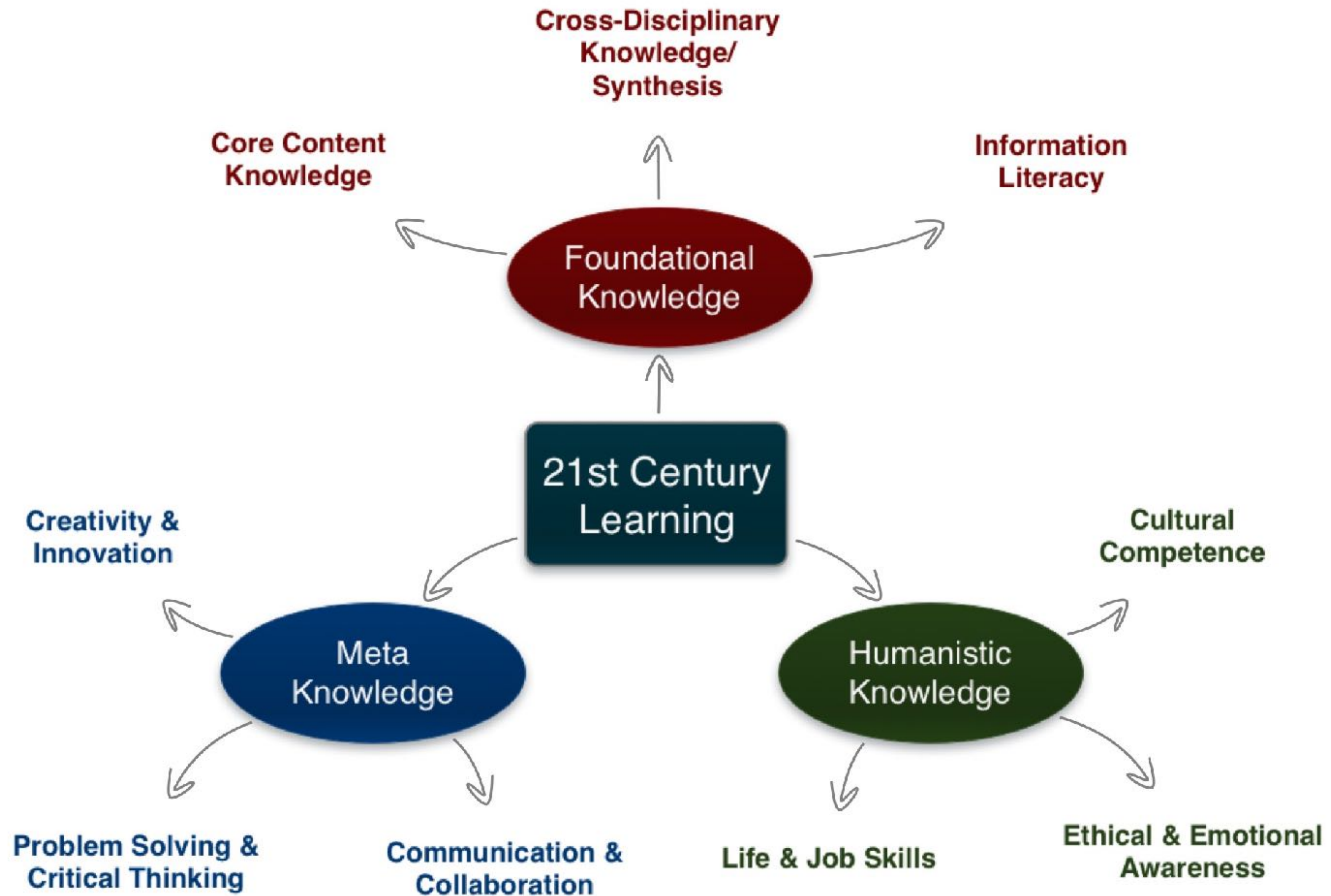
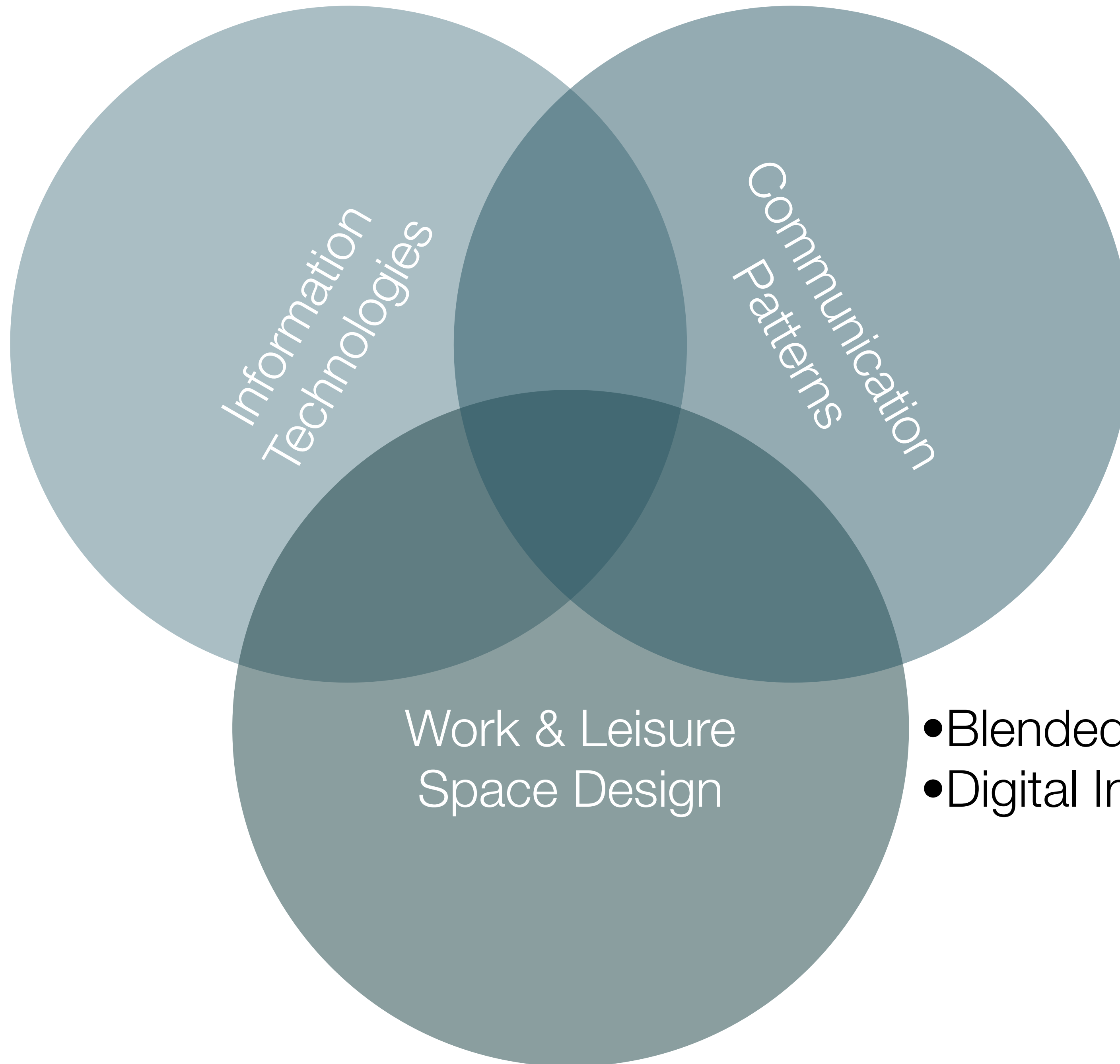


The Future Arrived Early: Notes for Learning Design, Today

Ruben R. Puentedura, Ph.D.

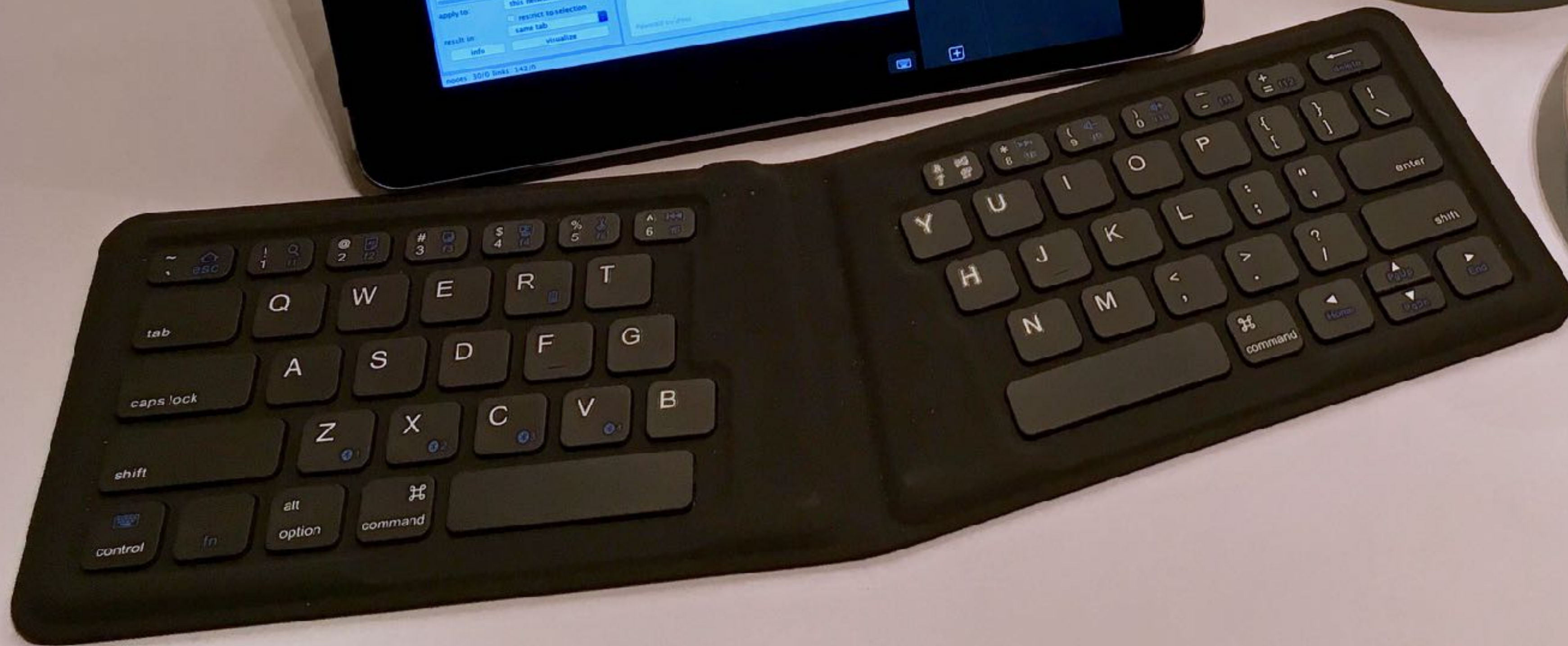


- Computing Power
- Machine Learning



- Mobile Devices
- Social Media

- Blended Spaces
- Digital Integration



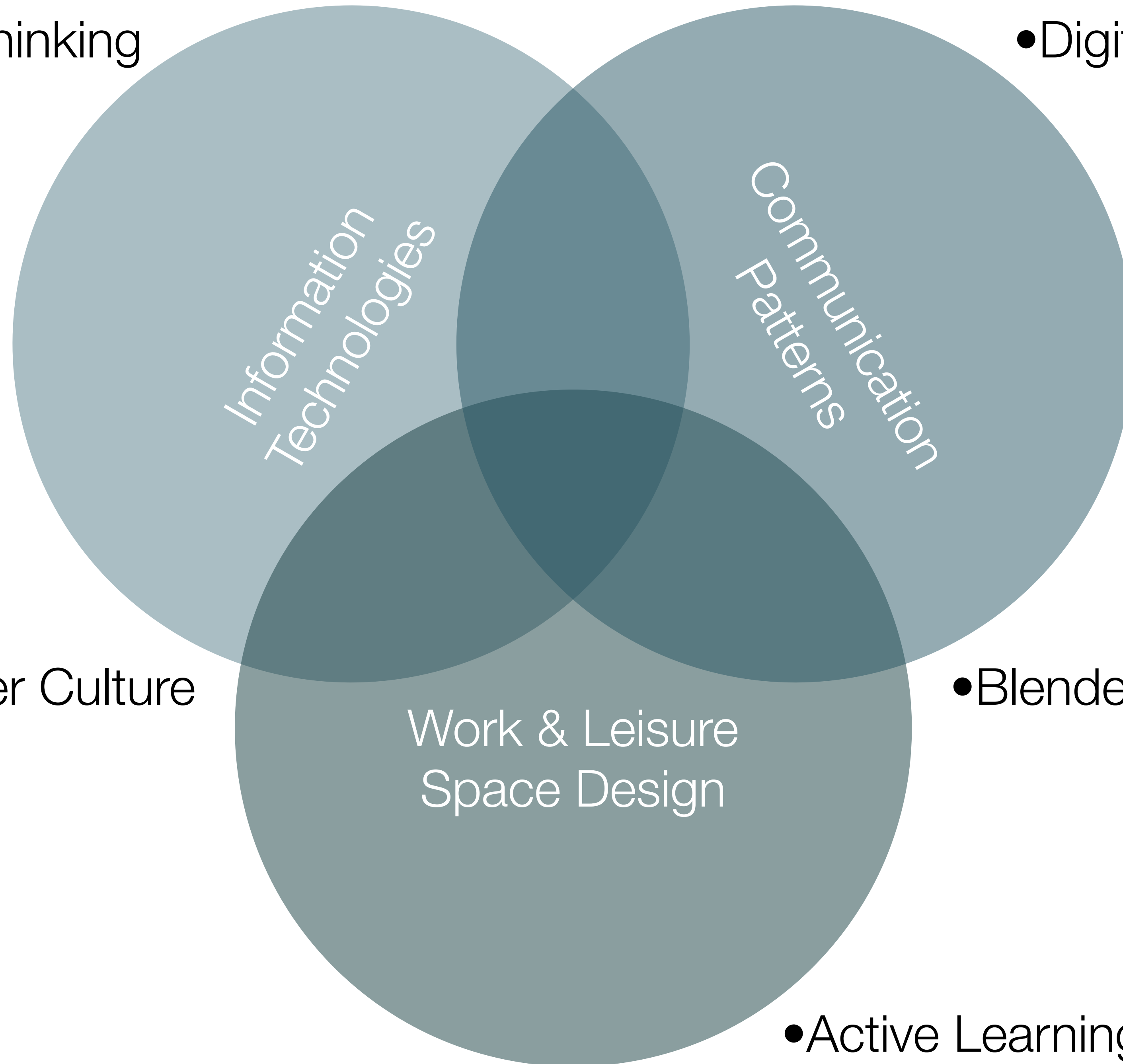
•Computational Thinking

•Digital Citizenship

•Maker Culture

•Blended Learning

•Active Learning Design





COMMITTED TO
IMPROVING THE STATE
OF THE WORLD

Insight Report

Towards a Reskilling Revolution

A Future of Jobs for All

In collaboration with The Boston Consulting Group

January 2018

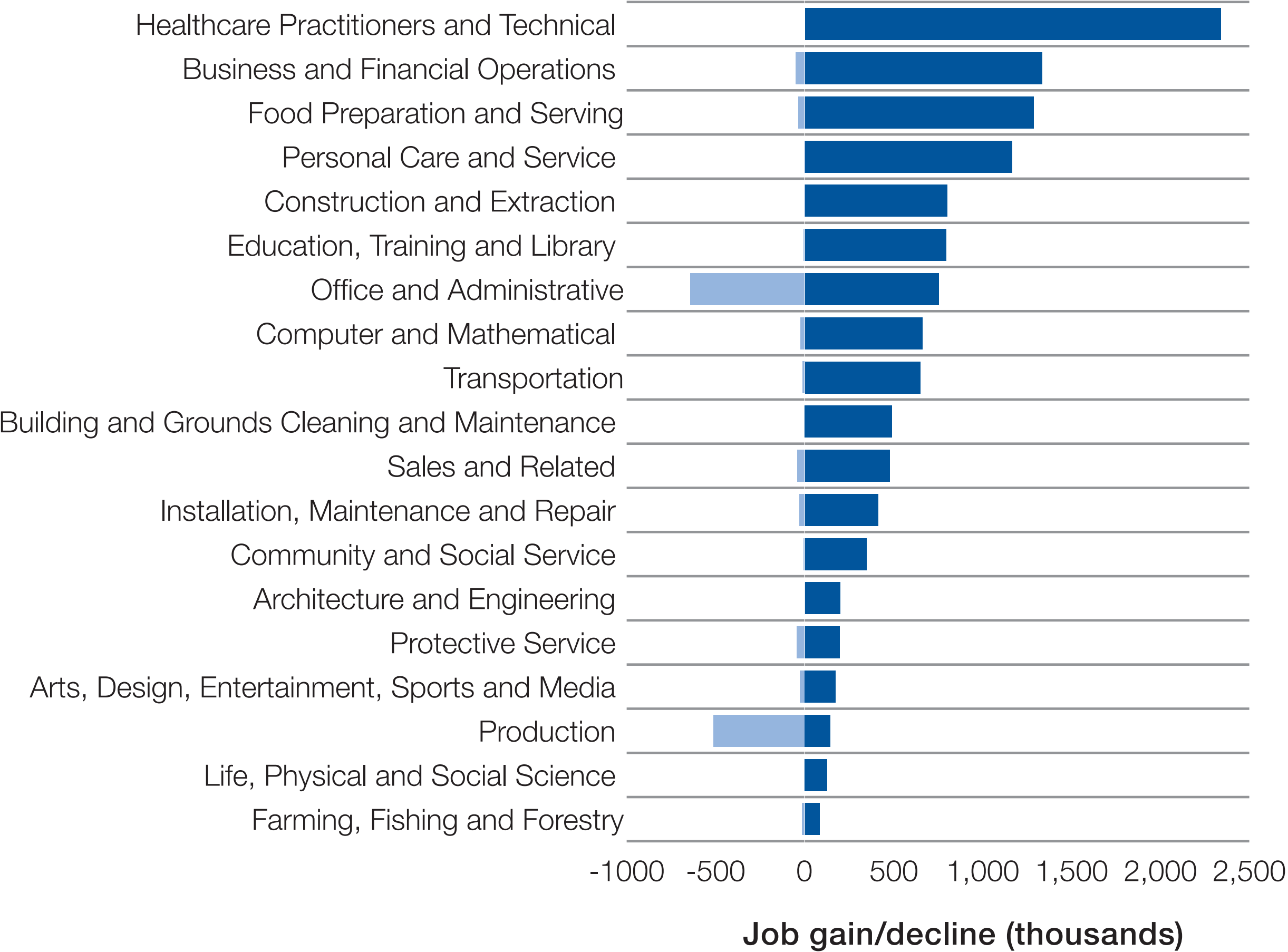


Figure 1: Job transition matrix between 958 jobs in the United States



Source data: Burning Glass Technologies and US Bureau of Labor Statistics.

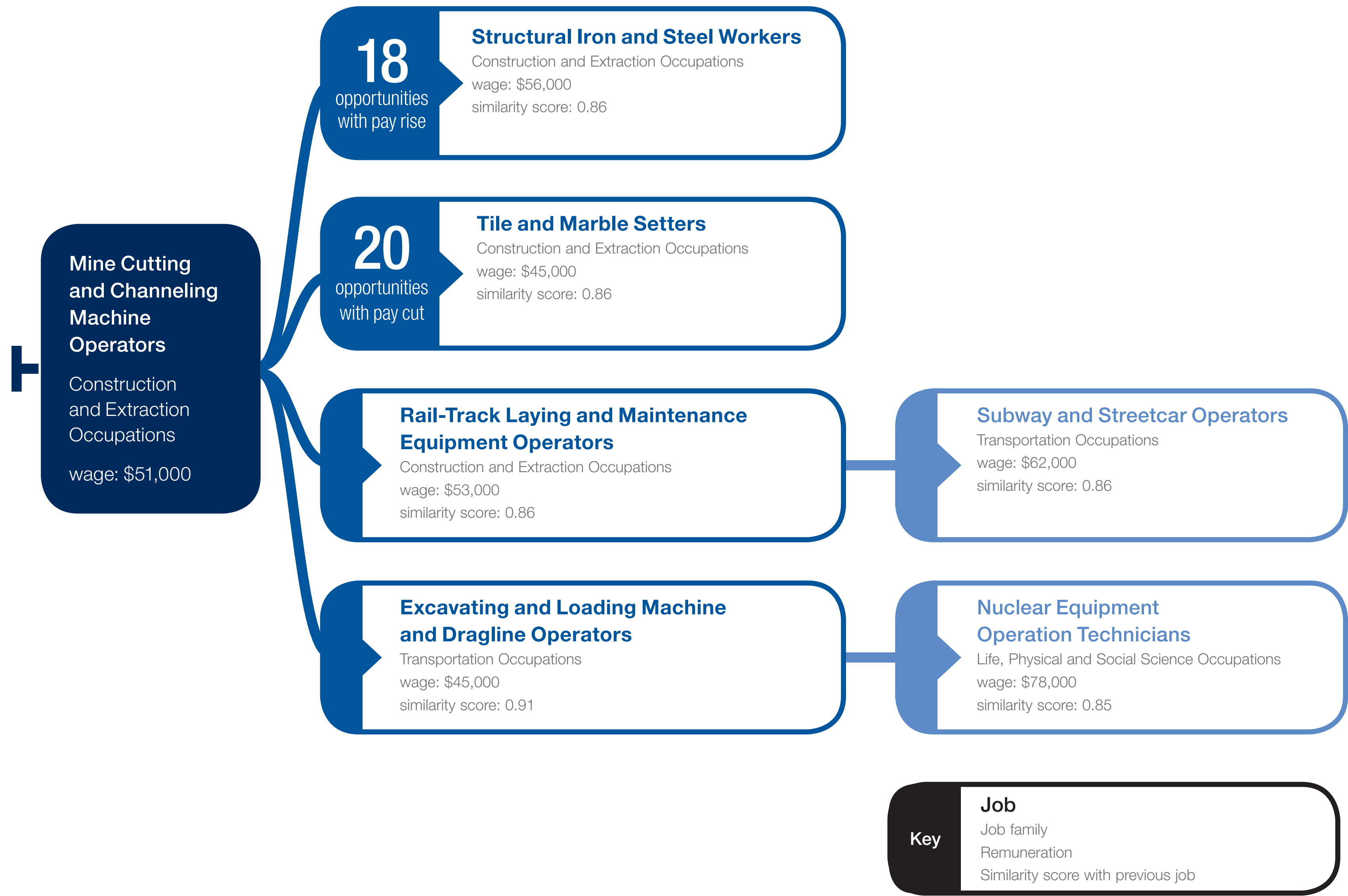
Figure 2: Projected structural changes in the US job market by 2026



Source data: Burning Glass Technologies and US Bureau of Labor Statistics.

Note: The figures above exclude 4% of US employment, due to differences in SOC and O*NET job categorization.

Figure B15: Examples of Pathways for Mine Cutting and Channeling Machine Operators



Source data: Burning Glass Technologies and US Bureau of Labor Statistics.

“*Gakushiryoku* - ability required for university graduates for an unpredictable era including the education, knowledge and experience to make correct decisions in the face of unexpected difficulties.”

MEXT - *Summary of Report: Towards a Qualitative Transformation of University Education for Building a New Future - Universities Fostering Lifelong Learning and the Ability to Think Independently* (2012)

Transformation

Redefinition

*Tech allows for the creation of new tasks,
previously inconceivable*

Modification

Tech allows for significant task redesign

Augmentation

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Extended Thinking

Strategic Thinking

Skills and Concepts

Recall and Reproduction

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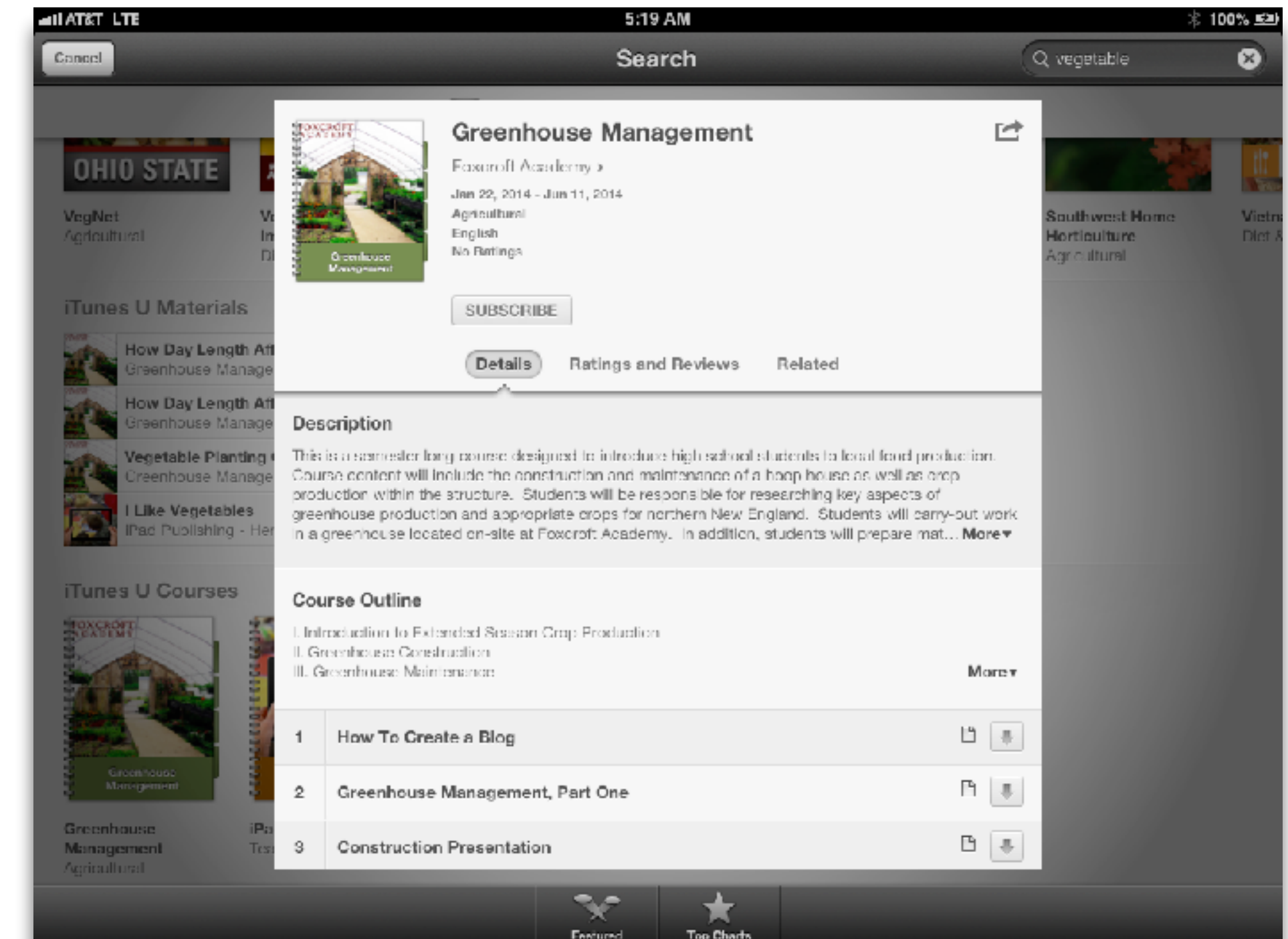
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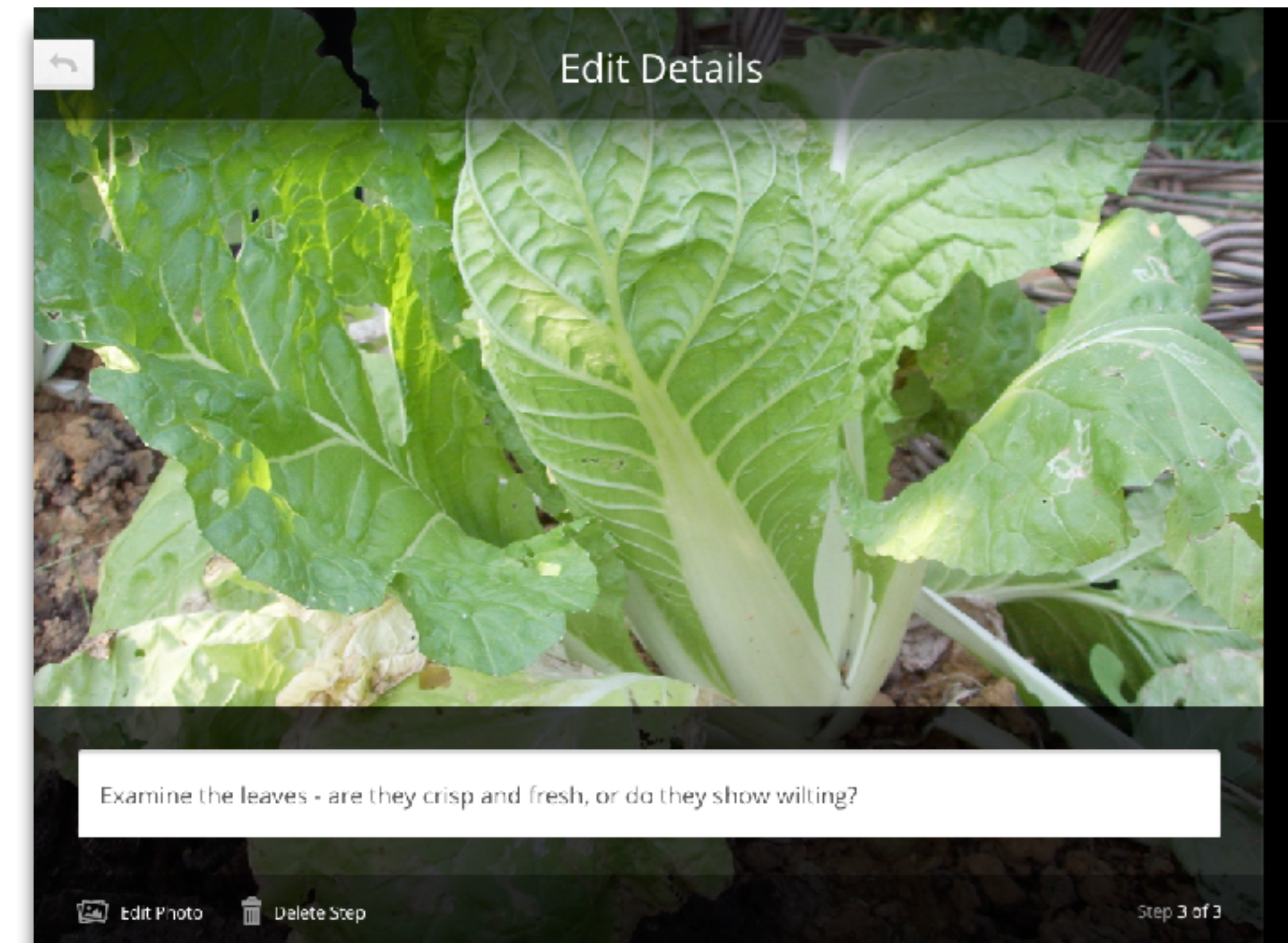
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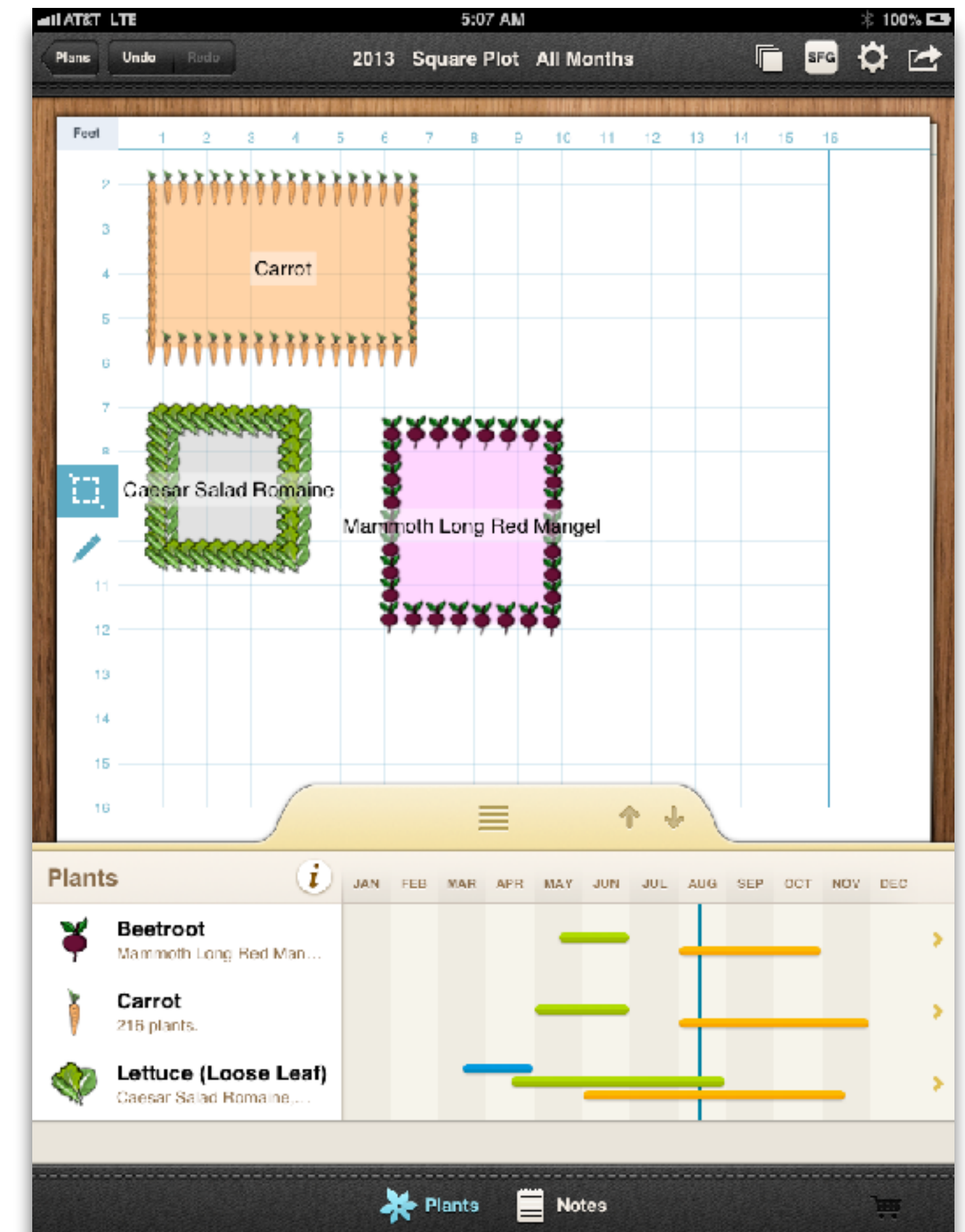
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Create

Evaluate

Analyze

Apply

Understand

Remember

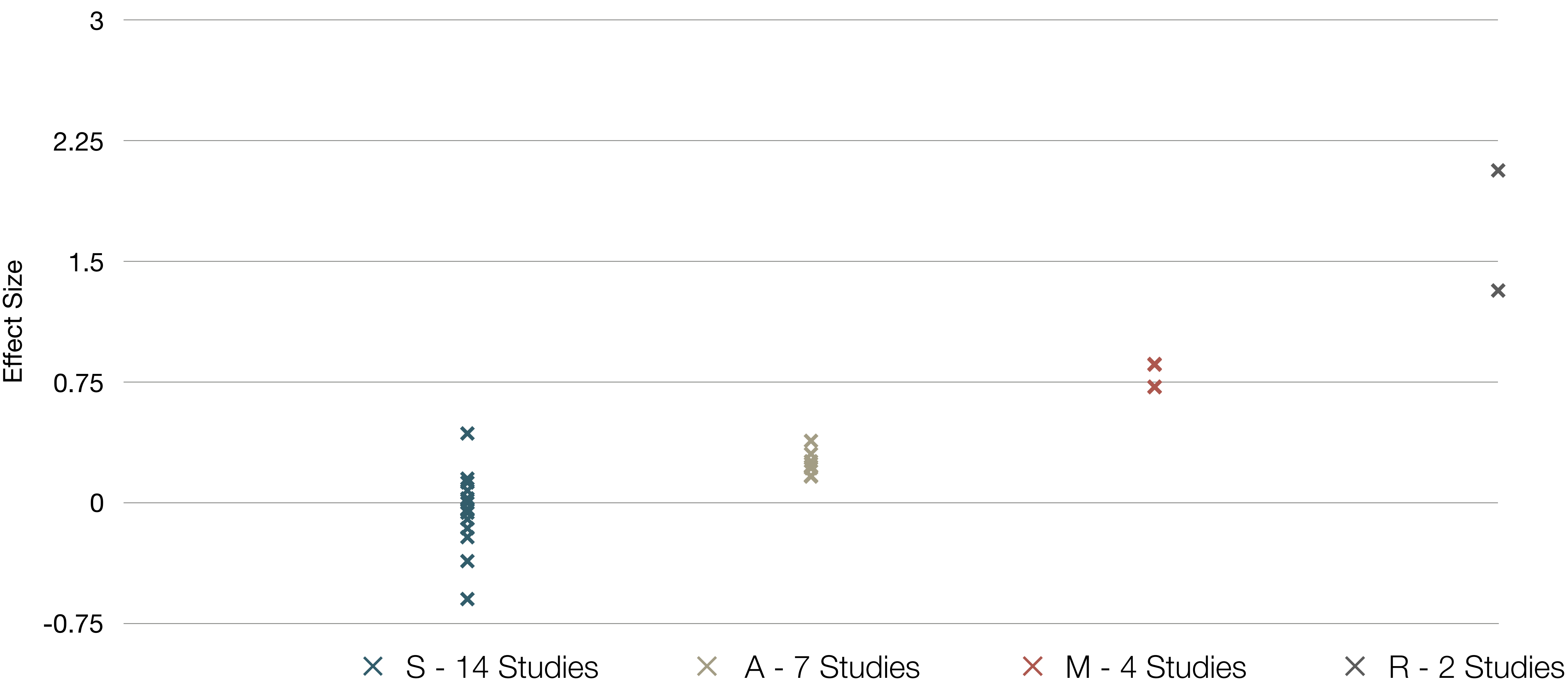
	Recall & Reproduction	Skills & Concepts	Strategic Thinking	Extended Thinking
Remember	S	A	M	R
Understand	S/A	A	M	R
Apply	A	A	M	R
Analyze	M	M	M	R
Evaluate	M/R	M/R	M/R	R
Create	R	R	R	R




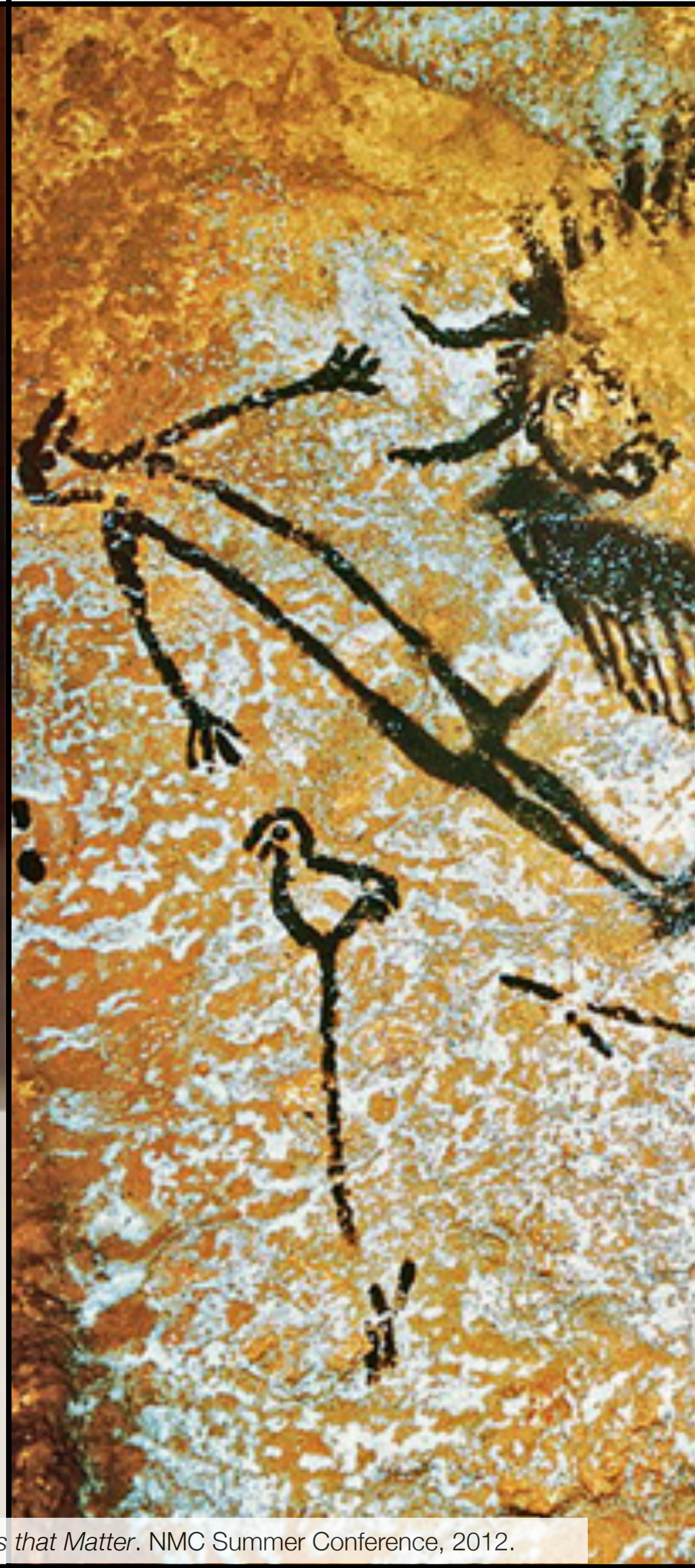

Meta-analysis	Number of studies	<i>ES</i> type	Mean <i>ES</i>	<i>SE</i>
Bangert-Drowns (1993)	19	Missing	0.27	0.11
Bayraktar (2000)	42	Cohen's <i>d</i>	0.27	0.05
Blok, Oostdam, Otter, and Overmaat (2002)	25	Hedges's <i>g</i>	0.25	0.06
Christmann and Badgett (2000)	16	Missing	0.13	0.05
Fletcher-Flinn and Gravatt (1995)	120	Glass's Δ	0.24	0.05
Goldberg, Russell, and Cook (2003)	15	Hedges's <i>g</i>	0.41	0.07
Hsu (2003)	25	Hedges's <i>g</i>	0.43	0.03
Koufogiannakis and Wiebe (2006)	8	Hedges's <i>g</i>	-0.09	0.19
Kuchler (1998)	65	Hedges's <i>g</i>	0.44	0.05
Kulik and Kulik (1991)	239	Glass's Δ	0.30	0.03
Y. C. Liao (1998)	31	Glass's Δ	0.48	0.05
Y.-I. Liao and Chen (2005)	21	Glass's Δ	0.52	0.05
Y. K. C. Liao (2007)	52	Glass's Δ	0.55	0.05

Meta-analysis	Number of studies	<i>ES</i> type	Mean <i>ES</i>	<i>SE</i>
Michko (2007)	45	Hedges's <i>g</i>	0.43	0.07
Onuoha (2007)	35	Cohen's <i>d</i>	0.26	0.04
Pearson, Ferdig, Blomeyer, and Moran (2005)	20	Hedges's <i>g</i>	0.49 ^a	0.11
Roblyer, Castine, and King (1988)	35	Hedges's <i>g</i>	0.31	0.05
Rosen and Salomon (2007)	31	Hedges's <i>g</i>	0.46	0.05
Schenker (2007)	46	Cohen's <i>d</i>	0.24	0.02
Soe, Koki, and Chang (2000)	17	Hedges's <i>g</i> and Pearson's <i>r</i> ^a	0.26 ^a	0.05
Timmerman and Kruepke (2006)	114	Pearson's <i>r</i> ^a	0.24	0.03
Torgerson and Elbourne (2002)	5	Cohen's <i>d</i>	0.37	0.16
Waxman, Lin, and Michko (2003)	42	Glass's Δ	0.45	0.14
Yaakub (1998)	20	Glass's Δ and <i>g</i>	0.35	0.05
Zhao (2003)	9	Hedges's <i>g</i>	1.12	0.26

a. Converted to Cohen's *d*.

SAMR and the Use of Tablets in Education



Social	Mobility	Visualization	Storytelling	Gaming
200,000 years	70,000 years	40,000 years	17,000 years	8,000 years
				

Bookmarks



RSS Feeds

Discussions



Microblogging

Blogging

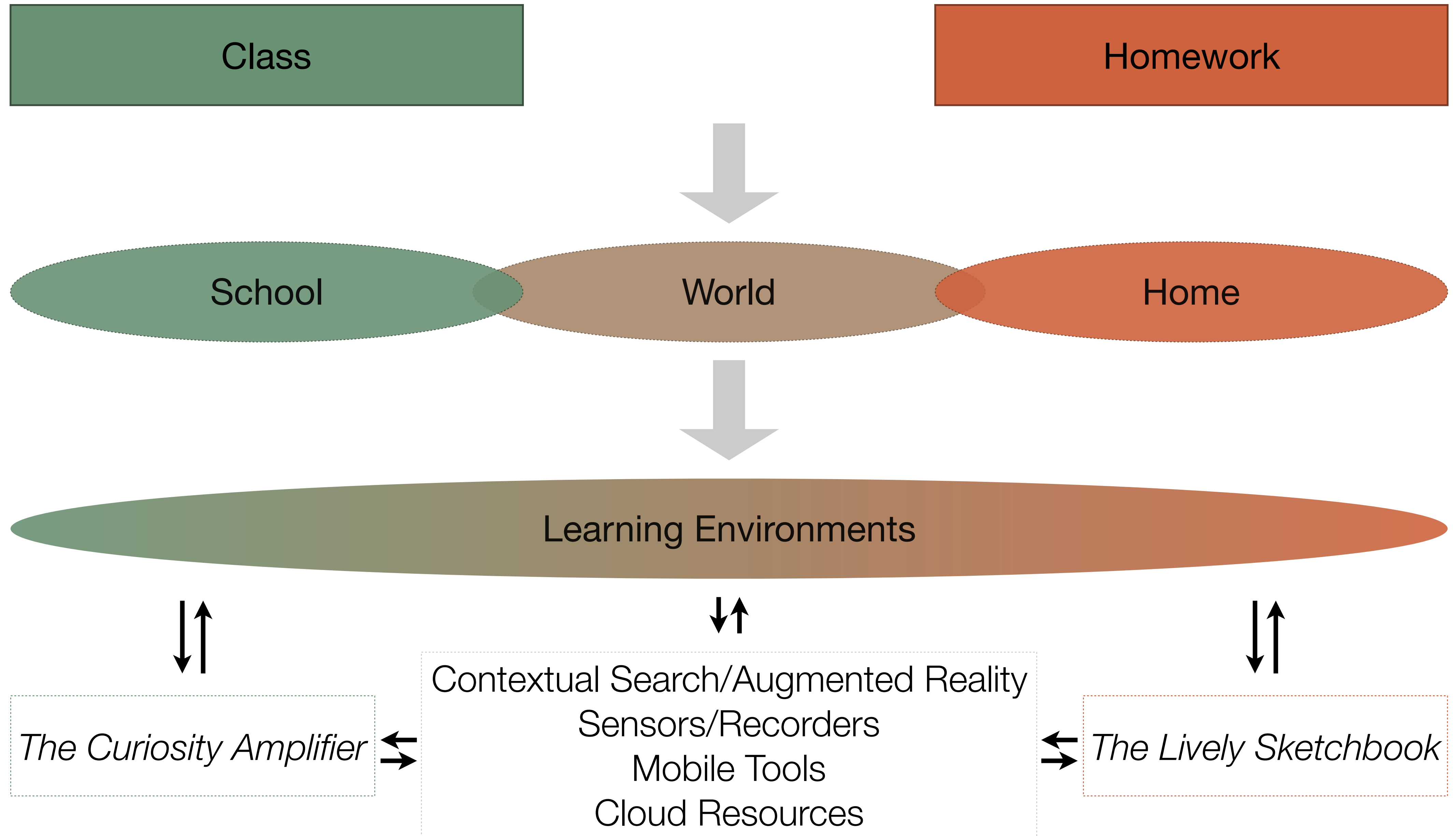


Wikis

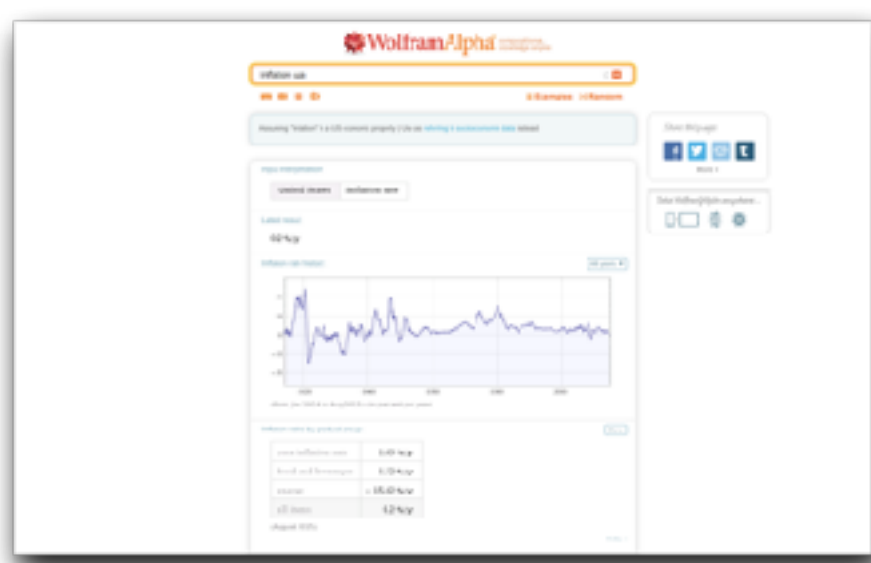
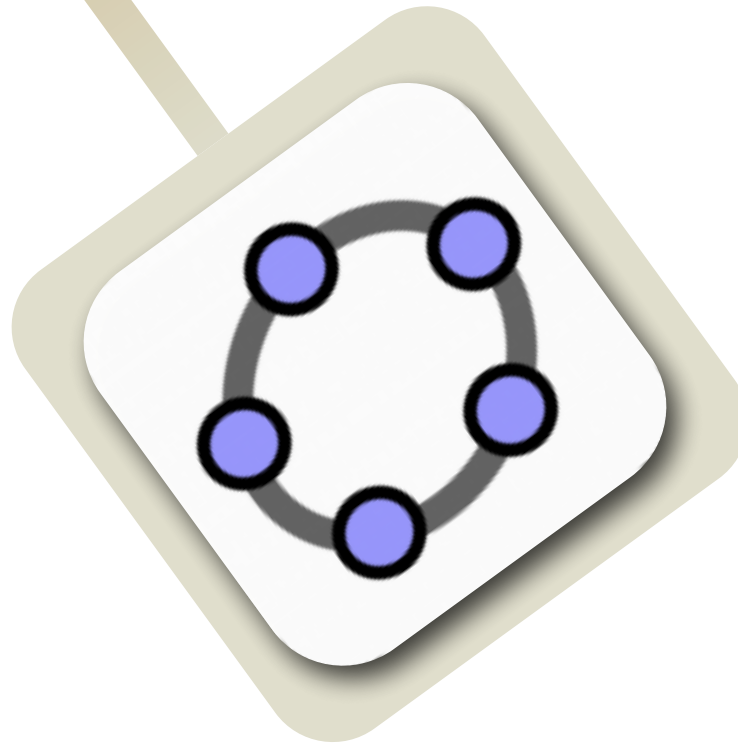
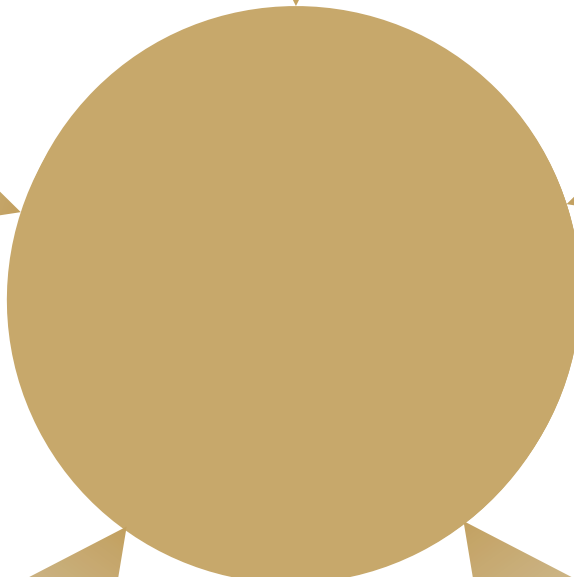
Telepresence



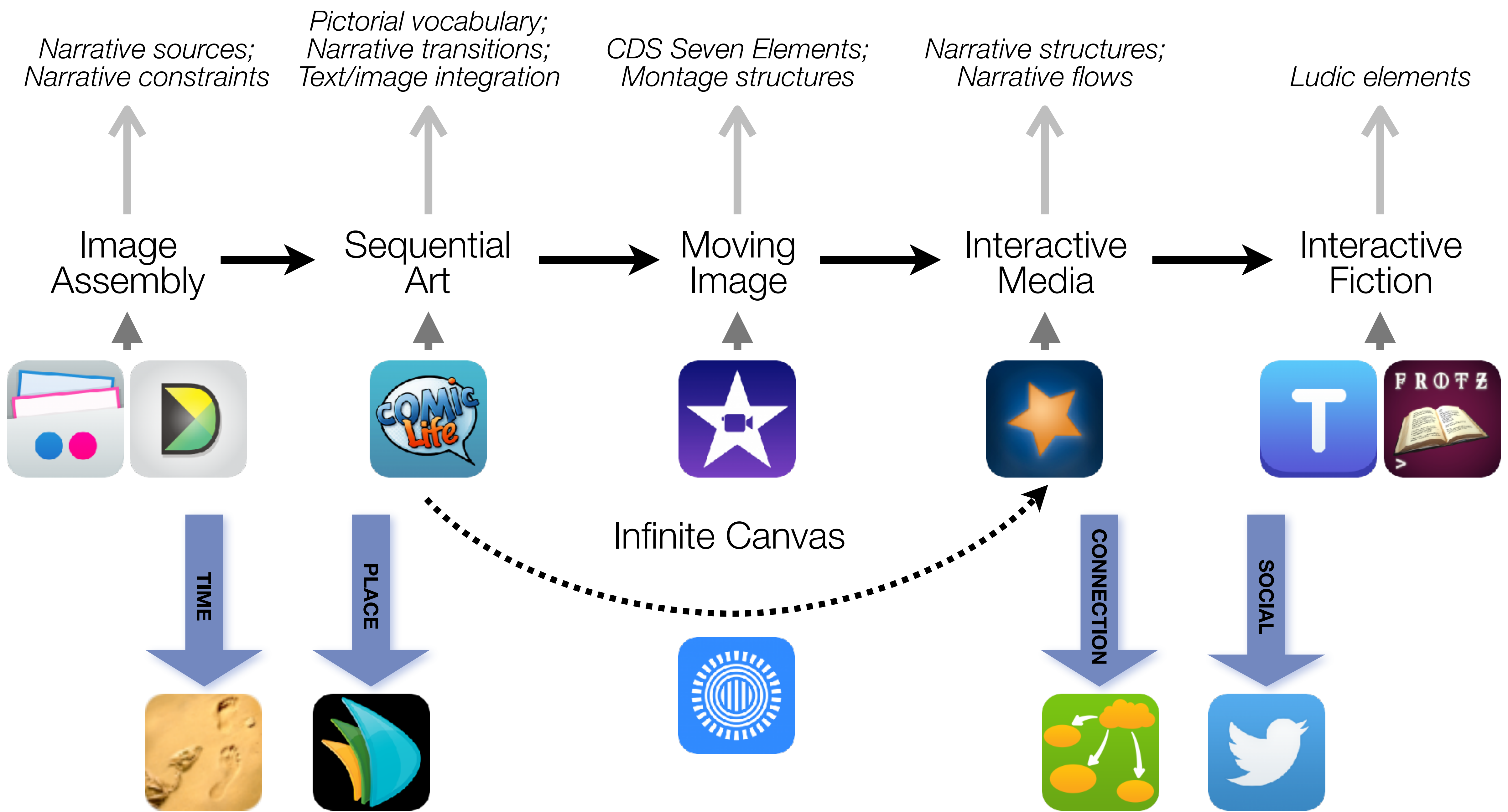
File Sharing



Visualization



Storytelling



Formal Definition of **Game** (Salen & Zimmerman)

“A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome.”

The EdTech Quintet – Associated Practices

Social	Communication, Collaboration, Sharing
Mobility	Anytime, Anyplace Learning and Creation
Visualization	Making Abstract Concepts Tangible
Storytelling	Knowledge Integration and Transmission
Gaming	Feedback Loops and Formative Assessment

The Value of Shared Practices

- Augmented Note Taking and Annotation
- Visualization Methods:
 - 5 Primary Domains: Space, Time, Networks, Text, Number
- Simple Blogging
- Simple Digital Storytelling Video
- Flipped Classroom:
 - Materials Creation
 - Peer Discussion/Instruction Methods
- Simple Interactive Fiction
- LMS Practices

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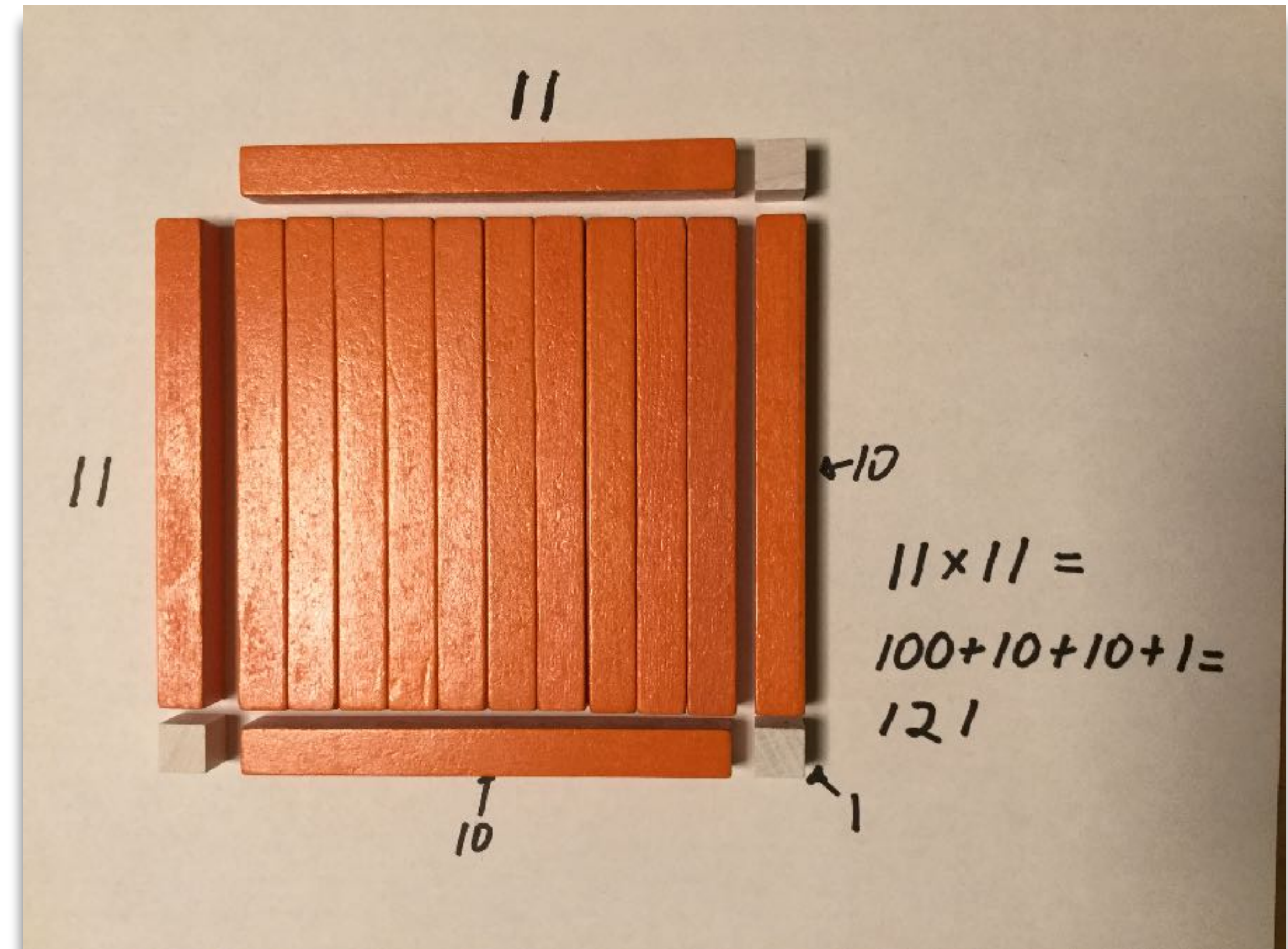
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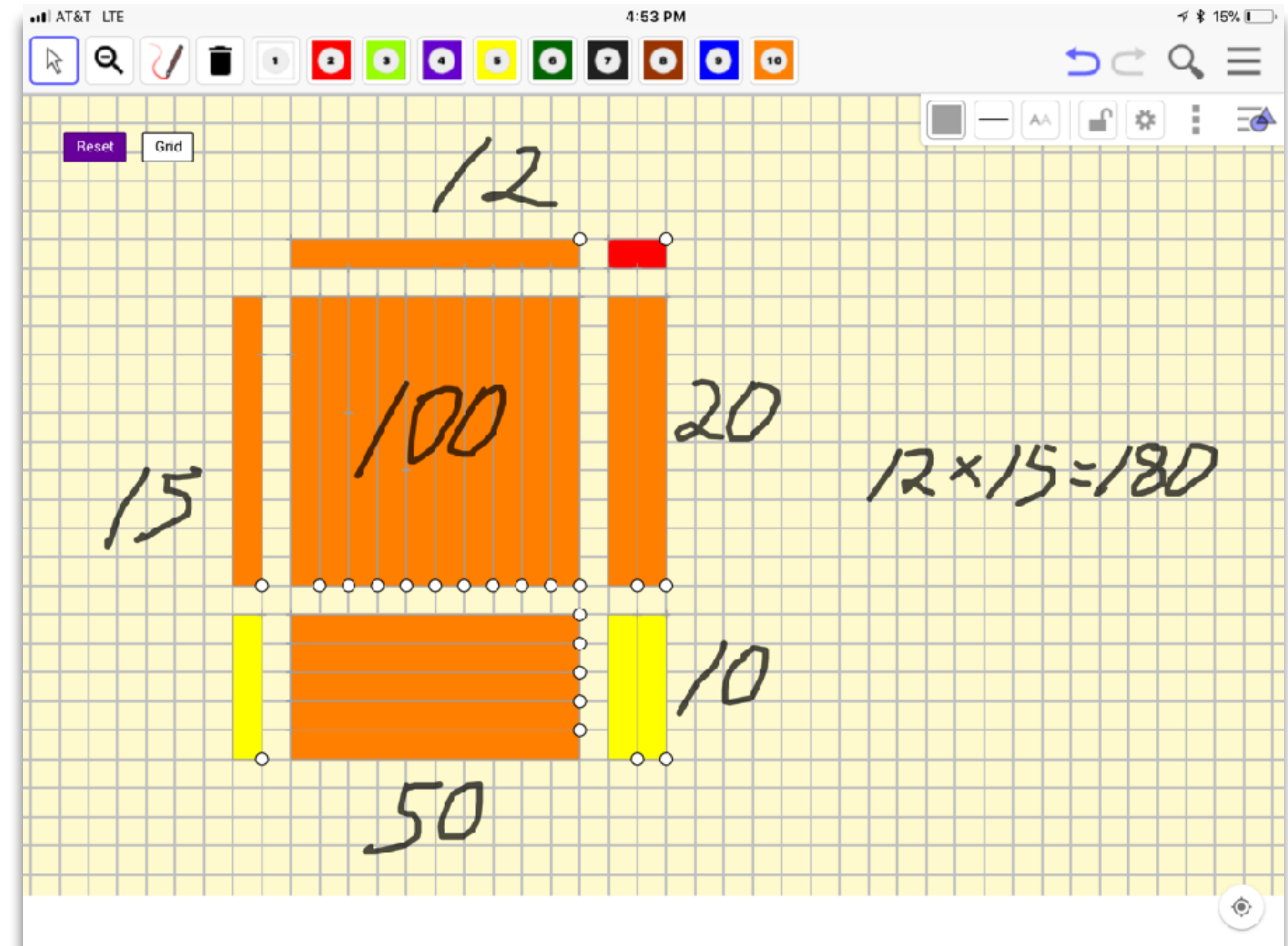
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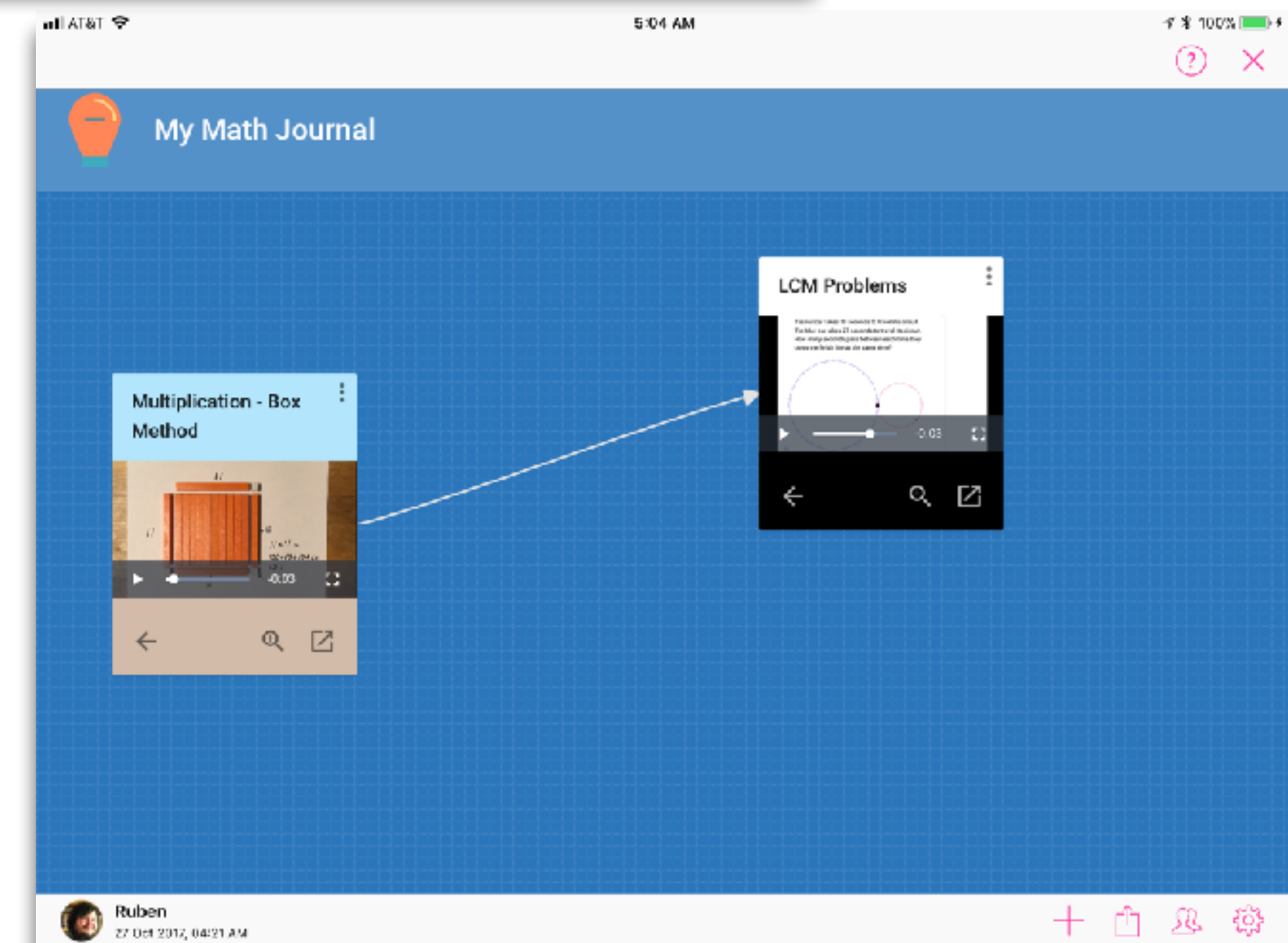
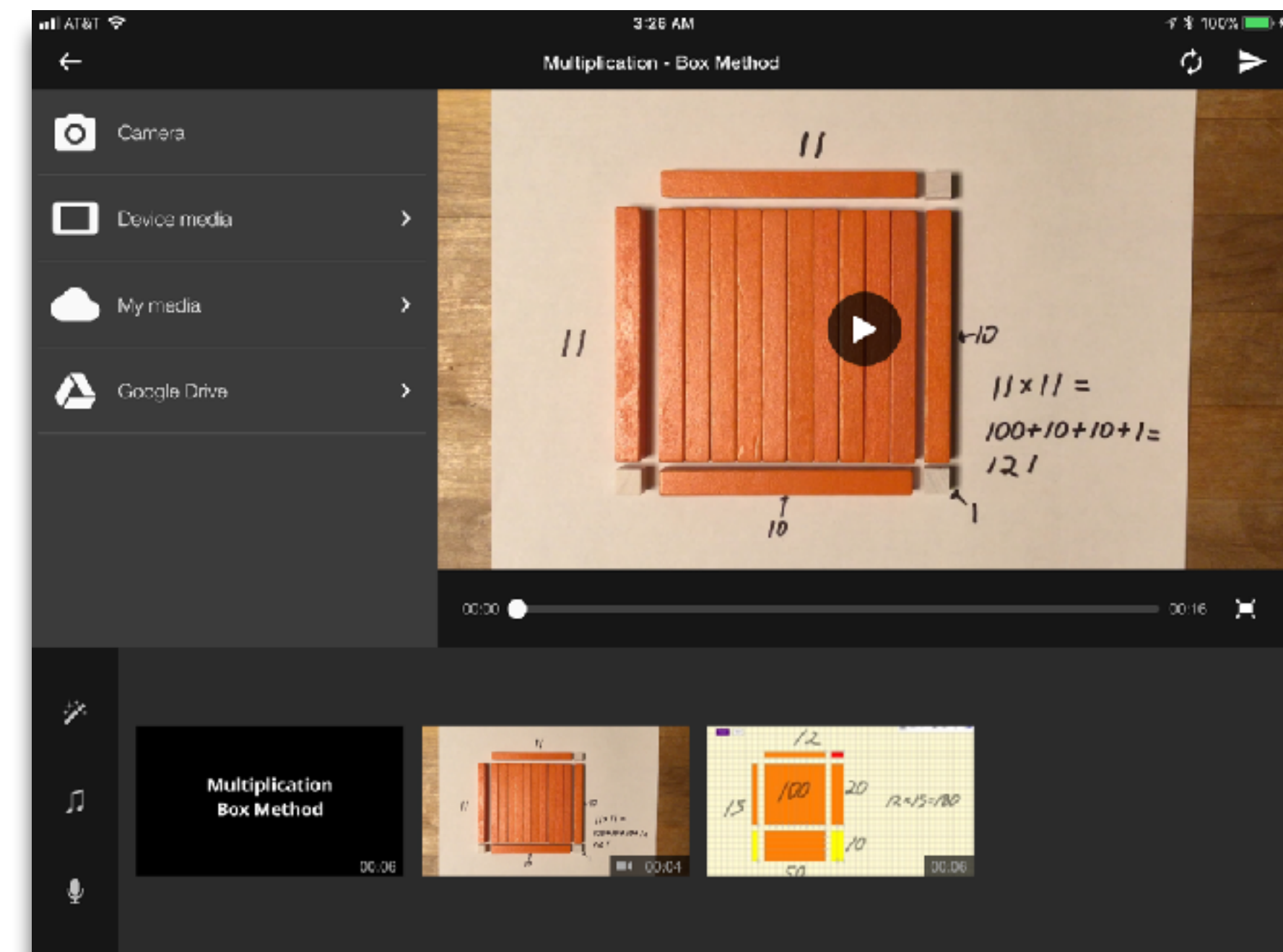
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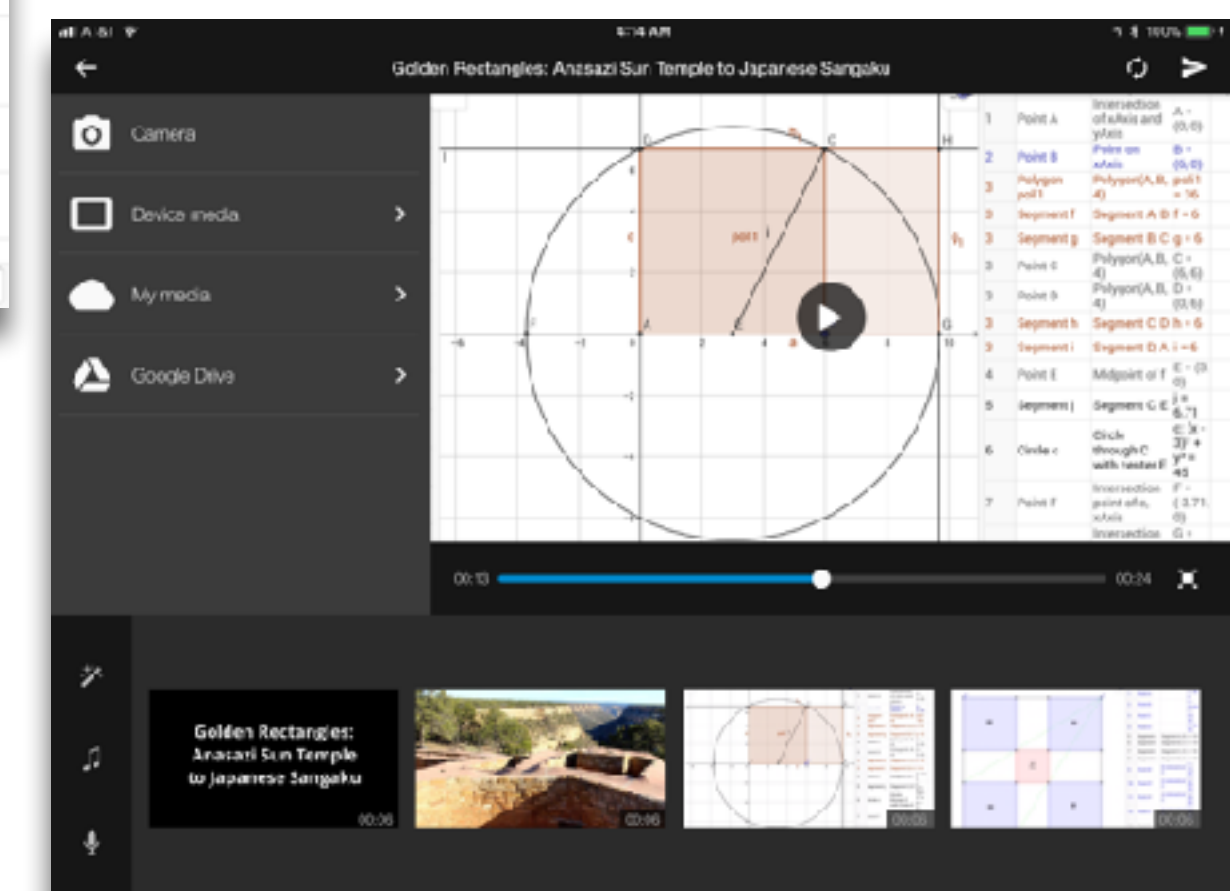
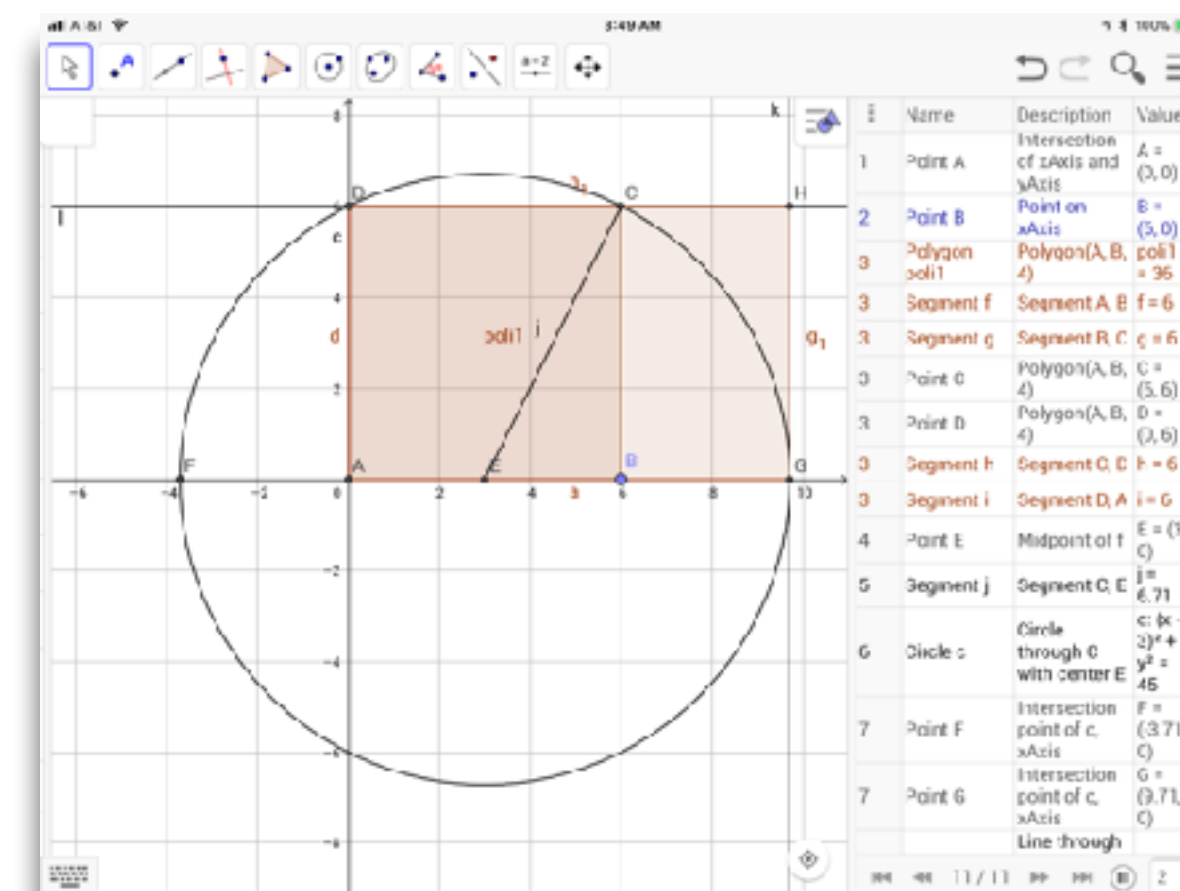
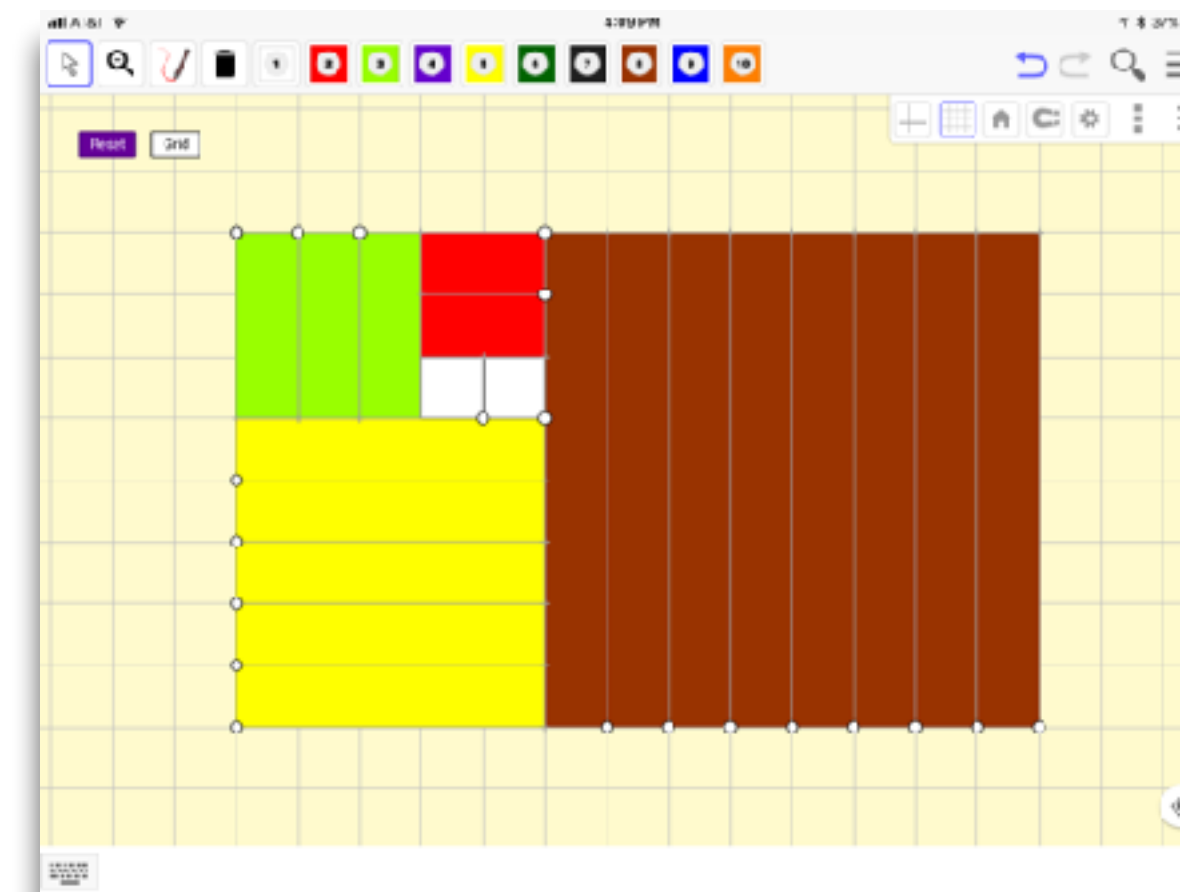
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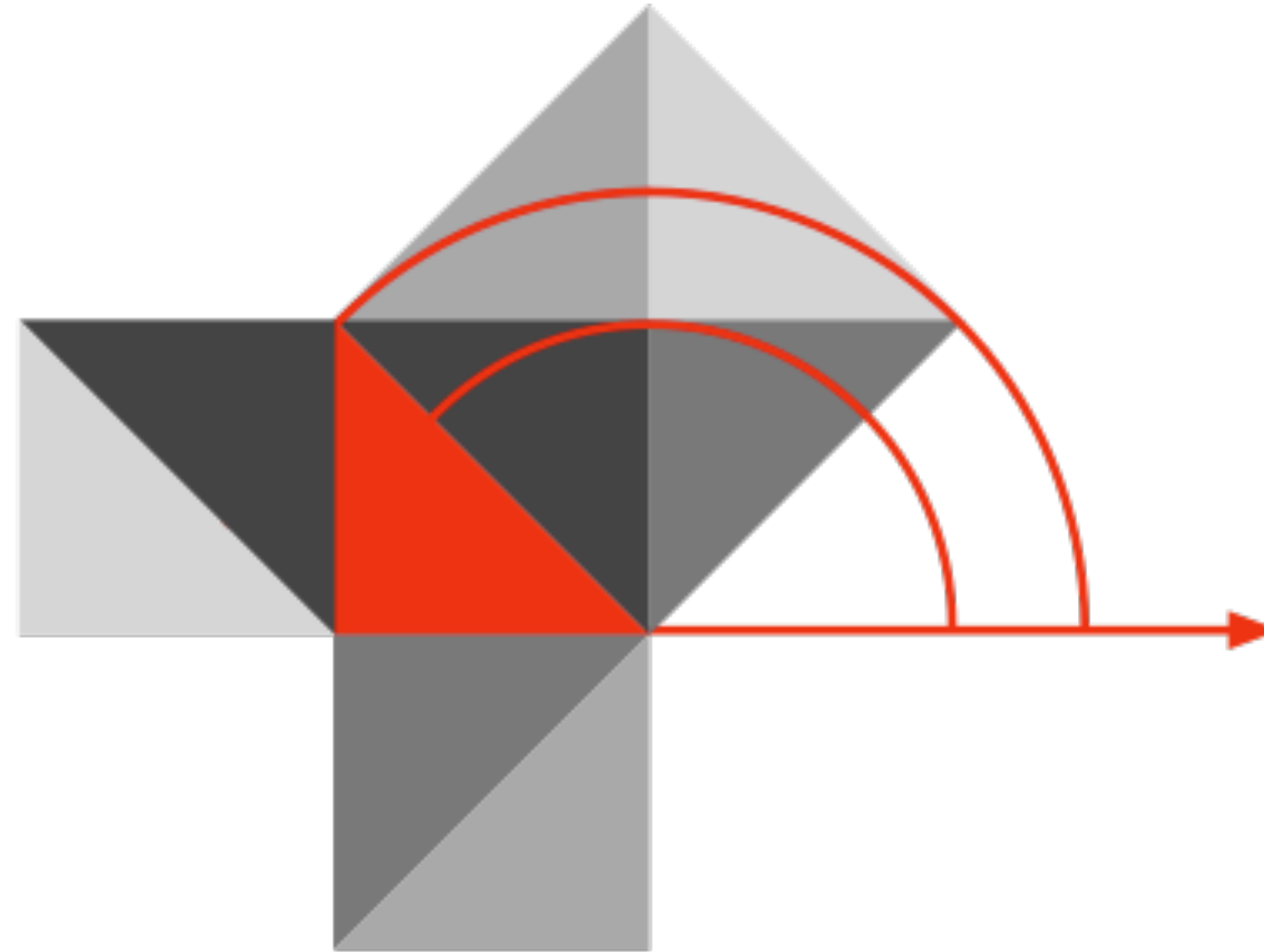
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Hippasus



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