APPENDIX A:
KNOWLEDGE REQUIREMENTS AND RESOURCES FOR AMBITIOUS LEADERSHIP

This appendix provides examples of the three types of knowledge we found that school leaders need to lead their schools to college and career readiness:

- knowledge of the demands of college-and-career-ready (CCR) standards and assessments;
- knowledge of ambitious instruction that provides students with materials, tasks, and pedagogy that enable them to meet the demands of CCR standards; and
- knowledge of ambitious leadership that enables ambitious instruction across all classrooms in a school.

This table is not meant to be exhaustive; we found other examples of explicit knowledge in the schools we studied. The examples in this table illustrate the types and depth of knowledge needed. The table also provides publicly available resources that individuals or districts can access to further each type of knowledge.

Examples of Knowledge Requirements	Examples of Knowledge Resources
Demands of CCR Standards (i.e., what students need to know and be able to do)	
General: • Be familiar with CCR standards, including how to quickly access them and how they are organized. • Be familiar with CCR-aligned assessments, including question formats and technology access and literacy required of students. Mathematics: • Understand the shift toward greater focus on fewer topics. • Understand the shift toward greater coherence across topics and grades. • Understand the shift toward greater rigor and authentic command of math concepts. Literacy: • Understand the shift toward more text complexity. • Understand the shift toward utilizing evidence grounded in texts. • Understand the shift toward building knowledge through content-rich nonfiction	Common Core Standards app by MasteryConnect Common Core State Standards Initiative website • English Language Arts Standards • Mathematics Standards • Key Shifts in English Language Arts • Key Shifts in Mathematics Achieve the Core website • Introductory Videos on the Common Core State Standards • The Common Core State Standards Shifts in ELA/Literacy • The Common Core State Standards Shifts in Mathematics • Progressions Documents for the Common Core State Standards for Mathematics • Mathematics: Focus by Grade Level • Deep Dive into the Math Shifts module "The Structure Is the Standards" Essay

Ambitious Instruction (i.e., what teachers need to know and be able to do)	

General:
• Choose instructional approaches that meet the diverse needs of students (including English language learners, struggling learners, special education students, and gifted students).
• Know how to encourage stamina and resilience in the face of challenging tasks.
 	
Mathematics:
• Understand and know how to shift unit and lesson planning toward greater focus on fewer topics for instruction, materials, and assessment.
• Understand and know how to shift unit and lesson planning toward greater coherence for scope and sequence planning, curriculum choices, and lesson delivery.
• Understand and know how to balance time and intensity of lesson plans and delivery across conceptual understanding, procedural skill and fluency, and application.
• Understand and know how to facilitate lessons that allow students to meet the demands of CCR standards, for example by:
  • providing opportunities for students to work with and practice grade-level problems and exercises, and including scaffolding that enables struggling students to access grade-level content;
  • posing high-quality questions and problems that prompt students to share their developing thinking about the content of the lesson in ways that other students can understand and discuss;
  • using the variation in students' ways of thinking, representations, and solution methods to strengthen all students' understanding of the content;
  • checking for understanding throughout the lesson and adapting the lesson to meet the condition of student learning; and
  • encouraging students to choose and use appropriate tools when solving a problem.
	Achieve the Core website
	• Aligned Instructional Materials Blog
	• Instructional Materials Evaluation Tool
	• Lesson Planning Tool
	• Teaching the Core video library
	• Instructional Practice for the CCSS
	• ELA/Literacy Lessons
	
	UnboundEd website
	
	Illustrative Mathematics website
	
	Core Task Project website

Literacy:
- Understand and know how to select (or guide students in selecting) materials that:
    - match text complexity with grade-level expectations;
    - enable students to build content knowledge through nonfiction; and
    - intentionally sequence informational texts to develop an ever-increasing knowledge of words and the world.
- Understand and know how to build literacy skills across the curriculum, for example by integrating writing tasks into the curriculum across subject areas in proportions that match the writing types emphasized by CCR standards.
- Understand and know how to facilitate lessons that allow students to meet the demands of CCR standards, for example by:
    - posing text-dependent questions and tasks for students;
    - productively engaging students in the work of the lesson, utilizing a range of language skills (listening, speaking, reading, and writing); and
    - regularly assessing student learning and adjusting instruction based on data

Ambitious Instructional Leadership (i.e., what principals need to know and be able to do)	
Key instructional leadership practices: • Set a vision for ambitious instruction. • Upgrade curriculum and instructional models. • Create and/or upgrade systems to support data-driven instruction. • Create and/or upgrade opportunities for student individualization and intervention. • Create and/or upgrade systems for practice-focused professional learning and collaboration. • Provide consistent coaching and feedback to teachers. Critical conditions: • Effectively manage talent. • Maximize learning time. • Establish and maintain a high-quality professional learning culture.	New Leaders website • Ambitious Leadership: How Principals Lead Schools to College and Career Readiness • Cases of Ambitious Leadership • Breakthrough Principals: A Step-by-Step Guide to Building Stronger Schools [Includes Video Case Studies of Breakthrough Principals] • Playmakers: How Great Principals Build and Lead Great Teams of Teachers Leverage Leadership: A Practical Guide to Building Exceptional Schools Professional Standards for Educational Leaders

APPENDIX B:
SELECTION CRITERIA AND SCHOOL SAMPLE CHARACTERISTICS

This appendix provides more details regarding our selection criteria and the characteristics of the 10 schools we studied.

To select the schools for our study, we reviewed publicly available demographic and student achievement data for all K-12 public schools in four urban districts and the California schools of one charter management organization. The criteria were relatively similar across districts but sometimes were adjusted depending on the available data.

TABLE A1. SELECTION CRITERIA

Criterion	New York City K8 Schools	New York City High Schools	Chicago Public Schools	Oakland Unified School District	District of Columbia	Charter Management Organization
% Free or Reduced-Price Lunch	> 50%	> 50%	> 50%	> 50%	> 50%	> 50%
% White	< 25%	< 25%	< 25%	< 25%	< 25%	< 25%
Exceeded District or State Average Performance and/or 2014 to 2015 Gains on College-and-Career-Ready (CCR) Aligned Assessments in Math and English Language Arts (ELA)	20 points > district average in math or ELA	Any amount > district average in math or ELA	Any amount > state average in math and ELA	Any amount > district average in math and ELA	Any amount > district average in math or ELA	Any amount > state average in math and ELA
	> 10 point gains in math or ELA	N/A — Only 2014 CCR data available	N/A — 2015 was first year of CCR-aligned assessments	N/A — 2015 was first year of CCR-aligned assessments	N/A — 2015 was first year of CCR-aligned assessments	N/A — 2015 was first year of CCR-aligned assessments
Historical Gains (If Above Criteria Met)	Positive gains pre-CCR assessments in math and ELA	Positive gains pre-CCR assessments in math and ELA		Positive gains pre-CCR assessments in math and ELA	Positive gains pre-CCR assessments in math and ELA	Positive gains pre-CCR assessments in math and ELA
Principal Tenure	≥ 2 years	≥ 2 years	≥ 2 years	≥ 2 years	≥ 2 years	≥ 2 years
Red Flags	No negative media	No negative media	No negative media	No negative media	No negative media	No negative media

Ultimately, we selected 10 schools with characteristics outlined in Table A1.

TABLE A2. SCHOOL CHARACTERISTICS

School Level	• One K-3 school • Four K-5 schools • One K-8 school • Three middle schools • One high school
School Size	• Six schools with < 500 students • Three schools with 500–1,000 students • One school with > 1,000 students
School Type	• Eight district schools • Two charter schools
School Location	• Four schools in New York City • Two schools in Chicago • Two schools in Oakland • One school in Los Angeles • One school in District of Columbia

Limitations of the study included the following:

- The sample size was small. We targeted study resources toward collecting detailed and extensive evidence of practice from a small number of schools, as opposed to cursory information from a broader set of schools.
- Selection was based on results from a snapshot in time. When data were available, we used two years or more of results, but some schools had only one year of data demonstrating their ability to beat the odds on CCR standards–aligned assessments.
- Much work remained for the schools in our sample to prepare all students for college and careers. We selected schools with student populations that were majority low-income and black or Hispanic and that had demonstrated above-average gains and/or proficiency rates on CCR-aligned assessments compared with their state and district. Most schools in our study, however, had low absolute proficiency rates, below 60 percent.
- While the study did include one comprehensive high school, many of our secondary schools were small schools. This limited our ability to find trends in how leadership differed at large secondary schools.

In sum, the purpose of this research is not to provide a rigorous comparative analysis, but to provide rich details from case studies that can serve as a guide to principals seeking to align their work to the demands of CCR standards.