the educator's guide to

Visual Thinking

Supporting students to plan and manage their learning in a visual way

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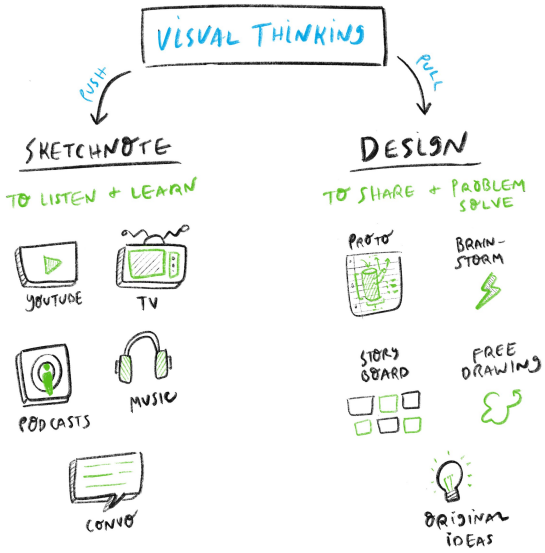
#VisualThinking

Over the last couple of years, there has been a huge shift in education toward fostering critical thinking, problem solving, and creativity in our students. Students are engaging in project based learning, design thinking, and other activities that push students beyond worksheets and memorization, and encourage them to create and present their work.



When we give students choice in *what* they create, are we also giving them a choice in *how* they get there? So often, students are given a rubric and a due date, but aren't always given the tools and processes they need to support them in managing their time, responsibilities, and planning as they move through a project.

Visual thinking can help students see the work they have in front of them, develop ideas that traditional discussion and writing may not, and plan their creations in a purposeful way. Visual thinking is a way to show thinking using images in order to better organize and understand concepts, and goes far beyond sketching and drawing to quickly take notes. In this Guide, we will share strategies, structures, and resources to help your students manage their learning through **Visualizing Time, Ideas, Relationships, and Solutions.**

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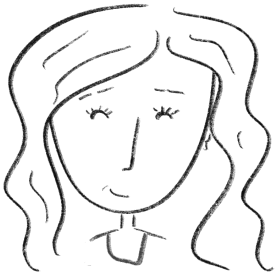

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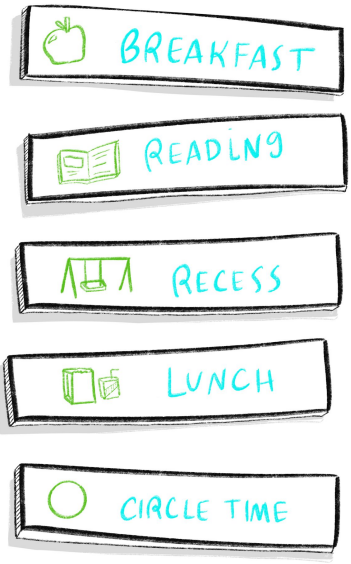
Visualize Time



If you have spent any time in an elementary school classroom, you've likely noticed visual schedules displayed for the class to see. The combination of words and icons makes the schedule accessible to all of our learners, and the way the schedule is displayed helps the students see the whole process of their day and make sense of what comes next. However, visualizing time and schedules typically stops after elementary school. Is making time visual any less valuable to older students or adults? Or do we just *assume* that they are capable of managing their own time?

Project management is a valuable skill for students of all grade levels to learn, but many projects are still designed with the teacher in the role of Project Manager – directing the learning experience and making many of the decisions. Putting students in the role of project manager, and supporting them in the process of identifying tasks, assigning responsibilities, and choosing how they work will help them understand the work that is in front of them, and give them an organized way to work through it.

STUDENTS AS PROJECT MANAGERS

Choice in how they reach a "final product"
Support in developing a project plan
Clearly defined roles within a project
Clearly defined expectations for work and time

As the teacher, pre-plan questions to guide your coaching conversations with students and groups at project checkpoints

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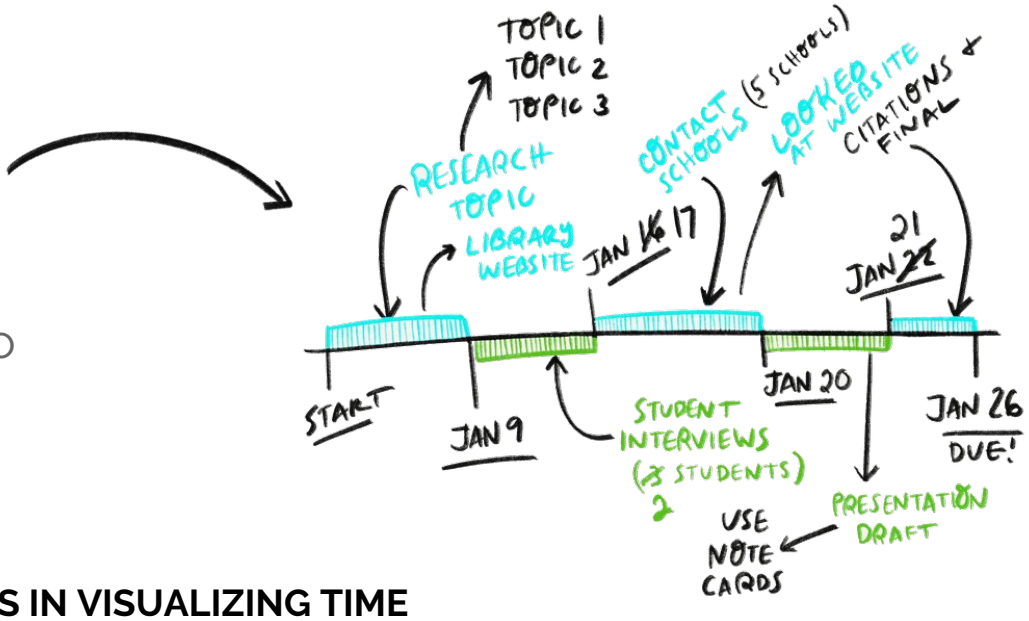
Visualize Time

Task lists and to-do lists are a great way to generate ideas about all of the work included in a large project - but this is where project management should start, *not where it should end.* A task list is simply a list of work to be done, and doesn't do a great job of helping students understand how to actually prioritize those tasks.

Taking a task list and turning it into a visual timeline helps students not only see what work needs to be done, but go further and see the relationships between tasks, and how responsibilities and priorities can overlap. A vertical task list that only includes the work to be done can be very overwhelming, and can lead to procrastination and last-minute work. Visualizing a large project helps students break things down into smaller chunks, and understand which items should take priority and advanced planning, helping them move through their project more efficiently and effectively.

- [ ] Research
- [ ] Interviews
- [ ] Create Preso
- [ ] Present!



SUPPORTING STUDENTS IN VISUALIZING TIME

- **Practice First.** Take 20 minutes and ask students to use quick drawings and words to create a timeline of a task or process they often complete - their morning routine, sports practices, a task they complete at work, etc.

- **Big Paper.** Using 11x17 copy paper gives the freedom to spread drawings out and not worry about how to manage the space.

- **Flexible Timelines.** In any project - from creating animal habitats in 1st grade through forensics in high school - there has to be a level of flexibility. Sometimes checkpoints and deadlines get pushed, new responsibilities are added, or certain portions of a project are taking longer than expected. Sticky notes are a simple way to allow flexibility in a project plan. Sketching tasks onto sticky notes, then arranging those onto a larger timeline allows students to move tasks around and add items as needed.

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Visual Thinking Challenge

Think about a project that you are currently working on or have coming up – it can be big or small, personal or professional. Using a combination of icons and words, create a timeline or "visual schedule" that helps you see the work you have ahead. Think of ways you could show how some tasks take priority, or add details about timing, responsibilities, etc.

This activity created by Manuel S. Herrera @manuelherrera33 & Sadie Lewis @sadieclorinda

Visualize Ideas

You have likely heard of sketchnoting - a popular note taking format that uses drawings and icons to capture ideas from presentations, podcasts, videos, lectures, etc. Sketchnoting largely focuses on capturing and visualizing someone else's ideas. Visual thinking goes further, and gives students tools and processes to visualize *their own ideas*.

Stop Brainstorming. Start Visualizing.

When planning a project, ideas don't always come in a linear, ordered way. Using notecards to quickly sketch or write ideas allows us to get all our ideas out, then rearrange the notecards into a logical flow - with the flexibility to add or move the ideas around as the project develops.

How many of our students could benefit from this process? So often, students start a presentation by opening a slideshow and starting with their title slide. If given the chance to use notecards to visualize all of the ideas that will go into the slideshow, do you think their presentation would turn out differently? Would it end up being a presentation at all, or could it morph into something completely different?

This process of using notecards is simply an upgraded version of traditional brainstorming. How often, when asking students to develop ideas for a project, do we jump into a brainstorming activity? While brainstorming can be productive, without a structure in place it can become very chaotic. Research shows that unstructured brainstorming in groups often discourages participation by quieter students, and doesn't hold each individual accountable for participation. The result? Brainstorming sessions end without solving the problem at hand.

Digital tools have increased our ability to do collaborative brainstorming, but have also given us the ability to delete ideas that we don't like or are embarrassed to share with others. In reality, some of our worst ideas can develop into the best solutions!

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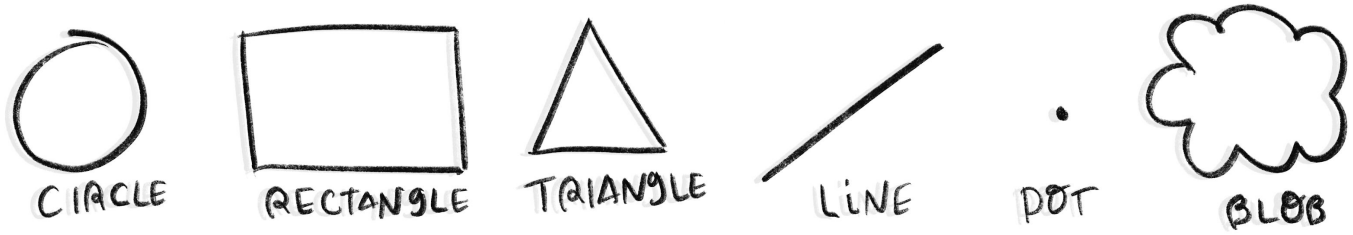
Visualize Ideas

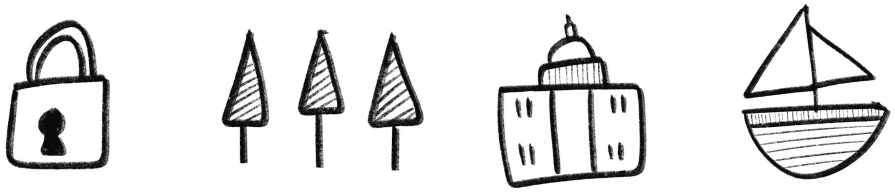
Ideas. Not art.

It's important to remember, and to help students understand, that visual thinking is about showing your ideas. It's not about creating beautiful drawings, perfect banners, or intricate lettering. Walk students through this sketching activity to show them how easy it is to create visual representations of their ideas.

On a piece of paper, draw a the following basic shapes. When doing this with students, you can model it, but be sure to tell them that their does not have to look like yours.



Next, give them some simple items to draw - a lock, a tree, a house, etc. Explain how each of these is simply a combination of those first six simple shapes they drew.



Think about a topic in your content area that students are already familiar with - explorers, the water cycle, weather. Give them 4-6 vocabulary words and ask them to make those words visual.

Ask them to explain their visuals to a partner - chances are you will hear explanations of those terms that are much richer than they would have been if you had asked students to write a definition and compare it with their partner

You will be amazed - some students will use those simple shapes to create an icon for each word, others will create elaborate scenes. This is where you begin to see how each student visualizes things differently - their definitions would have all been similar, but their drawings are drastically different.

Try this activity yourself on the next page, or print the page for your students!

Visual Thinking Challenge

Quickly draw the following shapes:

RECTANGLE **CIRCLE** **TRIANGLE**

LINE **DOT** **BLOB**

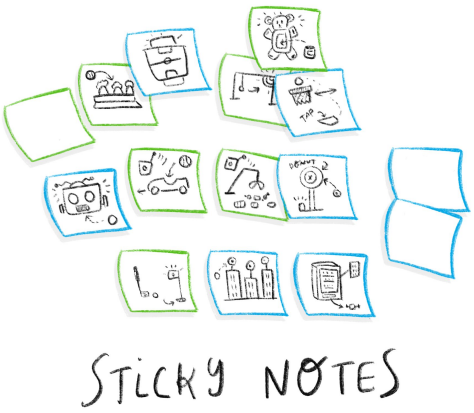
Use those shapes to create simple drawings to represent 6 different objects or concepts

This activity created by Manuel S. Herrera @manuelherrera33 & Sadie Lewis @sadieclorinda

Visualize Ideas

Ideation.
A reinvention of traditional brainstorming, ideation is the process of pushing ourselves outside our comfort zones to generate as many problems, ideas, or solutions as possible. Ideation gives us the freedom to create a large quantity of ideas without worrying about quality, then share and discuss those ideas with others.

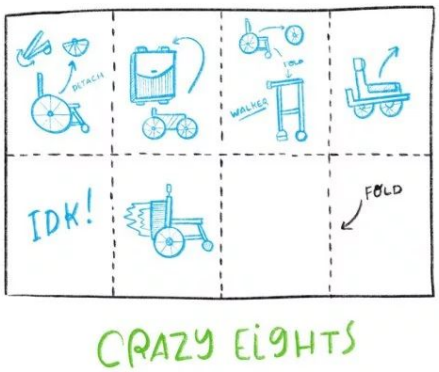
At its core, ideation is meant to be quick and timely. This is where visual thinking plays a huge role. When we give students the tools (like the simple shapes activity on the previous page), they are much more successful when engaging in the process. Fast sketches in ideation activities, when combined with some notes, allow students to quickly get their ideas out of their head and make sense of their thoughts. Here are a few ideation techniques that we love to use with students and adults. **Read more at bit.ly/visualizeideas**



Sticky Notes. It seems so obvious, right? The simple act of using sticky notes or note cards can transform an ideation session - turning a static list of ideas into a visual arrangement that can be moved, grouped, and collaborative.

In a team of students, give each student a different color stack of sticky notes or note cards. Give them several minutes to quickly jot a different idea or solution on each note. Then, as a group, allow them to arrange their notes in a way that highlights commonalities, patterns, or processes. This is something that can't be done with a static list, or even digitally!

Crazy 8's. Give students a large (8.5×14 or larger) piece of paper, and have them fold it into 8 equal parts. Tell them that in each section they will quickly sketch one possible solution (or idea). They will get 30 seconds per section – they must stay in that section for the entire 30 seconds, and cannot move onto the next section early. This sometimes results in frustration from students, or they feel uncomfortable because they run out of ideas and aren't drawing anything. However, that's when the magic happens – the discomfort created by creative constraint often develops the best ideas! **See our Crazy Eights facilitation slides at bit,ly/crazy8ideation**



Give this structure a try on the next page!

Visual Thinking Challenge

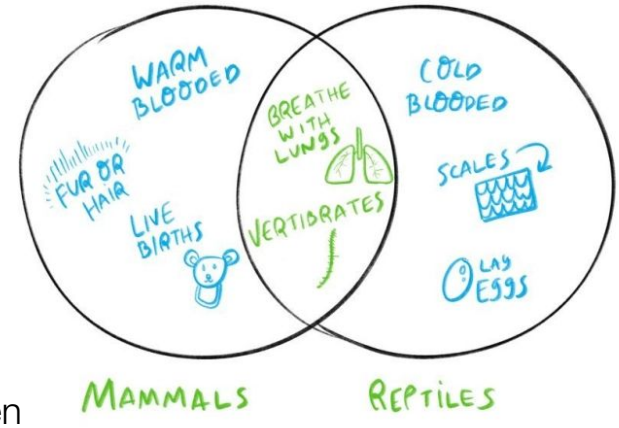
Set a timer for 30 seconds. In each section, draw one radical idea or possible solution.
Do not move on before the 30 seconds is up - but you must move on at the end of 30 seconds!

This activity created by Manuel S. Herrera @manuelherrera33 & Sadie Lewis @sadieclorinda

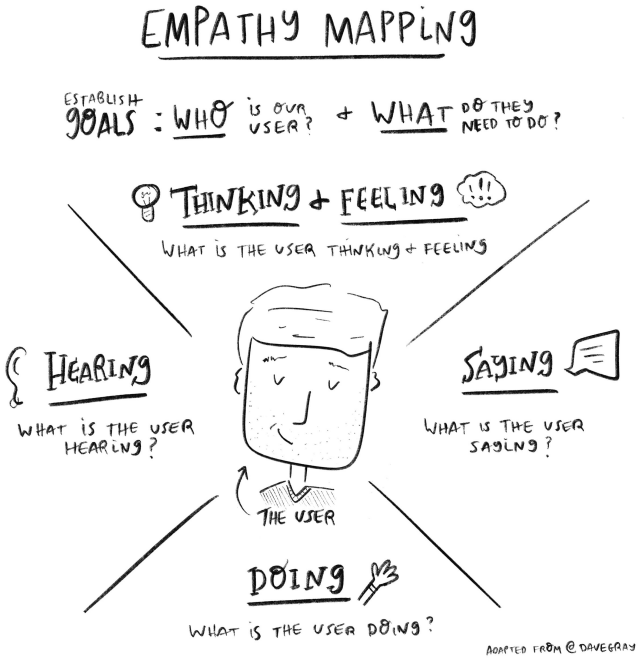
Visualize Relationships

In project and design work, students are generating lots of ideas as they engage in research - whether that's through interviews, observations, or finding sources on the internet. With different types of information coming from various sources, it can be difficult for students to organize and understand all of this information, and see how things are connected. Using visual thinking, we can give our students the tools and supports to see the connections in their research and ideas, and begin to visualize relationships between people, ideas, processes, and more.

Ditch The Diagrams.



Asking students to record and outline their research and learning isn't a new concept. We've likely all outlined a research paper. Graphic organizers are a popular way for students to organize information and ideas - but are they really effective in helping students synthesize information and make connections between ideas? Venn Diagrams are a popular way to compare and contrast - and have gained new life with digital tools like Google Drawing. **However, the learning taking place with Venn Diagrams, and many other graphic organizers, is often low-level** - students are making lists, recalling information, categorizing items, and comparing/contrasting.



Empathy Maps. The maps are wonderful for design thinking, but can be used outside of the design process as well. When researching in history, geography, or government, students often use graphic organizers to list dates, information, and traits of different people, places, or events. Replacing those graphic organizers with empathy maps will push students to go beyond making lists, and start making connections between those people, places, or events.

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Visual Thinking Challenge

Consider a person or character from your content area - a book character, a person in history, or a professional (scientist, architect, business person). Complete the empathy map to fully capture their experiences.

I AM DESIGNING FOR _____

SAYING 

WHAT IS THE USER SAYING?

DOING 

WHAT IS THE USER DOING?

THINKING 

WHAT IS THE USER THINKING?

FEELING 

WHAT IS THE USER FEELING?

MH

This activity adapted from @DaveGray by Manuel S. Herrera @manuelherrera33 & Sadie Lewis @sadieclorinda

WHAT DO YOU KNOW ABOUT YOUR AUDIENCE OR USER?

I AM DESIGNING FOR _____

SAYING 

WHAT IS THE USER SAYING?

DOING 

WHAT IS THE USER DOING?

 THINKING

WHAT IS THE USER THINKING?

FEELING 

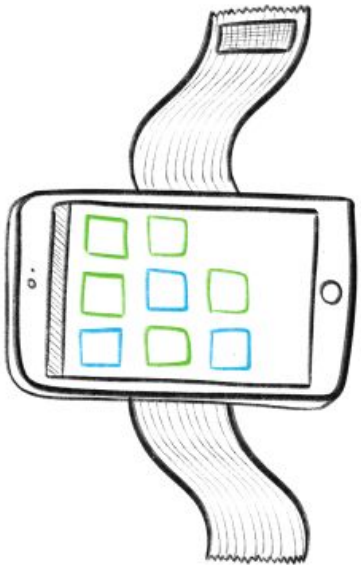
WHAT IS THE USER FEELING?

MH

Visualize Solutions

Prototype Everything.

If you are at all familiar with design thinking, you already know that prototyping is a major step in the process. Prototyping allows designers to get their products in front of users in order to get feedback, before creating the "real thing." Prototypes are quick, cheap, and usually conceptual.



We are so focused on preparing our students to work in the types of careers that require designing, drafting, modeling, and more -, but don't always give them experiences that mirror the "real world" work that is being done. Whether they are creating presentations, videos, graphics, or physical products, using visual thinking to support students in various prototyping activities will help them organize their ideas, plan for their users, and create more authentic products.

Sometimes when Manuel and I work with students on visual thinking, they ask something like **"So, why would I use visuals like this when just writing the words is faster?"** That's a fair question. It's usually older students who ask these questions, because they have become so focused on getting work done quickly so they can move on to the next thing. We always answer with something along the lines of "Honestly, this isn't always faster. But, for some people, using sketches and visuals can help understand and communicate in ways that writing just can't." However, when we get to this part - the prototyping - they see how using visuals to express and communicate their ideas is more effective than just writing them out. This is when the skeptical ones "get it."

In this section, we will share two major prototyping techniques and tools:

Wireframing and Storyboarding

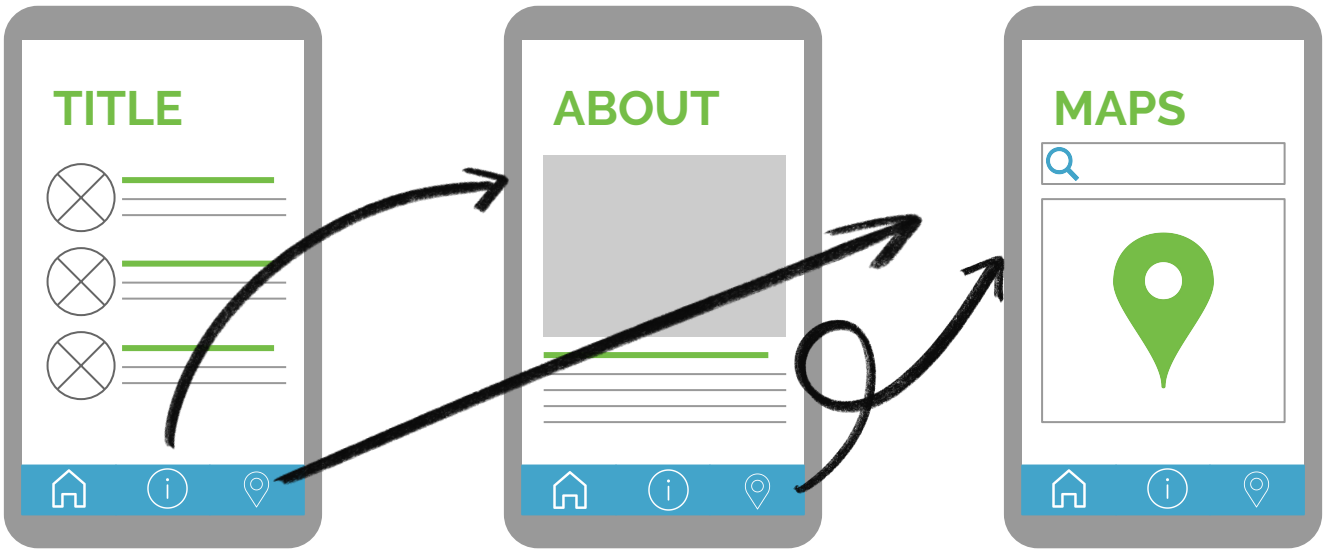
WIREFRAMING

Your students have done their research, and through ideation decided that providing a digital platform - like a website or app - would best meet the needs of their user. So often, they immediately open Google Sites or their app creator of choice, and begin entering text and graphics without much planning or organizing.

Visual communication is an extremely important skill for students (and adults!). If your app or website is hard to navigate, or hard to look at, no one is going to use. Start with a wireframe - a simple, quick visualization of your design that allows users to "test" it for understanding and functionality.

SUPPORT STUDENTS IN WIREFRAMING

1. Start by giving students blank paper - notecards, 8.5 x 11, cardstock, whatever. They'll need a lot of paper, because they will use a separate paper for each screen of their platform.
2. On the first paper, students should draw out the home screen (app) or landing page (website).
    - Include: Major text like titles and headings; image placeholders; video placeholders; navigation buttons.
    - Don't include: All text - just write "Description of xyz here…" with some extra straight lines to show how much space the text will take up
3. For each of the navigation buttons drawn on the home page, create a new page following the same process as Step 2. Continue this process until all pages/screens of the platform are sketched out
4. Find someone to test the prototype. Put the first page in front of the tester *without saying anything.* The tester should "click" a button on the navigation bar, and the corresponding page will be placed in front of them. Continue this process until the tester has navigated through the entire app/site. It's important that the tester ask questions out loud so that the designer can get that feedback.



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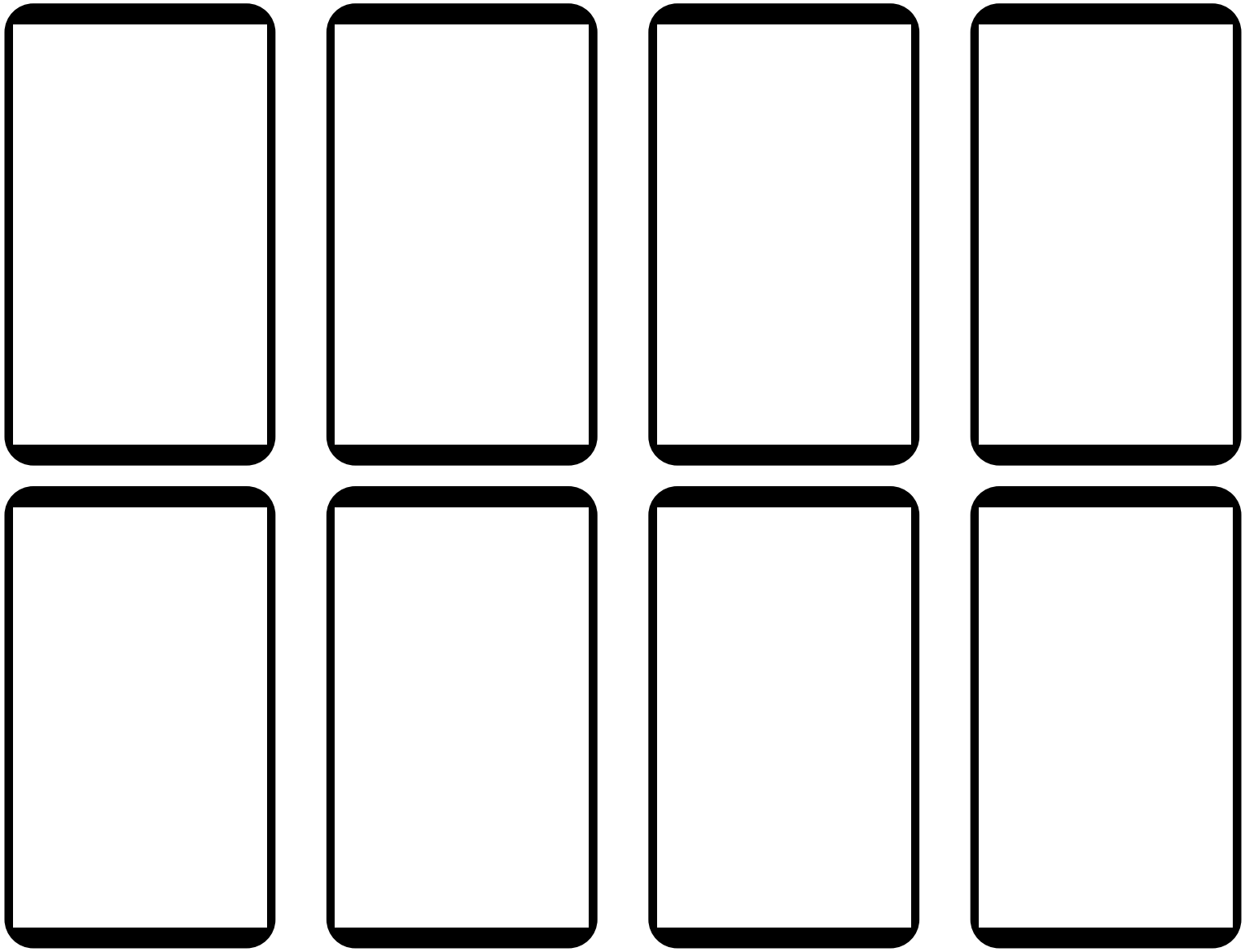
Visual Thinking Challenge

Think about an app that you use often = social media, productivity, wellness, anything! - create a wireframe of that app experience from the home screen to a specific page or interaction. Then, show this wireframe to someone else. Can they guess the use of the app? Do they understand the flow and function?



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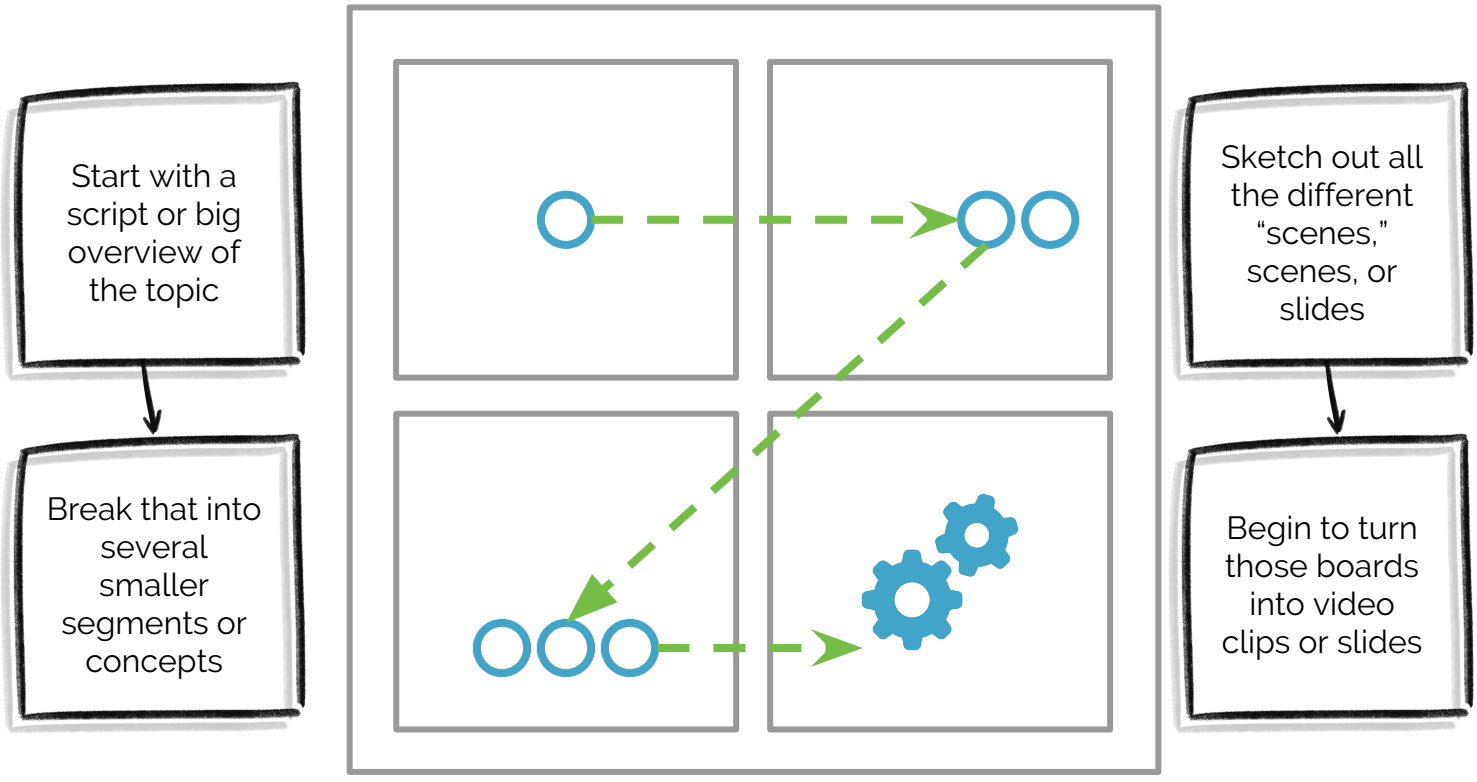
STORYBOARDING

Storyboarding is very similar to wireframing - it allows students to visualize the flow and plan of a video or presentation. When planning a video, students start by writing out the script to the video - this makes sure all content is planned for *before* they start filming. Then, on a large 11x17 paper, draw lines to divide the paper into a gridded storyboard. We try to keep the boxes at least 2x2. Begin writing the script into the boxes, moving to a new box each time they think the scene should change. Once the script is written out, students then begin sketching the screen into each box. These sketches should be simple and quick - using notes when needed. A storyboard is another way to visualize time - allowing students to see all the work ahead, prioritize, and assign responsibilities.

Storyboarding a presentation is very similar, and follows basically the same process. However, Manuel likes to use note cards instead of a large paper. This allows him to get all of his ideas for a presentation sketched out, but gives the freedom to move slides around or add new ones along the way.

Storyboarding can also be used to plan out social media graphics or multi-platform campaigns!



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Visual Thinking Challenge

Create a storyboard for your typical day - or a special event! Create this storyboard as if it were an actual movie or video someone would watch. Do you think this would help you explain your day to someone else? Would someone have a basic understanding just by looking at your storyboard?

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