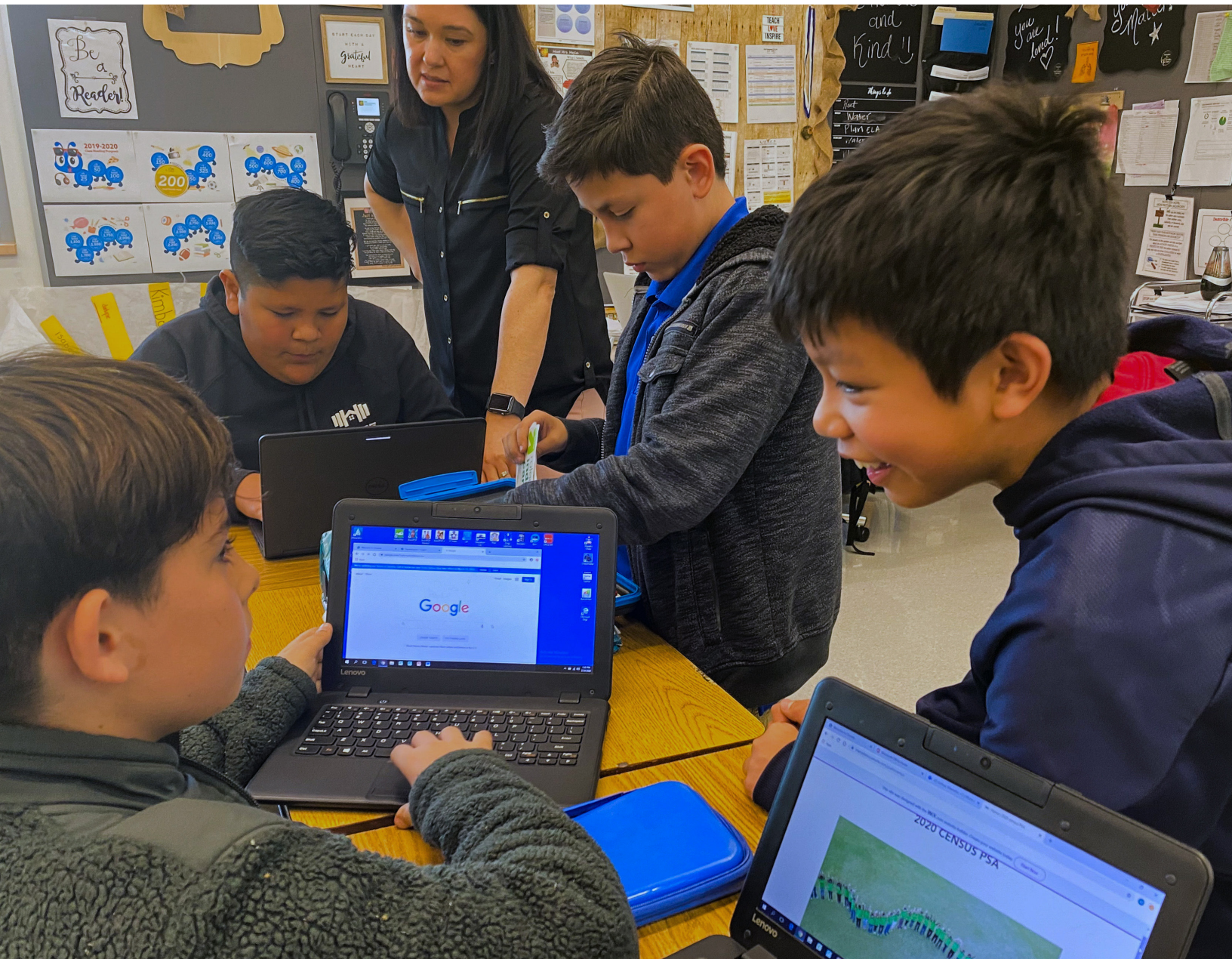
UNIDOSUS
STRONGER COMMUNITIES. STRONGER AMERICA.

Google

CASACODE TOOLKIT

Engaging Families, Building Community, and Promoting STEM



UnidosUS, previously known as National Council of La Raza (NCLR), is the nation's largest Hispanic civil rights and advocacy organization. Through its unique combination of expert research, advocacy, programs, and an Affiliate Network of nearly 300 community-based organizations across the United States and Puerto Rico, UnidosUS simultaneously challenges the social, economic, and political barriers that affect Latinos at the national and local levels.

For more than 50 years, UnidosUS has united communities and different groups seeking common ground through collaboration, and that share a desire to make our community stronger. For more information on UnidosUS, visit www. unidosus.org or follow us on Facebook and Twitter.

UnidosUS
Raul Yzaguirre Building
1126 16th Street NW, Suite 600
Washington, DC 20036-4845
(202) 785-1670
www.unidosus.org

Printed in the United States of America

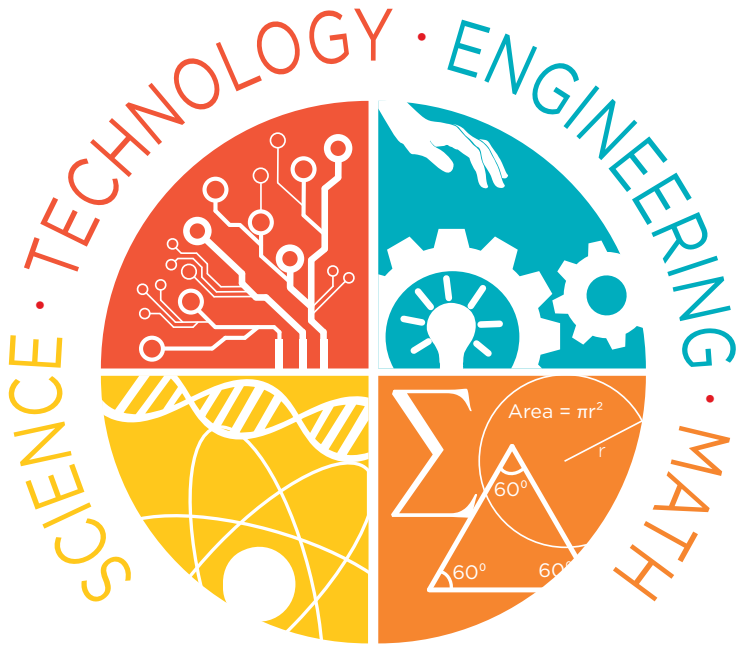
UNIDOSUS
STRONGER COMMUNITIES. STRONGER AMERICA.

Google

UNIDOSUS CURRICULUM

CASA CODE TOOLKIT

Engaging Families, Building Community, and Promoting STEM



STEM

Table of Contents

Background

About UnidosUS

UnidosUS, previously known as the National Council of La Raza (NCLR), is the nation's largest Hispanic civil rights and advocacy organization. Through its unique combination of expert research, advocacy, programs, and an Affiliate Network of nearly 300 community-based organizations across the United States and Puerto Rico, UnidosUS simultaneously challenges the social, economic, and political barriers that affect Latinos at the national and local levels. For 50 years, UnidosUS has united communities and different groups seeking common ground through collaboration, and which share a desire to make our country stronger.

About CASA Code

In 2018, UnidosUS was awarded a generous grant from Google to launch CASA Code, a computer science initiative designed to broaden educational opportunities and strengthen the technology skill base of Latino middle school students. Through this grant, UnidosUS has implemented CASA Code across the country to bridge the diversity gap that exists in the tech sector. Middle school students also gain computer science knowledge and engage in hands-on coding experience in Spanish. In addition, in order to develop students' leadership skills and foster a culture of service, CASA Code encourages students to apply the computer science skills they have learned to the challenges faced by their communities.

Acknowledgements

This toolkit was authored by Shante' Stokes, STEM Program Manager, Jose Rodriguez, Director, Parent and Community Engagement, and Maria Moser, Senior Director of Teaching and Learning. Karl Forest, Graphic Designer at Iridium Learning, with the assistance of Consulting Editor, Emily Mace, prepared this toolkit.

CASACODE

Introduction

STEM and Latinos

Latinos currently represent 18% of the population in the United States, and the population is steadily growing. In 2016, there were 26.8 million Hispanics/Latinos in the U.S. labor force according to the Department of Labor.[i] The number of Latinos pursuing bachelor's degrees in science, technology, engineering, and math disciplines is on the rise. In spite of this, only 7% of Latinos are currently employed in a computer science-related career, according to the Pew Research Center.[ii]

What Is STEM?

STEM is an acronym referring to education and careers in the fields of science, technology, engineering, and mathematics—in other words, a growing segment of the modern economy. Professionals in STEM careers use science, technology, engineering, and math to understand how the world works and solve problems. STEM workers rely heavily on the use of computers and other emerging technologies to explore, conduct research, analyze data, and test solutions.

There is a growing need for qualified STEM professionals to fill high-paying and rewarding careers, but few Latinos are currently prepared for these jobs. Latinos face many challenges while pursuing a STEM career. Historically, Latinos and other minority groups have been disproportionately affected by poverty, institutionalized racism, and systemic exclusion. These exclusionary practices have extended to the education system and hence, Latinos are still not sufficiently exposed to STEM and the many opportunities that exist at the K-12 level. According to the U.S. Department of Education's Office for Civil Rights, a quarter of high schools with the highest percentage of Latino students do not offer advanced levels of math courses, and a third of these schools do not offer advanced levels of science courses.[iii]

Most high-paying STEM careers require an advanced degree and/or technology training. Some emerging and promising STEM careers include Computer Systems Analyst, Software Systems Developer, Market Research Analyst, and Mobile App Developer. A study by the Pew Research Center (2018) found that the attainment of high-level STEM training narrows the earnings gap for Latinos working in STEM occupations.[iv] By 2023, Latinos will represent nearly 30% of all students enrolled in U.S. schools, and their success will contribute to our nation's success.

Why STEM Education and CASA Code?

Informal STEM education offers students a wide variety of direct and indirect benefits. Beyond subject knowledge, students practice critical and analytical thinking and become skilled collaborators. Through this interdisciplinary approach, students form meaningful real-world connections between their school, the workplace, their communities, and the global economy. According to Out Teach, the nonprofit behind the #SAVEScience campaign, STEM jobs have grown six times faster than non-STEM jobs in the last decade, and these jobs carry double the median salary.

The UnidosUS CASA Code Program—Cultura, Aprendizaje, Servicio, and Acción (CASA)—introduces young leaders to computer science while developing their potential to serve as agents of change in their own communities. Through CASA Code, students learn coding and explore how they can impact their communities through technology. CASA Code works to increase Latino representation in computer science fields by:

- Exposing Latino students to computer science in a culturally relevant way through a customized curriculum and the introduction of Latino role models in technology.
- Engaging Hispanic families in the discovery of computer science through community events where parents/guardians and students participate in hands-on coding activities while exploring computer science academic and career trajectories.
- Familiarizing Latino youth with computer science through hands-on coding sessions.
- Engaging youth in a service-learning planning process to amplify their voice through technology.
- Addressing the challenges that Latino communities face through the development of technologically focused solutions.
- Reinforcing high standards and rigorous learning.

Students in CASA Code learn about digital citizenship, unintended impacts of technology, sequencing, algorithms, and computational thinking, while using technology to examine community issues.

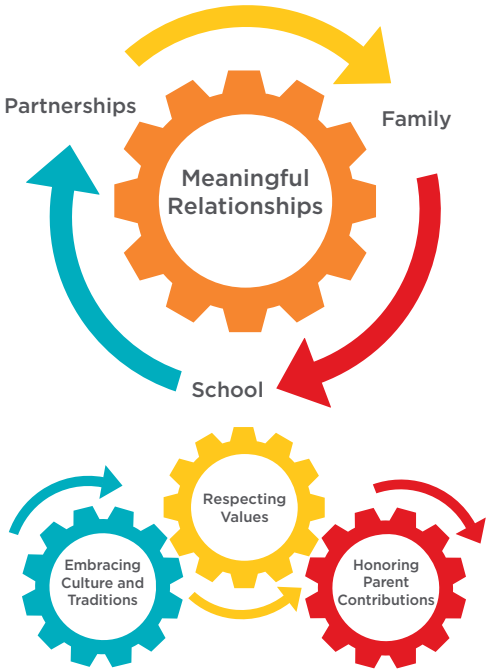
Engaging Latino Families

UnidosUS and Latino Family Engagement

Decades of research show that parent engagement is a key contributor to student success. For UnidosUS, engaging Latino families in their children's education is the foundation of education reform. UnidosUS works to ensure equitable outcomes for Latino students and English language learners through educational programs and policy. By working directly with schools, community-based organizations, and families across the nation, UnidosUS builds authentic, meaningful relationships that promote consistent parental engagement and advocacy to improve education systems.

The *Padres Comprometidos* Program

Padres Comprometidos is a parent engagement program that fosters a strong connection between schools and families. To this end, the program builds the capacity of Latino parents to effectively engage with schools and help prepare their children for college. The core program was founded on UnidosUS's Guiding Principles for Engaging Latino Parents and addresses language and culture as assets—rather than deficits—upon which parents build skills and confidence.



The ***Padres Comprometidos*** program also addresses a common barrier to success for parent and family engagement programs: the school's role in program implementation. Rather than training parents directly, UnidosUS builds the capacity of school staff through a "train the trainer" approach. In doing so, UnidosUS demonstrates best practices in outreach and communication, allowing Affiliates and partners to effectively implement *Padres Comprometidos* and bridge the gap between home and school.

The curriculum is designed to reach parents who are typically not connected to schools or preschools as a result of:

- Linguistic and cultural differences
- Economic background
- Negative perceptions about a school
- Lack of knowledge about how to become involved

Two editions of the ***Padres Comprometidos*** curricula are available: Elementary and Secondary, both in Spanish and English. To date, implementation has reached over 30 sites in states such as Texas, California, New York, Oklahoma, Minnesota, Pennsylvania, Tennessee, Wisconsin, New Mexico, and Washington, DC. Most program participants are Spanish-speaking, first- and second-generation immigrants.

Engaging Families in STEM

For most adults without formal education and/or training in a STEM discipline, it can be daunting to take the lead on STEM enrichment. The most common and seemingly difficult obstacle to overcome is fear, due to a perceived lack of STEM knowledge. Many people are uncomfortable with and intimidated by these disciplines. So, how does one build the confidence of equity-minded educators to develop a toolbox of strategies and skills that are needed to promote and advocate for equity in STEM? By creating access and offering meaningful experiences to parents that provide opportunities for them to learn basic concepts and understand that they do not have to be subject matter experts to empower their children to pursue a career in STEM.

Research demonstrates that Latino parents believe STEM careers are important for their community and reported talking to their children about having a job in a STEM field. Parents also perceive several challenges for their children's education, such as cost, immigration status, lack of information, and language barriers.[v] When developing a plan to engage Latino families, the organizer must consider potential barriers to participation.

Guiding Principles for Engaging Latino Families

- Education is the most important issue for Latino parents, who want to be involved in their children's education.
- Latino parents' own educational attainment, English fluency, or economic status should not be obstacles in a school's efforts to successfully engage them.
- Schools must understand that many families, especially recent immigrants, can be overwhelmed by the school system and feel inadequately prepared to engage with it in a meaningful manner.
- School improvement plans must include a strategy with measurable goals to effectively engage Latino families.
- Schools must take the initiative to develop meaningful relationships with Latino families, creating the structures and resources to facilitate their engagement; Latino families will respond.
- The most effective engagement of Latino families occurs when a school builds on the values and strengths of Latino culture, managing the dynamics of cultural differences and acquiring the cultural knowledge of the families it serves.

Planning a Family Coding Night

With proper resources in place, Latino families can influence their child's interests, extra-curricular activities, and future aspirations. One of the most effective ways to engage Latino families in STEM education is offering themed events in the parent's native language. During this time, teachers can introduce basic STEM concepts, highlight connections to daily activities, ask questions to gather specific information, and share culturally relevant STEM resources.

When coordinating an event, it's important to focus on the essential knowledge and skills to be acquired. Keep these two guiding questions in mind:

- What do I want families and caregivers to know?
- What do I want parents to be able to do as a result of this event?

These questions will help prioritize the information to be covered.

Event Agenda and Delivery of Content

After getting families to the event, it is important to have an intentional and focused strategy for engaging them.

Consider the following tips:

- Begin by finding common ground: Start with an ice breaker that taps into parents' own experiences. Let families know the direct impact their participation will have on their child's involvement and success in STEM.
- Contextualize STEM & computer science. Begin by explaining what STEM and computer science are and why they matter. Provide activities and tip sheets that help parents to further understand the content.
- Read aloud with families and have them underline key words.
- Include interactive activities where families work together.
- Include visuals.

Follow-up Actions

What should you expect after a STEM event? It's important to address misconceptions and provide families with additional information about upcoming events and initiatives.

- Leave behinds: Create a bilingual "question & answer" document for parents that addresses questions and provides additional resources to keep families informed.
- The next engagement opportunity: Even if you are not planning to host another in-person meeting for some time, families will want to stay in touch. Consider creating a Facebook group or email listserv where families can receive information on a regular basis. Continuing to stay in touch with families is critical for ongoing engagement. Don't forget to invite parents to other upcoming school events, like PTA meetings or volunteer opportunities.

Getting Started

CASA Code Toolkit Lessons

The lessons found in the CASA Code Toolkit are designed to be implemented by educators and/or youth development practitioners in a school or community setting. Included are culturally competent lessons to educate Latino families on the importance of STEM education, a blueprint for hosting a Family Coding Night, Google CS First lessons in Spanish, and unplugged coding lesson that teaches the principles of coding without needing a computer. Through the use of the CASA Code Toolkit and ongoing family engagement in Latino communities, we too can work together, collaboratively, to change the narrative by diversifying the tech and other STEM-related industries.

Google CS First Lessons

Google CS First offers a wide variety of computer science lessons in Spanish. In the first activity, "Animar un nombre," students choose the name of something or someone they care about and bring the letters to life using code. The second activity, "Un descubrimiento inusual," encourages students to code a story about when two characters discover a surprising object.

- **"Animar un nombre," (Animate a name)**
- **Un descubrimiento inusual (An unusual discovery)**

Free Coding Resources

- **Google CS First**
- **Scratch**
- **Hour of Code**
- **Code Combat**

---

[i] Bureau of Labor Statistics, U.S. Department of Labor, "The Economics Daily, 26.8 million Hispanics or Latinos in the U.S. Labor Force in 2016," accessed March 11, 2020, https://www.bls.gov/opub/ted/2017/26-point-8-million-hispanics-or-latinos-in-the-u-s-labor-force-in-2016.htm.

[ii] Pew Research Center, Analysis of 2014-2016 American Community Survey (IPUMS), "Women and Men in STEM Often at Odds Over Workplace Equity," accessed March 11, 2020, https://www.pewsocialtrends.org/2018/01/09/women-and-men-in-stem-often-at-odds-over-workplace-equity/.

[iii] U.S. Department of Education Office for Civil Rights, "Civil Rights Data Collection: Data Snapshot (College and Career Readiness)," accessed March 11, 2020, https://www2.ed.gov/about/offices/list/ocr/docs/crdc-college-and-career-readiness-snapshot.pdf.

[iv] Pew Research Center, "Women and Men in STEM Often at Odds Over Workplace Equity."

[v] Diley Hernandez, Shaheen Rana, Meltem Alemdar, Analía Rao, and Marion Usselman, "Latino Parents' Educational Values and STEM Beliefs," Journal for Multicultural Education, 10 no. 3 (August 2016), 354-367, https://doi.org/10.1108/JME-12-2015-0042.

Engaging Families and Students

Summary

Students and families will learn together as they explore CASA Code, computer science, and create a simple coding project. Students will further explore how computer science and problem-solving techniques can be used to solve community issues.

Overview

Lesson One: Introduction to CASA Code and Computer Science

Families will learn about the CASA Code program and computer science, practicing with a simple binary coding exercise.

Lesson Two: Family Coding Night

Families will be introduced to the fundamentals of coding using a hands-on, interactive activity.

Lesson Three: Unplugged: Community Solutions

Students will learn how important computer science concepts can be combined with problem-solving to improve their lives and their communities.

Preparation

Plan Ahead

- Schedule a location where families can sit together and have access to an internet-connected computer for group work.
- Internet-connected computer with projector/TV and speakers.
- Review lessons for specific handouts and visuals. It is suggested teachers review and rehearse activities.
- School staff and community members can join to participate and/or assist.

Engaging Families and Students

Lesson 1: INTRODUCTION TO CASA CODE AND COMPUTER SCIENCE

Objective: To provide an overview of CASA Code and computer science.

Participants will be able to:

- Explain the purpose of the CASA Code.
- Define the following key terms: computer science, programming language, and code.
- Write binary codes.

Time: 60 minutes

Prepare Ahead:

- Snacks and drinks before the program.
- Write the session's objectives and outcomes on chart paper (in English and/or Spanish) so that you can post when you arrive (or arrive early enough to post on a whiteboard).
- Invite school staff and community members to join you.
- Create samples of binary code for the Code Language section of the lesson.
- Customize and print the note-taking handout for each participant.

Materials:

Introduction to CASA Code

- Sign-in sheet
- Internet-connected computer and projector/TV
- **Scratch** website to display
- **CASA Code Fact Sheets** printed for each participant
- **Note-Taking Guide** or paper and pencils for each participant

Code Language

- **Binary Code Worksheet** printed for each participant
- Samples for demonstration

Wrapping Up and Discussion

- **Note-Taking Guide** or paper and pencils for final thoughts

INTRODUCTION TO CASA CODE

Time: 20 minutes

Materials

- Sign-in sheet
- Objectives & Outcomes on chart paper or whiteboard
- Internet-connected computer and projector/TV
- **Scratch** website to display
- **CASA Code Fact Sheets** (1 copy for each participant)
- **Note-Taking Guide** for every participant, or paper, and pencils

Grouping

- Whole group

Activity

1. Introduce CASA Code to parents and students:
    - *Welcome to CASA Code and thank you for taking time from your busy day to be here. There is no doubt that STEM education—science, technology, engineering, and math, and therefore, computer science—is central to the lives of all Americans. There is a huge opportunity in the STEM industry for Latino youth, but students and parents/caregivers are too often unaware of the possibilities and pathways in computer science. This is why CASA Code is very important for Latino students. Through CASA Code, UnidosUS is working to increase Latino representation in computer science fields by:*
        1. *Exposing Latino students to computer science in a culturally relevant way through a customized curriculum and the introduction of Latino role models in technology.*
        2. *Engaging Hispanic families in the discovery of computer science through community events where parents and students participate in hands-on coding*

FACILITATOR NOTES

activities while exploring computer science academic and career trajectories.

3. *Familiarizing Latino youth with computer science through hands-on coding sessions.*
4. *Engaging youth in a service-learning planning process to amplify their voices through technology.*
5. *Addressing the challenges that Latino communities face through the development of technologically focused solutions.*
6. *Reinforcing high standards and rigorous learning*

- *There is a lot of information here, but we are going to take this one step at a time.*

2. Display the **Scratch website** on the projector, then right-click and select "View Page Source."
3. Share with parents and students:
   - *Behind the beautiful pictures, bright colors, and bold text is lots of code, a programming language.*
4. Ask participants to look at the screen for a couple of minutes and write their observations on their handout.
5. Lead a discussion:
   - *What is the first thing that you notice about this page?*
     (They will say things like the lines are numbered, red and blue lettering, hard to understand, etc.).
   - *What do you think this page is?*
6. Now move the "View Page Source" window so it is side-by-side with the original page to point out elements.
7. Explain that the "View Page Source" view is the page that contains the "code."
   - *You'll see "HTML" listed at the top of the "View Page Source" Scratch page. That is the name for the coding language being used here. You'll also see the "less than" and "greater than" sign between words throughout the "View Page*

FACILITATOR NOTES

Source" page. These are called tags, including <head>, <title>, and <body> tags, among others. Tags are used to create elements for the webpage.

8. Switch to the Scratch page.
   - *At the top of the tab on the Scratch webpage you should see the words "Scratch - Imagine, Program, Share." That is the title of the webpage.*
9. Switch back to the "View Page Source" page and highlight it on that page to show the code that was used.
10. Ask participants: What is code?
    - *Code runs the information highway, computers, and the world as we know it. But many of us do not know what a code is or the purpose it serves. Code is a list of instructions a computer scientist uses to tell a computer what to do. In other words, it is a unique programming language that computers can understand. If the computer can perform the actions you program it to do, then the code is correct. Coding is very much like the way you communicate with your son or daughter. If effective, it can promote positive behaviors and prevent potentially dangerous behaviors.*

CODE LANGUAGE

Time: 25 minutes

Materials

- **Binary Code Worksheet** copied for each participant
- Samples of names in binary code to demonstrate

Grouping

- Family groups

FACILITATOR NOTES

Have samples of names in binary code ready to sample.

Consider modeling your own name in binary code.

Activity

1. Introduce binary code:
   - *Sometimes people develop codes to communicate with close family and friends to easily understand one another.*
   - *How many of you have a special code or language that you use to communicate with your family?*
     (If someone says yes, have them explain).
   - *Sign language is another language used by many people. It uses a visual-manual modality to convey meanings.*
   - *Binary code "language" expresses digital information in a form that computers can process. Binary code is expressed only in the form of "0" and "1," since those two numbers are the only symbols necessary to convey the flow of electricity through a computer transistor. Much like the American alphabet, there is a unique binary number for each letter: both upper-case and lower-case. By knowing the binary number, you can write out your full name with a series of 1s and 0s.*
2. Ask families to write their names in binary code.
   - Take a look through the key on the **Binary Code Worksheet** and try to spell your name!
   - Find the 8-bit binary code sequence for each letter of your name and write it down with a small space between each set of 8 bits.
   - For example, if your name starts with the letter A, your first letter would be 01000001.
   - When done, write a special message to someone in your family using the 8-bit binary code sequence on the worksheet.

FACILITATOR NOTES

WRAPPING UP AND DISCUSSION

Time: 15 minutes

Materials

- **Note-Taking Guide** or paper and pencil

Grouping

- Whole group

Activity

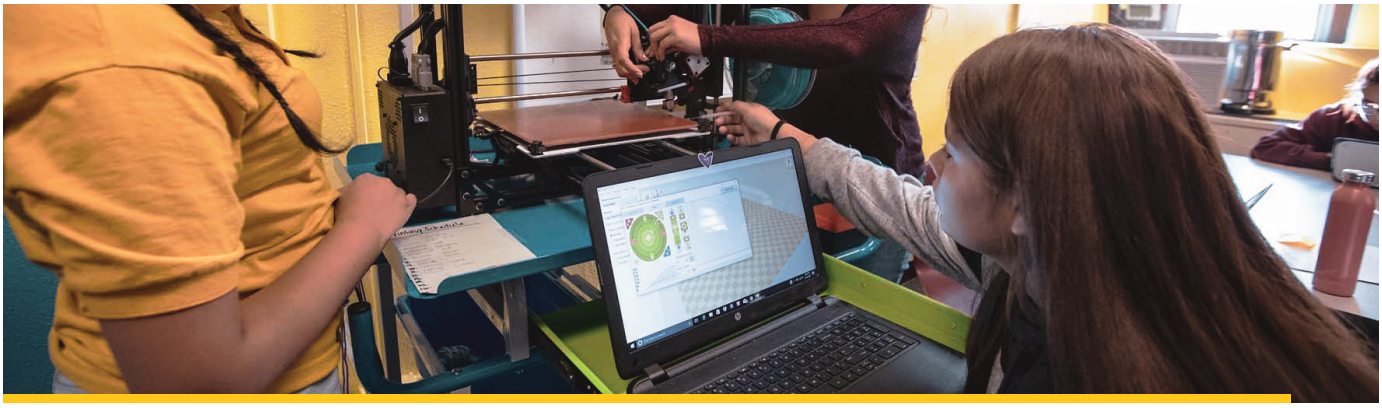
1. Ask families to write three ideas about what they learned about CASA Code and why the program is important.
2. Lead a discussion:
    - *Let's discuss what you learned during this lesson:*
        - What was your favorite part of the lesson?
        - How did your listening, teamwork, and critical thinking skills help you communicate while completing the activity?
3. Ask parents and students to share their binary code special messages.

FACILITATOR NOTES

UNIDOSUS

STRONGER COMMUNITIES. STRONGER AMERICA.

FACT SHEET



About Us

UnidosUS, formerly the National Council of La Raza (NCLR), is the nation's largest Latino civil rights and advocacy organization. We serve the Hispanic community through our research, policy analysis, and state and national advocacy efforts, as well as in our program work in communities nationwide. Through a network of nearly 300 Affiliates across the country, we represent millions of Latinos in the areas of civic engagement, education, civil rights and immigration, workforce and the economy, health, and housing.

Since our founding in 1968, we have contributed to a stronger America by elevating the voice of Latinos, and by defending and advancing our community's concerns. In 2018, we registered more than 80,000 new voters and contributed to the most diverse Congress in the nation's history. We advocated for and won protections for vital programs that help families get ahead and lead healthier lives. And we defended immigrants and millions of American families from harmful policies.

Today, we remain steadfast in our mission to realize a day where all Latinos can thrive and their contributions are fully recognized.

UNIDOSUS EDUCATION

By 2023, Latinos will represent nearly 30% of all students enrolled in U.S. schools. Their success will contribute to our nation's success. All of our work is dedicated to ensuring their equitable access to quality education.

Our programs, policy, and advocacy ensure that all kids count and have the educational and personal opportunities to become empowered adults. We develop and promote best practices aimed at improving student outcomes from early childhood education to post-secondary programs. We work with practitioners, policymakers, and advocates to help students succeed from kindergarten through high school. And we support initiatives focused on helping Latinos access, transition into, and complete higher education.

CASACODE

UnidosUS CASA Code Program—Cultura, Aprendizaje, Servicio, and Acción (CASA)—works to introduce young leaders to computer science and coding, while developing them to serve as agents of change in their own communities. Through CASA Code, students develop with computer science and explore how they can impact their communities through technology.

Although Latinos represent 17% of the workforce, they only represent 7% of computer and math occupations. There is a huge opportunity for Latino youth, but students are too often unaware of the possibilities and pathways in computer science careers. CASA Code is working to increase Latino representation in computer science fields by:

- Exposing Latino students to computer science in a culturally relevant way through customized curriculum and the introduction of Latino role models in technology.
- Engaging Hispanic families in the discovery of computer science through community events where parents and students participate in hands-on coding activities while exploring computer science academic and career trajectories.
- Familiarizing Latino youth with computer science through hands-on coding sessions.
- Engaging youth in a service-learning planning process to amplify their voice through technology.
- Addressing the challenges that Latino communities face through the development of technologically focused solutions.
- Reinforcing high standards and rigorous learning.

unidosus.org | | @WeAreUnidosUS

As of 3/12/19

Binary Code Worksheet

Computers use binary code to store information. Binary code can be represented by any two symbols, such as 1's and 0's.

Make a binary code representation of your name (or nickname). For each space, write the letter and the corresponding binary code.

Example: Maria would be
M=0100110 a=01100001 r=01110010 i=01101001 a=01100001

Binary Code Letters

a	=	01100001	k	=	01101011	u	=	01110101
b	=	01100010	l	=	01101100	v	=	01110110
c	=	01100011	m	=	01101101	w	=	01110111
d	=	01100100	n	=	01101110	x	=	01111000
e	=	0110010	o	=	01101111	y	=	01111001
f	=	01100110	p	=	01110000	z	=	01111010
g	=	01100111	q	=	01110001			
h	=	01101000	r	=	01110010	Upper case letters start with 010 (instead of 011).		
i	=	01101001	s	=	01110011			
j	=	01101010	t	=	01110100			

Try writing your name or nickname! _____

__=_____ __=_____ __=_____

__=_____ __=_____ __=_____

__=_____ __=_____ __=_____

Now, write a special message to someone in your family.

Example: I love you

I=01001001 l=01101100 o=01101111 v=01110110 e=01100101 y=01111001 o=01101111 u=01110101

_____

__=_____ __=_____ __=_____

__=_____ __=_____ __=_____

__=_____ __=_____ __=_____

__=_____ __=_____ __=_____

Note-Taking Guide Guía para tomar notas

Opening Discussion

What's behind a webpage? Please describe what you see when the teacher shows the source code.

¿Qué hay detrás de una página web? Describa lo que ve cuando el maestro muestra el código fuente.

Discusión de apertura

Wrapping Up

Please list 3 things you learned today about CASA Code.

Why are these important?

Enumere 3 cosas que aprendió hoy sobre el Código CASA.

¿Por qué son importantes?

Terminando

Engaging Families and Students

Lesson 2: FAMILY CODING NIGHT

Objective: To introduce families to fundamentals of coding using exciting and interactive methods.

Participants will be able to:

- Identify programming symbols.
- Define the following key terms: JavaScript, sequence, and variable.
- Code a Vidcode.

Time: 90 minutes

Prepare Ahead of Time:

- Snacks and drinks before the program.
- Write the session's purpose and objectives on chart paper (in English and/or Spanish) or on whiteboard.
- Make arrangements for volunteers and school staff to join you.
- Choose and prepare an online or print version of the **Name That App** quiz for the icebreaker. You want to find out which apps families use, choosing from Facebook, Twitter, Instagram, Snapchat, WhatsApp, and Google Chrome.

Materials:

Icebreaker: Name that App

- Print a **Name That App** quiz for each participant or build an online version (using QuizFaber, Quiz Creator, Kahoot, etc.)

Create a Vidcode

- Internet-connected computer for each family group
- **Vidcode** website
- You may want to post the vocabulary on a board:
  - Variable: a storage location that contains a bit of information. Numbers and colors are examples of variables.
  - Sequence: a sequence is when one line of code happens after another. Putting blocks in different orders will produce different results.
  - JavaScript: a programming language used by web developers.
  - Web developers: people who build websites.

Wrapping Up

- Wrapping Up section from **Name That App** quiz for each participant, or Post-it notes.
- Internet-connected computer connected to projector/TV and speakers.

INTRODUCTIONS & WELCOME

Time: 5 minutes

Materials

- Sign-in sheet
- Objectives & Outcomes on chart paper or whiteboard

Grouping

- Family groups

Activity

1. Welcome parents, thank them for coming to the event, and explain the purpose of the event.
2. Make sure all parents have signed in.
3. Ask families to sit together.

ICEBREAKER: NAME THAT APP

Time: 15 minutes

Materials

- **Name That App** quiz printed for each participant or prepare a Name That App quiz using an online tool (QuizFaber, Quiz Creator, Kahoot, etc.)

Grouping

- Family groups

Activity

1. Play **Name That App** and ask to indicate which ones each person uses.
2. Share the data (online or by raising hands) to identify the most popular apps from the list.

FACILITATOR NOTES

3. Explain what families will be accomplishing:
    - *Today you will learn more about coding, about how CASA Code works to expose Latino students to computer science in a culturally relevant way, and how it engages Hispanic families in the discovery of computer science through exciting hands-on coding events that focus on academic and career trajectories.*

CREATE A VIDCODE

Time: 40 minutes

Materials

- Internet-connected computer for each family group
- **Vidcode** website
- You may want to post the vocabulary on a board:
    - Variable: a storage location that contains a bit of information. Numbers and colors are examples of variables.
    - Sequence: a sequence is when one line of code happens after another. Putting blocks in different orders will produce different results.
    - JavaScript: a programming language used by web developers.
    - Web developers: people who build websites.

Grouping

- Family groups

Activity

1. Introduce the concept "JavaScript."
    - JavaScript is a computer language used by web designers to make websites. They depend on using variables and sequence:
        - Variable: a storage location that contains a bit of information. Numbers and colors are examples of variables.

FACILITATOR NOTES

You may want to create one or two examples using **Vidcode** to share with parents and students.

- Sequence: a sequence is when one line of code happens after another. Putting blocks in different orders will produce different results.

2. Introduce the activity:
   - **Vidcode** is a tool that builds JavaScript code automatically. You'll learn to code while creating amazing visual projects, like meme makers, Snapchat filters, and video games!
   - In your first **Vidcode** tutorial, you'll be making a video filter and coding a graphic to move with your mouse.
   - Once you're ready to save and share your project, click SUBMIT on the top of your screen.
   - Try it out: **vidcode.com/project/intro**.
3. Explain each step as the families are working collaboratively on their Vidcodes.

PROJECT REVIEW

Time: 20 minutes

Materials

- Internet-connected computer with projector and speakers
- **Vidcode** projects saved so can share on projected computer

Grouping

- Whole group

Activity

1. Invite each family/group to share their projects on the projector/TV.

FACILITATOR NOTES

2. Ask families to share:
    - Why did your family decide to code this design?
    - Explain one variable that was used in the project.
    - Are you satisfied with your **Vidcode**?
    - Was your **Vidcode** easy or difficult to code?

WRAPPING UP

Time: 10 minutes

Materials

- **Name That App** with Wrapping Up section for each participant or Post-it notes

Grouping

- Whole group

Activity

1. Write down 3 things you learned about coding on your Wrapping Up section on your **Name That App** handout or on Post-it notes.
2. Go around the room and ask everyone to share what they learned.
3. Thank families for attending and learning about STEM and computer science.

FACILITATOR NOTES

Name That App! ¡Nombre La App!

Which apps below do you and your family use?

¿Qué apps a continuación usan usted y su familia?

❑ Facebook ❑ Twitter ❑ Instagram ❑ Snapchat ❑ WhatsApp ❑ Chrome

Notes and Ideas Notas e Ideas

NOTES :: NOTAS

WRAPPING UP :: TERMINANDO

Please write 3 things you learned about coding.

Escribe 3 cosas que aprendiste sobre la codificación.

1. _____

2. _____

3. _____

Engaging Families and Students

Lesson 3: UNPLUGGED: COMMUNITY SOLUTIONS

Objective: To teach students important computer science concepts and how to combine them with problem-solving to improve our lives and our communities.

Participants will be able to:

- Define the following key terms: computer science, user, developer, software, hardware, application (app).
- Identify the 6 main app categories.
- Design a sample app to solve a problem for a community member.

Time: 60 minutes

Prepare Ahead of Time:

- Location with tables for group work.
- Snacks and drinks before the program.
- Write the session's purpose and objectives on chart paper or on whiteboard.
- Print copies and cut the **Community Solutions Scenario** so each student in each group gets the same scenario.

Materials:

Introduction to Computer Science

- **CASA Code Computer Usage Survey** printed for each student
- Objectives & Outcomes on chart paper or whiteboard

Overview of Apps

- **6 Main Types of Mobile Apps** handout printed for each student

Design an App

- **Design an App Worksheet** printed for each student
- **Community Solutions Scenario** for each student, cut so each student gets only their group's description

Wrapping Up and Discussion

- Completed **Design an App Worksheets**

INTRODUCTION TO COMPUTER SCIENCE

Time: 10 minutes

Materials

- **CASA Code Computer Usage Survey** printed for each student
- Objectives & Outcomes on chart paper or whiteboard

Grouping

- Students grouped at tables

Activity

1. Discuss with students:
    - *Now more than ever, everyone is computing! We use small and large computers on a daily basis to gather information, communicate with each other, and assist with completing tasks to enhance our lives. Computer science is the study of information technology, processes, and their interactions with the world. Computer science includes both software and hardware.*
        - *Software refers to the programs and other operating systems or information used by a computer.*
        - *Hardware refers to the machines, wiring, and other physical components of a computer or other electronic system.*
2. Explain a quick activity:
    - Take a minute to think about the various ways you use computers, your frequency of use, and your satisfaction level.
    - Complete the **CASA Code Computer Usage Survey** and discuss your results with your group for 5 minutes.
3. Ask a couple of volunteers to share their group's responses with everyone.

FACILITATOR NOTES

OVERVIEW OF APPS

Time: 10 minutes

Materials

- **6 Main Types of Mobile Apps** handout printed for each student

Grouping

- Students grouped at tables

Activity

1. Hand out **6 Main Types of Mobile Apps** handout and explain to students:
    - *An application (app), is a program/software that allows you (user) to perform specific tasks. Applications for desktop or laptop computers are sometimes called desktop applications, while those for mobile devices are often called mobile apps. When you open an application, it runs inside the operating system until you close it. Apps are organized in the 6 different categories below. (Original text by* **Matteo / Mobile App Development***)*
    - LIFESTYLE MOBILE APPS
        - A lifestyle app accelerates or supports the individual areas that define our lifestyle. Examples of this type of mobile app relate to:
            - Fitness
            - Food
            - Music
            - Travel
    - SOCIAL MEDIA MOBILE APPS
        - Social media apps are some of the most popular types of mobile apps available. On social media apps, users are able to share information and communicate with other users.

FACILITATOR NOTES

- UTILITY MOBILE APPS
  - Utilities are the types of mobile apps that we use most often without thinking about them as apps. Some examples of mobile apps in the utility category are:
    - Reminders
    - Calculator
    - Flashlight
    - Weather
- GAMES/ENTERTAINMENT MOBILE APPS
  - Games are one of the more obvious mobile app categories. Gaming and entertainment apps are popular among developers because they oftentimes are able to engage users on a consistent basis.
- PRODUCTIVITY MOBILE APPS
  - Productivity apps help users accomplish tasks quickly and efficiently. Examples of productivity apps include:
    - Google Sheets
    - Apple Wallet/Google Pay
- NEWS/INFORMATION OUTLETS MOBILE APPS
  - News and information apps supply users with the news and information they're looking for in a simplistic manner that is easy to navigate.

2. Ask students:
   - Which type of app do you use most often?
   - What category does that fall into?

FACILITATOR NOTES

DESIGN AN APP

Time: 25 minutes

Materials

- **Design an App Worksheet** printed for each student
- **Community Solutions Scenario** for each student, cut so each student gets only their group's description

Grouping

- Students grouped at tables

Activity

1. Introduce the activity to the class:
    - *Computer science and technology is not used solely for fun games and communication. One of the greatest benefits of the advancement of technology is the fact that computer scientists are able to create devices and platforms to improve our lives in a very effective and efficient manner.*
    - *Developers create flow charts that help programmers write computer code. They develop applications that allow people to do specific tasks on a computer or another device. Developers are great listeners and team players with excellent critical thinking skills.*
2. Hand out a **Design an App Worksheet** and a **Community Solutions Scenario** to each student. Students in each group should receive the same scenario.
3. Explain each section of the worksheet.
4. Ask students to read their group's scenario together and begin planning their app by completing the worksheet.
5. Walk around and provide assistance as needed.

FACILITATOR NOTES

In this portion of the lesson, students will be assigned to a group and given a scenario of a person that has a problem and is in need of help. Students will then use the **Design an App** worksheet to develop an app that provides a solution for the user.

WRAPPING UP AND DISCUSSION

Time: 15 minutes

Materials

- Completed **Design an App Worksheets**

Grouping

- Whole group

Activity

1. Ask students to share their sample app with a neighboring group or complete a whole class gallery walk.
2. Discuss with students:
    - *Let's discuss what you learned during this activity:*
        - *What was your favorite part of this activity?*
        - *How did your listening, teamwork, and critical thinking skills help you work through this brainstorming process?*
        - *What part of this activity did you find challenging?*
        - *Did your group come up with a solution?*

FACILITATOR NOTES

Gallery Walk: Post worksheets around the room. Participants move from station to station—writing questions or comments, noting similarities and differences, reflecting on what they might do differently if they were to repeat the process.

CASA Code Computer Usage Survey

1. Do you have access to a computer with internet at home?	❑ Yes ❑ No
2. How many hours do you use a computer, tablet, and/or cell phone per day?	❑ 0-2 ❑ 2-4 ❑ 4-6 ❑ 6 or more
3. Which do you use the internet for most often?	❑ Homework ❑ Shopping ❑ Social media ❑ Gaming ❑ Other
4. How often do your teachers provide an opportunity for you to use computers in class?	❑ 0-2 times/week ❑ 3-4 times/week ❑ 5-6 times/week ❑ 6 or more
5. How often does your homework require a computer and/or the internet?	❑ 0-2 times/week ❑ 3-4 times/week ❑ 5-6 times/week ❑ 6 or more
6. Do you feel you have enough experience and knowledge to efficiently use and adapt to changes in technology?	❑ Yes ❑ No
7. Are you satisfied with your computer usage?	❑ Yes ❑ No

6 Main Types of Mobile Apps

Adapted from Matteo / Mobile App Development at duckma.com/en/types-of-mobile-apps/

Community Solutions Scenarios

Below you will find 4 scenarios. Give each group one scenario. Instruct students to use the information shared in the scenarios to design an app that provides help and a solution for the person with the problem (user).

Scenario 1

Janine and her family live in the Mission District in the San Francisco Bay Area. Janine's lease for her studio apartment is coming to an end in thirty days. Her landlord refuses to renew the lease at the same rate; therefore, she will need to find affordable housing for her family of 2. She has searched for other apartments in the area, but unfortunately she does not make enough money to afford an apartment in the neighborhood she has lived in for the past 7 years. Many families in Janine's community are being negatively impacted by gentrification. Gentrification is the process of renovating housing or a district so that it conforms to middle-class taste. What type of app would you design to help Janine get the information she needs to solve her problem of preventing her family from becoming homeless?

Scenario 2

Hector is an honor student at UC Berkley, and he expects to graduate in the spring of 2021. Hector immigrated to the United States of America when he was just 3 years old, but he has not been granted citizenship yet. His DACA status is set to expire September 21, 2020. (DACA is short for Deferred Action for Childhood Arrivals. This program provides administrative relief from deportation.) The purpose of DACA is to protect eligible immigrant youth who came to the United States when they were children from deportation. DACA gives young undocumented immigrants: 1) protection from deportation and 2) a work permit. Hector is really afraid and concerned about his future. He does not have any money to pay for an attorney and is unsure of what resources are available to help him. What type of app would you design to help Hector get the information he needs to solve his problem of preventing deportation?

Scenario 3

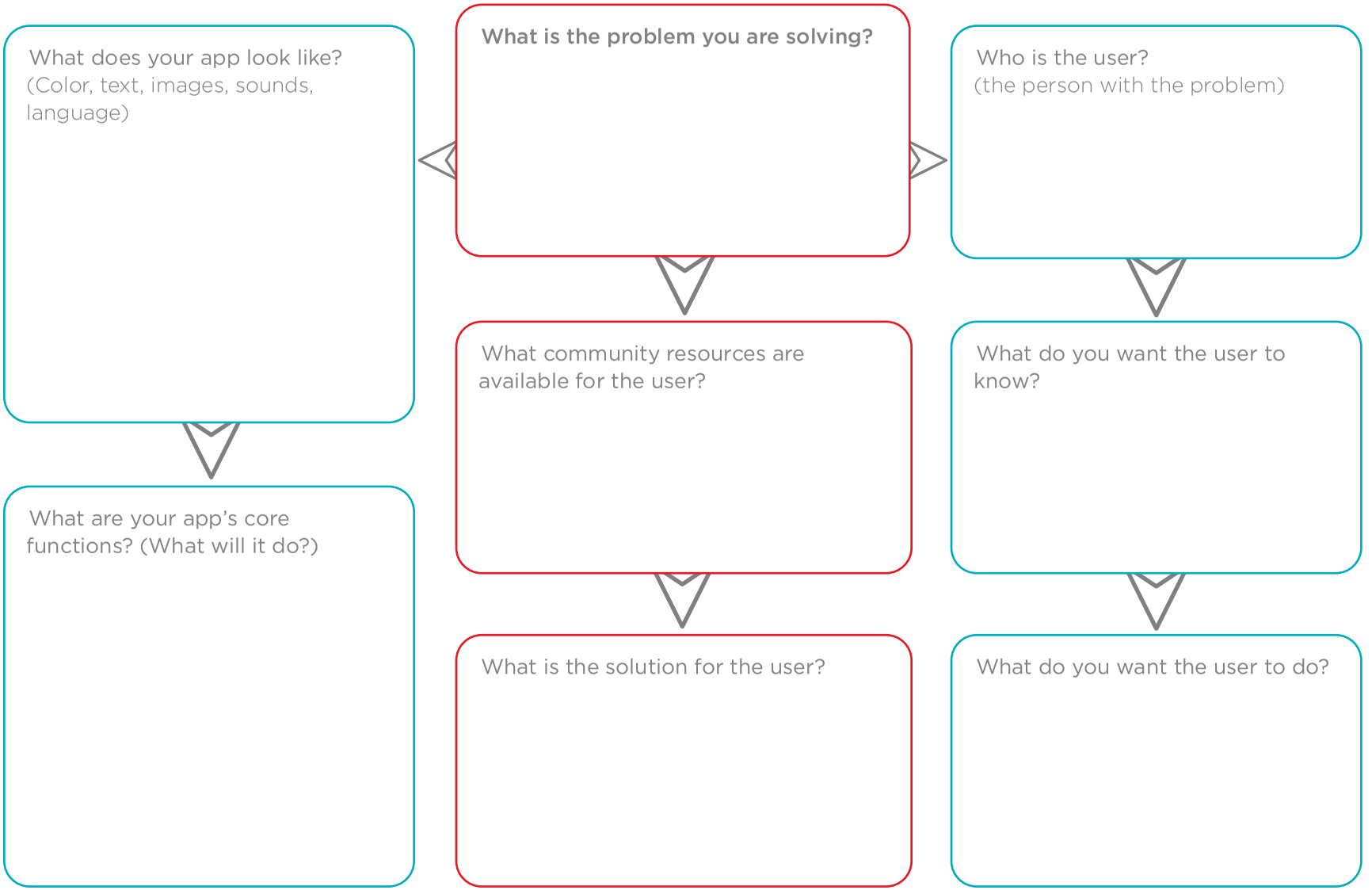
Jose and Ivelisse are the proud parents of 4 children. Jose lost his job 2 months ago and is having a difficult time finding a new job. Ivelisse has a stable job and makes enough money to pay most of their bills, including their mortgage and car insurance. After she pays these bills, she does not have enough money left to buy food for her family. What type of app would you design to help Jose and Ivelisse get the information they need to solve their problem of ensuring the family's needs are met?

Scenario 4

Nancy is a 7th grade student who recently transferred to a new school. She is new to the area and does not have any friends at the school. She feels out of place and is bullied at times. This makes Nancy very sad and she wants to talk to someone about the problems she is experiencing, however she is afraid. What type of app would you design to help Nancy get the information she needs to solve her problems and ensure she is safe?

Design an App Worksheet

Use the information provided in your group's scenario to design an app that provides help and a solution for the person with the problem (user).



UnidosUS.org