

## SCHOOL MEALS AND ACADEMIC PERFORMANCE

More and more evidence supports an association between nutrition and student academic performance. Among the findings from a variety of studies:

- Improving school meals can make an almost immediate difference in students' academic achievement.<sup>9</sup>
- Inadequate consumption of key food groups deprives children of essential vitamins, minerals, fats, and proteins that are necessary for optimal cognitive function.<sup>10</sup>
- Increased fruit and vegetable consumption and reduced dietary fat intake have been significantly linked to improved academic performance.<sup>11</sup>
- Increases in participation in school breakfast programs are associated with increases in math and reading test scores, daily attendance, class participation, and reductions in tardiness and absenteeism.<sup>12 13</sup>
- Children who eat breakfast at school perform better on standardized tests than those who skip breakfast or eat breakfast at home.<sup>14</sup>
- Dietary intake is likely to work synergistically in combination with other factors such as physical activity and sleep.<sup>15</sup>
- Undernourished children are more likely to be hyperactive, absent, or tardy; have more behavioral problems; repeat a grade; and require more special education and mental health services.<sup>16</sup>
- Anemic children tend to do poorly on vocabulary, reading, and other tests. Iron deficiency can increase fatigue, shorten attention span, decrease work capacity, reduce resistance to infection, and impair intellectual performance.<sup>17</sup>
- Nutrient deficiencies, refined sugars and carbohydrates, pesticide residues, preservatives, and artificial colorings in food have all been associated with altered thinking and behavior and with neurodevelopmental disorders such as Attention Deficit/Hyperactivity Disorder.<sup>18</sup>



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- Schools that removed soft drinks from vending machines experienced less tardiness, fewer disciplinary referrals, and higher math scores.<sup>19</sup>
- Food insecure children learn at a slower rate than their peers, leaving them further and further behind as they progress through the educational system.<sup>20</sup>
- Adolescent students who consider themselves overweight or obese—whether or not they meet standard medical definitions—have been found to have lower grades.<sup>21</sup>



## SCHOOL MEALS AND STUDENT NUTRITION AND HEALTH

Research is demonstrating significant links between students' diets, including school meals, and their health. Among the findings from a variety of studies:

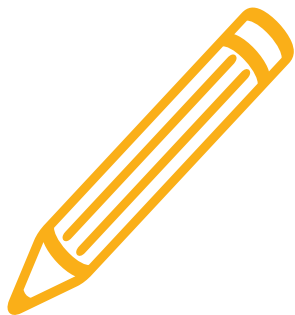
- Fewer than 10 percent of California children consume the minimum recommended daily servings of fruits and vegetables, according to a 2009 report of the Centers for Disease Control and Prevention.<sup>23</sup>
- Participants in National School Breakfast and Lunch programs are less likely to have nutrient inadequacies; more likely to consume fruit, vegetables, and milk; and less likely to consume desserts and snack food than children who do not.<sup>24</sup>
- Students who eat school meals provided through the National School Lunch Program and the School Breakfast Program are more likely to be at a healthy weight.<sup>26</sup> Students are less likely to gain weight during the school year when in school than during the summer when school is out.<sup>27</sup>
- When schools offered snacks in lunchtime à la carte or vending that were mostly or entirely healthful, students responded with improvements in their diets.<sup>28</sup>
- Low-income school-aged children have better overall diet quality than those who eat breakfast elsewhere or skip breakfast.<sup>29</sup>
- School-aged children have a higher daily intake of fruit, vegetables, milk, and key nutrients like calcium, vitamin A, and folate on days they eat federally funded supper at afterschool programs compared with days they do not.<sup>30</sup>
- In 2010, more than one-third of children and adolescents in the US were overweight or obese,<sup>31</sup> but authorities credit recent changes in school food with a leveling or decrease in obesity in several cities and states.<sup>32 33</sup>
- Obese children are more likely to have bone fractures that keep them away from school<sup>34</sup> and more likely to develop hypertension, diabetes, sleep apnea, menstrual abnormalities, impaired balance, and



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orthopedic problems at an earlier age than their normal-weight peers.<sup>35</sup>

- Overweight children may experience increased bullying, which is related to poorer mental health and decreased physical activity.<sup>36</sup>
- While obesity affects both genders and all racial and age groups, low-income children and food insecure children may be at even greater risk.<sup>37</sup>
- Poor oral health has been associated with decreased school performance, difficulty remaining alert and engaged in a learning environment, and poor self-esteem.<sup>38</sup>



## NOTES

<sup>1</sup> R.R. Briefel, et al (2009). “School Food Environments and Practices Affect Dietary Behaviors of US School Children.” *Journal of the American Dietary Association*, 109 (2 Suppl.), pp. 91–107.

<sup>2</sup> Action for Healthy Kids (2012). *The Learning Connection: What You Need to Know to Ensure Your Kids Are Healthy and Ready to Learn*, p. 8.

[www.actionforhealthykids.org/storage/documents/pdfs/afhk\\_thelearningconnection\\_digitaledition.pdf](http://www.actionforhealthykids.org/storage/documents/pdfs/afhk_thelearningconnection_digitaledition.pdf).

<sup>3</sup> A. Coleman-Jensen, et al (2013). “Household Food Security in the United States 2012.” US Department of Agriculture Economic Research Service. [www.ers.usda.gov/publications/err-economic-research-report/err155.aspx#.Uml1LCS4B\\_k](http://www.ers.usda.gov/publications/err-economic-research-report/err155.aspx#.Uml1LCS4B_k).

<sup>4</sup> Food Research and Action Center (2010). “How Improving Federal Nutrition Program Access and Quality Work Together to Reduce Hunger and Promote Healthy Eating,” p. 4.

[www.frac.org/pdf/CNR01\\_qualityandaccess.pdf](http://www.frac.org/pdf/CNR01_qualityandaccess.pdf).

<sup>5</sup> Ecotrust. “The Impacts of Seven Cents.” [http://www.ecotrust.org/farmentoschool/downloads/Kaiser-ReportFINAL\\_110630.pdf](http://www.ecotrust.org/farmentoschool/downloads/Kaiser-ReportFINAL_110630.pdf).

<sup>6</sup> Field Research Corporation (2013). “Nationwide Findings from the 2013 Kaiser Permanente Childhood Obesity Prevention Survey,” pp. 6–8. [xnet.kp.org/newscenter/pressreleases/nat/2013/downloads/2013-KP-Childhood-Obesity-Prevention-Survey-Findings.pdf](http://xnet.kp.org/newscenter/pressreleases/nat/2013/downloads/2013-KP-Childhood-Obesity-Prevention-Survey-Findings.pdf).

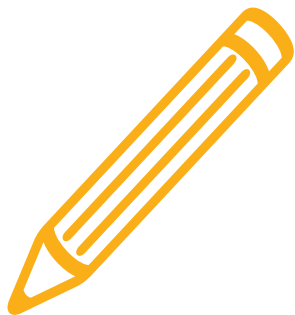
<sup>7</sup> Michael K. Stone/Center for Ecoliteracy (2009). *Smart by Nature* (Healdsburg, CA: Watershed Media), p. 134.

<sup>8</sup> James F. Bogden, Martine Brizius, and Elizabeth M. Walker (2012). *Fit, Healthy, and Ready to Learn* (Arlington, VA: National Association of State Boards of Education), Chapter E, p. 5.

[www.nasbe.org/wp-content/uploads/FHRTL-E\\_Healthy-Eating\\_NASBE\\_November-2012.pdf](http://www.nasbe.org/wp-content/uploads/FHRTL-E_Healthy-Eating_NASBE_November-2012.pdf).

<sup>9</sup> Michèle Belot and Jonathan James (2011). “Healthy School Meals and Educational Outcomes.” *Journal of Health Economics* 303(3), pp. 489–504.

<sup>10</sup> V.J. Drake (2011). “Micronutrients and Cognitive Function.” *Linus Pauling Institute Research Newsletter*, Oregon State University.



## NOTES

lpi.oregonstate.edu/ss11/cognitive.html. Cited in California School Boards Association (2012). *Student Wellness: A Healthy Food and Physical Activity Policy Resource Guide*, p. 5.

<sup>11</sup> M.D. Florence, M. Asbridge, and P.J. Veugelers (2008). “Diet Quality and Academic Performance.” *Journal of School Health* 78(4), p. 213. [onlinelibrary.wiley.com/doi/10.1111/j.1746-1561.2008.00288.x/abstract](http://onlinelibrary.wiley.com/doi/10.1111/j.1746-1561.2008.00288.x/abstract).

<sup>12</sup> California School Boards Association (2012). *Student Wellness: A Healthy Food and Physical Activity Policy Resource Guide*, p. 5. [The publication cites eight references on this point.]

<sup>13</sup> David E. Frisvold (2012). “Nutrition and Cognitive Achievement: An Evaluation of the School Breakfast Program.” Working paper, Emory University. [www.econ.gatech.edu/files/seminars/Frisvold\\_SP2012.pdf](http://www.econ.gatech.edu/files/seminars/Frisvold_SP2012.pdf).

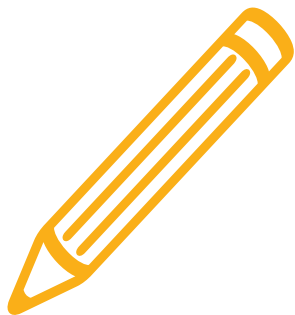
<sup>14</sup> N. Vaisman, H. Voet, A. Akivis, and E. Vakil (1996). “Effects of Breakfast Timing on Cognitive Functioning of Elementary School Students.” *Archives of Pediatric and Adolescent Medicine* 150, pp.1089–1092. Cited in Food Research & Action Center (2011). “Child Nutrition Fact Sheet: Breakfast for Learning.” [frac.org/wp-content/uploads/2009/09/breakfastforlearning.pdf](http://frac.org/wp-content/uploads/2009/09/breakfastforlearning.pdf).

<sup>15</sup> Charles E. Basch (2010). *Healthier Students Are Better Learners: A Mission Link in School Reforms to Close the Achievement Gap*. The Campaign for Educational Equity, Teachers College, Columbia University, p. 50. [www.equitycampaign.org/i/a/document/12557\\_equitymattersvol6\\_web03082010.pdf](http://www.equitycampaign.org/i/a/document/12557_equitymattersvol6_web03082010.pdf).

<sup>16</sup> Food Research & Action Center (2011). “Child Nutrition Fact Sheet: Breakfast for Learning.” [frac.org/wp-content/uploads/2009/09/breakfastforlearning.pdf](http://frac.org/wp-content/uploads/2009/09/breakfastforlearning.pdf).

<sup>17</sup> K.B. Troccoli (1993). *Eat to Learn, Learn to Eat: The Link between Nutrition and Learning in Children*. National Health/Education Consortium. Also J.M. Murphy, et al (1998). “The Relationship of School Breakfast to Psychosocial and Academic Functioning.” *Archives of Pediatric Adolescent Medicine* 152, pp. 899–907. Cited in California School Boards Association (2012). *Student Wellness: A Healthy Food and Physical Activity Policy Resource Guide*, p. 5.

<sup>18</sup> Alan Greene. “Brain Food for Children.” Center for Ecoliteracy. [www.ecoliteracy.org/essays/brain-food-kids](http://www.ecoliteracy.org/essays/brain-food-kids).



## NOTES

<sup>19</sup> Joshua Price (2012). “De-fizzing Schools: The Effect on Student Behavior of Having Vending Machines in Schools.” *Agricultural and Resource Economics Review* 41(1), pp.92–99. [ageconsearch.umn.edu/bitstream/123316/2/price,%20joshua%20-%20current.pdf](http://ageconsearch.umn.edu/bitstream/123316/2/price,%20joshua%20-%20current.pdf).

<sup>20</sup> K. Alaimo, et al (2001). “Food insufficiency and American School-Aged Children’s Cognitive, Academic, and Psychosocial Development.” *Pediatrics* 108(1), pp. 44-53. Cited in Carolyn Murphy, Stephanie Ettinger de Cuba, and John Cook (2008). *Reading, Writing, and Hungry: The Consequences of Food Insecurity on Children, and on Our Nation’s Economic Success*. (New York: Partnership for America’s Economic Success), p. 25. [frac.org/newsite/wp-content/uploads/2010/03/reading\\_writing\\_hungry\\_report.pdf](http://frac.org/newsite/wp-content/uploads/2010/03/reading_writing_hungry_report.pdf).

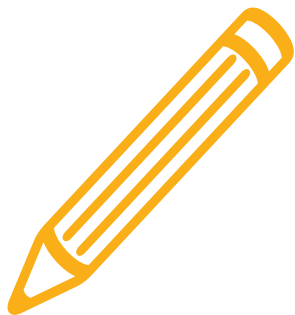
<sup>21</sup> T.A. Florin, J. Shults, and N. Stettler (2011). “Perception of Overweight Is Associated with Poor Academic Performance in US Adolescents.” *Journal of School Health* 81, pp. 663–670.

<sup>22</sup> California School Boards Association (2012). *Student Wellness: A Healthy Food and Physical Activity Policy Resource Guide*, p. 10.

<sup>23</sup> University of California Division of Agriculture and Natural Resources (2013). “Farm to School Programs Increase Children’s Access to Fresh, Seasonal Produce.” [ucanr.org/?blogpost=11806&blogasset=60503](http://ucanr.org/?blogpost=11806&blogasset=60503).

<sup>24</sup> M.A. Clark and M.K. Fox (2009). “Nutritional Quality of the Diets of US Public School Children and the Role of the School Meal Programs.” *Journal of the American Dietetic Association* 109(2 Supplement 1), pp. S67–S78. Cited in Food Research and Action Center (2010). “How Improving Federal Nutrition Program Access and Quality Work Together to Reduce Hunger and Promote Healthy Eating,” p. 2. [www.frac.org/pdf/CNR01\\_qualityandaccess.pdf](http://www.frac.org/pdf/CNR01_qualityandaccess.pdf).

<sup>25</sup> E.M. Condon, M.K. Crepinsek, and M.K. Fox (2009). “School Meals: Types of Foods Offered to and Consumed by Children at Lunch and Breakfast.” *Journal of the American Dietetic Association* 109(2 Supplement 1), pp. S67–S78. Cited in Food Research and Action Center (2010). “How Improving Federal Nutrition Program Access and Quality Work Together to Reduce Hunger and Promote Healthy Eating,” p. 2. [www.frac.org/pdf/CNR01\\_qualityandaccess.pdf](http://www.frac.org/pdf/CNR01_qualityandaccess.pdf).



## NOTES

<sup>26</sup> Sonja J. Jones (2003). “Lower Risk of Overweight in School-aged Food Insecure Girls Who Participate in Food Assistance.” *Archives of Pediatric and Adolescent Medicine*, August 2003. Cited in School Nutrition Association. “School Meals Proven a Healthy Choice.” [www.schoolnutrition.org/Content.aspx?id=6926](http://www.schoolnutrition.org/Content.aspx?id=6926).

<sup>27</sup> *Journal of the American Dietetic Association*, February 2009. Cited in School Nutrition Association (2013). “School Lunch Across the USA.” [www.schoolnutrition.org/Level2\\_NSLW2013.aspx?id=18467](http://www.schoolnutrition.org/Level2_NSLW2013.aspx?id=18467).

<sup>28</sup> Kathleen Lees (2013). “You Are What You Eat: Schools with Healthy Options Have Healthy Students.” *Scienceworldreport*, November 13, 2013. <http://www.scienceworldreport.com/articles/10879/20131113/you-are-what-you-eat-schools-with-healthy-options-have-healthy-students.htm>.

<sup>29</sup> P.P. Basiotis, M. Lino, and R.S. Anand (1999). “Eating Breakfast Greatly Improves Schoolchildren’s Diet Quality.” *Nutrition Insight* 15. US Department of Agriculture, Center for Nutrition Policy and Promotion. [washington.edu/nutr531/StartStrong/Nutrition\\_Insight.pdf](http://www.washington.edu/nutr531/StartStrong/Nutrition_Insight.pdf).

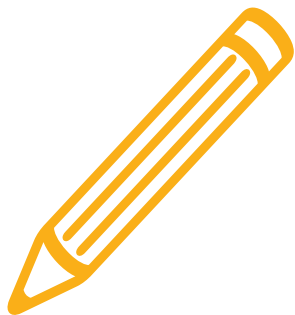
<sup>30</sup> M.L.K. Plante and K.S. Bruening (2004). “Supper Meal Improves Diets of Children at Nutritional Risk.” *Journal of the American Dietetic Association* 104(Supplement 2), p. 42. Cited in Food Research and Action Center (2010). “How Improving Federal Nutrition Program Access and Quality Work Together to Reduce Hunger and Promote Healthy Eating,” p. 2. [www.frac.org/pdf/CNR01\\_qualityandaccess.pdf](http://www.frac.org/pdf/CNR01_qualityandaccess.pdf).

<sup>31</sup> C.L. Ogden, M.D. Carroll, B.K. Kit, and K.M. Flegal (2012). “Prevalence of Obesity and Trends in Body Mass Index among US Children and Adolescents, 1999-2010.” *Journal of the American Medical Association* 307(5), pp. 483–490. [jama.jamanetwork.com/article.aspx?articleid=1104932](http://jama.jamanetwork.com/article.aspx?articleid=1104932).

<sup>32</sup> Nanci Hellmich (2012). “Childhood Obesity Declines in Several States, Cities.” *USA Today*, October 24, 2012. <http://www.usatoday.com/story/news/nation/2012/10/24/childhood-obesity-declines/1652955/>.

<sup>33</sup> Jennifer Lubell (2013). “Victories against Childhood Obesity, but Harder to Find among Poor.” *American Medical News*. American Medical Association, July 19, 2013. [www.amednews.com/article/20130719/government/130719965/8/](http://www.amednews.com/article/20130719/government/130719965/8/). Factors cited to explain a 5-percent decline in Philadelphia between 2006 and 2010 include removing sodas and other sugar-sweetened drinks from vending machines in public schools,





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banning deep fryers in school kitchens, switching to lower-fat milk, and establishing a districtwide school wellness policy.

<sup>34</sup> F.R. Greer and N.F. Krebs (2006). “Optimizing Bone Health and Calcium Intakes of Infants, Children, and Adolescents.” *Pediatrics*, February, 2006; 117(2), pp. 578–585.  
[pediatrics.aappublications.org/content/117/2/578.full.pdf](http://pediatrics.aappublications.org/content/117/2/578.full.pdf).

<sup>35</sup> Committee on Prevention of Obesity in Children and Youth (2005). *Preventing Childhood Obesity: Health in the Balance* (Washington, DC: National Academies Press), pp. 66–67. Cited in James F. Bogden, Martine Brizius, and Elizabeth M. Walker (2012). *Fit, Healthy, and Ready to Learn* (Arlington, Virginia: National Association of State Boards of Education), Chapter E, p. 9.  
[www.nasbe.org/wp-content/uploads/FHRTL-E\\_Healthy-Eating\\_NASBE\\_November-2012.pdf](http://www.nasbe.org/wp-content/uploads/FHRTL-E_Healthy-Eating_NASBE_November-2012.pdf).

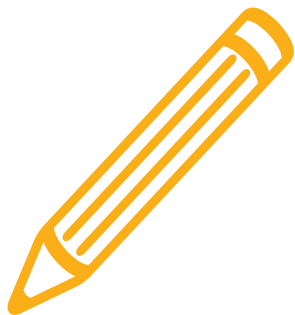
<sup>36</sup> E.A. Storch, et al (2007). “Peer Victimization, Psychosocial Adjustment, and Physical Activity in Overweight and At-Risk-for-Overweight Youth.” *Journal of Pediatric Psychology* 32, no. 1, pp. 80–89.

<sup>37</sup> Food Research and Action Center (2010). “How Improving Federal Nutrition Program Access and Quality Work Together to Reduce Hunger and Promote Healthy Eating,” p. 2.  
[www.frac.org/pdf/CNR01\\_qualityandaccess.pdf](http://www.frac.org/pdf/CNR01_qualityandaccess.pdf).

<sup>38</sup> California School Boards Association (2012). *Student Wellness: A Healthy Food and Physical Activity Policy Resource Guide*, p. 7.

<sup>39</sup> Division of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention (2011). “Implementing Strong Nutrition Standards for Schools: Financial Implications.” [www.cdc.gov/healthyyouth/nutrition/pdf/financial\\_implications.pdf](http://www.cdc.gov/healthyyouth/nutrition/pdf/financial_implications.pdf).

<sup>40</sup> Food Research and Action Center (2010). “How Improving Federal Nutrition Program Access and Quality Work Together to Reduce Hunger and Promote Healthy Eating,” p. 4.  
[www.frac.org/pdf/CNR01\\_qualityandaccess.pdf](http://www.frac.org/pdf/CNR01_qualityandaccess.pdf).



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<sup>41</sup> Action for Healthy Kids (2012). “The Learning Connection: What You Need to Know to Ensure Your Kids Are Healthy and Ready to Learn,” p. 10.

[www.actionforhealthykids.org/storage/documents/pdfs/afhk\\_thelearningconnection\\_digitaledition.pdf](http://www.actionforhealthykids.org/storage/documents/pdfs/afhk_thelearningconnection_digitaledition.pdf).

<sup>42</sup> Ellen Braff-Guajardo, Kristin Kiesel, and Gail W. Lopez (2012). Presentation at Center for Ecoliteracy California Food for California Kids Conference (Oakland, CA, September 2012). Publication pending.

<sup>43</sup> Brian Wansink, David R. Just, and Joe McKendry (2010). “Lunch Line Redesign.” *New York Times*, October 21, 2010. [nytimes.com/interactive/2010/10/21/opinion/20101021\\_Oplunch.html](http://nytimes.com/interactive/2010/10/21/opinion/20101021_Oplunch.html). See also the Cornell Center for Behavioral Economics in Child Nutrition Program’s Smarter Lunchrooms Movement.

[smarterlunchrooms.org](http://smarterlunchrooms.org).

<sup>44</sup> Michèle Belot and Jonathan James (2011). “Healthy School Meals and Educational Outcomes.” *Journal of Health Economics* 303(3), pp. 489–504. [www.iser.essex.ac.uk/files/iser\\_working\\_papers/2009-01.pdf](http://www.iser.essex.ac.uk/files/iser_working_papers/2009-01.pdf).

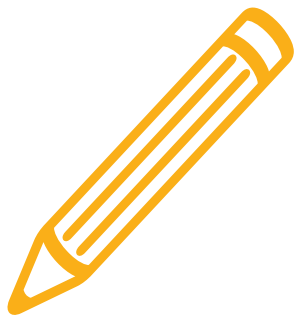
<sup>45</sup> Health Impact Project (2010). “Health Impact Assessment: National Nutrition Standards for Snack and à la Carte Foods and Beverages,” p. 4. [www.rwjf.org/content/dam/farm/reports/reports/2012/rwjf73231](http://www.rwjf.org/content/dam/farm/reports/reports/2012/rwjf73231).

<sup>46</sup> The California Endowment (2013). “UC Study: Students Prefer New, Healthier School Meals.” [tcenews.calendow.org/releases/uc-study:-students-prefer-new-healthier-school-meals](http://tcenews.calendow.org/releases/uc-study:-students-prefer-new-healthier-school-meals).

<sup>47</sup> California School Boards Association (2012). *Student Wellness: A Healthy Food and Physical Activity Policy Resource Guide*, p. 9.

<sup>48</sup> “Childhood Obesity Indicates Greater Risk of School Absenteeism, University of Pennsylvania Study Reveals” (2007). *Penn News*, August 10, 2007. [www.upenn.edu/pennnews/news/childhood-obesity-indicates-greater-risk-school-absenteeism-university-pennsylvania-study-revea](http://www.upenn.edu/pennnews/news/childhood-obesity-indicates-greater-risk-school-absenteeism-university-pennsylvania-study-revea).

<sup>49</sup> Andrew B. Geier, Gary D. Foster, Leslie G. Womble, et al (2007). “The Relationship between Relative Weight and School Attendance among Elementary Schoolchildren.” *Obesity* 15, No. 8 (August 2007), pp. 2157–2161. Cited in James F. Bogden, Martine Brizius, and Elizabeth M. Walker (2012). *Fit, Healthy, and*



## NOTES

*Ready to Learn* (Arlington, VA: National Association of State Boards of Education), Chapter E, p. 9. [www.nasbe.org/wp-content/uploads/FHRTL-E\\_Healthy-Eating\\_NASBE\\_November-2012.pdf](http://www.nasbe.org/wp-content/uploads/FHRTL-E_Healthy-Eating_NASBE_November-2012.pdf).

<sup>50</sup> J.M. Murphy, et al (1998). “The Relationship of School Breakfast to Psychosocial and Academic Functioning.” *Archives of Pediatric Adolescent Medicine* 152, pp. 899–907. [archpedi.jamanetwork.com/article.aspx?articleid=189855](http://archpedi.jamanetwork.com/article.aspx?articleid=189855).

<sup>51</sup> Minnesota Department of Children, Families, and Learning (1998). “School Programs Energizing the Classroom,” p. 5. [www.californiahealthykids.org/articles/energize.pdf](http://www.californiahealthykids.org/articles/energize.pdf).

<sup>52</sup> D.C. Hunger Solutions (2011). *Breakfast in the Classroom in D.C. Public Schools*. [www.dchunger.org/pdf/dc\\_classroom\\_breakfast\\_2010-2011report.pdf](http://www.dchunger.org/pdf/dc_classroom_breakfast_2010-2011report.pdf).

<sup>53</sup> Food Research and Action Center (2011). “Breakfast in the Classroom.” [frac.org/wp-content/uploads/2009/09/universal\\_classroom\\_breakfast\\_fact\\_sheet.pdf](http://frac.org/wp-content/uploads/2009/09/universal_classroom_breakfast_fact_sheet.pdf).

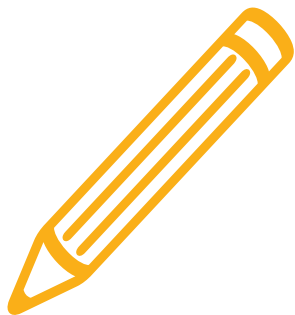
<sup>54</sup> California Food Policy Advocates (2012). “2010–11 School Meal Analysis.” [cfpa.net/ChildNutrition/ChildNutrition\\_CFPAPublications/SchoolMealAnalysis-StateSummary-2010-11.pdf](http://cfpa.net/ChildNutrition/ChildNutrition_CFPAPublications/SchoolMealAnalysis-StateSummary-2010-11.pdf).

<sup>55</sup> R. Kleinman, et al (1998). “Hunger in Children in the United States: Potential Behavioral and Emotional Correlates.” *Pediatrics* 101(1):e3, p. 3. [pediatrics.aappublications.org/content/101/1/e3.full.pdf+html](http://pediatrics.aappublications.org/content/101/1/e3.full.pdf+html).

<sup>56</sup> Thomas Skelly (2001). “Letter to the Hon. Patsy Mink.” Cited in Carolyn Murphy, Stephanie Ettinger de Cuba, and John Cook (2008). *Reading, Writing, and Hungry: The Consequences of Food Insecurity on Children, and on Our Nation’s Economic Success*. Partnership for America’s Economic Success, p. 26.

<sup>57</sup> Children Now (2010). *California Report Card 2010: Setting the Agenda for Children*, p. 10. [www.childrennow.org/uploads/documents/reportcard\\_2010.pdf](http://www.childrennow.org/uploads/documents/reportcard_2010.pdf).

<sup>58</sup> Michael K. Stone/Center for Ecoliteracy (2009). *Smart by Nature* (Healdsburg, CA: Watershed Media), p.134.



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<sup>59</sup> Researchers in one study of school plate waste at four Boston middle schools estimated that \$400,000 worth of food is discarded annually, and projected that that level of waste, if translated nationally, would amount to more than \$1.2 billion in losses. Juliana F.W. Cohen, et al (2013). “School Waste among Middle School Students.” *American Journal of Preventive Medicine*, February 2013, pp. 114–121.

<sup>60</sup> Institute of Medicine (2009). *School Meals: Building Blocks for Healthy Children* (Washington, DC: The National Academies Press). Cited in Food Research and Action Center (2010). “How Improving Federal Nutrition Program Access and Quality Work Together to Reduce Hunger and Promote Healthy Eating,” p. 4. [www.frac.org/pdf/CNR01\\_qualityandaccess.pdf](http://www.frac.org/pdf/CNR01_qualityandaccess.pdf).

<sup>61</sup> Q. Moore, H.L. Hulse, and M. Ponza (2009). “Factors Associated with School Meal Participation and the Relationship between Different Participation Measures.” *Contractor and Cooperator Report 53* (Washington, DC: US Department of Agriculture, Economic Research Service). Cited in Food Research and Action Center (2010). “How Improving Federal Nutrition Program Access and Quality Work Together to Reduce Hunger and Promote Healthy Eating,” p. 4. [www.frac.org/pdf/CNR01\\_qualityandaccess.pdf](http://www.frac.org/pdf/CNR01_qualityandaccess.pdf).



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## CENTER FOR ECOLITERACY

### About the Center for Ecoliteracy

The Center for Ecoliteracy advances ecological education in K–12 schools. In order to create resilient communities that live in harmony with the natural world, students need to experience and understand how nature sustains life. Founded in 1995, the Center engages with school communities, foundations, filmmakers, and other change agents to further smart, hopeful, and vital education. We offer books and resources, professional development, and strategic consulting. Our work is based on systems thinking, leadership dynamics, and how young people learn. We affirm that nature is our teacher and that sustainability is a community practice.

Best known for our work related to food, culture, health, and the environment, we address issues at multiple levels, from the local to the national. Rethinking School Lunch Oakland is a comprehensive project to redefine school food in a large, urban school district, from procurement and facilities to teaching and learning. California Food for California Kids™ is our initiative to incorporate fresh, seasonal food in school meals; preserve the environment; and promote local and regional economies. Our Food Systems Project, identified as one of the top ten USDA grants in a decade of food security efforts, helped inspire the creation of district wellness policies across the country. Our downloadable Rethinking School Lunch publications include *Making the Case for Healthy, Freshly Prepared School Meals*; our planning framework, the *Rethinking School Lunch Guide*; and our cookbook and professional development guide, *Cooking with California Food in K–12 Schools*.

Learn more at [www.ecoliteracy.org](http://www.ecoliteracy.org).