Summer schools

Moderate impact for moderate cost based on limited evidence

Summer schools are additional lessons or classes organised during the summer holidays.

Implementation cost

£ £ £ £ £

Evidence strength

Impact (months)

+3 months

Subject breakdown

maths: 17
reading: 51
toolkit: 59

School phase breakdown

primary: 46
secondary: 12
toolkit: 59

Technical Appendix

The criteria used to judge the inclusion of studies in the Toolkit are:

- The population sampled involved early years and school age learners from 3-18 learning in their first language.
- The intervention or approach being tested was educational in nature, including named or clearly defined programmes and recognisable approaches classifiable according to the Toolkit strand definitions (e.g. peer tutoring or small group teaching). The intervention or approach is undertaken in a normal educational setting or environment for the learners involved, such as a nursery or school or a typical setting (e.g. an outdoor field centre or museum).
- A valid comparison was made between those receiving the educational intervention or approach and those not receiving it.
- Outcomes include the assessment of educational or cognitive achievement which reports quantitative results from testing of attainment or learning outcomes, such as by standardised tests or other appropriate curriculum assessments or school examinations or appropriate cognitive measures.
- The study design provided a quantitative estimate of the impact of the intervention or approach on the educational attainment of the sample, calculated or estimated in the form of an effect size (standardised mean difference) based on a counterfactual comparison.

Standardised mean differences and confidence intervals for the most appropriate estimates of the impact of the intervention or approach for the Toolkit were extracted from each included study, along with other study variables. These effect sizes were further synthesised into a single pooled effect using a random effects meta-analysis adopting a restricted maximum likelihood (REML) estimation methods.For the full details of the methodology see the Protocol and Analysis Plan (https://educationendowmentfoundation.org.uk/public/files/Toolkit/EEF_Evidence_Database_Protocol_and_Analysis_Plan_June2019.pdf) .

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References (59)

The forest plot below is a graphical representation of the results of all included studies in this Toolkit strand. It shows the effect size and confidence interval of each study, and whether the particular intervention in that study was more or less effective than standard practice or other alternative interventions that the study looked at.

Studies that show an effect size result on the right-hand side of the red vertical red indicate that the particular intervention studied was more effective than standard practice. Studies that show an effect size on the left-hand size of the red vertical indicate that the particular intervention studied was less effective than standard practice.

Author	Title	Effect Size	Effect Size (Graph)
Ugel (1999)	The effects of a multicomponent reading intervention on the reading achievement of middle school students with reading disabilities *(NA)*	**Effect Size**: 1.759 **LCI**: 1.084 **UCI**: 2.433 **Weight**: 1.101 **Standard error**: 0.344	
Schacter (2005)	Learning When School Is Not in Session: A Reading Summer Day-Camp Intervention to Improve the Achievement of Exiting First-Grade Students Who Are Economically Disadvantaged *(Journal of Research in Reading)*	**Effect Size**: 1.099 **LCI**: 0.709 **UCI**: 1.488 **Weight**: 1.673 **Standard error**: 0.199	
Luftig (2003) 1_1	When a little bit means a lot: The effects of a short-term reading program on economically disadvantaged elementary schoolers *(Reading Research and Instruction)*	**Effect Size**: 1.065 **LCI**: 0.355 **UCI**: 1.776 **Weight**: 1.043 **Standard error**: 0.362	
Zvoch (2013)	Summer school effects in a randomized field trial *(Early Childhood Research Quarterly)*	**Effect Size**: 1.05 **LCI**: 0.385 **UCI**: 1.716 **Weight**: 1.116 **Standard error**: 0.34	
Cleary (2001)	Providing phonemic awareness instruction to pre -first graders: An extended -year kindergarten program *(NA)*	**Effect Size**: 0.981 **LCI**: 0.431 **UCI**: 1.531 **Weight**: 1.33 **Standard error**: 0.281	
Waters (2004)	The effect of the Second Grade Summer School program on the reading achievement of at -risk second-grade students *(NA)*	**Effect Size**: 0.964 **LCI**: 0.336 **UCI**: 1.591 **Weight**: 1.183 **Standard error**: 0.32	

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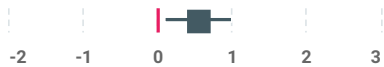
Author	Title	Effect Size	Effect Size (Graph)
Riley (1997)	Student achievement and attitudes in mathematics: An evaluation of the Twenty-first Century Mathematics Center for Urban High Schools *(NA)*	**Effect Size**: 0.945 **LCI**: 0.614 **UCI**: 1.277 **Weight**: 1.801 **Standard error**: 0.169	
Luftig (2003) 1_2	When a little bit means a lot: The effects of a short-term reading program on economically disadvantaged elementary schoolers *(Reading Research and Instruction)*	**Effect Size**: 0.935 **LCI**: 0.555 **UCI**: 1.316 **Weight**: 1.692 **Standard error**: 0.194	
Morris (1966) SS	Evaluation of changes occurring in children who participated in project Head Start *(NA)*	**Effect Size**: 0.917 **LCI**: 0.206 **UCI**: 1.628 **Weight**: 1.042 **Standard error**: 0.363	
Li (2009)	Effects of Summer Academic Programs in Middle School on High School Test Scores, Course-Taking, and College Major *(Journal of Advanced Academics)*	**Effect Size**: 0.718 **LCI**: 0.548 **UCI**: 0.889 **Weight**: 2.116 **Standard error**: 0.087	
Linder (2004)	Informing policymakers of the value of summer school in the recoupment of reading skills *(NA)*	**Effect Size**: 0.62 **LCI**: 0.189 **UCI**: 1.051 **Weight**: 1.58 **Standard error**: 0.22	
Shelton (1997)	An analysis of the impact of an at-risk treatment program on self-esteem and its effects on attitudes toward study skills, attendance, academic achievement and behavior of entering ninth-grade students *(NA)*	**Effect Size**: 0.54 **LCI**: 0.089 **UCI**: 0.991 **Weight**: 1.537 **Standard error**: 0.23	
Jacob (2004)	Remedial Education and Student Achievement: A Regression-Discontinuity Analysis *(The Review of Economics and Statistics)*	**Effect Size**: 0.507 **LCI**: 0.47 **UCI**: 0.544 **Weight**: 2.251 **Standard error**: 0.019	
Dwight (2010)	Using a summer extended year program to increase learning for Title I students *(NA)*	**Effect Size**: 0.494 **LCI**: -0.08 **UCI**: 1.069 **Weight**: 1.282 **Standard error**: 0.293	
Hyman (1967) OL	First grade readiness of children who have had summer head start programs *(The Training school bulletin)*	**Effect Size**: 0.466 **LCI**: -0.163 **UCI**: 1.095 **Weight**: 1.18 **Standard error**: 0.321	

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Author	Title	Effect Size	Effect Size (Graph)
Tyler (1966)	Human development project . *(NA)*	**Effect Size**: 0.452 **LCI**: 0.238 **UCI**: 0.665 **Weight**: 2.043 **Standard error**: 0.109	
Melosh (2003)	Summer books! Stemming reading loss in high -poverty second graders through access to appropriate books during the summer vacation *(NA)*	**Effect Size**: 0.44 **LCI**: -0.148 **UCI**: 1.028 **Weight**: 1.256 **Standard error**: 0.3	
Beach (2004)	The effects of a school district's kindergarten readiness summer program on phonological awareness skills of at-risk prekindergarten students: A regression discontinuity analysis *(NA)*	**Effect Size**: 0.419 **LCI**: 0.174 **UCI**: 0.664 **Weight**: 1.983 **Standard error**: 0.125	
Hink (1986)	A systematic, time-extended study of a remedial reading and math summer school program *(Education, Curriculum & Instruction)*	**Effect Size**: 0.411 **LCI**: -0.044 **UCI**: 0.865 **Weight**: 1.529 **Standard error**: 0.232	
Rembert (1986)	Effects of an academic summer camp experience on Black students' high school scholastic performance and subsequent college attendance decisions *(College Student Journal)*	**Effect Size**: 0.404 **LCI**: 0.064 **UCI**: 0.745 **Weight**: 1.781 **Standard error**: 0.174	
Borman (2009)	Halting the Summer Achievement Slide: A Randomized Field Trial of the KindergARTen Summer Camp *(Journal of Education for Students Placed at Risk)*	**Effect Size**: 0.4 **LCI**: -0.952 **UCI**: 1.752 **Weight**: 0.432 **Standard error**: 0.69	
Zvoch (2011)	Summer School and Summer Learning: An Examination of the Short- and Longer Term Changes in Student Literacy *(Early Education and Development)*	**Effect Size**: 0.4 **LCI**: 0.224 **UCI**: 0.576 **Weight**: 2.107 **Standard error**: 0.09	
David (1974) 1_1	Summer study: a two-part investigation of the impact of exposure to schooling on achievement growth *(NA)*	**Effect Size**: 0.392 **LCI**: -0.183 **UCI**: 0.968 **Weight**: 1.28 **Standard error**: 0.294	
Winston (1963)	Meeting Needs of Gifted: A Non-Structured Summer Program. 1962-1963 School Year *(NA)*	**Effect Size**: 0.38 **LCI**: -0.012 **UCI**: 0.772 **Weight**: 1.667 **Standard error**: 0.2	

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Author	Title	Effect Size	Effect Size (Graph)
Mitchell (1968) SS	A longitudinal study of the effects of nonpromotion and remedial summer school on educational achievement in the elementary schools of Rapid City *(NA)*	**Effect Size**: 0.295 **LCI**: 0.07 **UCI**: 0.52 **Weight**: 2.022 **Standard error**: 0.115	
Kociemba (1995)	The impact of compensatory summer school on student achievement: Grades 2 and 5 in the Minneapolis Public Schools *(NA)*	**Effect Size**: 0.293 **LCI**: 0.072 **UCI**: 0.515 **Weight**: 2.028 **Standard error**: 0.113	
Leviton (1973)	The effect of a summer compensatory education program on academic achievement and self-concept of primary grade learning disabled children with follow-up study *(NA)*	**Effect Size**: 0.287 **LCI**: -0.206 **UCI**: 0.78 **Weight**: 1.447 **Standard error**: 0.251	
Allerhand (1965) SS	Impact of summer 1965 Head Start on children's concept attainment during kindergarten *(NA)*	**Effect Size**: 0.282 **LCI**: -0.055 **UCI**: 0.62 **Weight**: 1.788 **Standard error**: 0.172	
Torgerson (2014)	Discover Summer School: Evaluation report and executive summary *(NA)*	**Effect Size**: 0.21 **LCI**: -0.41 **UCI**: 0.83 **Weight**: 1.196 **Standard error**: 0.316	
Bakle (2010)	Summer learning loss: The influence of summer school programs on student achievement in language usage, math, and reading *(NA)*	**Effect Size**: 0.192 **LCI**: 0.095 **UCI**: 0.29 **Weight**: 2.209 **Standard error**: 0.05	
Gorard (2014)	Future Foundations: Evaluation report and executive summary *(NA)*	**Effect Size**: 0.172 **LCI**: -0.051 **UCI**: 0.396 **Weight**: 2.025 **Standard error**: 0.114	
Seward (2009)	Evaluating the effectiveness of a short-duration reading intervention on grade one phonological awareness and word reading *(NA)*	**Effect Size**: 0.162 **LCI**: -0.278 **UCI**: 0.603 **Weight**: 1.559 **Standard error**: 0.225	
Williams (1977)	Summer school attendance and the retention of reading skills of selected fourth-grade students *(NA)*	**Effect Size**: 0.15 **LCI**: -0.12 **UCI**: 0.421 **Weight**: 1.931 **Standard error**: 0.138	

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Author	Title	Effect Size	Effect Size (Graph)
Maxwell (2014)	Summer Active Reading Programme: Evaluation report and executive summary *(NA)*	**Effect Size**: 0.13 **LCI**: -0.121 **UCI**: 0.381 **Weight**: 1.972 **Standard error**: 0.128	
Matsudaira (2008)	Mandatory summer school and student achievement *(Journal of econometrics)*	**Effect Size**: 0.122 **LCI**: -0.427 **UCI**: 0.671 **Weight**: 1.332 **Standard error**: 0.28	
Harlow (2001)	The Effectiveness of the Wake Summerbridge Summer Enrichment Program. *(Eye on Evaluation, Evaluation and Research Department, Wake County Public School System.)*	**Effect Size**: 0.121 **LCI**: -0.027 **UCI**: 0.27 **Weight**: 2.149 **Standard error**: 0.076	
Branch (1986)	Summer Training and Education Program (STEP). Report on the 1985 Summer Experience *(NA)*	**Effect Size**: 0.104 **LCI**: 0.002 **UCI**: 0.205 **Weight**: 2.206 **Standard error**: 0.052	
Chaplin (2006)	Impacts of a summer learning program: a random assignment study of building educated leaders for life (BELL) *(NA)*	**Effect Size**: 0.08 **LCI**: -0.003 **UCI**: 0.163 **Weight**: 2.223 **Standard error**: 0.043	
Mariano (2013) SS	The Academic Effects of Summer Instruction and Retention in New York City *(Educational Evaluation and Policy Analysis)*	**Effect Size**: 0.069 **LCI**: 0.053 **UCI**: 0.085 **Weight**: 2.257 **Standard error**: 0.008	
Borman (2006)	Longitudinal achievement effects of multiyear summer school: Evidence from the Teach Baltimore randomized field trial *(Educational Evaluation and Policy Analysis)*	**Effect Size**: 0.055 **LCI**: -0.158 **UCI**: 0.268 **Weight**: 2.044 **Standard error**: 0.109	
Durand (2002)	The effect of the Summer Reading Academy on the reading achievement of struggling third grade readers *(NA)*	**Effect Size**: 0.055 **LCI**: -0.217 **UCI**: 0.327 **Weight**: 1.929 **Standard error**: 0.139	
Allen (2003)	At -risk kindergartners: Effects of an intervention program on early literacy acquisition *(NA)*	**Effect Size**: 0.04 **LCI**: -0.691 **UCI**: 0.77 **Weight**: 1.012 **Standard error**: 0.373	

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Author	Title	Effect Size	Effect Size (Graph)
Porter (1965) SS	Evaluation of Headstart educational program in Cambridge, Massachusetts. Final report *(NA)*	**Effect Size**: 0.029 **LCI**: -0.454 **UCI**: 0.511 **Weight**: 1.469 **Standard error**: 0.246	
Brody (1984)	The effects of an intensive summer program on the sat scores of gifted seventh graders (aptitude, acceleration) *(NA)*	**Effect Size**: 0.022 **LCI**: -0.293 **UCI**: 0.338 **Weight**: 1.836 **Standard error**: 0.161	
Womble (1977)	Summer Recess: Does it Make a Difference on Title I Student Achievement? *(NA)*	**Effect Size**: 0 **LCI**: -0.163 **UCI**: 0.163 **Weight**: 2.127 **Standard error**: 0.083	
Paris (2004)	Assessing the effectiveness of summer reading programs *(Summer Learning: Research, Policies, and Programs)*	**Effect Size**: -0.019 **LCI**: -0.21 **UCI**: 0.172 **Weight**: 2.083 **Standard error**: 0.097	
Cline (1968) SS	An evaluation and follow-up study of summer 1966 Head Start children in Washington, DC *(NA)*	**Effect Size**: -0.021 **LCI**: -0.311 **UCI**: 0.269 **Weight**: 1.891 **Standard error**: 0.148	
Meehan (2005)	The impact of an intensive literacy program on the sustained reading achievement of second-grade students *(NA)*	**Effect Size**: -0.057 **LCI**: -0.872 **UCI**: 0.758 **Weight**: 0.892 **Standard error**: 0.416	
LeBoff (1995)	The effectiveness of a six-week summer school program on the achievement of urban, inner-city third-grade children *(NA)*	**Effect Size**: -0.077 **LCI**: -0.177 **UCI**: 0.024 **Weight**: 2.207 **Standard error**: 0.051	
Culp (1973)	An analysis of student achievement in arithmetic and reading as a result of summer school instruction in a selected Indiana city *(NA)*	**Effect Size**: -0.105 **LCI**: -0.355 **UCI**: 0.146 **Weight**: 1.972 **Standard error**: 0.128	
D'Agostino (1995)	Advanced-Skill Instruction in Chapter 1 Summer Programs and Student Achievement *(NA)*	**Effect Size**: -0.128 **LCI**: -0.236 **UCI**: -0.02 **Weight**: 2.199 **Standard error**: 0.055	

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Author	Title	Effect Size	Effect Size (Graph)
Howes (1989)	Intervention procedures to enhance summer reading achievement *(NA)*	**Effect Size**: -0.141 **LCI**: -0.433 **UCI**: 0.152 **Weight**: 1.886 **Standard error**: 0.149	
Fonzi (1984)	The effect of summer school attendance on state student assessment test performance by grades three and five learning disabled students *(NA)*	**Effect Size**: -0.174 **LCI**: -0.318 **UCI**: -0.03 **Weight**: 2.155 **Standard error**: 0.074	
Haymon (2009)	The impact of summer school on student academic achievement *(NA)*	**Effect Size**: -0.188 **LCI**: -0.696 **UCI**: 0.319 **Weight**: 1.417 **Standard error**: 0.259	
Ellers (2009)	The effects of a standards -based middle-level summer school program as an intervention to increase academic achievement as measured by standards-based assessments *(NA)*	**Effect Size**: -0.198 **LCI**: -0.557 **UCI**: 0.161 **Weight**: 1.741 **Standard error**: 0.183	
Opalinski (2006)	The effects of a middle school summer school program on the achievement of NCLB identified subgroups *(NA)*	**Effect Size**: -0.199 **LCI**: -0.415 **UCI**: 0.017 **Weight**: 2.039 **Standard error**: 0.11	
David (1974) 1_2	Summer study: a two-part investigation of the impact of exposure to schooling on achievement growth *(NA)*	**Effect Size**: -0.272 **LCI**: -1.005 **UCI**: 0.461 **Weight**: 1.008 **Standard error**: 0.374	
Zia (1999)	Instruction and Student Achievement in a Summer School Mathematics Program *(ERS Spectrum)*	**Effect Size**: -0.43 **LCI**: -0.45 **UCI**: -0.41 **Weight**: 2.256 **Standard error**: 0.01	
Reed (2001)	The relationship between participation in a developmental reading summer school program and reading achievement among low-achieving first grade students *(NA)*	**Effect Size**: -0.471 **LCI**: -0.945 **UCI**: 0.003 **Weight**: 1.487 **Standard error**: 0.242	

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