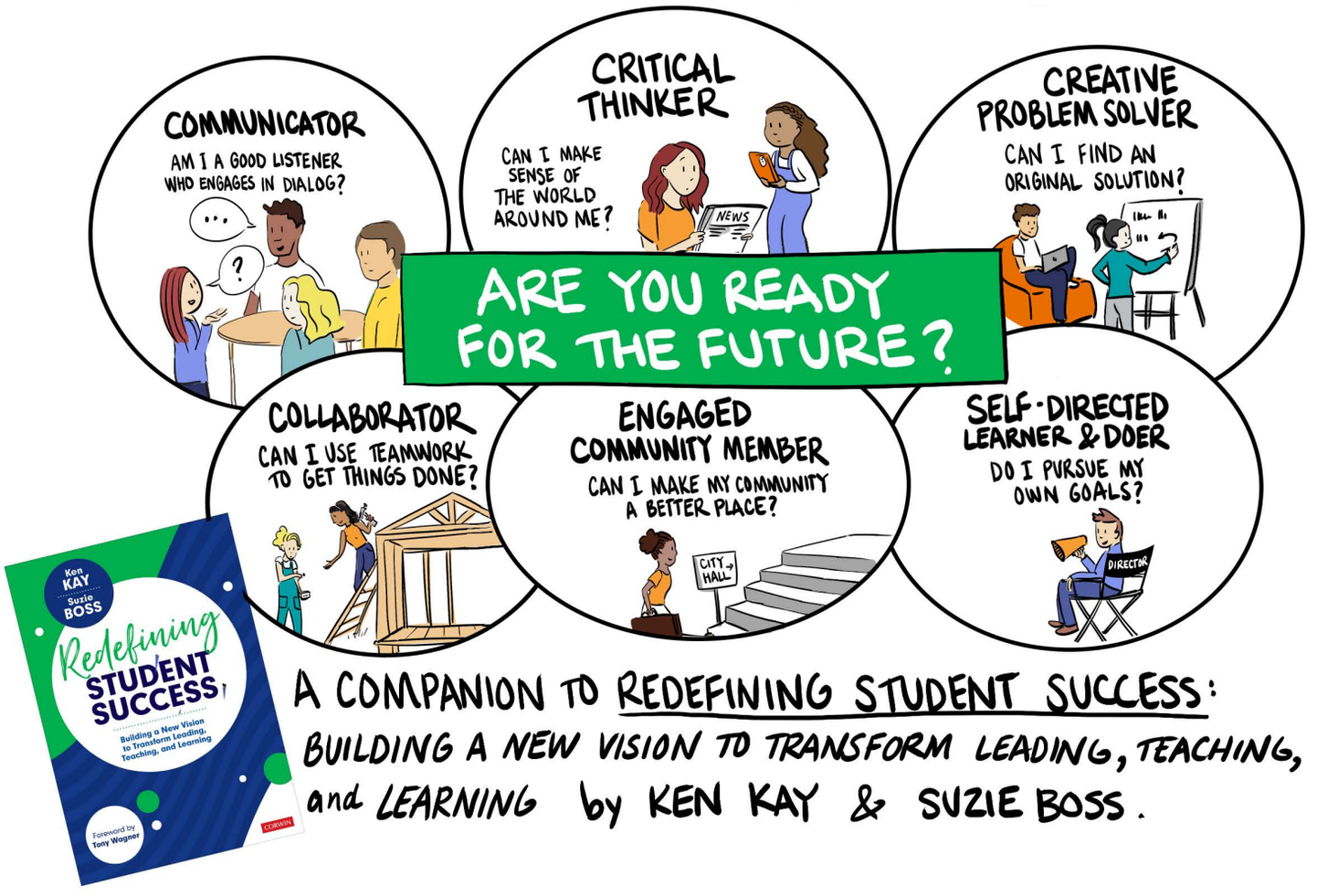
A CLOSER LOOK AT 21ST CENTURY LEARNING

from Ken Kay and Suzie Boss, authors of *Redefining Student Success: Building a New Vision to Transform Leading, Teaching, and Learning*

These materials were developed to supplement the student and parent guides for 21st century learning. They should be made available to those who find the guides useful but are looking for additional explanations, examples, and resources. The two guides can be downloaded at https://resources.corwin.com/redefiningstudentsuccess in both English and Spanish.



WHAT IS THE FUTURE REALITY TODAY'S STUDENTS WILL FACE?

Today's students are likely to have ten to fifteen jobs and as many as five careers in their lifetime. Are they prepared for a world of constant change? Will they be able to learn necessary new skills? Consider these trends:

- The amount of knowledge (information or data) consumed in work and everyday life is doubling approximately every twelve months. Will students have the ability to find information when they need it? Will they be able to distinguish between accurate and inaccurate information? Will they be able to apply their knowledge in unfamiliar contexts?
- As many as 40% of jobs will be replaced by automation and artificial intelligence (AI). Will students be able to perform the non-routine tasks that AI is not likely to replace?
- Four out of five jobs in the future will be in the service economy. Will students have the listening, empathy, and problem-solving skills necessary to succeed in the service economy?
- 40-50% percent of people will end up working for themselves. Will students be sufficiently self-directed to be an independent member of this changing economy?

WHAT ARE THE SKILLS THAT MATTER MOST?

There are many worthwhile skills to consider, but six are particularly important for every student's future.

1. Critical thinking
2. Creative problem solving
3. Communication
4. Collaboration
5. Self-direction
6. Civic engagement

Critical thinking is the analysis of facts to form a judgment. It is the ability to think clearly and rationally, understanding the logical connection between ideas. It is also possessing a sense of curiosity about how things work and the ability to ask great questions.

Why it matters: We live in a world where easy tasks can be replicated by a machine. The best jobs will continue to be the ones that require people to critically think. Factual analysis and the ability to distinguish between valid and invalid information is essential. The most vexing challenges in our communities and the larger society require critical thinking.

Resources: Foundation for Critical Thinking (www.criticalthinking.org) Reboot Foundation (www.rebootfoundation.org)

Creative problem solving is the mental process of searching for an original and previously unknown solution to a problem. It requires empathy to understand the person you are working with or the problem you are trying to solve. Creative problem solving encourages a search for fresh perspectives and innovative solutions so that you can formalize a plan to overcome obstacles and reach a goal.

Why it matters: Instead of repeating what is already known, students are encouraged to create new content or original solutions, which can often translate into new ways of seeing things and solving problems. Flexibility is necessary to adapt to changing conditions. Perseverance will help your student work to a successful resolution of the problems they are addressing. Creative problem-solving skills are highly valued in the 21st century.

Resources: Creative Education Foundation (www.creativeeducationfoundation.org), The Kid Should See This: Smart Videos for Curious Minds of All Ages (thekidshouldseethis.com)

Communication is the ability to communicate with others through writing, speaking, listening, and digital media.

Why it matters: While many jobs will get automated, others will require a "human touch." People who can effectively communicate with others, particularly in face-to-face contexts, will continue to have important roles in the economy and society. Effective writing skills will remain important, while oral communication skills will grow in importance.

Resources: ISTE Standards for Students (https://www.iste.org/standards/for-students)

Collaboration is the ability to work with other people of diverse backgrounds and diverse interests.

Why it matters: Almost nothing in society gets done today by a single individual. The most important tasks and biggest challenges are done in teams. Collaboration is not just about working cooperatively with others. It means your student needs to learn to actively work with others to get work projects accomplished. The ability to collaborate effectively with a team is an essential 21st century skill.

Resources: Edutopia videos show effective collaboration in action (for example: www.edutopia.org/video/making-teamwork-more-intentional)

Self-direction is the ability to set one's own goals and have the mindset to reach them. It includes a sense of agency and the ability to independently determine next steps and evaluate your performance along the way. Self-direction includes crucial self-management and time management.

Why it matters: At some point in every student's life, they will likely be on their own as a "free agent" or part of the "gig economy." Your student needs to be able to organize their life and function autonomously. Students need to connect to their passions and values to define for themselves their own sense of purpose. Even when one is part of an organization, being self-directed and able to figure out what to do next without instructions, is a requirement of the 21st century.

Resources: Alliance for Self-Directed Education (www.self-directed.org); Institute for Self-directed Learning (www.selfdirect.school); CASEL (Collaborative for Academic, Social, and Emotional Learning) includes resources on self-direction (casel.org)

Civic engagement is about active participation as an informed citizen.

Why it matters: In this country and around the globe, we face challenging problems. Your student needs to focus not just on themselves, but to determine how they can contribute to the broader community. We need people who conduct their lives in a civil manner and are willing to dedicate time to solving common problems in their immediate and extended communities. Young people should be encouraged to make civic contributions beginning at a young age in their own neighborhood or community creating a tradition of "giving back" and being involved.

Resources: Youth.gov (https://youth.gov/youth-topics/civic-engagement-and-volunteering), iCivics (www.icivics.org/)

WHAT DOES 21ST CENTURY LEARNING LOOK LIKE IN ACTION?

In schools that offer real-world learning experiences, students are learning by solving problems and making improvements in their schools, neighborhoods, and the wider world.

Take a look at some of the projects that students are tackling—some from a young age. Encourage students to take an active part in similar projects, both in class and in community activities. Imagine how much they will learn by doing something important!

Consulting with Clients

What if you became so expert at analyzing sustainability problems that you could consult with clients?

Elementary students in California have done just that, consulting with community clients on everything from how to prevent stormwater runoff to how to reduce energy costs. For one project, they analyzed a local YMCA facility and recommended changes that not only saved energy but saved money, too.

Inventing the Future

What if you could invent a brand-new product? Would you know how to bring your idea to life and get others excited about it?

A team of students from a small community in California took their novel idea for a wristband breathalyzer from the drawing board to the U.S. Patent Office. Along the way, they got advice and support from experts. They learned about the invention process, and also how to collaborate and troubleshoot challenges. They successfully raised $20,000 to bring all fourteen team members to Massachusetts to present their invention.

Addressing Racism

What if you realized that your school mascot symbolized a racist period in history? Would you know how to respond?

High school students in Anaheim, California, had to navigate a community controversy when they took a hard look at their school mascot, Confederate symbol Johnny Rebel. Students went through a thoughtful process to understand the controversy and engage in respectful dialogue before making a proposal to rebrand the mascot. They shared their thinking in a public forum, in front of television cameras, before making their final presentation to the school board. Their recommendation passed unanimously, and students had an important lesson in what it means to be engaged citizens in a democracy.

Restoring Lakes and Rivers

What if your favorite lake or riverfront was closed because of pollutants? Could you help fix the problem?

Sixth-graders in Colorado became citizen scientists to address an algae bloom that closed a favorite lake. To determine the source of the problem, they learned to do water testing by working with city employees. To solve the problem, they designed floating gardens to purify lake water and educated local homeowners to keep pollutants out of the watershed. They didn't just learn about science—they learned what it means to be real scientists!

Changing the Curriculum

What if you had an idea for a new class that focused on addressing a serious issue like climate change? Could you get your school board to develop a new curriculum?

Students in Portland, Oregon, channeled their concerns about climate change and racial equity into developing a proposal for a new high school course on environmental justice. The school board not only approved the idea, but enlisted students to help design the course and a capstone project. Along with deepening their understanding of climate issues, students involved in the effort also learned to persist to get their ideas approved.

Improving Your School Building

What if you noticed mold or mushrooms growing in your school building? Would you know how to investigate the cause and get the problem fixed?

Virginia students took on this challenge, which was causing some of them to experience health problems. In the process, they learned how to gather and analyze data and present their findings to public audiences. When they realized that regulations were needed to make sure schools were tested for mold, they successfully lobbied for a new state law. Students not only learned about science and government, but also discovered the importance of speaking up for themselves.

Helping Others

What if you have an idea to help a classmate who has a disability? Could you make your idea into a reality?

Two middle school girls from Virginia set out to help a visually impaired classmate who struggled to pick clothes in colors and patterns that matched. Their solution: clothing labels with color information written in braille. Getting to a solution involved understanding a challenge from someone else's perspective, designing and testing a prototype, and using a 3D printer to make their final product.

HOW CAN STUDENTS BUILD THEIR 21ST CENTURY RESUMÈ?

One way for students to keep track of their growth when it comes to developing key competencies is to build a 21st century resumé. Here are some suggestions to help students get started.

A resumé is a useful tool to describe and communicate your strengths. It's useful for taking stock of your own strengths, and also for helping people get to know you better. You can use your resumé when you apply for internships, jobs, funding, college, military, or other opportunities that interest you.

The following questions will help you get started. Make the resumé into your own creative statement, including graphics and supporting evidence of your accomplishments. Refer to the list of the six 21st century competencies and include evidence of your growth in these areas. Remember to include experiences from both school and outside of school. Keep your resumé current by adding to it over time as you develop new competencies, overcome challenges, and reflect on your growth.

21st Century Competencies

1. Critical thinking
2. Creative problem solving
3. Communication
4. Collaboration
5. Self-Direction
6. Civic engagement

What's your current goal? (For example, you might want to apply for an internship or part-time job, try out for a team, convince your parents about taking a gap year, or become an expert for your school's genius bar or makerspace.) What do you hope to learn or gain from this experience? How does your goal relate to the 21st century competencies?

What's your superpower? (What's something that you're really, really good at?) Do you have a passion or deep interest? What do you care about most?

Can you describe a situation where you noticed a problem or concern, and spoke up? What happened?

Describe a time when you failed at something. What did you learn from the experience that has helped you since then?

If you were awarded a grant to improve your community, how would you use it? Who would you want on your dream team to help you succeed?

Gather evidence. As part of your resumé, build a portfolio where you reflect on evidence of your accomplishments in becoming an effective communicator, critical thinker, creative problem solver, engaged citizen, and self-directed person. Continue to add evidence as you build your skills and competencies.

GLOSSARY

To help students prepare for the challenges ahead, schools are adopting a variety of approaches to teaching and learning. Here are a dozen terms and strategies that are worth knowing.

agency: having a sense of ownership of your learning; the ability to direct your own learning

capstone projects: learning experiences to mark the culmination of a phase of learning, such as completing a course of study or marking the end of a school division (such as elementary, middle school, or high school)

career academies: course of study that combines a sequence of courses related to career fields and internships; often developed in collaboration with business or industry partners

civic engagement: active participation as an informed citizen, such as participation in school government or taking informed action to influence change on local, regional, or national issues

college and career-ready: rigorous expectations of what students should know and be able to do by the time they complete high school and move on to their next challenges

entrepreneurship: developing a novel idea or solution and attracting others to support it; launching a new venture or product that fills a market gap

interdisciplinary learning: learning experiences that make connections across content areas, leading to more real-world contexts for learning

invention and innovation: ability to generate original ideas for products or solutions; ability to use the skills of brainstorming, prototyping, refining, and communicating to bring an idea to reality

Portrait of a Graduate: process for gathering community input to create a shared vision for a school system and implementing the vision so that all students are prepared for future challenges and opportunities

portfolio: evidence of learning selected to demonstrates proficiency or mastery, along with the learner's reflections on growth toward learning goals

project-based learning: an approach to instruction in which students investigate or research an open-ended challenge or question and apply their learning to create a public product; learning by doing

student-led assessment: opportunities for students to reflect on their own learning by sharing evidence, leading parent-teacher conferences, or defending a portfolio of evidence before a panel