



*a guide to*

# THE SCIENCE OF SUMMIT



# A Vision Grounded in Science

Since founding Summit Public Schools in 2003, we have held ourselves accountable to a vision that every student should be equipped to lead a fulfilled life. We've worked in partnership with nationally-acclaimed learning scientists, researchers, and academics to develop a model that supports this vision.

We outline our school model and the science behind it in *The Science of Summit*, a groundbreaking white paper 15 years in the making. This publication, *A Guide to The Science of Summit*, is an introduction to the full report. Both reflect our effort to share what we believe about young people, the promise of public education, and principles for school design rooted in the science of learning.

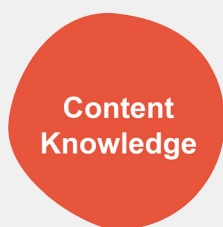
## Driving Student Success with Measurable Outcomes

Every single element of our model is grounded in what science tells us about how students learn best. We translate the science of learning into the intentional design of our schools to achieve student success in four outcomes: **Cognitive Skills**, **Content Knowledge**, **Habits of Success**, and **Sense of Purpose**. The following pages explore these outcomes in depth.

### SUMMIT LEARNING STUDENT OUTCOMES



Essential and transferable lifelong skills



Understanding and application of fundamental content



Mindsets and behaviors that support well-being



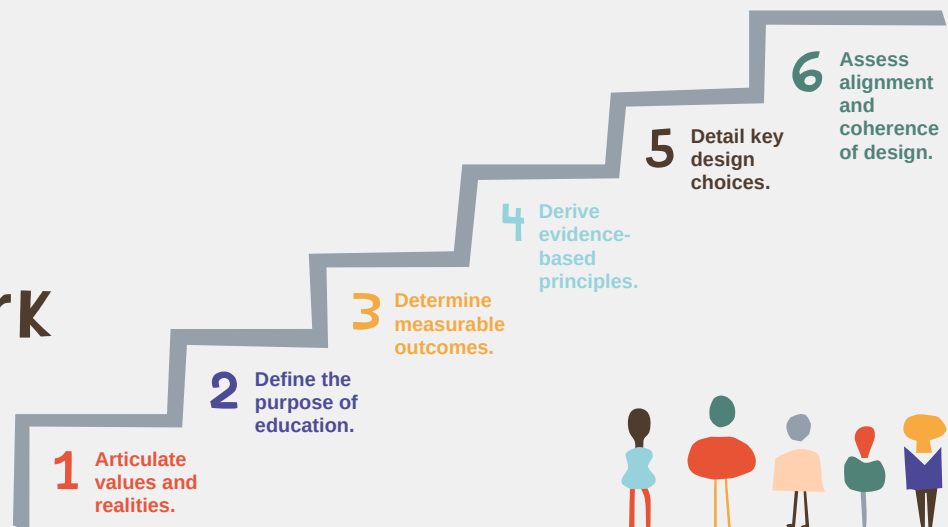
Self-awareness and pursuit of interests and goals



# OUR FRAMEWORK FOR DESIGNING SCHOOL MODELS

In *The Science of Summit*, we introduce our framework for designing school models aligned to a school's articulated purpose of education and grounded in evidence.

## THE ALIGNED SCHOOL MODEL FRAMEWORK



*The Aligned School Model Framework* presents six steps for designing a school model that consistently and reliably predicts success for all students when implemented effectively. We used this framework to inform the design of our own model and hope it will be helpful for the greater education community.

This framework is critical to ensuring Summit Schools meet the needs of all students. We hope it can do the same for others across the nation and encourage our peers to use this framework to articulate their own school models.

TO SEE OUR FRAMEWORK IN ACTION,  
DOWNLOAD THE SCIENCE OF SUMMIT  
AT [SUMMITLEARNING.ORG/RESEARCH](https://summitlearning.org/research).

# COGNITIVE SKILLS

Essential and transferable lifelong skills

## What are Cognitive Skills?

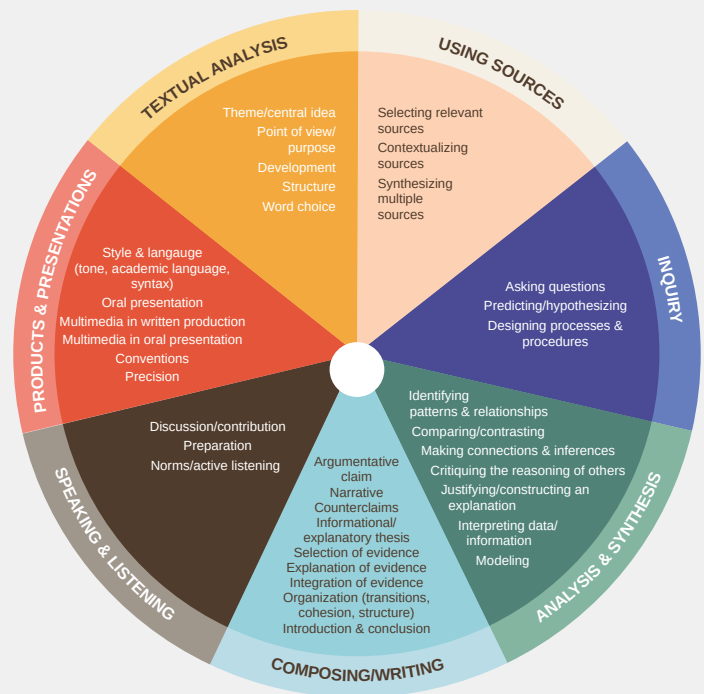
**How do we design schools that empower students with transferable lifelong skills?** Cognitive Skills — such as developing an argumentative claim, presenting a clear idea, and interpreting data — are essential for success in college and career. At Summit, we've identified 36 such skills.

Students spend the majority of time immersed in real-world projects that build multiple Cognitive Skills across grade levels and subject matter. Projects are built with a series of checkpoints for formative feedback and culminate in a performance-based assessment such as an essay, lab report, or presentation.

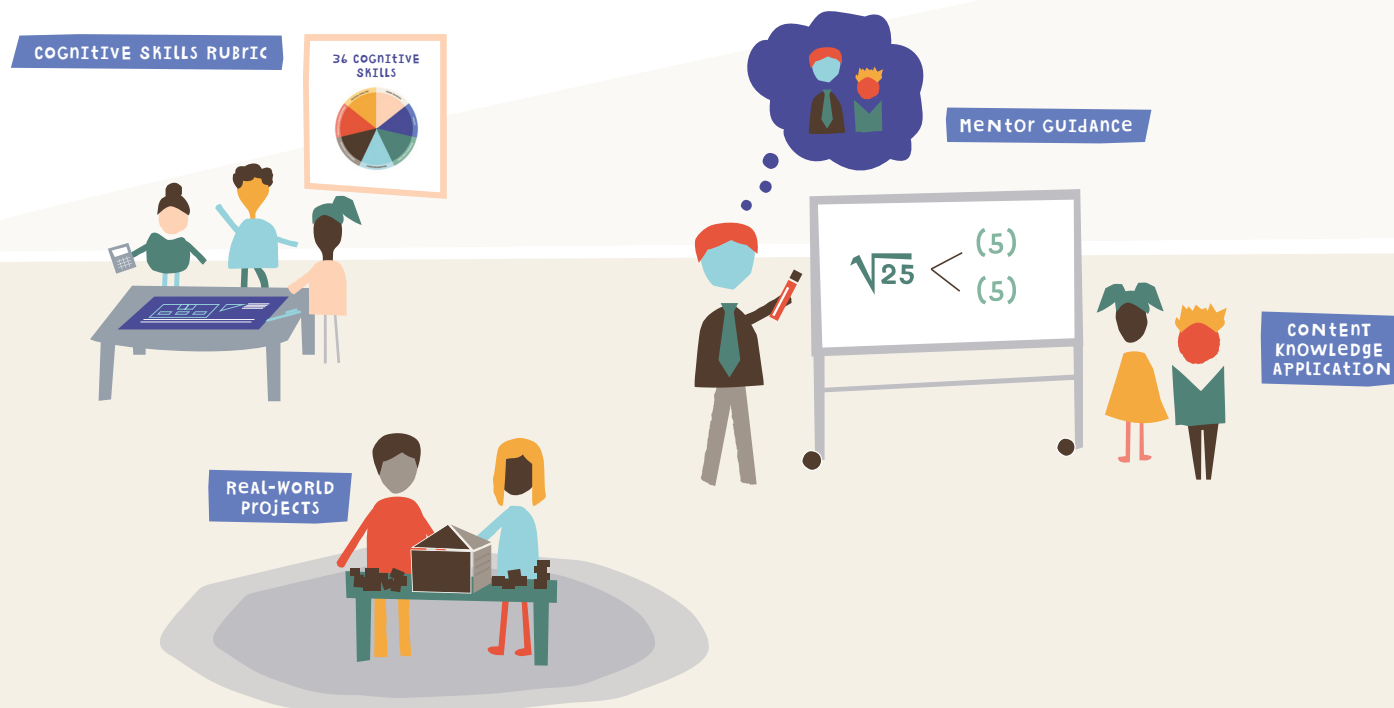
## COGNITIVE SKILLS FOR COLLEGE AND CAREER READINESS

The **Summit Learning Cognitive Skills Rubric** is an assessment and instruction tool that outlines the continuum of 36 interdisciplinary, higher-order thinking skills (pictured here) that are necessary for college and career readiness.

Developed in collaboration with the Stanford Center for Assessment, Learning & Equity, May, 2017.



# COGNITIVE SKILLS IN ACTION



Students own their learning journey by setting goals, mastering content in their learning style, and **applying Content Knowledge** during Project Time. Teachers support students with whole-group, small-group, and 1:1 instruction, intervention, and mentorship.

Students spend the majority of class time immersed in **real-world projects** requiring Cognitive Skills. Projects culminate in a performance-based assessment such as an essay, lab report, or presentation. For example, students above are applying geometry and personal finance knowledge to design and budget for their dream home. In this project, they are developing multiple Cognitive Skills, such as the abilities to express ideas with precision and to use relevant, credible sources to support those ideas. The Summit Learning Platform houses more than 200 projects and includes a series of built-in checkpoints, or opportunities for formative feedback, from teachers, peers, and self.

Every project in the Summit curriculum assesses multiple Cognitive Skills. Our **Cognitive Skills Rubric** outlines 36 skills necessary for college and career readiness. Students hone these skills in every subject and grade level across multiple contexts, progressing along a continuum appropriate for their level of development. Seventy percent of a student's grade is based on Cognitive Skill development, which is easily tracked in the Summit Learning Platform.

Students meet weekly with mentors to align daily actions with long-term goals and explore ways to further develop Cognitive Skills. **Mentor guidance** relates to students' exploration of passions and their development of a Sense of Purpose.



# THE SCIENCE OF COGNITIVE SKILLS

The importance of students developing **Cognitive Skills** for success in school and life is rooted in research spanning almost 50 years (Piaget, 1969; Vygotsky, 1978).

Learning science also indicates the importance of students taking an active role in their learning and having frequent opportunities to learn with and through others in order to build higher-order thinking skills (Cohen & Lotan, 1994; De Corte, 2003). Furthermore, early research in the cognitive science and human development fields support designing curricula that provide multiple opportunities for practice and transfer of Cognitive Skills, across subject matter and grade levels, to promote long-term learning (Bruner, 1960).



# CONTENT KNOWLEDGE

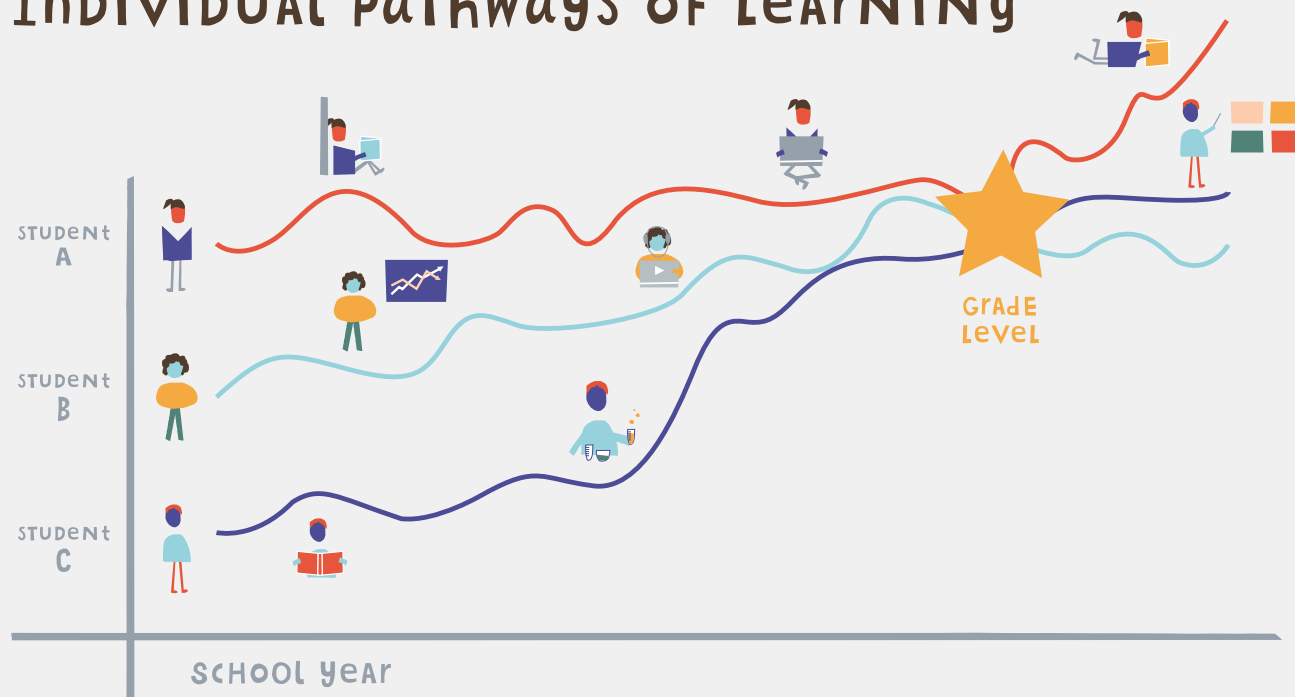
Understanding and application of fundamental content

## What is Content Knowledge?

**How do we design our schools to prepare students for life, not just tests?** Students must understand academic subjects more deeply than a web search can provide. They need a broad Content Knowledge base in order to put Cognitive Skills to work.

The Summit approach places students at the center of their learning journey, empowering them to set goals, understand how they learn best, and deeply understand rigorous content that sets them up for success in college and careers.

## INDIVIDUAL PATHWAYS OF LEARNING



*In the Summit Learning curriculum, students can choose from an array of resources, suited to their style of learning. Supported by their teachers, students move through these resources, demonstrating competency at different stages.*



# CONTENT KNOWLEDGE IN ACTION



Students exercise choice in determining which content resources to review, **learning how they learn** best. But they are not alone — teachers facilitate self-directed learning by coaching and offering targeted support through small-group and 1:1 interventions, as well as by providing extra scaffolding for students who need it.

On the Summit Learning Platform, students independently progress through **playlists**, mastering content across all core subject areas. Content is broken into Focus Areas — the key vocabulary, ideas, events and concepts needed to have a foundational understanding of a subject. Content Knowledge is then applied during project-based learning. For example, in the scenario above, the student is learning geometry content that she will apply in the “dream home” project.

**Peer-to-peer mentoring** is common because learning is prioritized over pace. After mastering required Power Focus areas, students can deepen their understanding with Additional and Challenge Focus Areas and offer help to their peers. This structure enables students to master the most important Content Knowledge, while holding no students back from exploring and deepening interests in topics that are of particular interest and relevance to them.

Students take **on-demand assessments** when they are ready, rather than with the entire class at the same time. Tests can be taken multiple times until students demonstrate mastery. Students have access to learning resources at all times. Personalized, easy-to-understand assessment data within the platform helps teachers identify students who are struggling or who might need additional support.



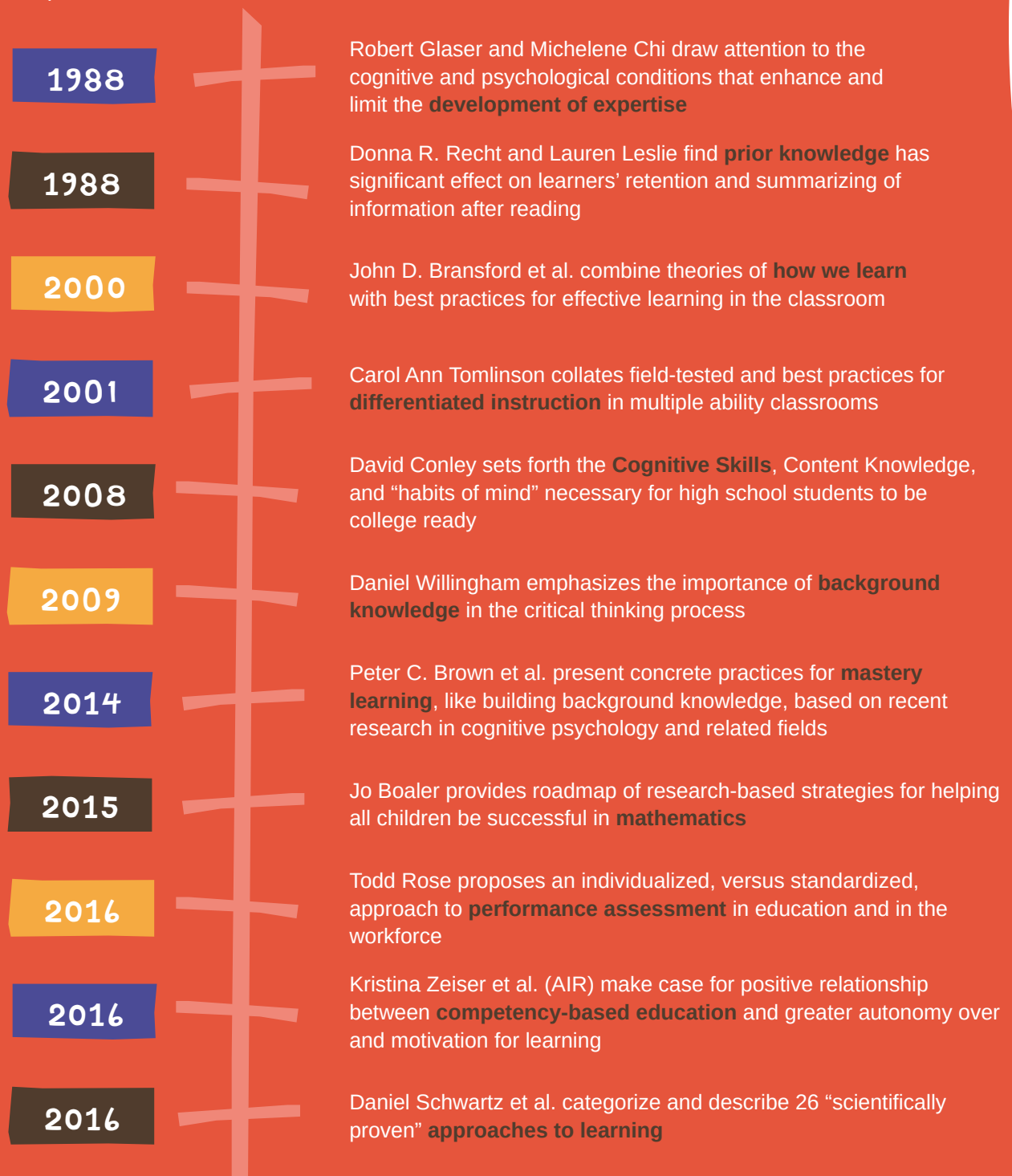


# THE SCIENCE OF CONTENT KNOWLEDGE

Three decades of research centers around the key finding that students must acquire and retain **Content Knowledge** to support the development of **Cognitive Skills**

(Willingham, 2009; Schwartz, Tsang & Blair, 2016).

Contemporary research also supports the idea that in order to meet the needs of all learners, students should advance through material at their own pace, be provided with the appropriate supports, and move on only when they demonstrate proficiency in a given subject (AIR, 2016; Rose, 2016).



# HABITS OF SUCCESS

Mindsets and behaviors that support well-being

## What are Habits of Success?

**How do we empower our educators to teach the whole child?** Educators know that learning isn't confined to the four walls of a classroom. But how can social-emotional learning fit into the school day? Habits of Success are social and emotional skills — resilience, social awareness, a sense of belonging — that support a student's academic and non-academic pursuits.

In the Summit model, this social-emotional learning is not relegated to a separate program; rather, it is integrated into all aspects of school culture. Through weekly one-on-one mentoring, self-directed learning and project-based learning, teachers guide students as they develop Habits of Success such as self-awareness, tenacity, and curiosity.

## BUILDING BLOCKS FOR LEARNING

### A Framework for Comprehensive Student Development

*We adopted prominent educational psychologist K. Brooke Stafford-Brizard's 2016 Building Blocks for Learning as our framework. It outlines 16 key social-emotional learning skills for comprehensive student development.*

INDEPENDENCE AND SUSTAINABILITY

Self-Direction

Curiosity

Sense of Purpose

PERSEVERANCE

Resilience

Agency

Academic Tenacity

MINDSETS FOR SELF AND SCHOOL

Growth Mindset

Self-Efficacy

Sense of Belonging

Relevance of School

SCHOOL READINESS

Self-Awareness

Social Awareness/Relationship Skills

Executive Functions

HEALTHY DEVELOPMENT

Attachment

Stress Management

Self-Regulation



# HABITS OF SUCCESS IN ACTION



**Habits of Success are modeled** within the school environment: in adult interactions, within school routines, celebrations, policies, and procedures, and as part of ongoing professional development. Our base curriculum embeds the development of Habits of Success in all projects and subjects, and across all grades.

Students have **weekly 1:1 mentor meetings** to set short- and long-term goals and reflect on their progress. Students also meet in peer groups to work on positive identity formation and receive instruction on Habits of Success. In the Mentor Group above, one student is making a mental note of a goal she'd like to address in her upcoming 1:1 mentorship session.

**Teachers receive training** to help students build Habits of Success. For example, teachers help build students' growth mindset by assessing effort instead of innate ability. Summit educators participate in professional development to self-assess their own Habits of Success, develop a plan for growth, and learn how to model Habits of Success with students.

At Summit, community-wide **celebrations of learning** allow students to share their projects and cultivate a sense of belonging. These celebrations directly connect students' Cognitive Skills with their achievements and enable students to share successes with their families.

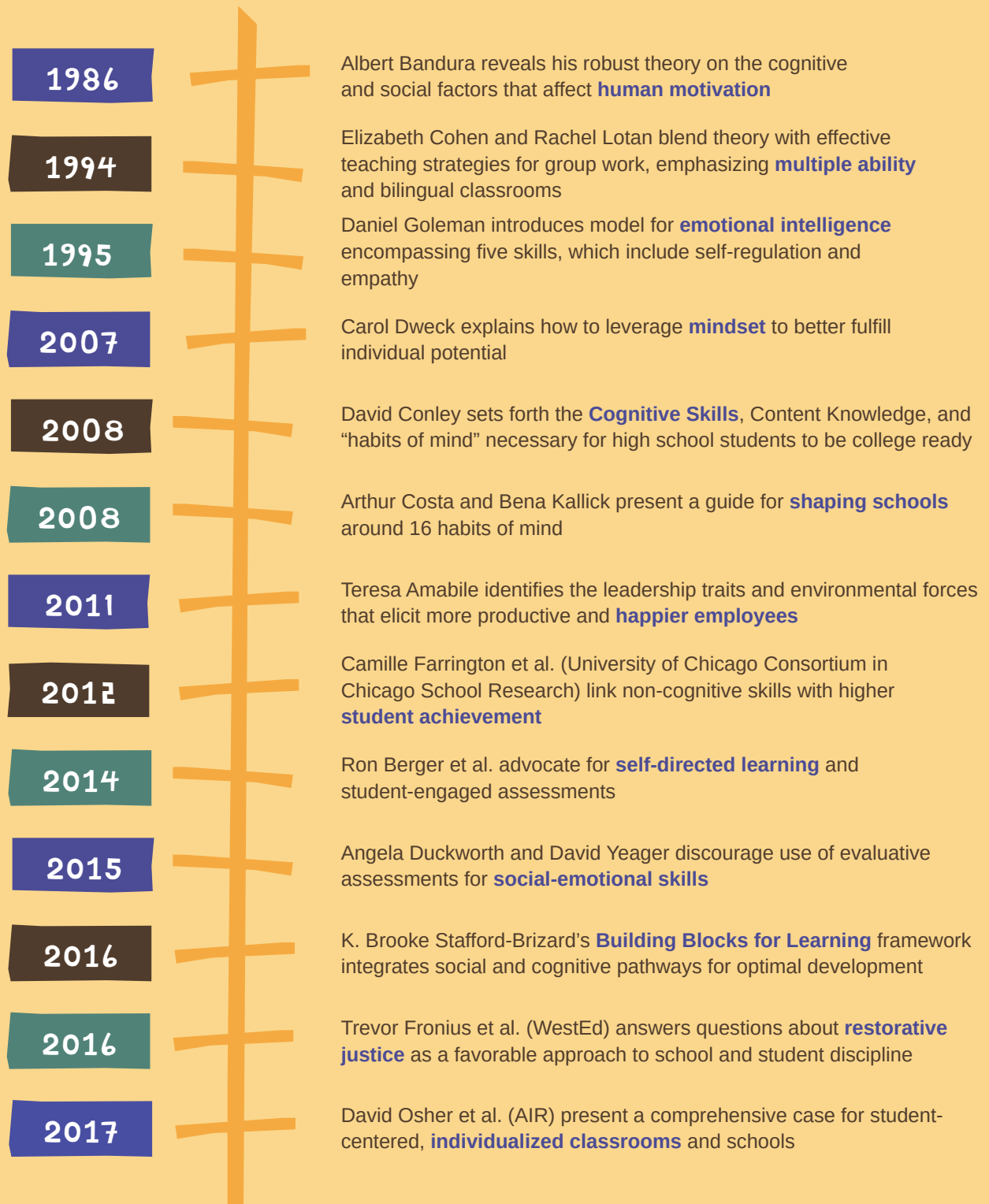
Students participate in **family meetings** to set goals for growth, and so that educators can better understand how to tailor habits to students' cultures and contexts.



# THE SCIENCE OF HABITS OF SUCCESS

A growing body of research around the development of Habits of Success shows that social-emotional learning is inextricably linked to academic learning.

Researchers find that students need Habits of Success — a set of skills, mindsets, dispositions, and behaviors — to succeed in college and life. Development of habits, which occurs on a continuum over time, is most effective when integrated into the social learning environment of a school and classroom (Farrington, 2012; Stafford-Brizard, 2016; AIR, 2017).



# SENSE OF PURPOSE

Self-awareness and pursuit of interests and goals

## What is Sense of Purpose?

**How can we help students connect what they are learning now to who they are and the future they want?** When students see the bigger picture behind their schoolwork, they are able to persist towards their goals when the going gets tough. Students feel socially connected, supported, and respected when they have a sense of belonging. They trust their teachers and their peers and feel valued.

We believe that upon high school graduation, students need a Sense of Purpose — an understanding of their interests, values and skills — and a credible path after high school for translating those interests, values, and skills into a life of well-being.

The screenshot displays the Summit Learning Platform interface. On the left is a navigation sidebar with the Summit logo and a menu of options: Week, Year, Progress, College, Overview (highlighted), Get Started, Explore, Courses, Grades, Test Scores, My Essay, and Letters of Recommendation. The main content area is titled 'Overview' and is organized into three columns. The first column, 'Long-Term Goals', includes 'My College Goal: I will attend a Selective college.' and 'I will earn the following grades' with a bulleted list: A for English, B for Science, A for Chemistry, and B for Math II. The second column, 'I will improve on the following Habits of Success', lists: Identify and manage one's emotions and behaviors, Recognize the feelings and perspectives of others, and Use communication and social skills to interact effectively with others. The third column, 'I will work to pursue my passions', shows 'My passion is: Biology'. To the right, a 'Goals for This Year' section lists several specific goals, including asking for feedback, committing to skill improvement, completing project focus areas and steps on time, completing projects on time, practicing questions weekly, passing assessments on the first or second attempt, achieving a score of at least 9/10, and receiving feedback from a mentor.

*In the Summit Learning Platform, students set goals for school, college, and beyond and learn how to connect each goal to their daily actions.*



# SENSE OF PURPOSE IN ACTION



Students develop their Sense of Purpose through exploration of interests, articulation of values, relationship building, and goal-setting. Project time, mentorship, and self-directed learning guide a student on his or her **path towards purpose**.

Students set short- and long-term goals in the Summit Learning Platform and reflect on progress with mentors. The dynamic **goal-setting** page enables students to connect their long-term aspirations, such as college acceptance, with the actions that they must take in the short-term.

**Self-awareness** is a key building block for learning. At Summit Schools, seniors build a portfolio and present an oral defense for their post-graduation plans to an advisory board comprised of family members, teachers, mentors, and other key adults in a student's life.

At Summit Schools, students take a **college readiness** class to learn the logistics of college admissions and financial aid. College admission content is woven into the curriculum and projects.

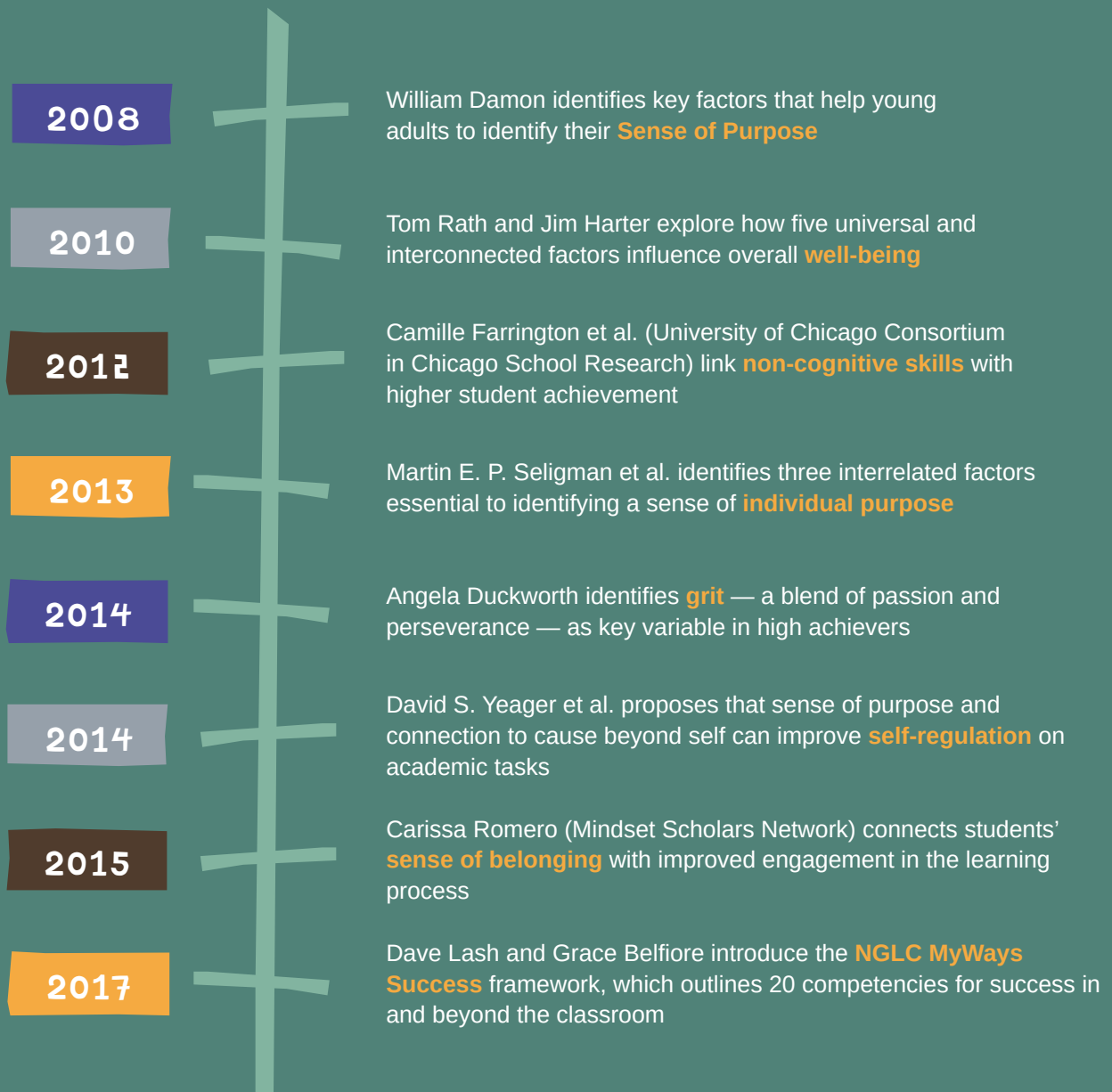
Deep, hands-on exploration of diverse subjects and fields supports a student's self-awareness and emergent Sense of Purpose. At Summit Schools, students participate in **Expeditions** — immersive elective courses that expose students to perspective-changing ideas and people — and allow them to explore interests and pursue passions. For example, the student above has enrolled in the Internship Expedition, where she spends 30 hours per week off-campus working on at a marketing agency — an interest she developed through the Dream Home project in her math class.



# THE SCIENCE OF SENSE OF PURPOSE

Learning scientists find that students who cultivate a **Sense of Purpose** are more likely to succeed in meeting their short- and long-term goals in college, work, and other life domains (Damon, 2008; Yeager, 2014; Seligman et al., 2013).

Findings related to human motivation and achievement showcase the importance of students developing an understanding of their interests, values, and skills while still in high school. Research also points to the lasting benefits of constructing a credible path, based on concrete goals, that moves students closer to leading fulfilled lives during and after college.





Learn more by downloading  
*The Science of Summit* at  
[summitlearning.org/research](https://summitlearning.org/research)