



It's a Thinkin' Thing

Exercise your students' brains with
Computational Thinking

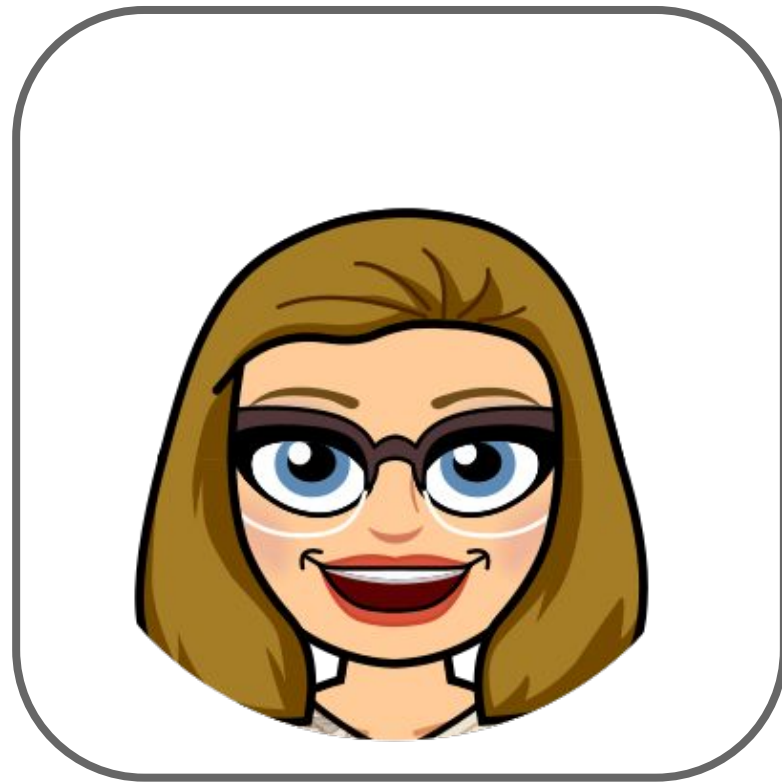
Elementary Parent U
February 4, 2020

Hello!

I am Amy Houser

Spring Branch ISD

Educational Technology Department







**Critical Thinkers
Problem Solvers
Communicators**

Hardest to Hire

Source: Committee for
Economic Development



STEM Skills



Creativity

Quantitative
Ability

Writing



Hardest to Hire/Most Essential

Critical
Thinking



Problem
Solving



Tech Skills



Media
Literacy



Proficiency w/
New Tech



Oral
Communication



Organized

Ability to work w/
others of diverse
backgrounds



Teamwork

Most Essential

“Computer science really, really matters, and **it matters to non-CS majors**. The world needs better medicine, better materials, better art, better science, better movies, more efficient buildings, and **all of these things require computing**.”

*David Kosbie
Carnegie Mellon University, SCS*



Programming experience promotes higher STEM motivation among first-grade girls



Allison Master^{a,*}, Sapna Cheryan^a, Adriana Moscatelli^b, Andrew N. Meltzoff^a

^aUniversity of Washington, Seattle, WA 98195, USA

^bPlay Works Studio, Seattle, WA 98166, USA

ARTICLE INFO

ABSTRACT

“Positive experiences with programming can lead to higher motivation in robotics and programming for girls.”

Social cognition
Education

mentary school. In the current study ($N = 96$), we told children's stereotypes about STEM fields and attention to develop girls' STEM motivation despite these stereotypes. First-grade children held stereotypes that boys were better than girls at robotics and programming but did not hold

“Research indicates that providing girls with experiences at an early age is an important consideration”

group that was given experience in programming a robot using a smartphone or to control groups (no activity or other activity). Girls given programming experience reported higher technology interest and self-efficacy compared with girls without this experience and did not exhibit a significant gender gap relative to boys' interest and self-efficacy. These findings show that children's views mirror current American cultural messages about who excels at

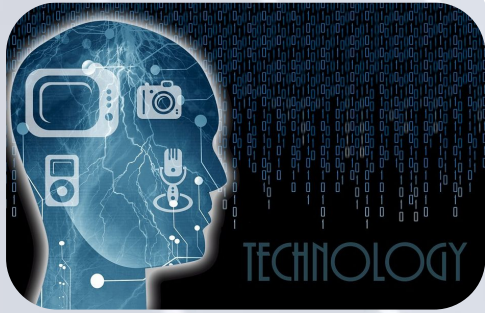
Computer Science

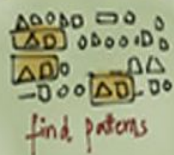
*a field in which
people use the
power of
computers to solve
big problems*



Computational Thinking

a way of thinking critically about open-ended problems, and coming up with solutions that both humans and computers can understand.





$\{\triangle \square\}^*$
abstract



How can I formulate
this problem so it can be
solved using computers?



Computational
Thinker

@sheenalolo
computersforcreativity.com

What happens when kids learn to code?

by Brian Aspinall @mrspinall

I am a risk taker.



I am not afraid to fail.



I am a critical thinker.

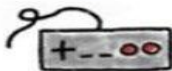
I am a problem solver.



I am a computational thinker.



I am a content creator.



I am a collaborator.

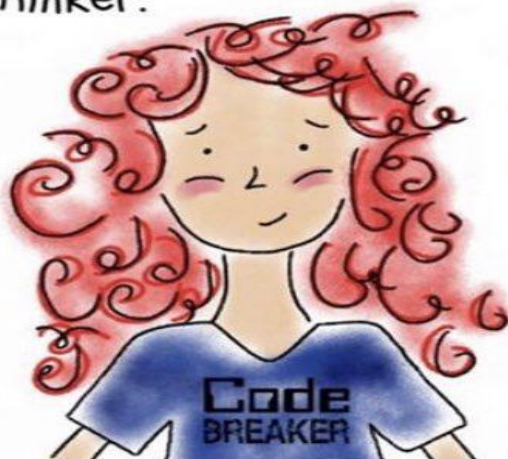


I am confident.



I am an innovator.

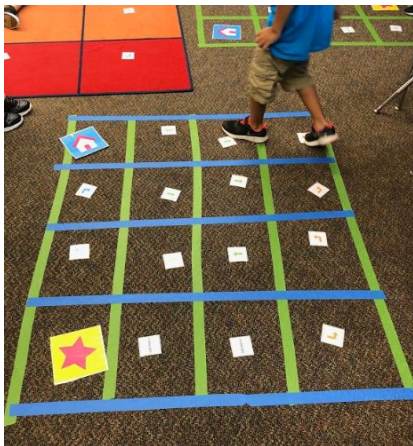
I am future ready.



Types of Computational Thinking Activities

Unplugged Activities

Done without a computer



Plugged Activities

Done with a computer device



Let's Try

an unplugged activity





Draw a circle for the body

Add 2 eyes

Add a crown

Add four legs

Reflect

Is yours the same as your partner?

How could we make our drawings turn out more similar?

What does this teach us about algorithms?



Algorithm

a list of ordered steps

Sequence

a particular order of steps or events

Debug

find and fix errors (bugs) in programs

Terms that are good to know



Now it's your turn.

1. Think of a character/emoji.
2. Write each step of your algorithm
3. Switch papers with a friend and draw each other's characters.
4. Was it what you expected?
5. Change your algorithm to improve it.
6. Cover first drawing with post-it
7. Get another friend to try it.

How to draw a crazy character called

My algorithm.	

My friend followed my algorithm and drew

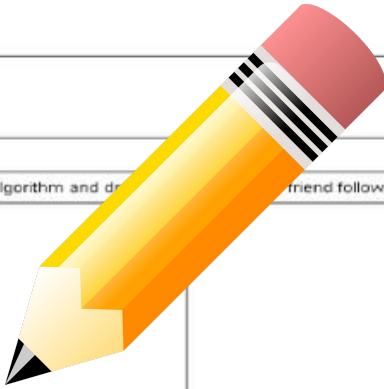
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My friend followed my algorithm and drew

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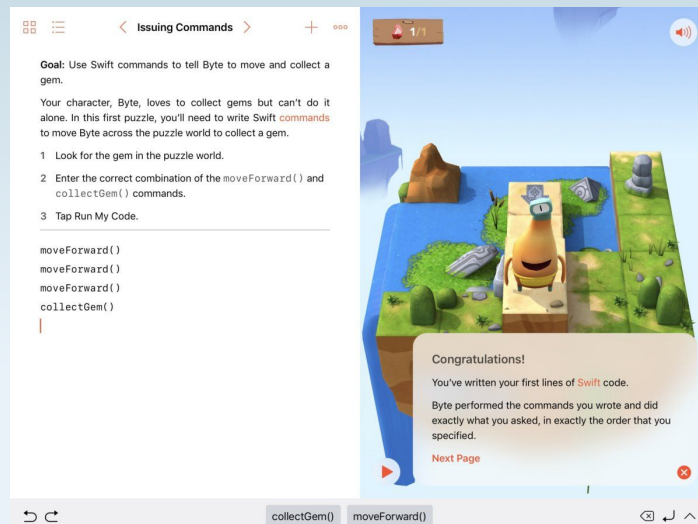
Drawn by

Drawn by



Cup Song





Apps



Computer/ Robots

[Tips For Raising Successful Technologists:
Practice Thinking and Creativity Skills](#)

[Teach Your Kids to Code: 6 Beginner's Resources
for Parents](#)

[What is digital literacy? A parent's guide](#)

[14 Benefits of Coding for Kids and Students](#)

[5 Books to Teach Curious Kids About Coding](#)

[Kids Who Code: Terrific Books That Introduce
Programming to Children](#)

[25 Games, Apps, and Tools for Kids and Parents to
Learn Programming](#)

Resources for Parents

THANKS!

Any questions?

You can find me at:

amy.houser@springbranchisd.com

<https://bit.ly/2vzDszw>





Quotations are commonly printed as a means of inspiration and to invoke philosophical thoughts from the reader.



A picture is worth a thousand words

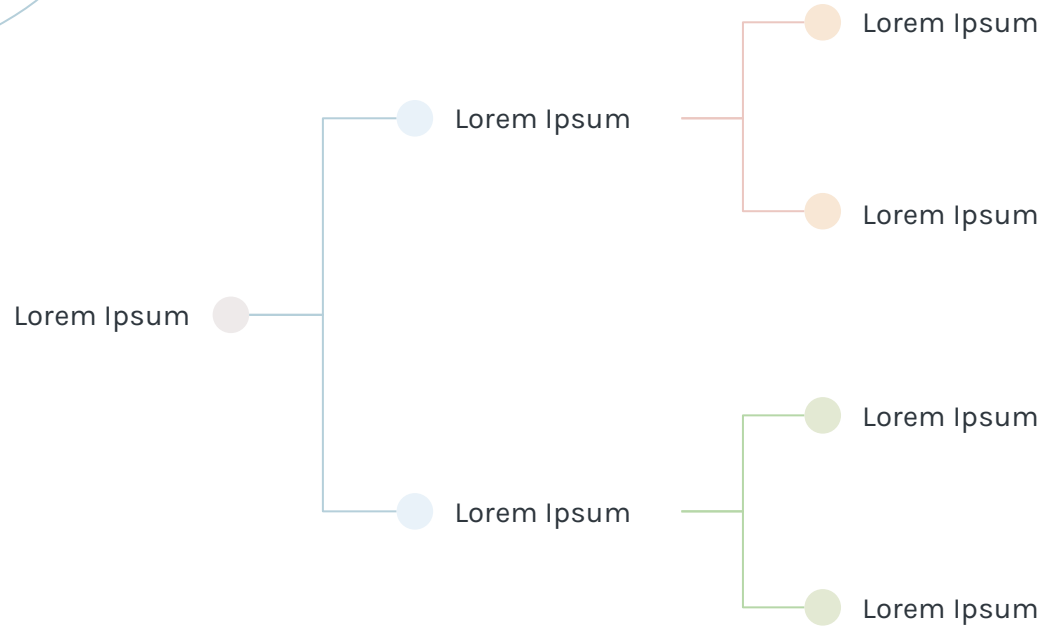
A complex idea can be conveyed with just a single still image, namely making it possible to absorb large amounts of data quickly.





Want big impact? **Use big image.**

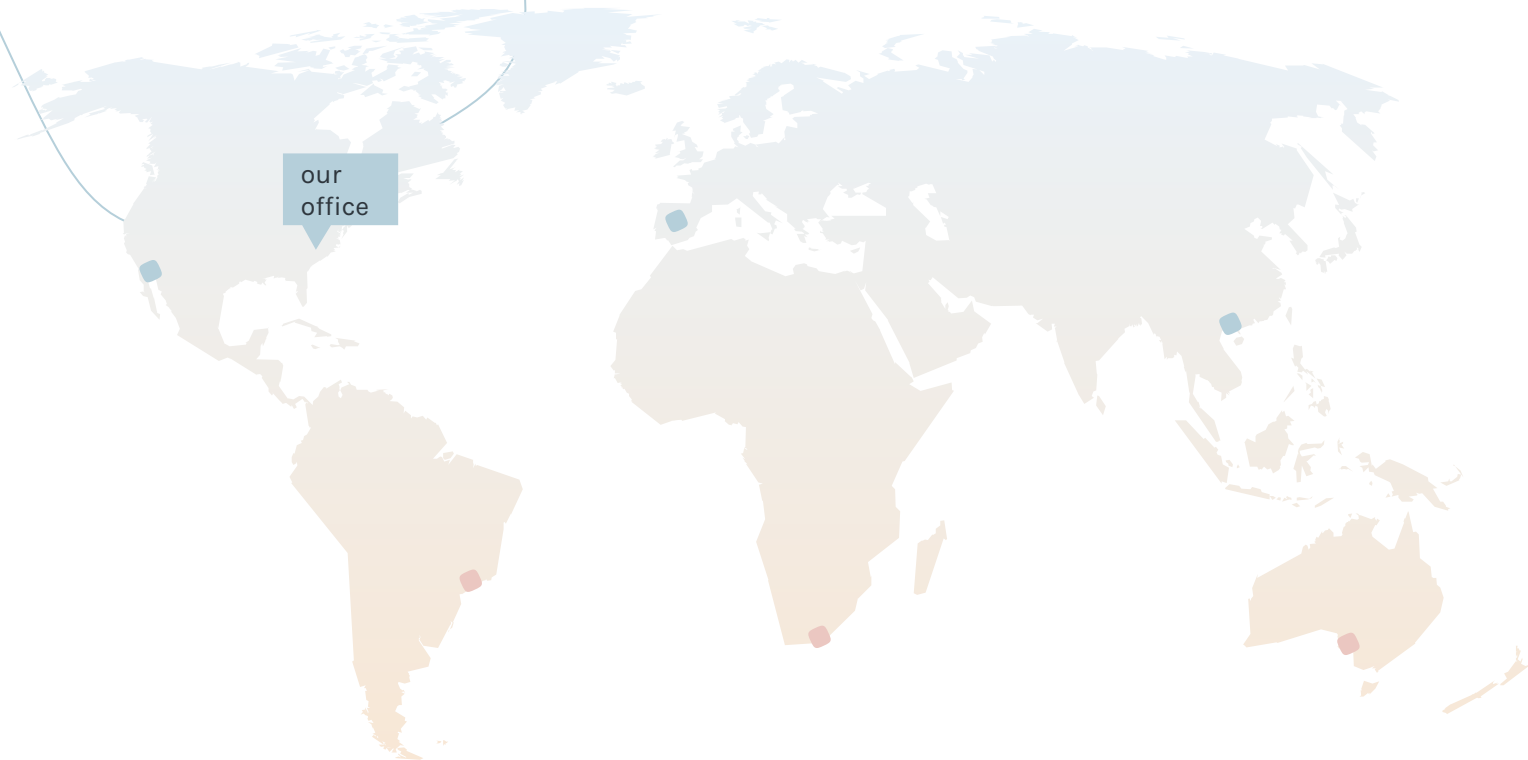
Use diagrams to explain your ideas



And tables to compare data

	A	B	C
Yellow	10	20	7
Blue	30	15	10
Orange	5	24	16

Maps



Find more maps at [slidescarnival.com/extra-free-resources-icons-and-maps](https://www.slidescarnival.com/extra-free-resources-icons-and-maps)



89,526,124

Whoa! That's a big
number, aren't you
proud?

89,526,124\$

That's a lot of money

185,244 users

And a lot of users

100%

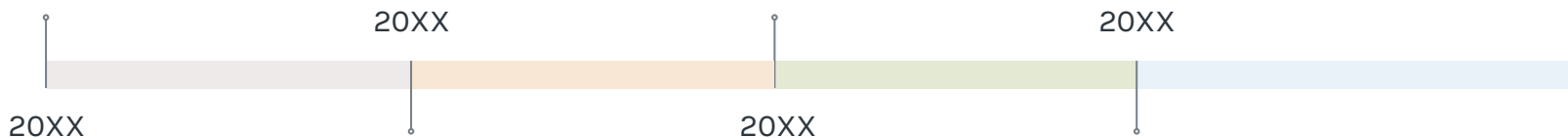
Total success!



Our process is easy

Vestibulum congue tempus

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor. Donec facilisis lacus eget mauris.



Vestibulum congue tempus

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor. Donec facilisis lacus eget mauris.

Vestibulum congue tempus

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Vestibulum congue tempus

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor. Donec facilisis lacus eget mauris.



Let's review some concepts

Yellow

Is the color of gold, butter and ripe lemons. In the spectrum of visible light, yellow is found between green and orange.

Yellow

Is the color of gold, butter and ripe lemons. In the spectrum of visible light, yellow is found between green and orange.

Blue

Is the colour of the clear sky and the deep sea. It is located between violet and green on the optical spectrum.

Blue

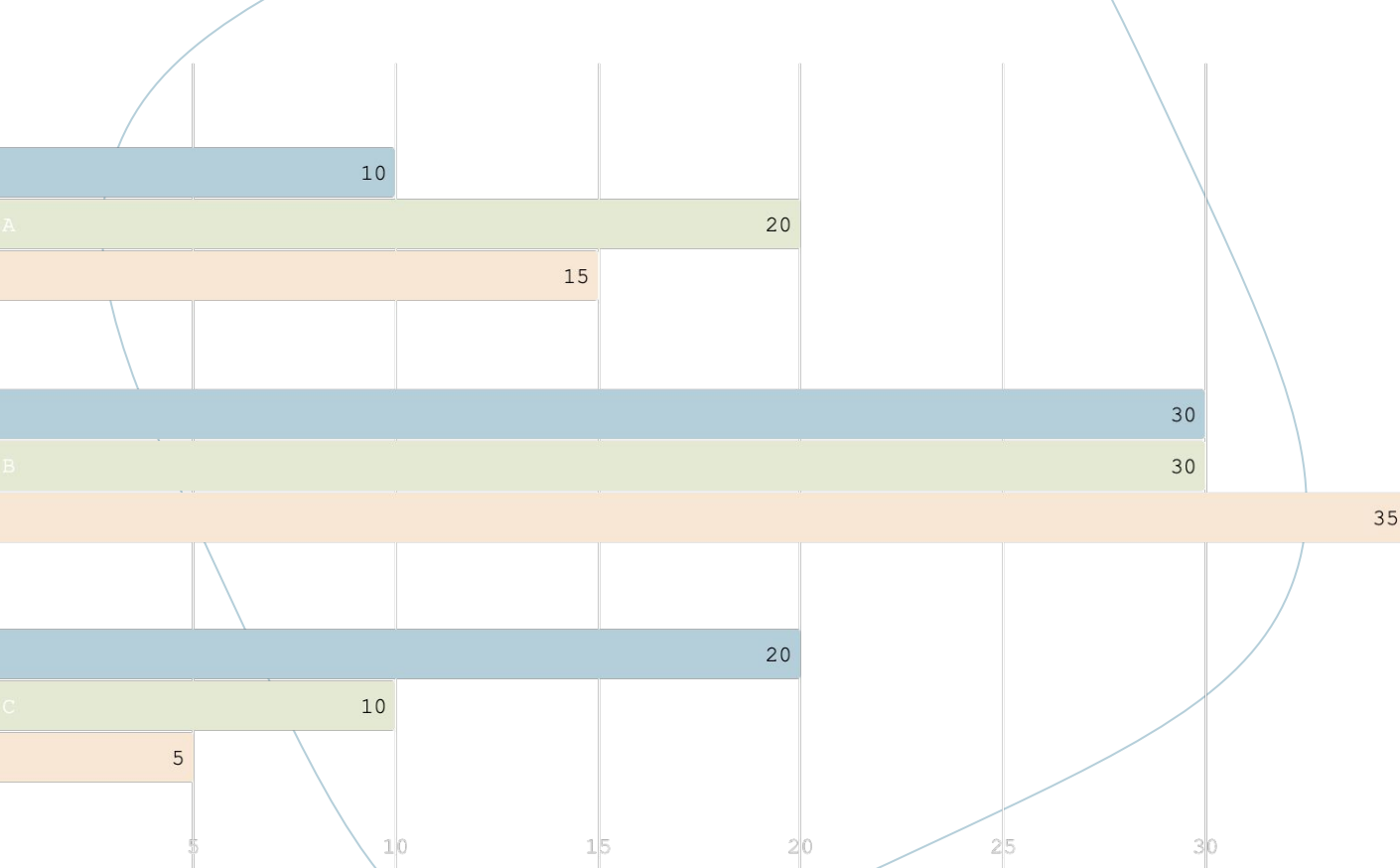
Is the colour of the clear sky and the deep sea. It is located between violet and green on the optical spectrum.

Red

Is the color of blood, and because of this it has historically been associated with sacrifice, danger and courage.

Red

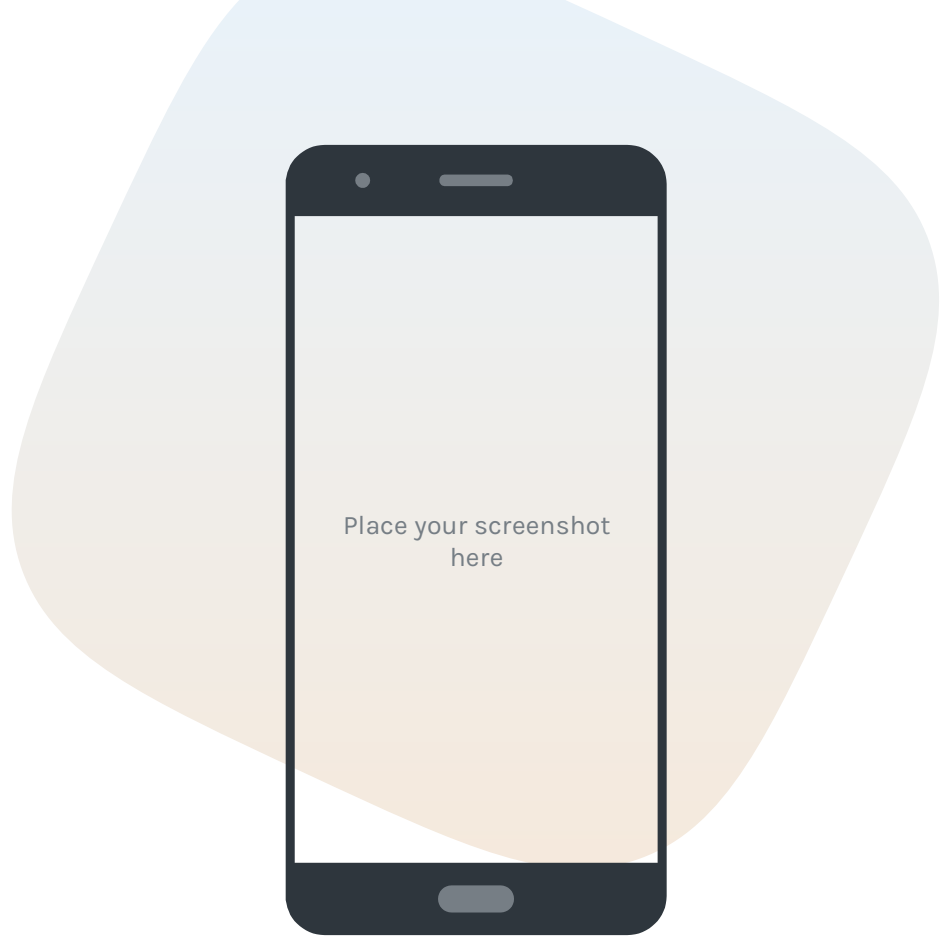
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You can insert graphs from Excel or Google Sheets

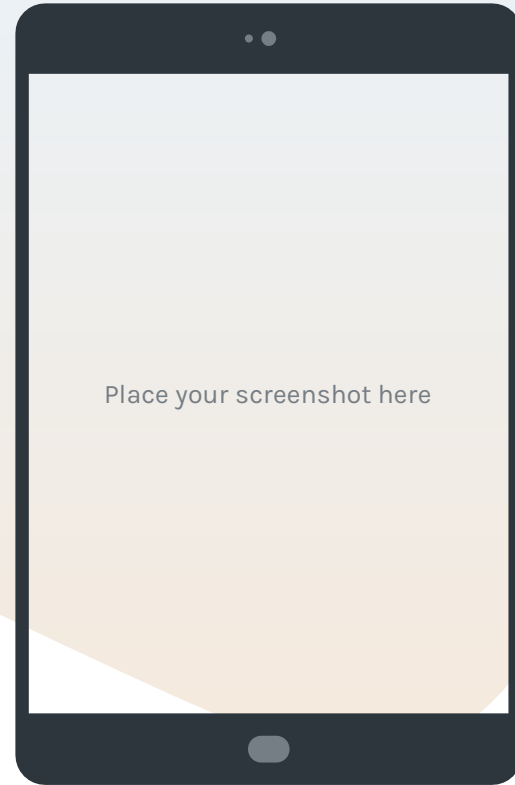
Mobile project

Show and explain your web, app or software projects using these gadget templates.



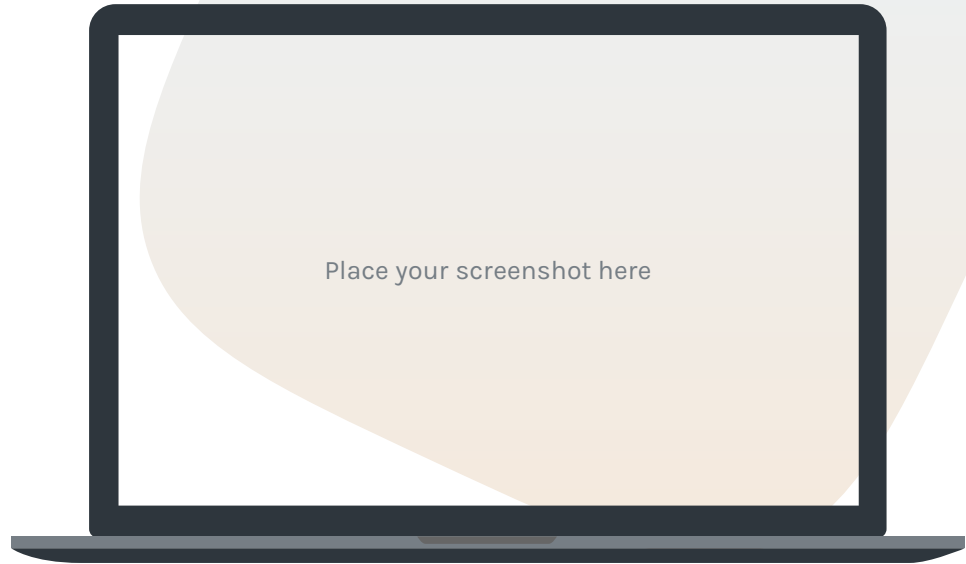
Tablet project

Show and explain your web, app or software projects using these gadget templates.



Desktop project

Show and explain your web, app or software projects using these gadget templates.



Thanks!

Any questions?

You can find me at @username & user@mail.me





Credits

Special thanks to all the people who made and released these awesome resources for free:

- Presentation template by [SlidesCarnival](#)
- Photographs by [Unsplash](#)



Presentation design

This presentation uses the following typographies:

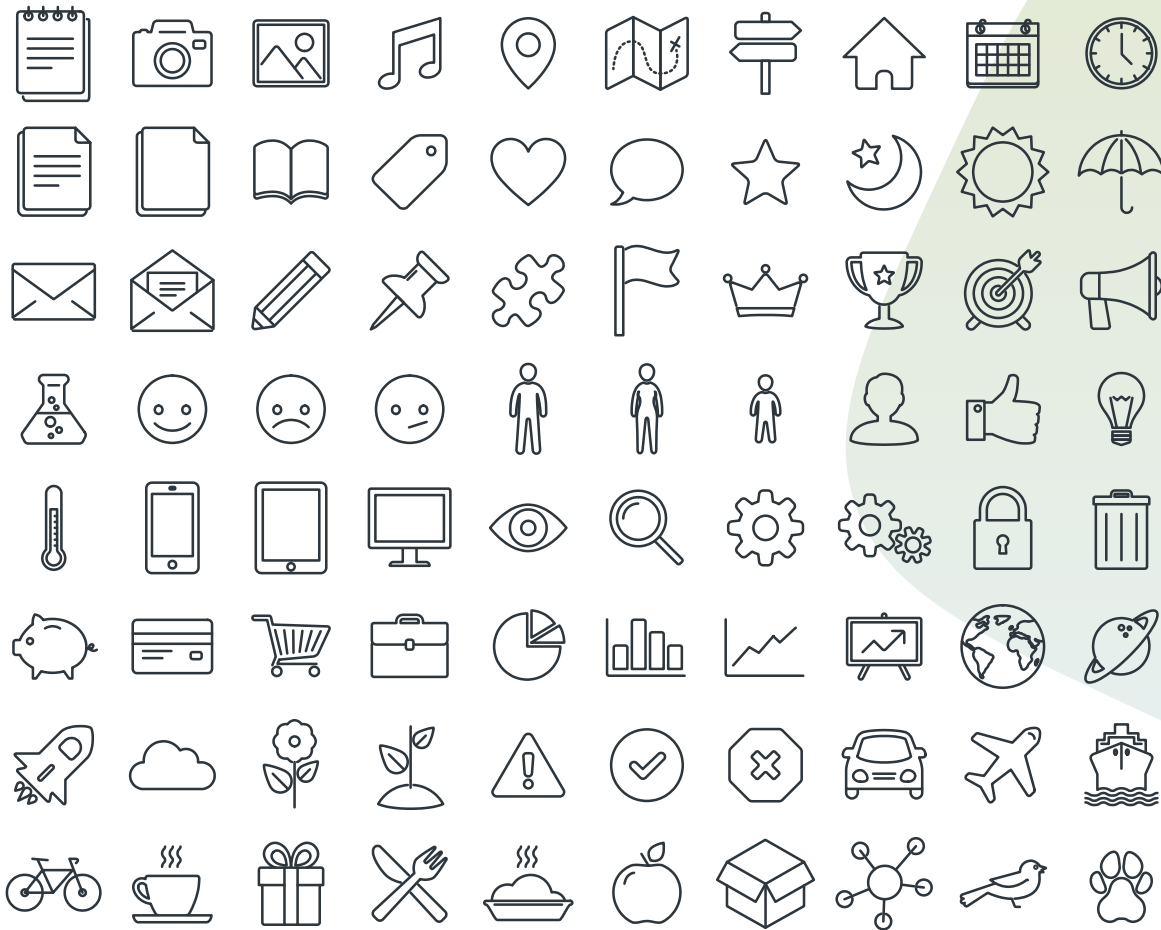
- Titles: Encode Sans SemiCondensed
- Body copy: Karla

Download for free at:

<https://www.fontsquirrel.com/fonts/encode-sans>

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SlidesCarnival icons are editable shapes.

This means that you can:

- Resize them without losing quality.
- Change fill color and opacity.
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Isn't that nice? :)

Examples:



Find more icons at
slidescarnival.com/extra-free-resources-icons-and-maps



You can also use any emoji as an icon!
And of course it resizes without losing quality.

How? Follow Google instructions

<https://twitter.com/googledocs/status/730087240156643328>



and many more...