26–75%	2.64	3.29
More than 75%	3.29	1.98
Percent limited English proficient (LEP)		
0%	2.89	2.66
1–10%	1.33	1.26
11–50%	2.02	1.53
More than 50%	1.08	1.30

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Kindergarten Teacher Questionnaires, Base-Year Public-Use Data File.

Table C7. Standard errors for table A7, figures 15, 16, and 17—Percentage distribution of various teacher characteristics in U.S. public kindergarten classes, by program type: 1998–99

Teacher characteristic	Full-day	Half-day
Teacher's race		
White, non-Hispanic	1.92	1.34
Black, non-Hispanic	1.36	0.52
Hispanic	1.16	1.04
Other, non-Hispanic or multiracial	1.10	0.82
Teacher's highest degree		
Bachelor's	2.17	2.33
Master's	1.96	2.18
Doctorate/Specialist	0.88	0.90
Teacher's certification		
Early Childhood	2.18	3.33
Elementary	1.68	2.14
Teacher's certification type		
Other than fully certified	0.89	1.57
Fully certified	0.89	1.57
Years teaching kindergarten		
Less than 3	1.45	1.47
3 to 9	1.40	1.96
10–19	1.21	1.92
20 or more	1.20	1.08

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Kindergarten Teacher Questionnaires, Base-Year Public-Use Data File.

Table C8. Standard errors for table A8, figures 18 and 19—Percentage distribution of class sizes and percent of classes with classroom aides in U.S. public kindergarten classes, by program type: 1998–99

Class characteristic	Full-day	Half-day
Class size levels		
Up to 17	2.40	3.18
18–24	2.63	2.79
25 or more	2.06	1.57
Classroom aides		
Regular instructional aide	3.83	2.97
Special ed. instructional aide	1.87	2.32
English as a second language (ESL) instructional aide	1.56	0.90

NOTE: A class is classified as having an aide if the aide spends at least one hour per day in the class working directly with the children in the class.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Kindergarten Teacher Questionnaires, Base-Year Public-Use Data File.

Table C9. Standard errors for table A9, figures 20 and 21—Average minutes per day and percent of total time that U.S. public kindergarten classes spend in various classroom organizations, by program type: Spring 1999

Time	Full-day	Half-day
Minutes per day		
Teacher directed whole class activities	2.07	2.49
Teacher directed small-group activities	1.72	1.92
Teacher directed individual activities	1.07	1.39
Child selected activities	1.37	1.32
Percent of total		
Teacher directed whole class activities	0.71	1.38
Teacher directed small-group activities	0.59	1.06
Teacher directed individual activities	0.37	0.77
Child selected activities	0.47	0.73

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table C10. Standard errors for table A10 and figure 22—Percentage distribution of the frequency that U.S. public kindergarten classes use various grouping strategies for reading and mathematics instruction, by program type: Spring 1999

Grouping strategies	Full-day	Half-day
Reading		
Work in mixed level groups		
Less than weekly	1.27	1.62
Weekly	1.41	2.31
Daily	1.60	2.49
Achievement groups		
Less than weekly	2.29	2.76
Weekly	1.77	2.46
Daily	1.91	1.52
Peer tutoring in reading		
Less than weekly	1.82	2.34
Weekly	1.89	1.64
Daily	1.47	1.63
Mathematics		
Work in mixed level groups		
Less than weekly	1.36	1.81
Weekly	1.59	2.13
Daily	1.47	1.83
Achievement groups		
Less than weekly	2.01	1.96
Weekly	1.74	1.75
Daily	1.35	0.99
Peer tutoring in reading		
Less than weekly	2.04	2.06
Weekly	2.00	1.96
Daily	1.13	1.31

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table C11. Standard errors for table A11, figures C, 23, and 24—Percent of U.S. public kindergarten classes that spend time daily, weekly or less than weekly in various subject areas, by program type: Spring 1999

Subject area	Full-day	Half-day
Reading and language arts		
Never/less than weekly	0.22	0.23
Weekly	0.40	0.70
Daily	0.45	0.73
Mathematics		
Never/less than weekly	0.13	0.05
Weekly	0.98	1.69
Daily	1.01	1.69
Social studies		
Never/less than weekly	0.63	1.20
Weekly	1.71	1.99
Daily	1.70	1.71
Science		
Never/less than weekly	0.69	1.25
Weekly	1.54	1.99
Daily	1.51	1.70
Music		
Never/less than weekly	0.92	1.49
Weekly	2.02	2.81
Daily	1.64	2.56
Art		
Never/less than weekly	0.54	0.88
Weekly	1.82	2.30
Daily	1.73	2.09
Dance/creative movement		
Never/less than weekly	1.50	2.56
Weekly	1.45	2.32
Daily	1.25	0.94
Theater/creative dramatics		
Never/less than weekly	1.59	2.36
Weekly	1.40	2.22
Daily	0.88	0.63

Table C12. Standard errors for Table A12 and figures 25 and 26—Percent distribution of the amount of time per day U.S. public kindergarten classes spend time on reading/language arts activities and mathematics activities, by program type: Spring 1999

	Full-day	Half-day
Reading and language arts		
1–30	0.71	1.58
31–60	1.34	2.17
61–90	1.32	2.11
91+	1.32	1.28
Mathematics		
1–30	1.42	2.18
31–60	1.58	2.02
61–90	1.36	1.16
91+	0.51	0.51

NOTE: 'Minutes per day' refers to the time spent per day on those days when the subject is taught.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table C13. Standard errors for table A13, figures D, 27, and B1—Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various reading activities, by program type: Spring 1999

Reading activities	Full-day	Half-day
Learning letter names		
Less than weekly	0.23	0.23
Weekly	0.83	1.03
Daily	0.84	1.03
Work on phonics		
Less than weekly	0.16	0.68
Weekly	1.28	1.18
Daily	1.29	1.33
Discuss new vocabulary		
Less than weekly	0.29	0.75
Weekly	1.58	1.95
Daily	1.58	1.88
Choose to read books		
Less than weekly	0.80	1.18
Weekly	1.81	2.33
Daily	2.01	2.47
Read aloud		
Less than weekly	1.16	1.79
Weekly	1.46	2.43
Daily	1.60	2.24
Read silently		
Less than weekly	1.66	2.54
Weekly	1.55	1.94
Daily	1.87	2.19
Work in reading workbook/worksheet		
Less than weekly	1.97	2.67
Weekly	1.75	2.20
Daily	2.15	2.56
Use basal reading texts		
Less than weekly	1.86	1.79
Weekly	1.76	1.56
Daily	1.16	0.90

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table C14. Standard errors for table A14, figures D, 27 and B2—Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various reading skills, by program type: Spring 1999

Reading skills	Full-day	Half-day
Letter recognition		
Less than weekly	0.28	0.39
Weekly	0.87	0.96
Daily	0.90	1.09
Letter/sound match		
Less than weekly	0.21	0.59
Weekly	1.24	1.49
Daily	1.24	1.38
Conventions of print		
Less than weekly	0.60	1.18
Weekly	1.16	1.67
Daily	1.32	2.05
Vocabulary		
Less than weekly	1.68	2.18
Weekly	1.46	2.03
Daily	1.89	2.09
Make predictions based on text		
Less than weekly	0.72	1.43
Weekly	1.46	2.08
Daily	1.52	2.00
Using context cues for comprehension		
Less than weekly	1.18	1.72
Weekly	1.69	2.46
Daily	1.76	1.96
Rhyming words and word families		
Less than weekly	1.08	1.64
Weekly	1.58	2.13
Daily	1.60	1.30
Reading aloud fluently		
Less than weekly	2.31	2.30
Weekly	1.94	1.78
Daily	1.38	1.49
Reading multi-syllable words		
Less than weekly	2.00	2.05
Weekly	1.45	1.80
Daily	1.19	1.07
Alphabetizing		
Less than weekly	1.69	1.38
Weekly	1.38	1.29
Daily	0.83	0.69

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table C15. Standard errors for table A15, figures D, 27 and B3—Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various writing activities, by program type: Spring 1999

Writing activity	Full-day	Half-day
Writing alphabet		
Less than weekly	0.32	0.86
Weekly	1.47	2.00
Daily	1.49	2.38
Invented spelling		
Less than weekly	1.64	2.72
Weekly	1.65	1.96
Daily	1.98	2.45
Write in journal		
Less than weekly	2.12	3.20
Weekly	2.23	2.23
Daily	2.35	2.10
Write stories/reports		
Less than weekly	1.63	2.73
Weekly	1.61	2.39
Daily	1.32	1.21
Write from dictation		
Less than weekly	1.65	2.28
Weekly	1.40	2.11
Daily	1.52	0.82
Publish own writing		
Less than weekly	1.79	1.62
Weekly	1.56	1.50
Daily	0.80	0.49

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table C16. Standard errors for table A16, figures D, 27 and B4—Percent of U.S. public kinder-
garten classes that work daily, weekly or less than weekly on various writing skills,
by program type: Spring 1999

Writing skills	Full-day	Half-day
Writing name		
Less than weekly	0.51	1.07
Weekly	1.02	1.64
Daily	1.09	1.97
Use capitalization and punctuation		
Less than weekly	2.45	2.30
Weekly	1.58	1.73
Daily	1.97	1.96
Compose sentences		
Less than weekly	2.58	2.49
Weekly	1.89	2.03
Daily	1.82	1.33
Conventional spelling		
Less than weekly	1.99	2.16
Weekly	1.44	1.92
Daily	1.53	1.41
Compose and write stories with a beginning, middle and end		
Less than weekly	1.46	1.50
Weekly	1.43	1.39
Daily	0.85	0.76

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of
1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table C17.   Standard errors for table A17, figures D, 27 and B5—Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various receptive and expressive language activities, by program type: Spring 1999

Receptive and expressive language activities	Full-day	Half-day
Hear story/See print		
Less than weekly	0.70	0.73
Weekly	1.34	1.81
Daily	1.16	1.92
Hear story/Don't see print		
Less than weekly	1.36	2.46
Weekly	1.38	1.58
Daily	1.71	2.53
Retell stories		
Less than weekly	1.16	2.60
Weekly	1.81	2.33
Daily	1.52	1.17
Dictate stories		
Less than weekly	1.38	2.31
Weekly	1.57	2.14
Daily	1.39	1.27

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table C18.   Standard errors for table A18 and figure B6—Percent of U.S. kindergarten classes that work daily, weekly or less than weekly on various receptive and expressive language skills, by program type: Spring 1999

Receptive and expressive language skills	Full-day	Half-day
Identify main idea and parts of story		
Less than weekly	1.40	2.00
Weekly	1.96	2.10
Daily	1.48	1.59
Remember and follow directions that include a series of actions		
Less than weekly	0.73	0.94
Weekly	1.64	1.80
Daily	1.74	1.93
Communicate complete ideas orally		
Less than weekly	0.74	0.77
Weekly	1.26	2.28
Daily	1.38	2.45

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table C19. Standard errors for table A19 and figures 28 and B7—Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics activities, by program type: Spring 1999

Mathematics activities	Full-day	Half-day
Play math games		
Less than weekly	0.96	1.64
Weekly	1.57	1.95
Daily	1.66	1.66
Do math worksheets		
Less than weekly	2.08	2.72
Weekly	1.64	2.52
Daily	2.01	1.49
Explain how math problem is solved		
Less than weekly	1.85	2.20
Weekly	2.01	2.09
Daily	1.43	1.35
Solve real-life math problems		
Less than weekly	1.39	2.01
Weekly	1.71	1.79
Daily	1.28	1.30
Solve math problem in small group or partner		
Less than weekly	1.57	2.13
Weekly	1.42	2.07
Daily	0.96	0.87
Do math problems in textbook		
Less than weekly	2.55	1.76
Weekly	1.72	1.43
Daily	1.33	0.97
Complete math problems on chalkboard		
Less than weekly	1.54	2.16
Weekly	1.50	2.04
Daily	1.12	1.04
Use music to learn math		
Less than weekly	1.85	2.36
Weekly	1.68	2.13
Daily	0.81	1.16
Use creative movement or drama to understand math concepts		
Less than weekly	1.68	1.52
Weekly	1.61	1.68
Daily	0.61	0.72

Table C20. Standard errors for table A20, figures E, 28 and B8—Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving counting and quantities, by program type: Spring 1999

Counting and quantity skills	Full-day	Half-day
Count out loud		
Less than weekly	0.17	0.33
Weekly	1.23	1.41
Daily	1.26	1.43
Number/quantity correspondence		
Less than weekly	0.67	0.96
Weekly	2.15	1.82
Daily	2.25	2.11
Count by 2's/5's/10's		
Less than weekly	1.91	1.97
Weekly	1.73	1.99
Daily	1.85	1.82
Ordinal numbers (first, second, third)		
Less than weekly	1.49	2.51
Weekly	1.55	1.77
Daily	1.16	1.76
Count beyond 100		
Less than weekly	1.91	2.20
Weekly	1.05	1.48
Daily	1.72	1.54
Estimate quantities		
Less than weekly	2.38	1.68
Weekly	2.17	1.54
Daily	0.95	0.78
Recognize fractions		
Less than weekly	1.33	0.84
Weekly	1.18	0.88
Daily	0.65	0.29

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Full-day and Half-day Kindergarten in the United States

Table C21. Standard errors for table A21, figures E, 28 and B9—Percent of U.S. public kinder-
garten classes that work daily, weekly or less than weekly on various mathematics
skills involving number systems, by program type: Spring 1999

Number systems skills	Full-day	Half-day
Read 2-digit numbers		
Less than weekly	1.59	1.99
Weekly	2.03	1.45
Daily	1.99	2.18
Write numbers 1–10		
Less than weekly	1.16	1.60
Weekly	1.52	2.04
Daily	1.46	1.46
Place value		
Less than weekly	2.36	2.57
Weekly	1.02	1.42
Daily	1.83	2.05
Read 3-digit numbers		
Less than weekly	1.71	2.56
Weekly	1.53	1.87
Daily	1.54	2.08
Value of coins and cash		
Less than weekly	2.00	2.73
Weekly	1.69	1.84
Daily	1.51	1.56
Write numbers 1–100		
Less than weekly	1.43	1.68
Weekly	1.04	1.64
Daily	1.05	0.41

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table C22.   Standard errors for table A22, figures E, 28 and B10—Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving operations, by program type: Spring 1999

Mathematics operations skills	Full-day	Half-day
Work with counting manipulatives to learn operations		
Less than weekly	0.62	1.14
Weekly	1.35	1.92
Daily	1.39	1.85
Relative quantity (equal, more, less)		
Less than weekly	1.37	1.83
Weekly	1.79	2.04
Daily	1.52	1.33
Add single-digit numbers		
Less than weekly	1.59	2.17
Weekly	1.87	2.20
Daily	1.53	1.28
Subtract single-digit numbers		
Less than weekly	1.98	1.82
Weekly	1.97	1.65
Daily	1.17	0.99

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table C23.   Standard errors for table A23, figures E, 28 and B11—Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving measurement, by program type: Spring 1999

Measurement skills	Full-day	Half-day
Calendar activities		
Less than weekly	0.38	0.43
Weekly	0.82	0.86
Daily	0.97	0.94
Tell time		
Less than weekly	2.06	2.54
Weekly	1.96	1.84
Daily	1.60	1.35
Use measuring instruments		
Less than weekly	1.46	1.41
Weekly	1.25	1.52
Daily	0.78	0.51

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Full-day and Half-day Kindergarten in the United States

Table C24. Standard errors for table A24 and figure B12—Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving data analysis, by program type: Spring 1999

Data analysis skills	Full-day	Half-day
Read simple graphs		
Less than weekly	1.83	2.63
Weekly	1.78	2.26
Daily	1.59	1.83
Simple data collection/graphing		
Less than weekly	1.73	2.17
Weekly	1.68	1.79
Daily	0.78	1.48
Estimate probability		
Less than weekly	1.20	1.02
Weekly	1.03	0.97
Daily	0.56	0.33

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table C25. Standard error for table A24 and figure B13—Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving geometry, by program type: Spring 1999

Geometry skills	Full-day	Half-day
Name geometric shapes		
Less than weekly	1.42	2.02
Weekly	1.86	2.14
Daily	1.56	1.23
Work with geometric manipulatives		
Less than weekly	1.67	1.87
Weekly	1.56	1.81
Daily	1.42	1.20

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of

Table C26. Standard errors for table A26 and figure B14—Percent of U.S. public kindergarten classes that work daily, weekly or less than weekly on various mathematics skills involving patterns and sorting, by program type: Spring 1999

Patterns and sorting skills	Full-day	Half-day
Copy/extend patterns		
Less than weekly	1.55	1.84
Weekly	1.71	1.69
Daily	1.89	1.78
Sort into subgroups using rule		
Less than weekly	1.41	2.40
Weekly	1.80	2.34
Daily	1.37	0.92
Order objects by property		
Less than weekly	1.22	2.29
Weekly	1.71	2.12
Daily	1.28	0.91

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Spring 1999 Kindergarten Teacher Questionnaire, Base-Year Public-Use Data File.

Table C27. Standard errors for table A27, figures F and 29—Public school first-time kinder-gartners' mean reading fall, spring and gain scores (unadjusted), by program type: Fall 1998 to spring 1999

Program type	Reading gain	Fall score	Spring score
All public kindergartners	0.16	0.18	0.26
Half-day	0.17	0.26	0.32
Full-day	0.23	0.25	0.40

NOTE: Estimates are based on public school, first-time kindergarten children attending a regular kindergarten program (no transitional or multi-grade classes). Only children who stayed with the same teacher in both the fall and spring and who are assessed in English in both the fall and the spring are included in the analysis.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Teacher Questionnaires and Child Assessment, Base-Year Public-Use data.

Table C28. Standard errors for table A28, figures G and 31—Public school first-time kinder-gartners' mean mathematics fall, spring and gain scores (unadjusted), by program type: Fall 1998 to spring 1999

Program type	Math gain	Fall score	Spring score
All public kindergartners	0.10	0.16	0.23
Half-day	0.12	0.25	0.31
Full-day	0.15	0.23	0.33

NOTE: Estimates are based on public school, first-time kindergarten children attending a regular kindergarten program (no transitional or multi-grade classes). Only children who stayed with the same teacher in both the fall and spring and who are assessed in mathematics in both the fall and the spring are included in the analysis.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99; Teacher Questionnaires and Child Assessment, Base-Year Public-Use data.

Full-day and Half-day Kindergarten in the United States
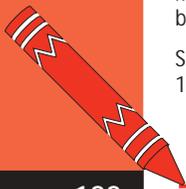
Appendix D:
Methodology and Technical Notes

Survey Methodology

The Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), is being conducted by Westat for the U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics (NCES). It is designed to provide detailed information on children's early school experiences. The study began in the fall of the 1998–99 school year. The children participating in the ECLS-K are being followed longitudinally through the fifth grade.

A nationally representative sample of 22,782 children enrolled in kindergarten during the 1998–99 school year was selected to participate in the ECLS-K. The children attend both public and private schools that offer a kindergarten program. The sample includes children from different racial/ethnic and socioeconomic backgrounds, and includes oversamples of Asian children, private school kindergartens and private school kindergarten children.

The ECLS-K kindergarten reading assessment included questions designed to measure basic skills (letter recognition, beginning and ending sounds), vocabulary (reading sight words), and comprehension (listening comprehension and reading words in context). The ECLS-K kindergarten mathematics assessment was designed to measure skills in conceptual knowledge, procedural knowledge, and problem solving. Approximately one-half of the mathematics assessment consisted of questions on number sense, number properties and operations. The remainder of the assessment included questions in measurement; geometry and spatial sense; data analysis, statistics, and probability; and patterns, algebra, and functions. The ECLS-K assessments were administered individually and took place in the child's school. The assessors were ECLS-K staff with extensive training in how to administer the assessments using standardized procedures.

The family demographic information presented in this report was obtained through computer assisted telephone interviews (CATI) with the children's parents. Teachers completed questionnaires about themselves, their classrooms, and each child in the study. The instructional practices and curricular focus items are based on teachers' report. As a result, there may be possible response bias due to social desirability. For example, some teachers may indicate they use certain instructional activities more often than they actually do if the teachers believe that those instructional activities are more highly valued. Since independent observation of instructional activities was not part of the ECLS-K study design, it is not possible to examine whether response bias might have an effect on reported estimates.

For complete details about the sample design, response rates and nonresponse bias analysis for the ECLS-K, refer to the *ECLS-K Base-Year Public-Use Data Files User's Manual* and/or the *ECLS-K Methodology Report.* Findings in these reports suggest that there is not a bias due to nonresponse.

Statistical Procedures

Chapters 2, 3 and 4

Comparisons made in the text must be larger than 5 percentage points and are tested for statistical significance (alpha = .05) to ensure that the differences are larger than might be expected due to sampling variation. When comparing estimates between categorical groups (e.g., region, race/ethnicity), t statistics are calculated. The formula used to compute the t statistic is:

$$t = Est_1 - Est_2 / SQRT \ [(se_1)^2 + (se_2)^2]$$

Where Est_1 and Est_2 are the estimates being compared and se_1 and se_2 are their corresponding standard errors. For example, information from Tables A1 and C1 are used to compare the percent of public and Catholic schools that offer full-day kindergarten. The formula used to compute the t statistic for the comparison of public and Catholic schools is:

$$t = \frac{\text{Public school estimate } - \text{ Catholic school estimate}}{SQRT \ [(\text{Public se})^2 + (\text{Catholic se})^2]}$$

$$t = \frac{57 - 78}{SQRT \ [(2.91)^2 + (3.56)^2]}$$

$$t = -4.57$$

In some instances, it is reported that two estimates are "similar" (e.g., "Full-day and half-day classes have similar numbers of ESL aides"). These statements are made when, in addition to no statistical difference found, a test for equivalence rejects a null hypothesis that the difference between the two estimates is not near zero and therefore the two estimates are considered to be equivalent. The equivalence tests are used to identify similar estimates with an alpha level of .05 and tolerance bound of 5 percentage points (Rogers, Howard and Vessey 1993).

Chapter 5

The dependent variables in chapter 5 analyses are gain scores that represent the differences between the IRT fall and spring scale scores for the reading and mathematics assessments. Using gain scores as the dependent variable rather than spring scores as the dependent variable with fall scores as a covariate allows results to be presented in terms of progress made during the year regardless of where along the continuum that progress is made. There are longstanding concerns about the unreliability of gain scores in the measurement literature although these concerns have more recently been shown to be largely unfounded and based on faulty assumptions (e.g., Gottman and Rushe 1993; Williams and Zimmerman 1996). Rogosa and Willet (1983) show that gain score reliabilities tend to be strong when individual differences between pre-test and post-test are substantial, as is the case in most longitudinal assessment applications (including the fall and spring kindergarten ECLS-K assessments). Maris (1998) argues that regression toward the mean is not a legitimate argument against using gains scores nor is pretest measurement error a concern unless assignment into independent variable groups is determined from pre-test performance (which is not the case in the ECLS-K). Additionally, the use of IRT scale scores and the adaptive testing approach used in the ECLS-K limit the concern that gain scores may be unreliable due to floor and ceiling effects (Rock and Pollack 2002).

Comparisons of simple mean gain scores presented in chapter 5 are done using the t-test procedures described for chapters 2, 3 and 4. The regression analyses described in chapter 5 compare mean gain scores for children in full-day and half-day programs while accounting for other child and classroom characteristics and incorporating the nested structure of the data. A three-level hierarchical linear modeling (HLM) method is used to calculate unstandardized regression coefficients for terms in the analyses and to partition the variance associated with each level. This method assures that the proper degrees of freedom are used for estimating the regression coefficients at each level of the data. For example, the degrees of freedom for a class-level variable will be based on the number of classes rather than the number of children. The three-level model consists of three submodels, one for each level. For example, the model for the mathematics gain scores (table 7) can be expressed as the following equations.

Level-1 model

The level-1 model specifies the relationship between child characteristics and children's mathematics gains. The intercept (P0), child-level coefficients (P1-P8) and error (E) appear at this level. Y is the child's mathematics gain score.

$$Y = P0 + P1^*(\text{Poverty}) + P2^*(\text{Race/ethnicity: Black}) + P3^*(\text{Race/ethnicity: Hispanic}) + P4^*(\text{Race/ethnicity: Asian}) + P5^*(\text{Race/ethnicity: Other}) + P6^*(\text{Time lapse}) + P7^*(\text{Fall math score: Low 1/3}) + P8^*(\text{Fall math score: Middle 1/3}) + E$$

Level-2 model

The level-2 model specifies the relationship between program type and classes' mathematics gains. The equation includes the level-2 intercept (B00) the class-level coefficients for program type (B01) and error (R0). The level-1 intercept (PO) and each of the level-1 coefficients (P1–P8) are treated as outcomes in the level 2 equation. In this analysis, effects associated with each of the level-1 variables are assumed to be invariant (fixed) across classes so no error terms are attached to these.

$$P0 = B00 + B01^*(\text{Program type}) + R0$$
$$P1 = B10$$
$$P2 = B20$$
$$P3 = B30$$
$$P4 = B40$$
$$P5 = B50$$
$$P6 = B60$$
$$P7 = B70$$
$$P8 = B80$$

Level-3 model

No school-level characteristics appear in the model. The level-2 intercept (B00) and the level-2 coefficient for program type (B01) as well as the level-1 coefficients are considered as outcomes in the level-3 equation. In this analysis, all child and class effects are assumed to be fixed across schools. In this application of a 3-level HLM model, level-3 is included so that school-level variance components are calculated.

$$B00 = G000 + U00$$
$$B01 = G010$$
$$B10 = G100$$
$$B20 = G200$$
$$B30 = G300$$
$$B40 = G400$$
$$B50 = G500$$
$$B60 = G600$$
$$B70 = G700$$
$$B80 = G800$$

The regression models presented in chapter 5 (tables 5 and 7) were obtained after testing all child and class characteristics discussed in that chapter and many interaction effects between program type and other class and child characteristics. The main effects and interaction terms tested in these analyses are selected based on the research literature mentioned in this report and on prior analyses done with the ECLS-K data. The focus of the analyses is to describe the relationship between program type and cognitive gains while controlling for other related variables and to investigate whether this relationship is consistent across levels of child and other class characteristics. The child characteristics considered in these analyses are those that are often associated with academic performance (e.g., West, Denton, and Reaney 2001). The class level characteristics tested in these models are those that, like program type, are related to the time and individual attention available for instruction for each child in the kindergarten classroom. The interactions tested in the analyses investigate whether gains made in full-day programs are differentially associated with other child and class characteristics. As described in chapter 5, the tested main effects are: poverty status, race/ethnicity, age, sex, fall reading ability (or fall mathematics ability for the mathematics gains model), time lapse between assessments, program type, class size, presence of an instructional aide,

relative time for reading instruction (or relative time for mathematics instruction for the math gains model), use of reading achievement groups (or mathematics groups for the mathematics gains model), region of the country, location, and school's concentration of low-income students. The interactions effects tested are: 'program type x race/ethnicity,' 'program type x age,' 'program type x sex,' 'program type x fall reading (or mathematics) ability,' 'program type x class size,' 'program type x aide,' 'program type x aide x race/ethnicity,' 'program type x use of reading (or mathematics) groups.' The initial models were reduced to the final models presented in tables 5 and 7 using a backward elimination procedure. That is, non-significant effects were dropped from the model one at a time using the Wald statistic. Non-significant terms (p>.05) were not included in the final models presented. The regression coefficients, standard errors, and p-values presented in the footnotes accompanying statements about non-significant terms are those obtained when adding the terms to the final models presented in tables 5 and 7. There is no indication of multicollinearity between the independent variables tested in the models which would suggest that a variable was not included in the model due to it's close association with another variable in the model. The Variance Inflation Factors (VIF), which provide a measure of the degree of collinearity among independent variables all fall below the common cutoff threshold of 10.0 (Hair, Anderson, Tatham, and Black 1998). For all variables tested in the reading analysis, the VIF values ranged from 1.02 to 1.71, and for variables in the mathematic analyses the VIF values ranged from 1.01 to 1.74.

The HLM method allows the variance components at each level of a model to be analyzed. Chapter 5 presents the variance of gain scores that is associated with each level of the data (i.e., children within classrooms, classes within schools, and between schools) and the amount of variance at each level that can be attributed to the child and classroom characteristics specified in the models. Variance components are compared from one model to the next by calculating the change as a percent. For example, the school-level variance of mathematics gain scores after accounting for child-level characteristics is 1.80 and when program type is added to

the model this goes down to 1.49. This represents a change of 17 percent $(((1.80–1.48)/1.80)*100)$. This is interpreted to mean that after accounting for the relationship between child characteristics and mathematic score gains, program type accounts for 17 percent of the variation of mathematics score gains between schools.

Weights and Standard Errors

Chapters 2, 3 and 4

To produce the national school, child and class level estimates from the ECLS-K data that appear respectively in chapters 2, 3, and 4 of this report, the sample data were weighted. Weighting the data adjusts for unequal selection probabilities at the school and child level and adjusts for school, child, teacher and parent nonresponse. In addition to properly weighting the responses, special procedures for estimating the statistical significance of the estimates are employed because of the ECLS-K's complex sample design. Replication methods of variance estimation are used to reflect the sample design used in the ECLS-K. A form of the jackknife replication method (JK2) using 90 replicates is used to compute approximately unbiased estimates for the standard errors of the estimates using WesVarPC.

Chapter 5

The hierarchical linear model analyses presented in chapter 5 are weighted at the child level to account for unequal selection probabilities and nonresponse.[49] The multi-level nature of these analyses eliminates the need to take into account the complex design of the sample of schools and children when estimating variances since class- and school-level variation are accounted for in the models.[50] Reported standard errors and p-values for all coefficients are those produced using the HLM software (Bryk and Raudenbush 2002).

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[49] The child level weight C2BYCOM is normalized so that the sum of the weights equals the sample size.

[50] This approach does not take into account clustering associated with primary sampling units.

Variable Definitions

Each of the variables used in the report are defined below. Variables not discussed in the findings chapters but that appear in the accompanying tables of estimates (appendix A) are also defined here.

Chapter 2—School variables

Program type: Full-day or half-day kindergarten program type is determined for teachers from information provided by teachers in the fall and spring teacher questionnaires. Inconsistencies between rounds are resolved with information from the field management system used by ECLS-K field staff to schedule assessments. Schools that have at least one teacher that is identified as teaching a full-day class is classified as a full-day school and those that have at least one half-day teacher are classified as a half-day school. The estimates for the school level comparisons sum to more than 100 percent because these two categories are not mutually exclusive.

School type: Information from the school administrator questionnaire is used to categorize each school as either public, Catholic, other religious private or non-religious private. For cases where school administrator information is missing, school sample frame data are used to create this variable.

Region: States including in each region are as follows: the Northeast includes CT, ME, MA, NH, RI, VT, NJ, NY, PA; the Midwest includes IL, IN, MI, OH, WI, IA, KS, MN, MO, NE, ND, SD; the South includes DE, DC, FL, GA, MD, NC, SC, VA, WV, AL, KY, MS, TN, AR, LA, OK, TX; the West includes: AZ, CO, ID, MT, NV, NM, UT, WY, AK, CA, HA, OR, WA.

Location: This variable is assigned on the basis of the school's physical address, or mailing address, if the former is not reported. Location types are grouped into three categories in this report, Large and mid-sized cities, Suburbs/large towns, and Small town/rural.

Large and mid-sized cities

❖ Large city—central city of a metropolitan statistical area (MSA) or consolidated MSA (CMSA), with a population of at least 250,000.

- Midsize city—central city of an MSA or CMSA, with a population less than 250,000.

Suburbs/large town

- Urban fringe of a large or mid-sized city—any incorporated place, Census-designated place (CDP), or non-place territory within a CMSA or MSA of a large or mid-sized city and defined as urban by the U.S. Bureau of the Census.
- Large town—an incorporated place or CDP with a population of at least 25,000 and located outside a CMSA or MSA.

Small town/rural

- Small town—an incorporated place or CDP with a population between 2,500 and 24,999 and located outside a CMSA or MSA.
- Rural—any incorporated place, CDP, or non-place territory designated as rural by the U.S. Bureau of the Census.

School minority enrollment: Information from the school administrator questionnaire is used to create this variable. This variable represents the percent of children enrolled at all grade levels in the school who are identified as something other than "White, non-Hispanic."

School's concentration of low-income students: A standard indicator used for describing the income level of a school's student population is the percent of the students who are eligible for free or reduced-priced lunch. Eligibility for free or reduced-priced meals is based on household income which must be below 185 percent of the federal poverty level to qualify for reduced-priced meals and below 130 percent of the federal poverty level for free meals. For the purpose of this report, schools with 50 percent or more of the its total enrollment eligible for free or reduced priced meals are classified as high poverty schools and schools with between 0–49 percent of enrolled children eligible for free or reduced-priced meals are designated as non-high poverty schools. Administrators reported the number of children at their school who are eligible for free lunch and for reduced-priced lunch. The two values are added together and converted to a percent of the school's total enrollment. However, these items on the school administrator questionnaire have a high level of item non-response (these data are missing for approximately 38 percent of public schools). Schools qualify for school-wide Title I funding when 50 percent or more of the students are eligible for free or reduced-priced lunch. Thus, for schools where the free and reduced-priced lunch information is missing, participation in a "school-wide" Title I program is used as an indicator of whether the free or reduced-priced lunch eligibility is below or above 50 percent.

Chapter 3—Child variables

Full-day enrollment estimates were presented at the child-level by the school-level variables described above and by the following child-level variables.

Program type: Full-day or half-day kindergarten program type is determined for teachers from information provided by teachers in the fall and spring teacher questionnaires. Inconsistencies between rounds are resolved with information from the field management system used by ECLS-K field staff to schedule assessments. A child's program type is determined by the program type of the teacher to whom the child is linked.

Sex: This variable was obtained during the school visit and verified when necessary during the parent interview.

Mother's education: This variable is constructed using a question about the highest grade the mother had completed and for cases where she did not complete high school, whether the mother had obtained a high school equivalency degree. This information is collapsed into four categories: less than high school, high school diploma or equivalent, some college including vocational/technical training, and bachelor's degree or higher.

Primary language spoken in the home: A dichotomous variable is used to indicate whether or not English was the primary language spoken at

home. This composite is constructed by using responses to three questions in the parent interview: whether another language other than English was regularly spoken at home; if yes, whether English was also spoken at home; and if English and one or more other languages were spoken at home, which of those languages is considered the home's primary language.

Child's race/ethnicity: The race/ethnicity composite is computed using two parent-reported variables, ethnicity and race. Parents indicated whether the child is Hispanic and then selected one or more races. All Hispanic children are classified as Hispanic regardless of the race indicated and all non-Hispanic children who belong to more than one racial group are grouped in the "other" category for analyses in this report.

Diagnosed disability: This composite variable is derived from parent information on whether the child has been diagnosed by a professional as having problems with attention, activity level, coordination, speech, hearing, or vision, or has participated in therapy or programs form children with disabilities.

First time kindergartner: Approximately 5 percent of the kindergarten children in the study had also been in kindergarten the previous school year. Children that were not repeating kindergarten were designated as first time kindergartners. Both types of kindergartners are represented in chapter 3 where child-level estimates are presented. In chapter 5, however, only first time kindergartners are represented in the analyses of fall to spring gain scores.

Poverty status: The child poverty variable is based on the federal government's poverty threshold, which is calculated using household income and the number of people living in the household. Income is imputed for children for whom this information is missing using related data from the parent interview. In 1998, the poverty threshold for a family of four was $16,655. This variable has two categories, children whose household is at or above the poverty threshold and children whose household is below the poverty threshold.

Child's age at entry: This variable is the child's age at the beginning of the 1998–99 school year. This variable was constructed using two variables: month and year of birth.

Chapter 4—Class variables

Program type: Full-day or half-day kindergarten program type is determined for teachers from information provided by teachers in the fall and spring teacher questionnaires. Inconsistencies between rounds are resolved with information from the field management system used by ECLS-K field staff to schedule assessments. Morning and afternoon classes for teachers that teach two half-day classes are treated as two separate classes in this report. Teachers with two half-day classes provided the class composition information (percent minority and percent limited English proficiency), separately for each class.

Percent minority: Information from the teacher questionnaire is used to create this variable. This variable is the percent of children in the class who are identified as something other than "White, non-Hispanic."

Percent limited English proficient: Teachers provide information about the number of children in the class that have limited English proficiency. This number is converted into a percent of the class using the total class size composite variable described below.

Teacher's race/ethnicity: The teacher's race/ethnicity composite is computed using two items from the teacher questionnaire, ethnicity and race. Teacher's indicated whether they are Hispanic and then selected one or more races. All Hispanic teachers are classified as Hispanic regardless of the race indicated and all non-Hispanic teachers who belong to more than one racial group are grouped in the "other" category.

Teachers provided information about this and other background characteristics (highest degree, certification, and years teaching kindergarten) on questionnaires distributed in the fall. Teachers new to the study in the spring received questionnaires with these items during the spring data collection.

Teacher's highest degree: Teachers provided their highest level of education on the teacher questionnaire. The categories were collapsed to: bachelor's degree, master's degree, and doctorate or educational specialist degree. No public school teachers had less than a bachelor's degree as their highest education level.

Teacher certification: There are two separate variables for teachers certification: one indicating whether the teacher is certified in early childhood education and one indicating whether the teacher is certified in elementary education. This information comes from the teacher questionnaires.

Teachers' certification type: Teachers who report having a "regular" teaching certificate or "the highest certification available" were grouped into the category "fully certified." Teachers who report having a temporary, probational, provisional, or emergency certificate, or those who report having an alternative certification program are grouped into the category "other".[51]

Years teaching kindergarten: This variable is from a single question on the teacher questionnaire. The teachers provided the number of years, including the current school year, that they have taught kindergarten (including "transistional/readiness kindergarten" and "transistional/pre-1st grade").

Class size: Teachers with two half-day classes provided class size information separately for each class. This variable is derived from multiple teacher questionnaire items. Class size is based on the total enrollment item that follows the enrollment counts for students of different racial/ethnic backgrounds. For classes where this information was missing, the total enrollment item following the enrollment counts for students of different

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[51]The ECLS-K does not include teachers with probationary certificates in its estimate of teachers with full certification because probationary certificates were grouped along with temporary and emergency certification on the ECLS-K questionnaire. Published reports based on the 1999–2000 Schools and Staffing Survey (e.g., Seastrom et al. 2002) have treated teachers with probationary certificates as certified. Data from the 1999–2000 SASS indicate that 3 percent of public school kindergarten teachers in 1999–2000 who were certified had a probationary certificate.

ages was used. A third measure, the sum of the number of boys and the number of girls in the class was used when the other enrollment items are missing. This class size composite variable was then converted into a three-category variable: up to 17, 18–24, and 25+. The rationale for choosing these cut-off points is explained on page 52.

Classroom aides: Teachers provide information about three types of paid classroom aides—regular, special education and English as a second language (ESL) aides. Information about the aides in the class was collected in the spring of 1999. For this report, a class is identified as having one of these three types of aides if the aide is paid (as opposed to a volunteer), works directly with children on instructional tasks (as opposed to helping with non-instructional tasks) and spends at least an hour per day in the classroom. Teachers with two half-day classes did not provide this information separately for each class. It is assumed that teachers report this information for the entire day rather than for each class separately. Therefore, when constructing this variable teachers with two half-day classes had to report having the aide for at least *two* hours during the day in order to have the aide count for the two classes. An assumption is made for these teachers that an aide they have for two hours during the day spends about an hour in each of their two classes.

Classroom organization: In the spring of the kindergarten year, teachers report the amount of time per day their students spend in different types of teacher-directed activities—whole class, small group and individual—and the amount of time per day students spend in child-selected activities. The response categories for each of these four items are "no time," "half an hour or less," "about one hour," "about two hours," and "three or more hours." In order to create a time estimate that could be averaged, the five response categories are converted to minutes; 0, 15, 60, 120, and 180, respectively. The time spent in each of these different arrangements is reported both in terms of actual number of minutes and in terms of the percent of the total class time that is devoted to each activity. The total available time was calculated by adding the number of minutes across the

four variables. The percent of total time for each variable (whole class, small group, individual, or child-selected) was calculated by dividing the number of minutes for that variable by the number of sum of the minutes reported across the four variables. Teachers with two half-day classes did not report this information separately for each of their classes; it was assumed that their responses would be similar for each class and were linked to both of their classes as reported.

Grouping strategies: Teachers report the grouping strategies they use on the spring teacher questionnaire. Six variables are reported, three for reading instruction and three for mathematics instruction—mixed level groups, achievement groups, and peer tutoring. Teachers report the frequency that they use each of these grouping strategies and the responses for each are collapsed into three categories: 1) *daily*, 2) *weekly* ("two or three times a week" and "once a week"), and 3) *less than weekly* ("once a month," "two or three times a month" and "never"). Responses provided by teachers with two half-day classes were linked to both of their classes.

Subject areas—frequency: Teachers report the frequency their children have various subject areas on the spring teacher questionnaire. The subject areas are, reading language arts, mathematics, social studies, science, music, art, dance/creative movement, and theater/creative dramatics. For the purpose of this report the responses to these items are collapsed into three categories: 1) *daily*, 2) *weekly* ("two or three times a week" and "once a week"), and 3) *less than weekly* ("once a month," "two or three times a month" and "never"). Responses provided by teachers with two half-day classes were linked to both of their classes.

Subject areas—minutes per day: Teachers report the number of minutes their children spend on subject areas on the days that the subject area is taught. The number of minutes per day for reading and the number of minutes per day for mathematics are reported using the same response categories that appear on the questionnaire, "1–30 minutes a day," "31–60 minutes a day," "61–90 minutes a day," and "more than 90 minutes a day." In chapter four, these variables

are presented for all classes, without regard to the number of days the subject area is taught. Responses provided by teachers with two half-day classes were linked to both of their classes.

Reading and mathematics skills and activities: The variables for specific skills and activities discussed in chapter four and shown in figures B1 to B14 come from the spring teacher questionnaires. For the purpose of this report the responses to these items are collapsed into three categories: 1) daily, 2) weekly ("*two or three times a week*" and "*once a week*"), and 3) less than weekly ("*once a month,*" "*two or three times a month*" and "*never*"). The response categories for the list of skills differ slightly from the ones used for activities; "not taught" appears on the list of skills and is treated the same as "never" responses on the list of activities.

Additional variables for Chapter 5

Many of the variables used in the analyses described in chapter five are defined above (e.g., program type, class size, and child's race/ethnicity). The variables unique to chapter five are described below. Complete descriptions of every chapter 5 variable including how they are used in the context of the regression analyses appear in that chapter on pages 51 through 54.

Reading gain score: This is the difference between the child's spring and fall reading IRT scale scores. The fall and spring IRT scale scores represent estimates of the number of items students would have answered correctly if they had taken all of the 72 questions in the reading test.

Mathematics gain score: This is the difference between the child's spring and fall reading IRT scale scores. The fall and spring IRT scale scores represent estimates of the number of items students would have answered correctly if they had taken all of the 64 questions in the mathematics test.

Initial reading ability: The distribution of all children's fall reading scale scores are examined and three equal-sized groups are formed to represent low, middle and high initial reading ability groups.

Initial mathematics ability: Like reading, the distribution of all children's fall mathematics scale scores are examined and three equal-sized groups are formed to represent low, middle and high initial math ability groups.

Time lapse between assessments: The number of days between the fall and spring assessment dates is calculated and transformed so that 1 equals 180 days (approximately the mean time lapse) and other values represent a proportion of 180 days (e.g., 150 days = .83). This variable has values ranging from .64 to 1.46. See page 52 for a discussion about why this variable is included.

Relative time for reading instruction: This is a dichotomous classroom variable indicating whether or not the class spends a relatively large amount of time on reading/language arts instruction. This variable is based on teachers' responses to questions about the number of minutes per day and number of times per week they have reading instruction in their class. Since full-day and half-day classes do not have the same amount of total time during the day for instruction, the relative time for reading instruction variable is created separately for full-day and half-day programs. For full-day classes, the modal response for reading instruction is the category 61–90 minutes per day and for half-day classes the modal response category is 31–60 minutes per day. For the purpose of these analyses a full-day class is categorized as having "more" time for reading instruction, if reading is taught at least 3–4 times a week and more than 90 minutes per day. Half-day classes are categorized as having "more" time for reading instruction if reading is taught at least 3–4 times a week and more than 60 minutes per day.

Relative time for mathematics instruction: The distribution of responses for amount of time spent on mathematics instruction is examined to create a "time for math instruction" variable. The modal response for full-day classes is 31–60 minutes per day, so classes are coded as having "more" time for math instruction when math is taught more than 60 minutes per day (and at least 3–4 times per week). In half-day classes, the mode response is 1–30 minutes per day so these classes are classified as having "more" time for mathematics instruction if they have math for more than 30 minutes per day (and at least 3–4 times per week).