

SAMR, the EdTech Quintet, and Shared Practices

Ruben R. Puentedura, Ph.D.

Transformation

Redefinition

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

Modification

Tech allows for significant task redesign

Augmentation

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with functional improvement*

Substitution

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Enhancement

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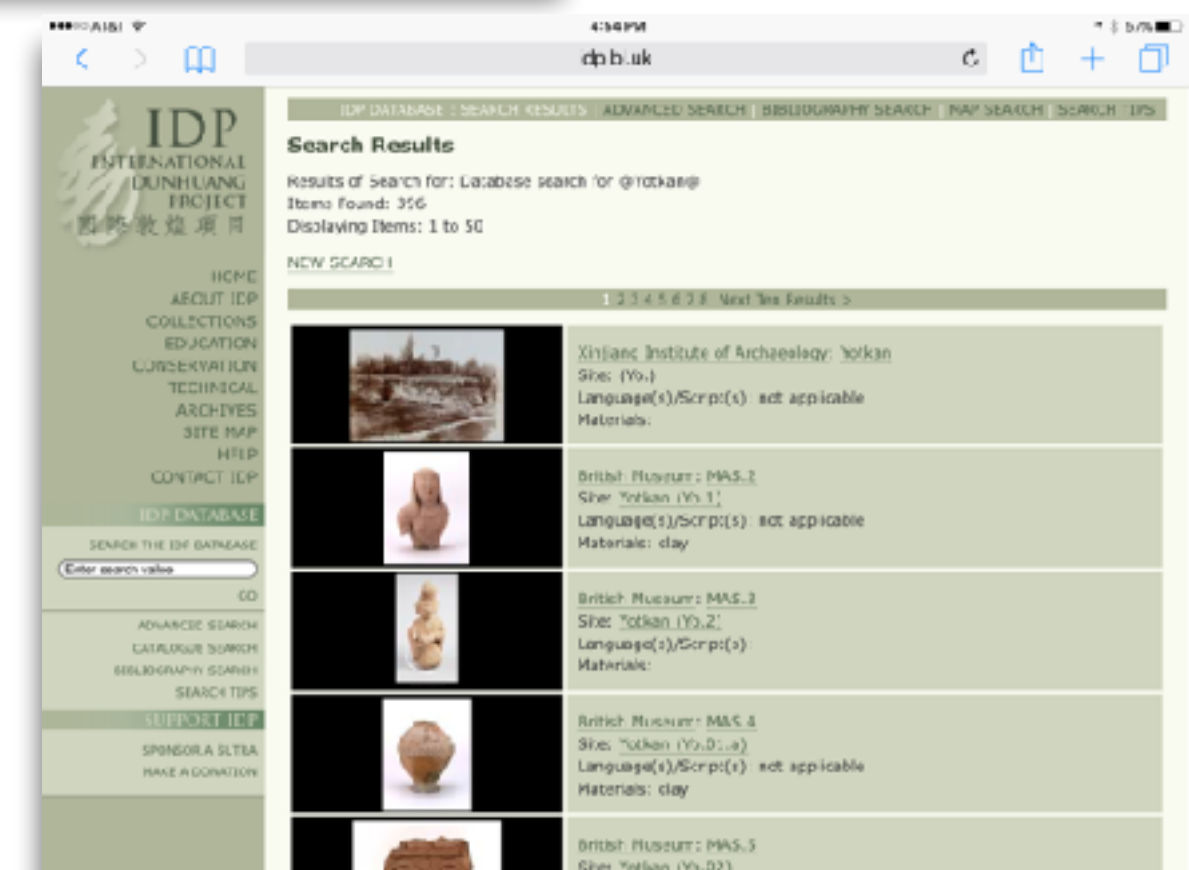
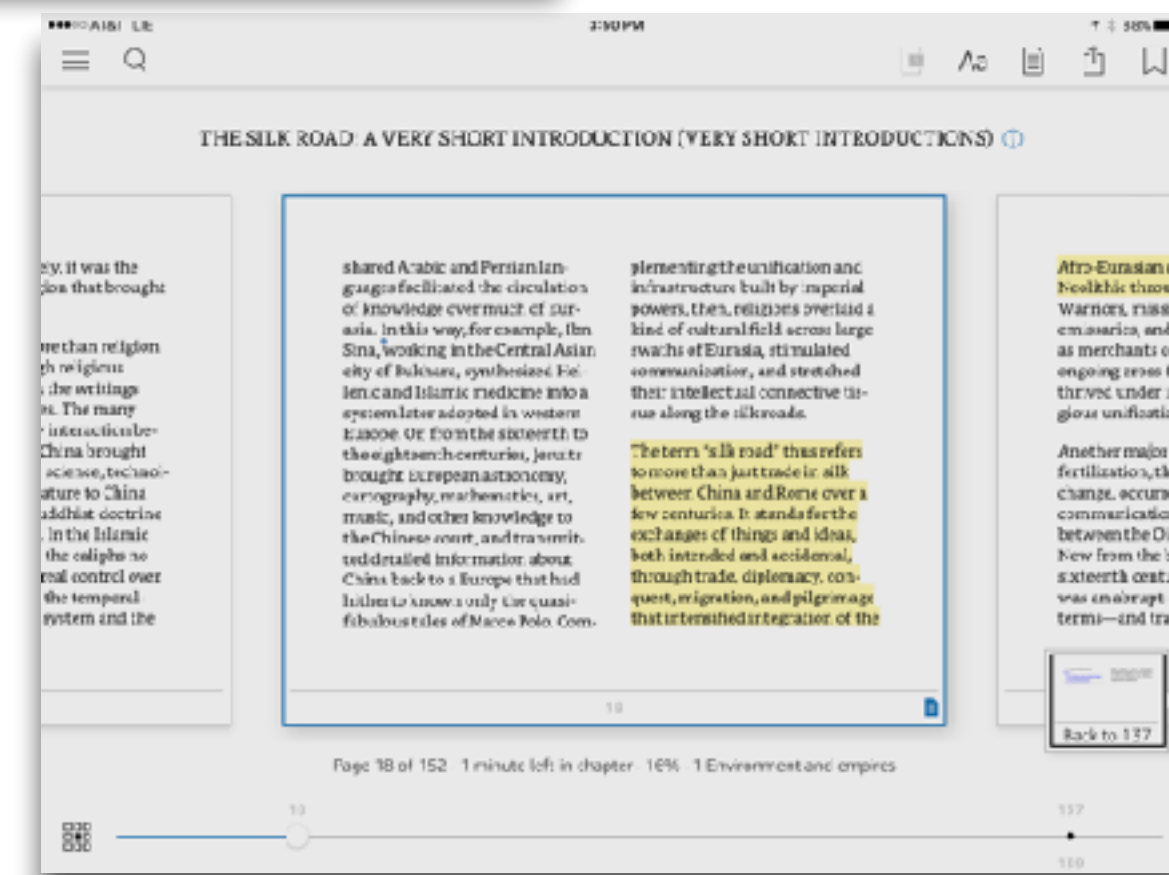
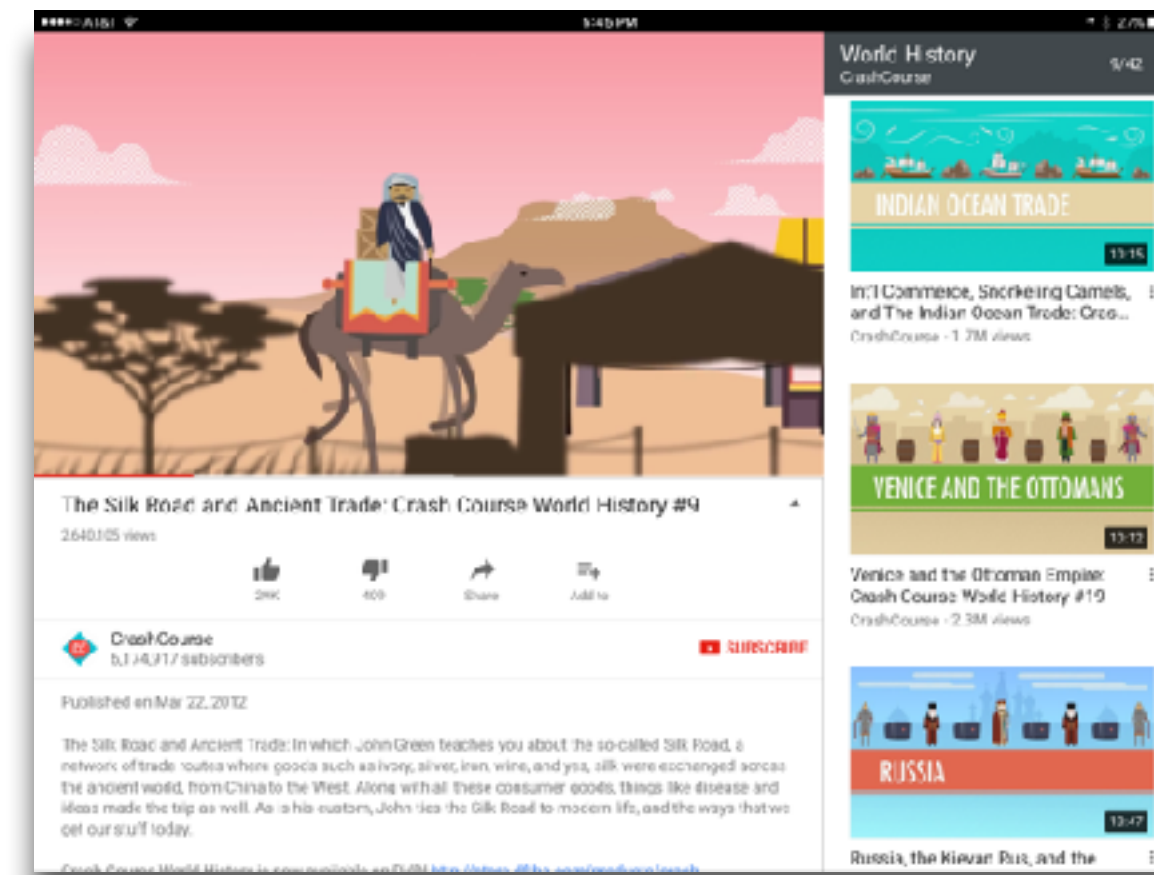
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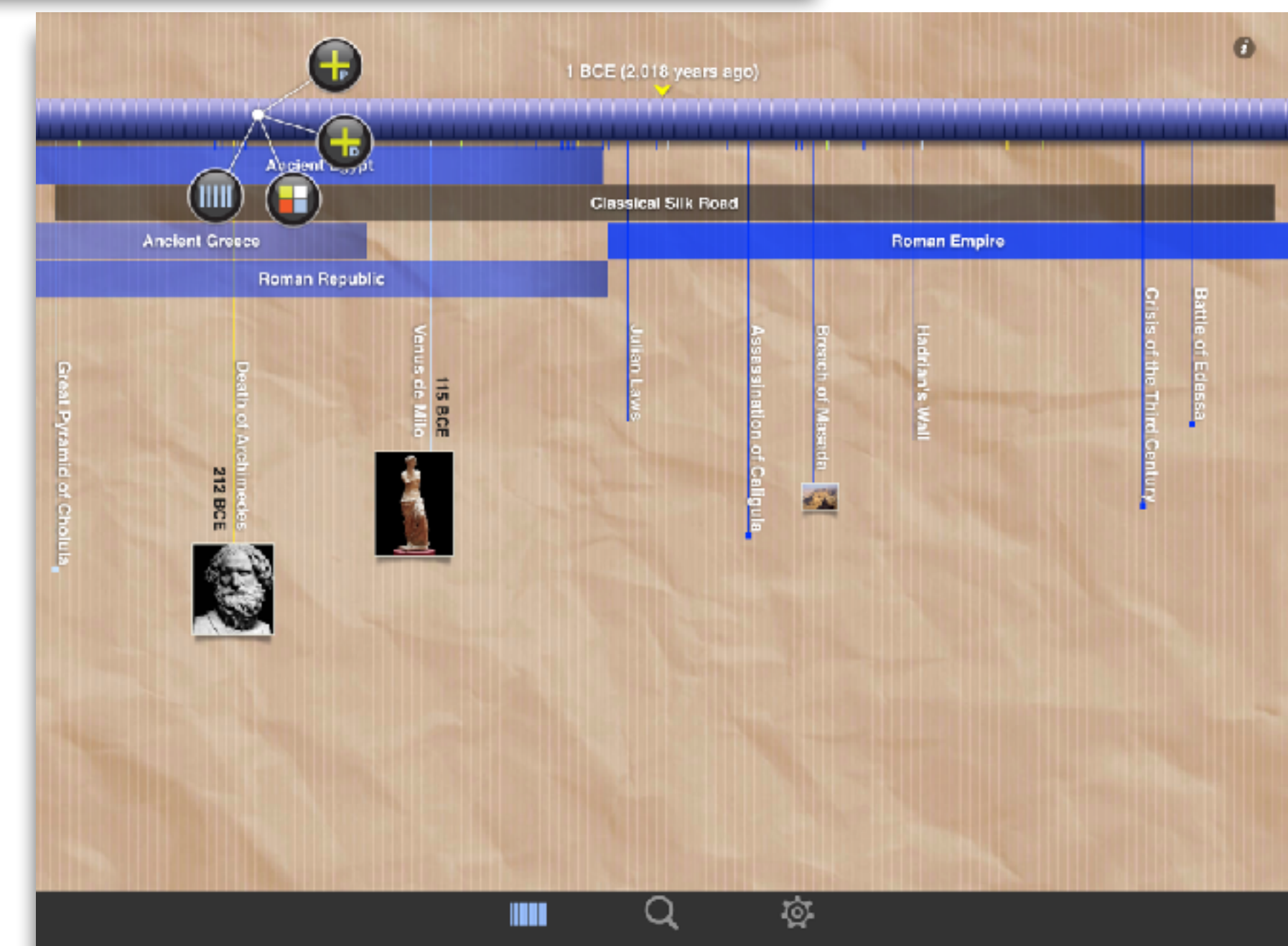
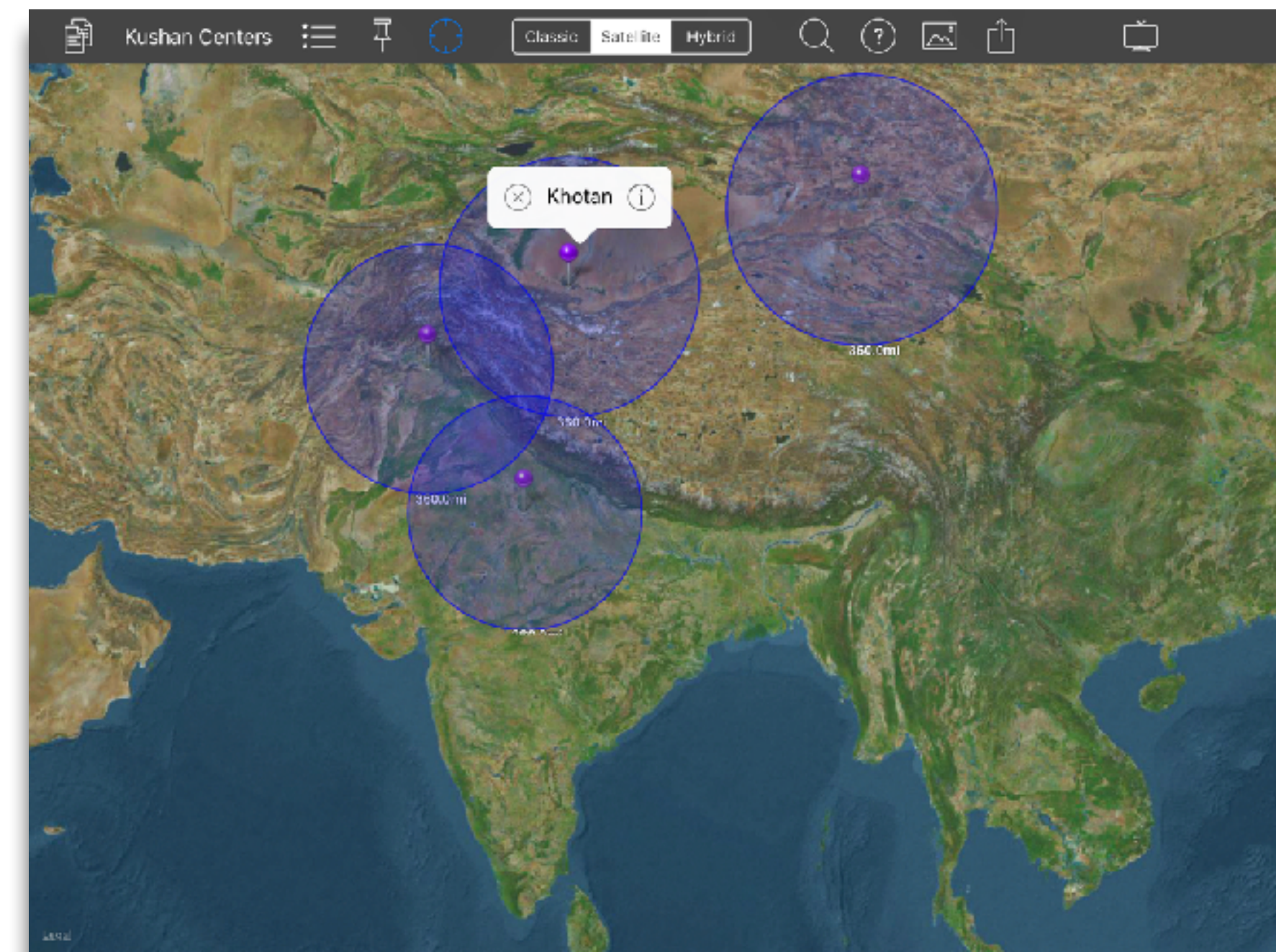
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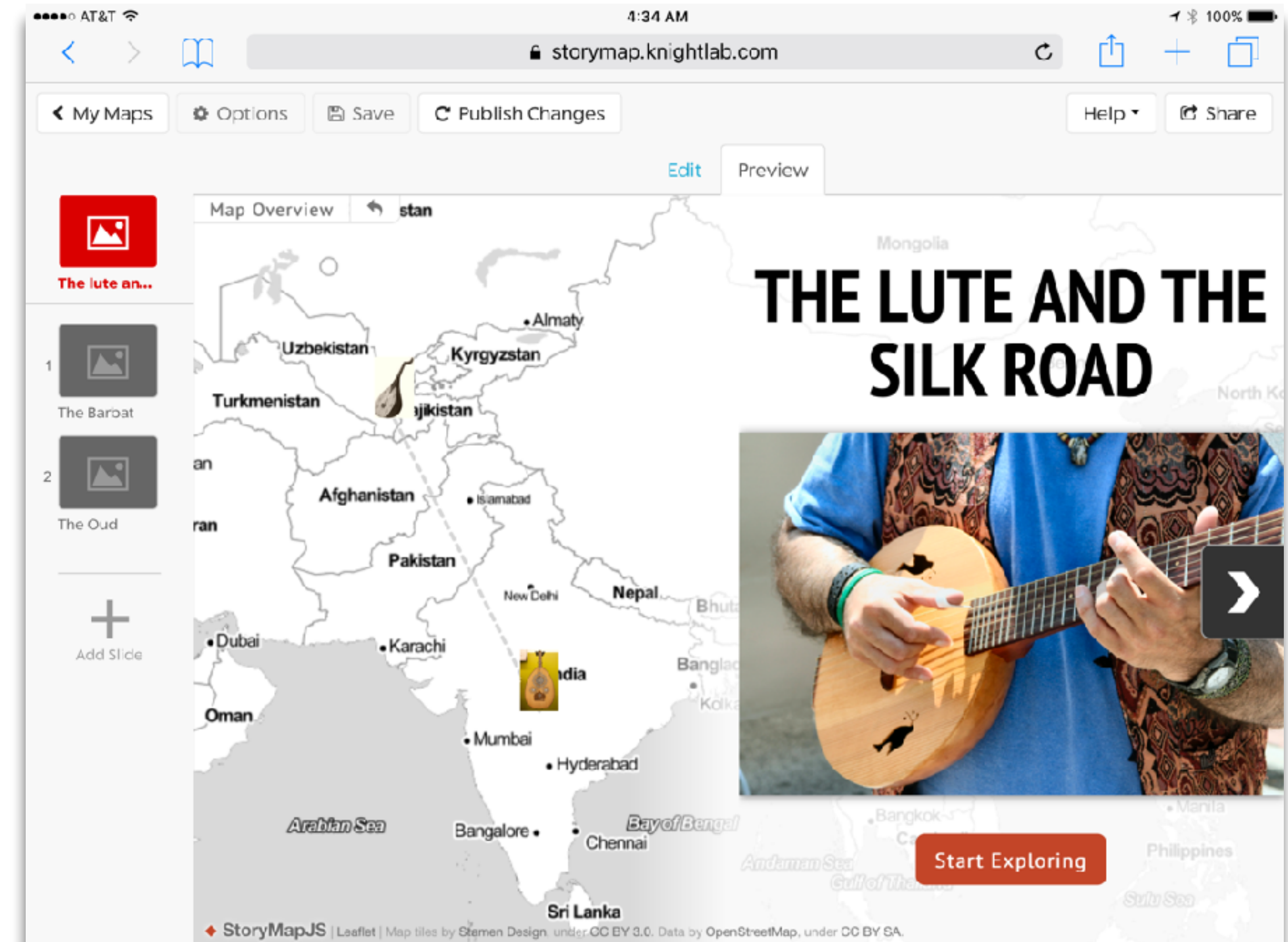
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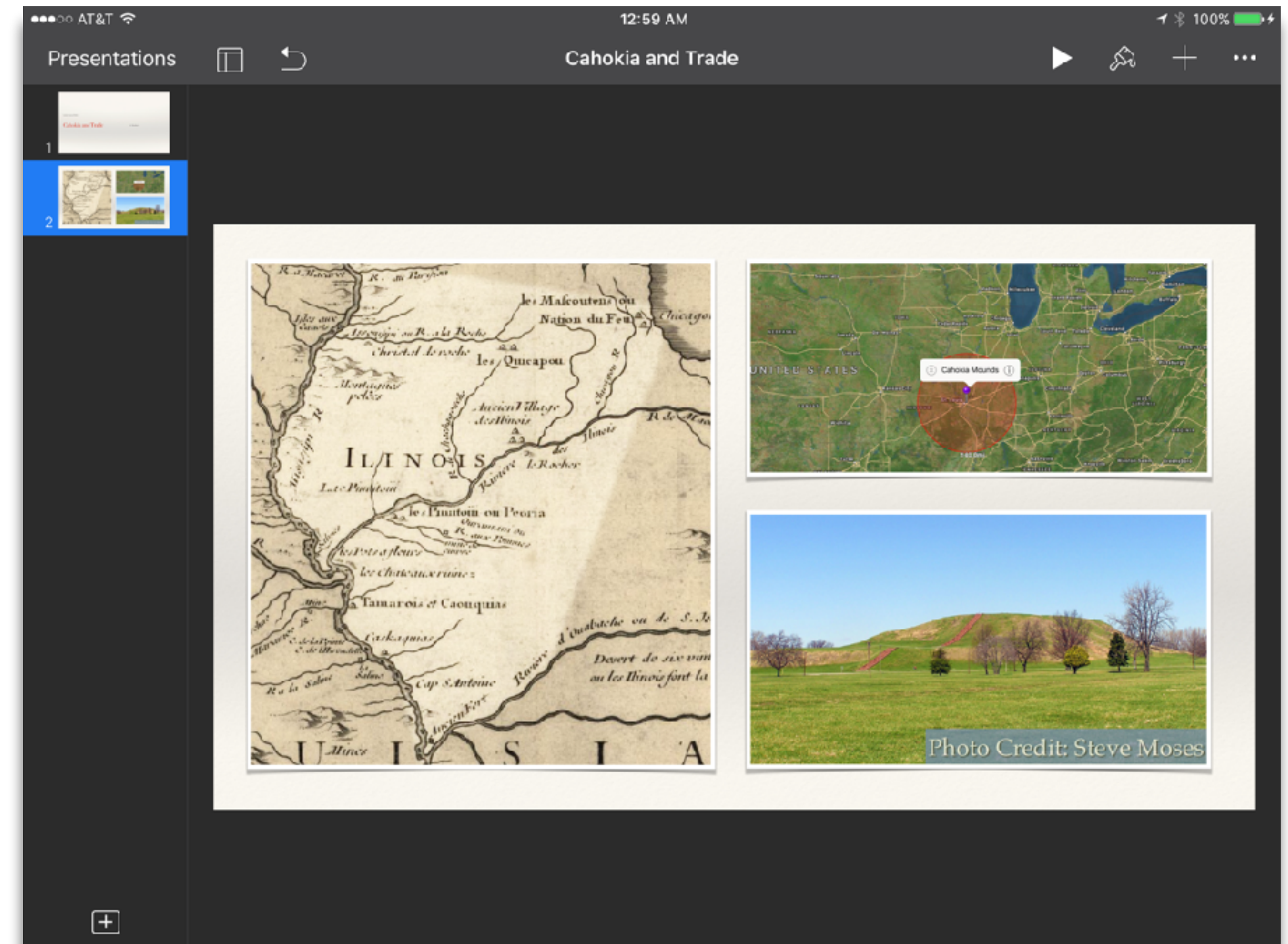
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Step 1

The teacher provides a description, explanation, or example of the new term

Step 2

Students restate the explanation of the new term in their own words

Step 3

Students create a nonlinguistic representation of the term

Step 4

Students do activities that help them add to their knowledge of vocabulary terms

Step 5

Students are asked to discuss the terms with one another

Step 6

Students are involved in games that allow them to play with the terms

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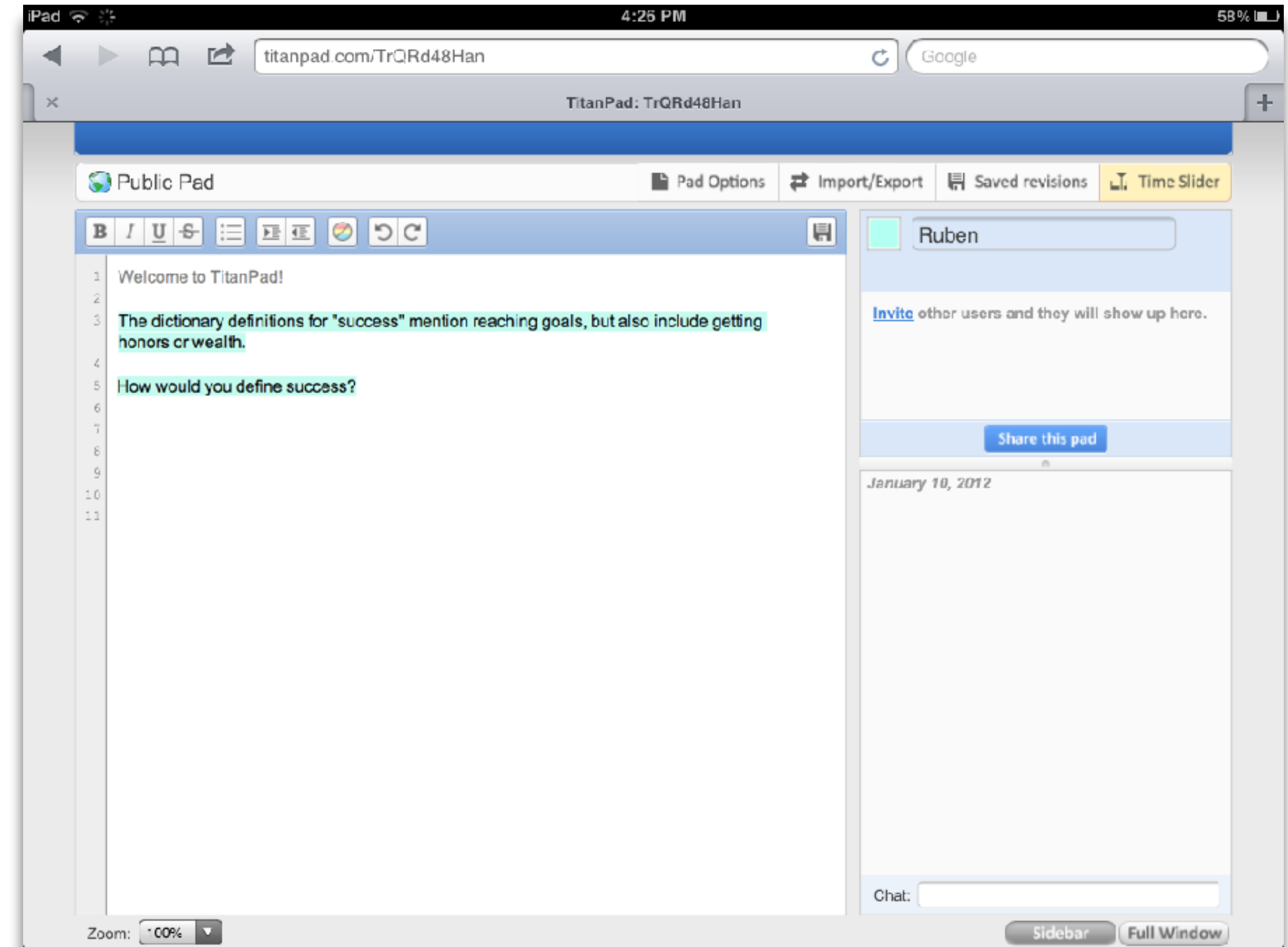
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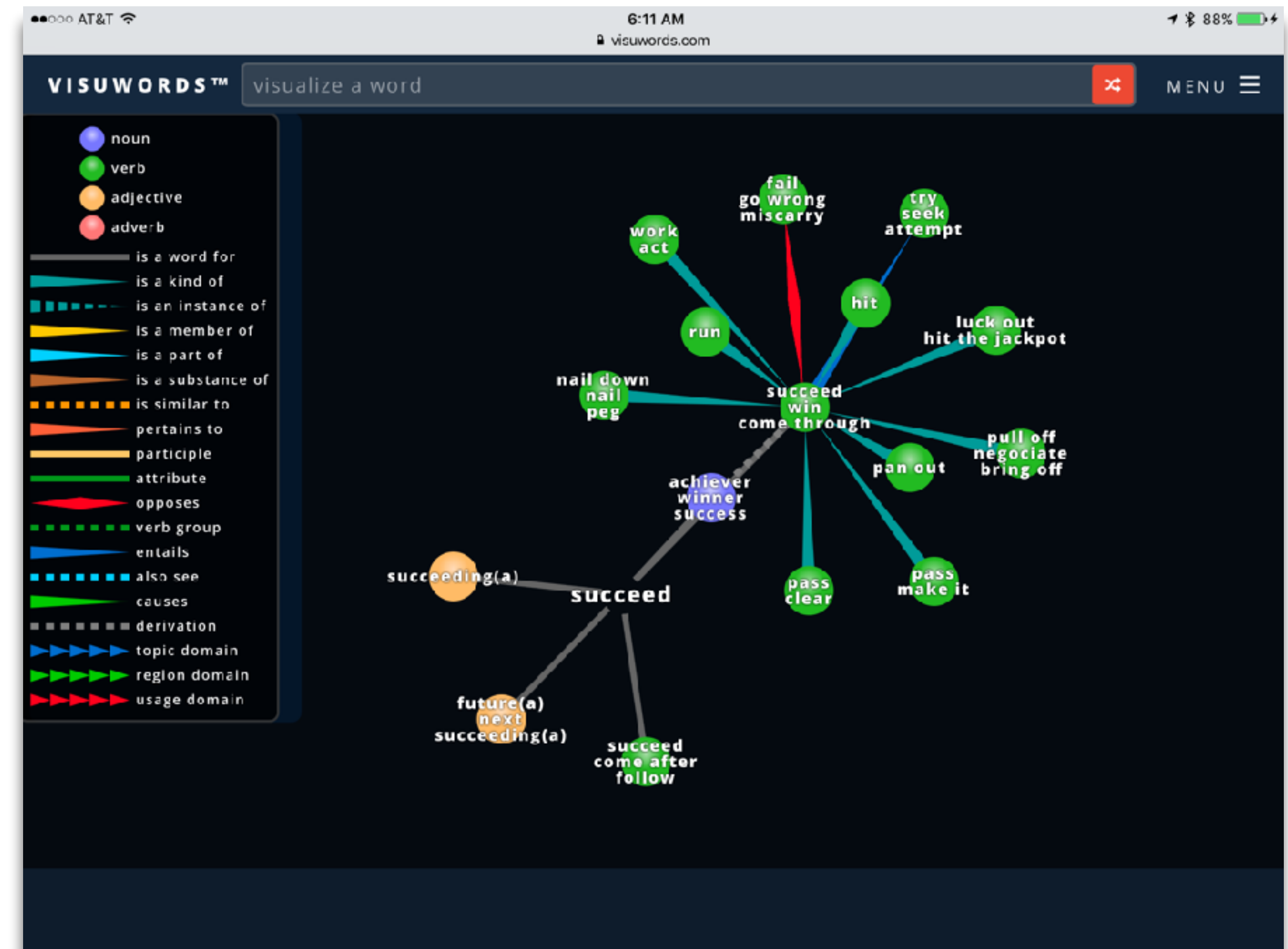
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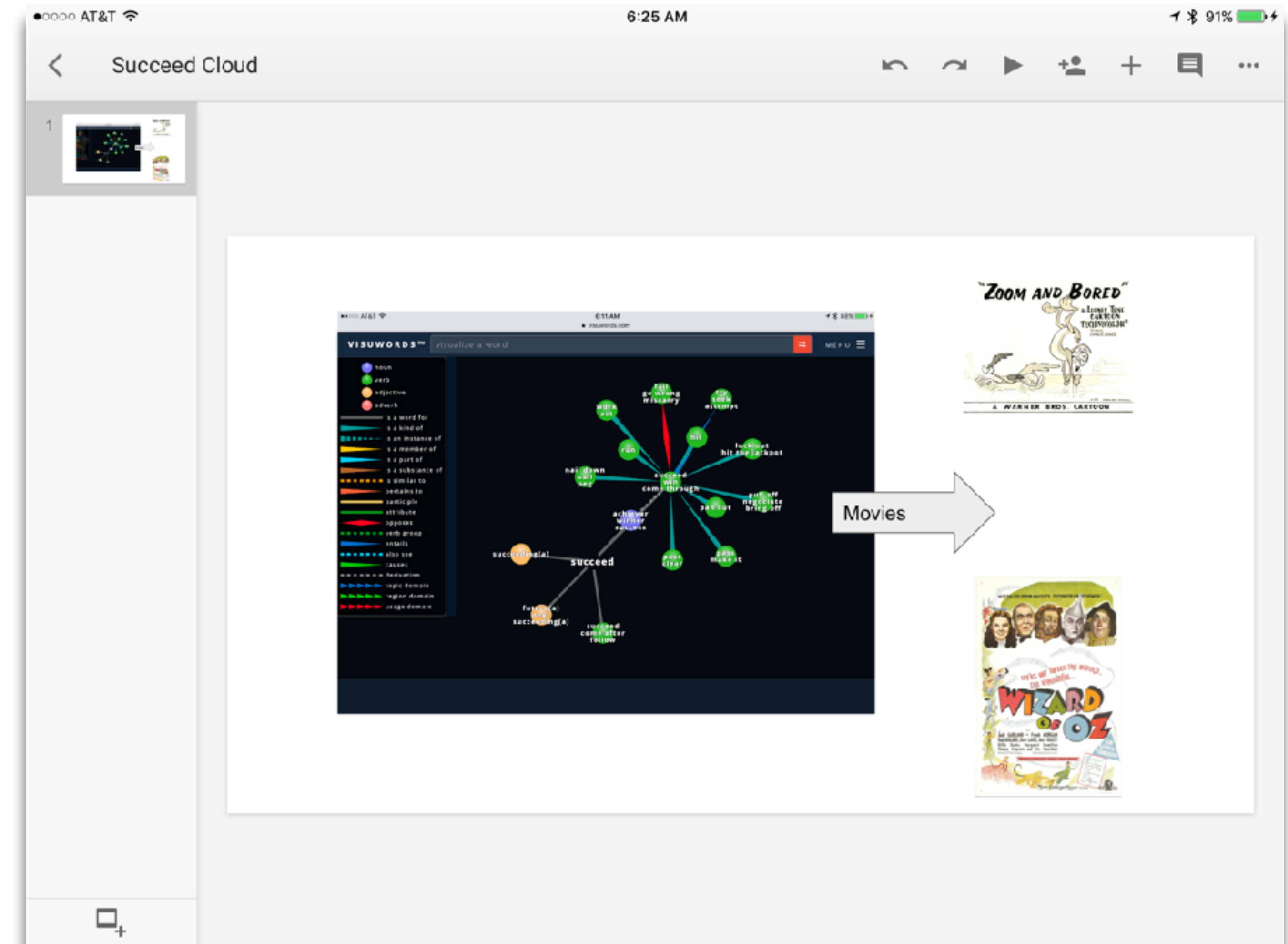
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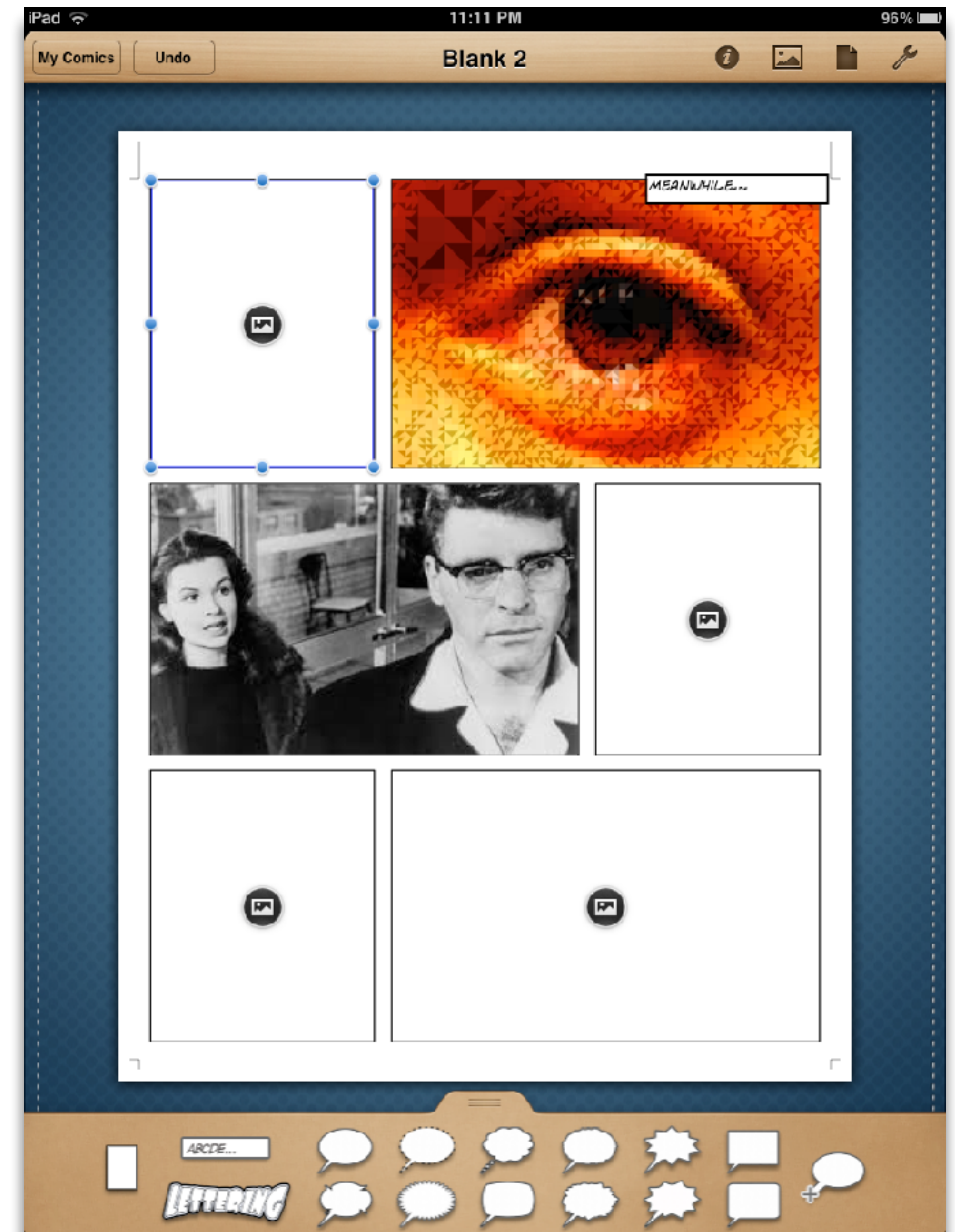
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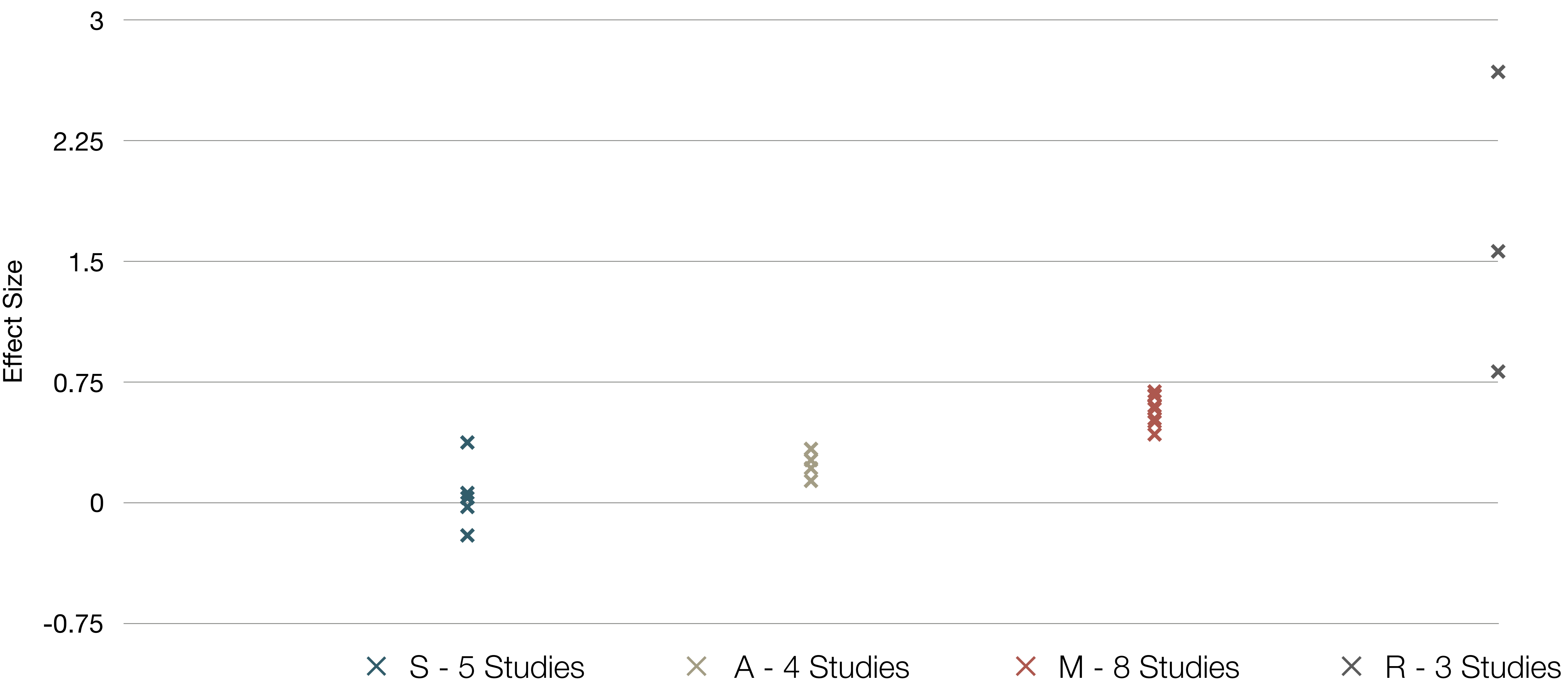


Meta-analysis	Number of studies	<i>ES</i> type	Mean <i>ES</i>	<i>SE</i>
Bangert-Drowns (1993)	19	Missing	0.27	0.11
Bayraktar (2000)	42	Cohen's <i>d</i>	0.27	0.05
Blok, Oostdam, Otter, and Overmaat (2002)	25	Hedges's <i>g</i>	0.25	0.06
Christmann and Badgett (2000)	16	Missing	0.13	0.05
Fletcher-Flinn 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

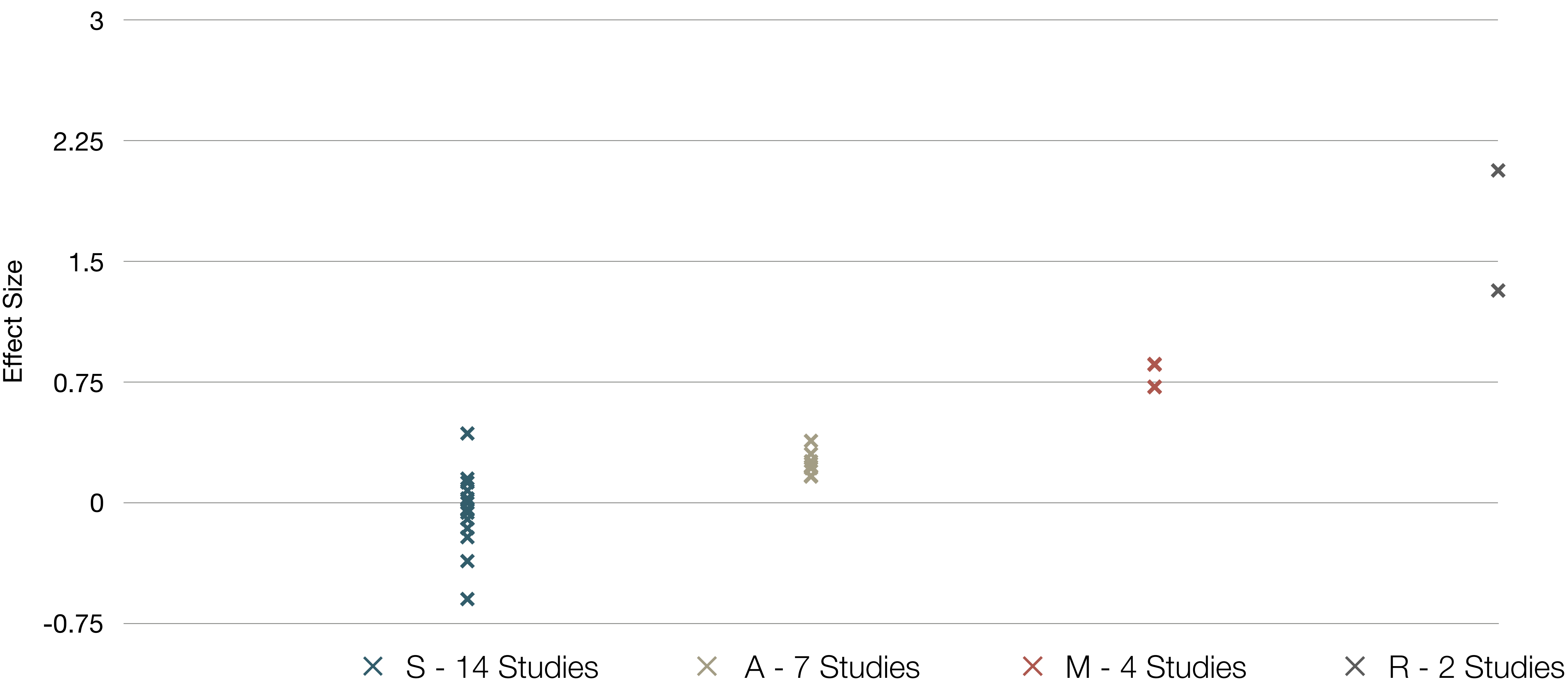
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Michko (2007)	45	Hedges's <i>g</i>	0.43	0.07
Onuoha (2007)	35	Cohen's <i>d</i>	0.26	0.04
Pearson, Ferdig, Blomeyer, and Moran (2005)	20	Hedges's <i>g</i>	0.49 ^a	0.11
Roblyer, Castine, and King (1988)	35	Hedges's <i>g</i>	0.31	0.05
Rosen and Salomon (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 Technology to Enhance Reading Performance in Middle School



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

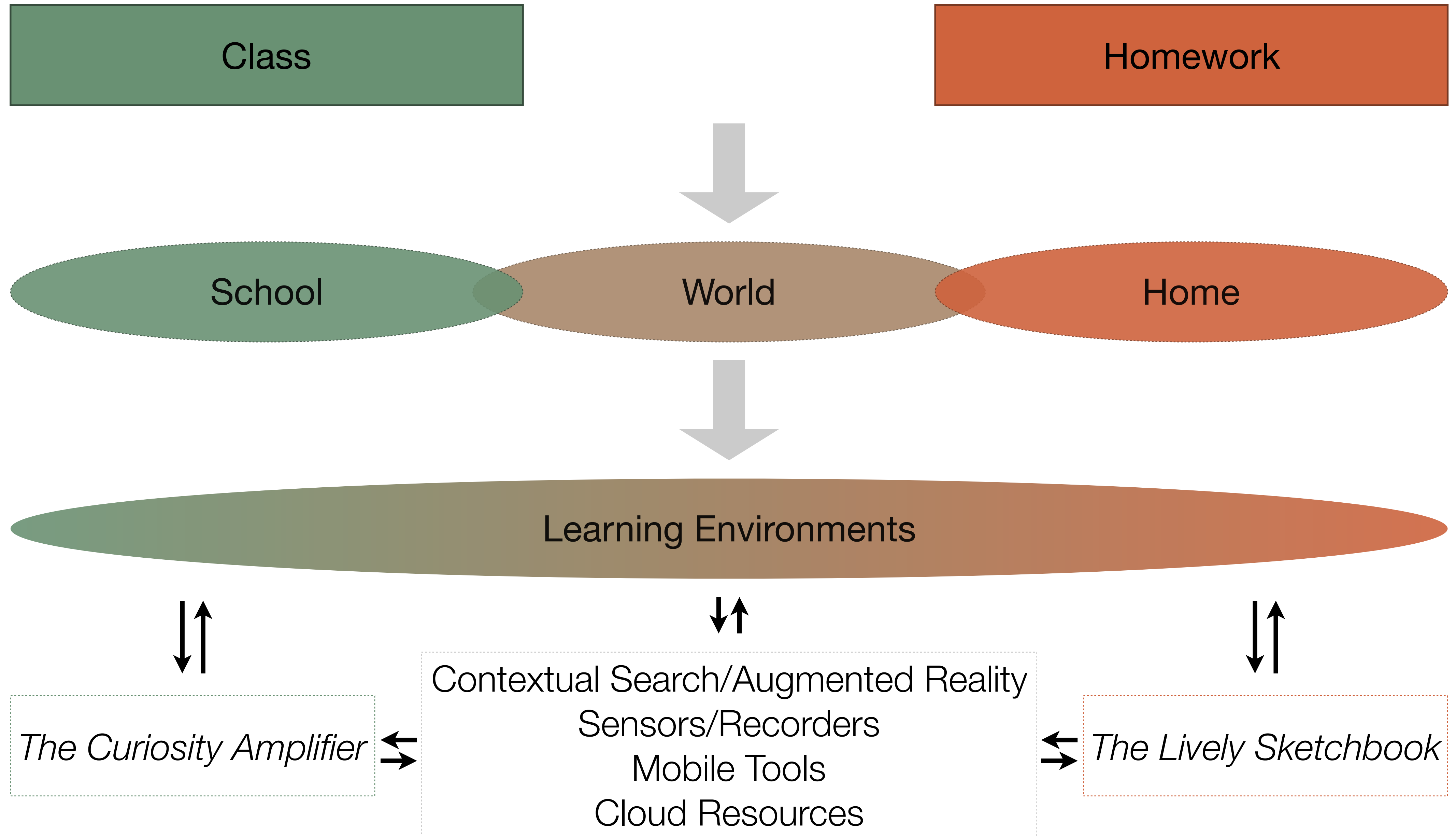


Wikis

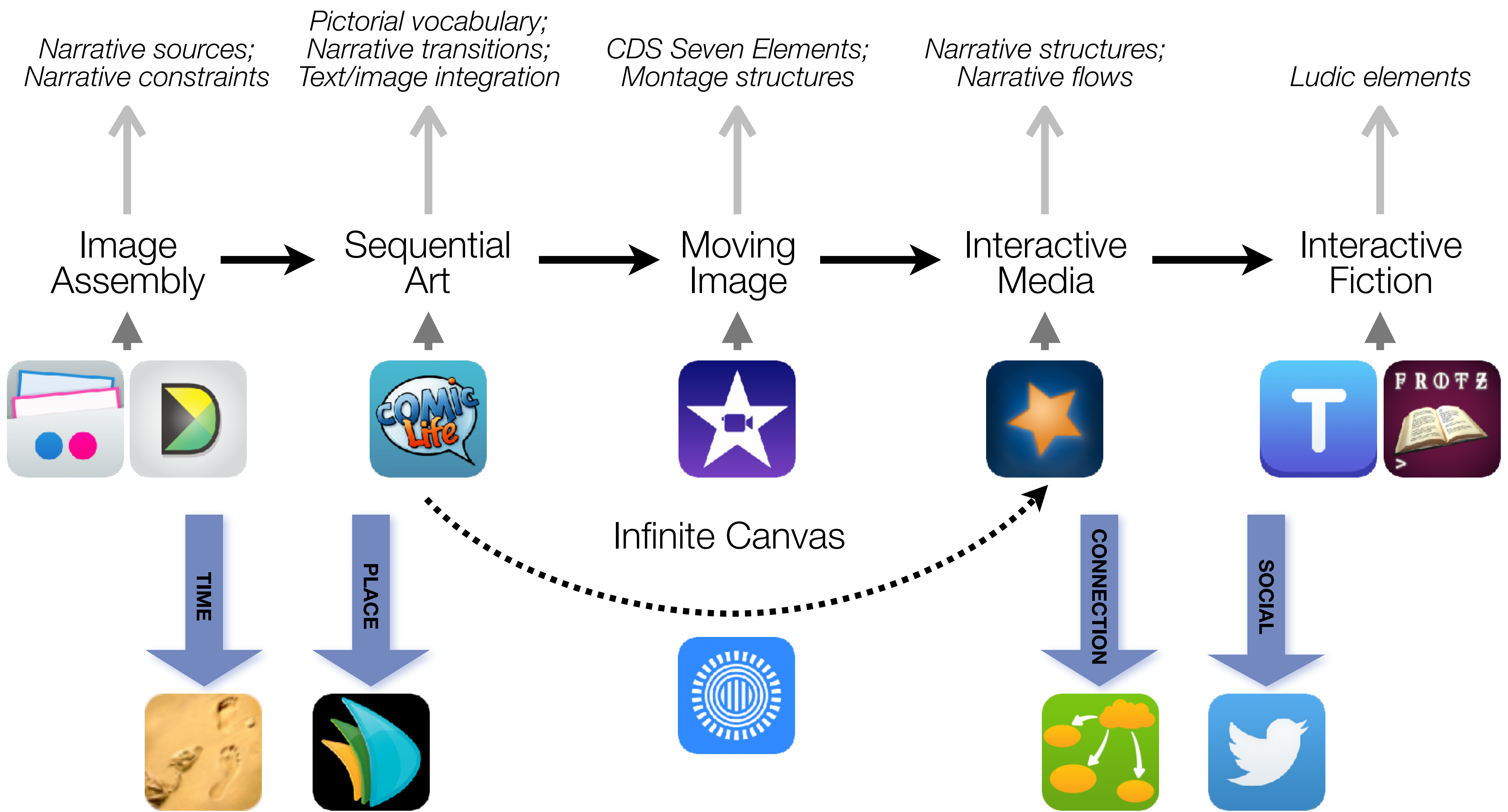
Telepresence



File Sharing



Storytelling



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

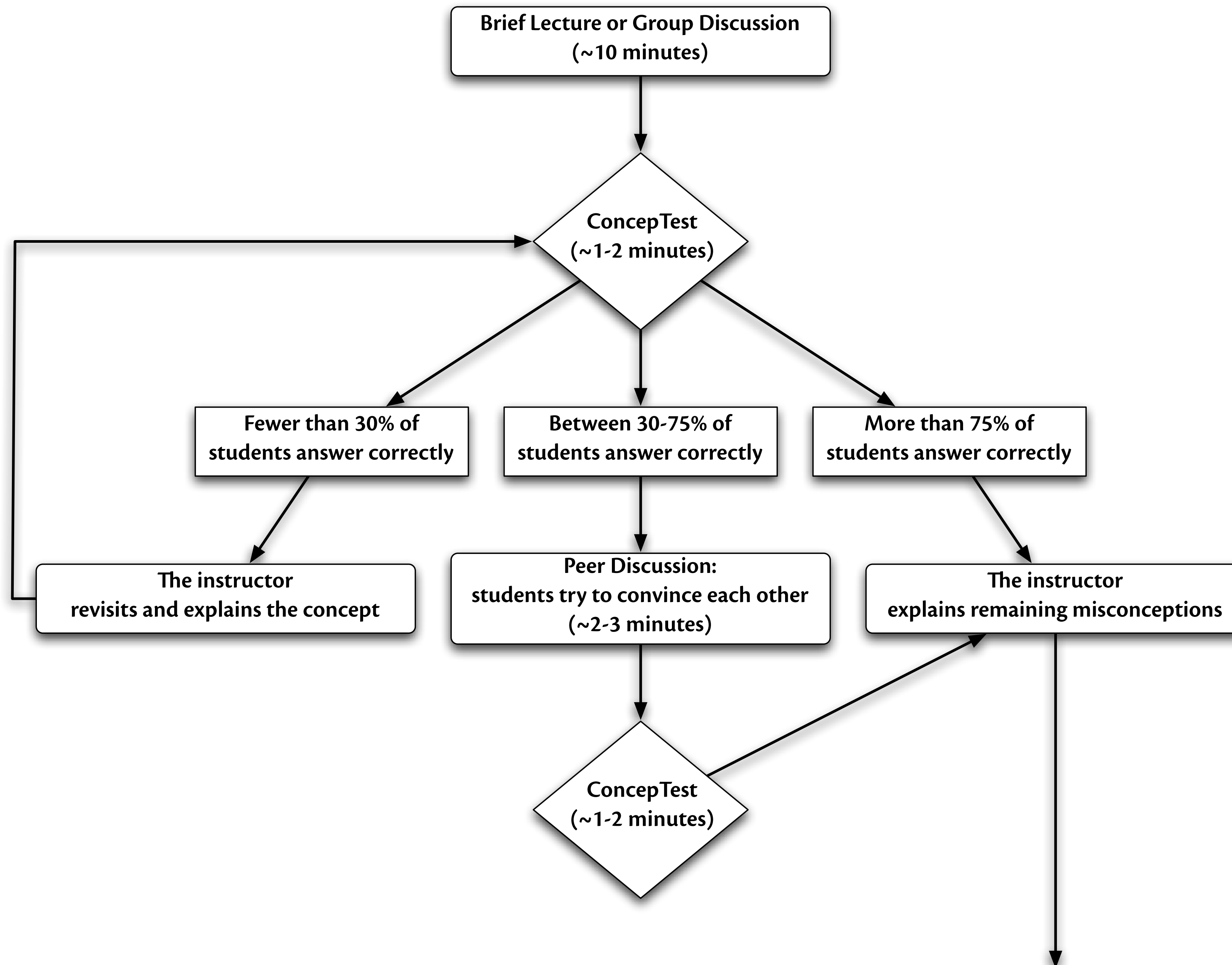
“A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome.”

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

S to A: 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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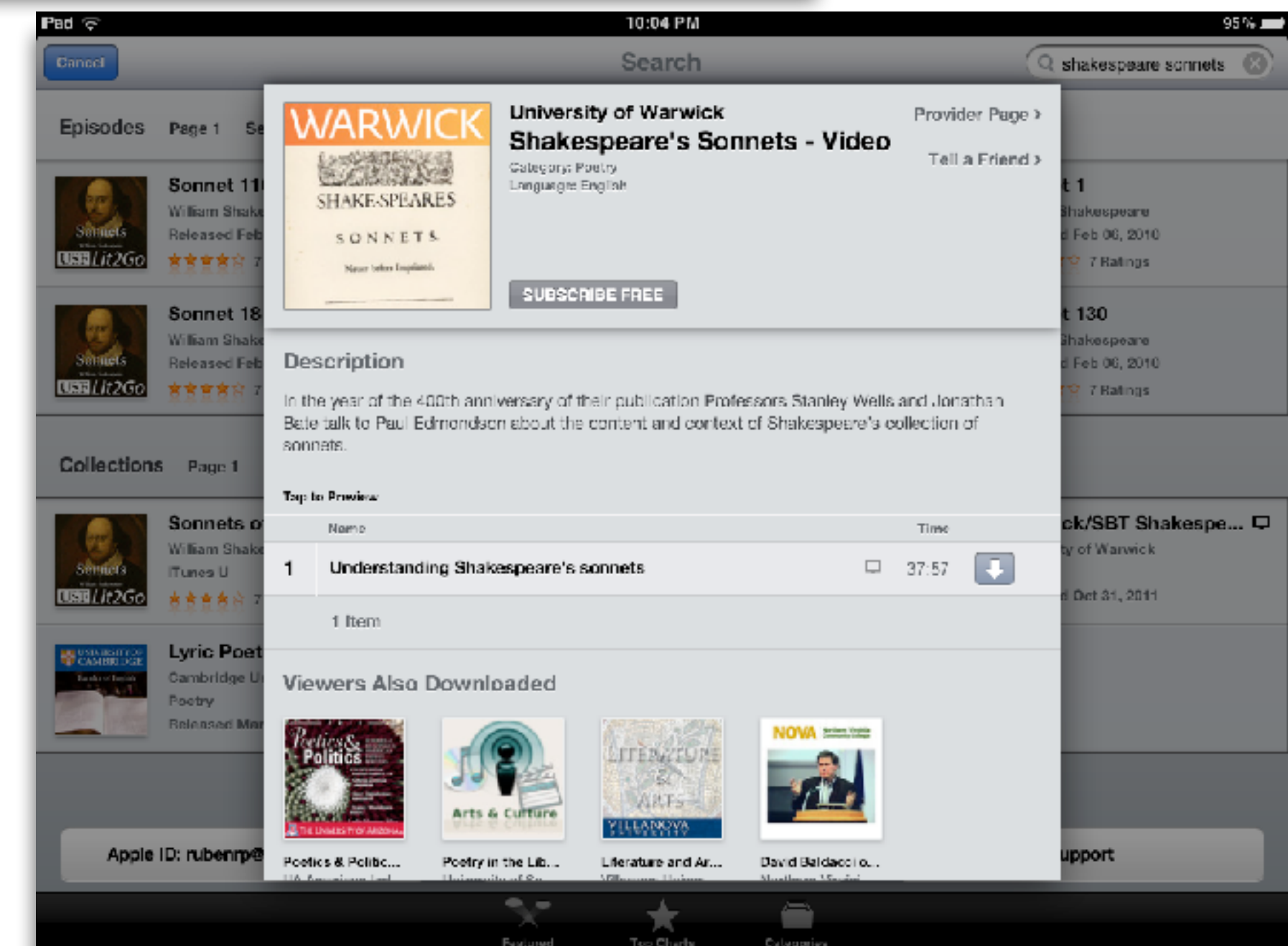
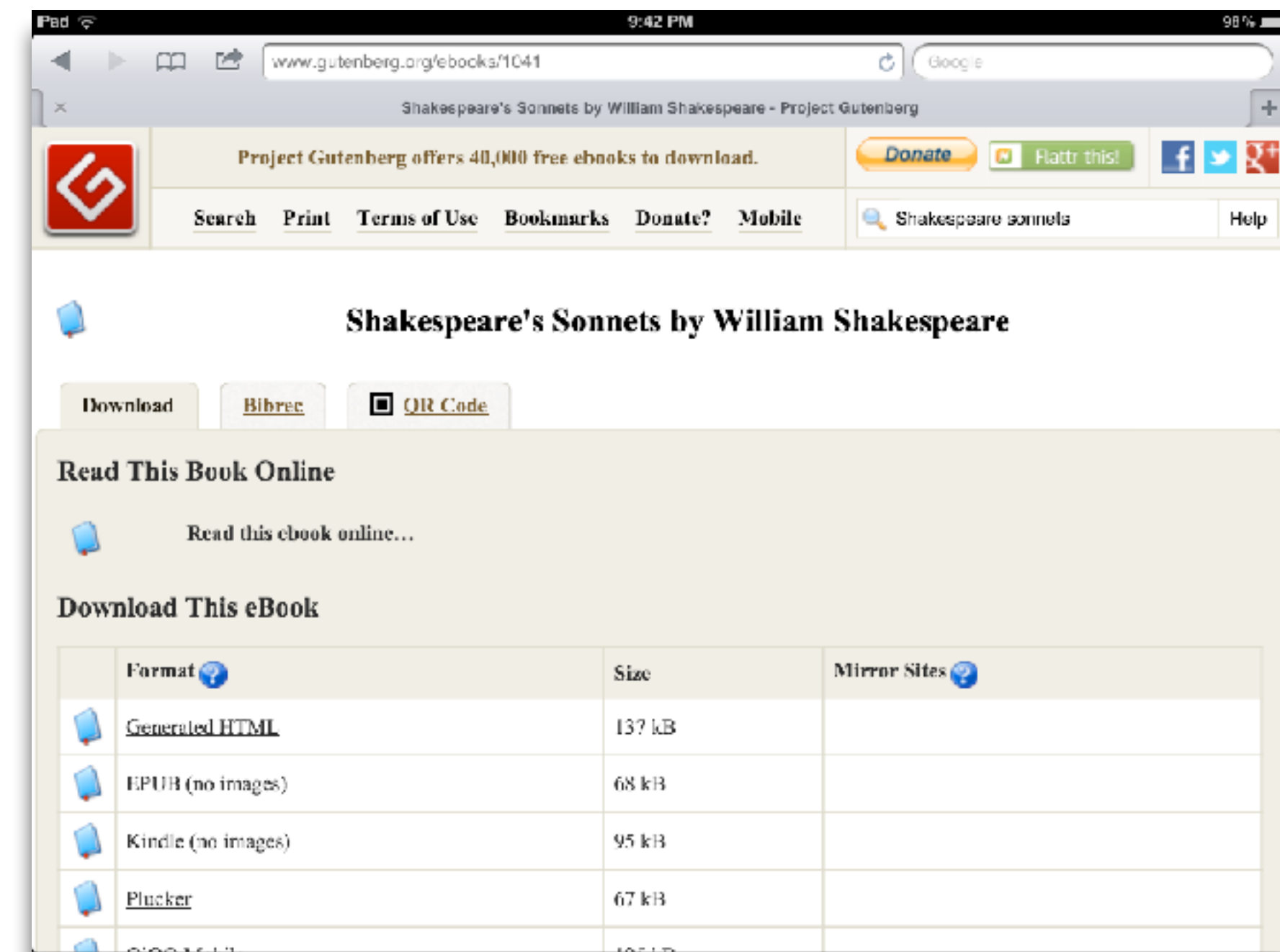
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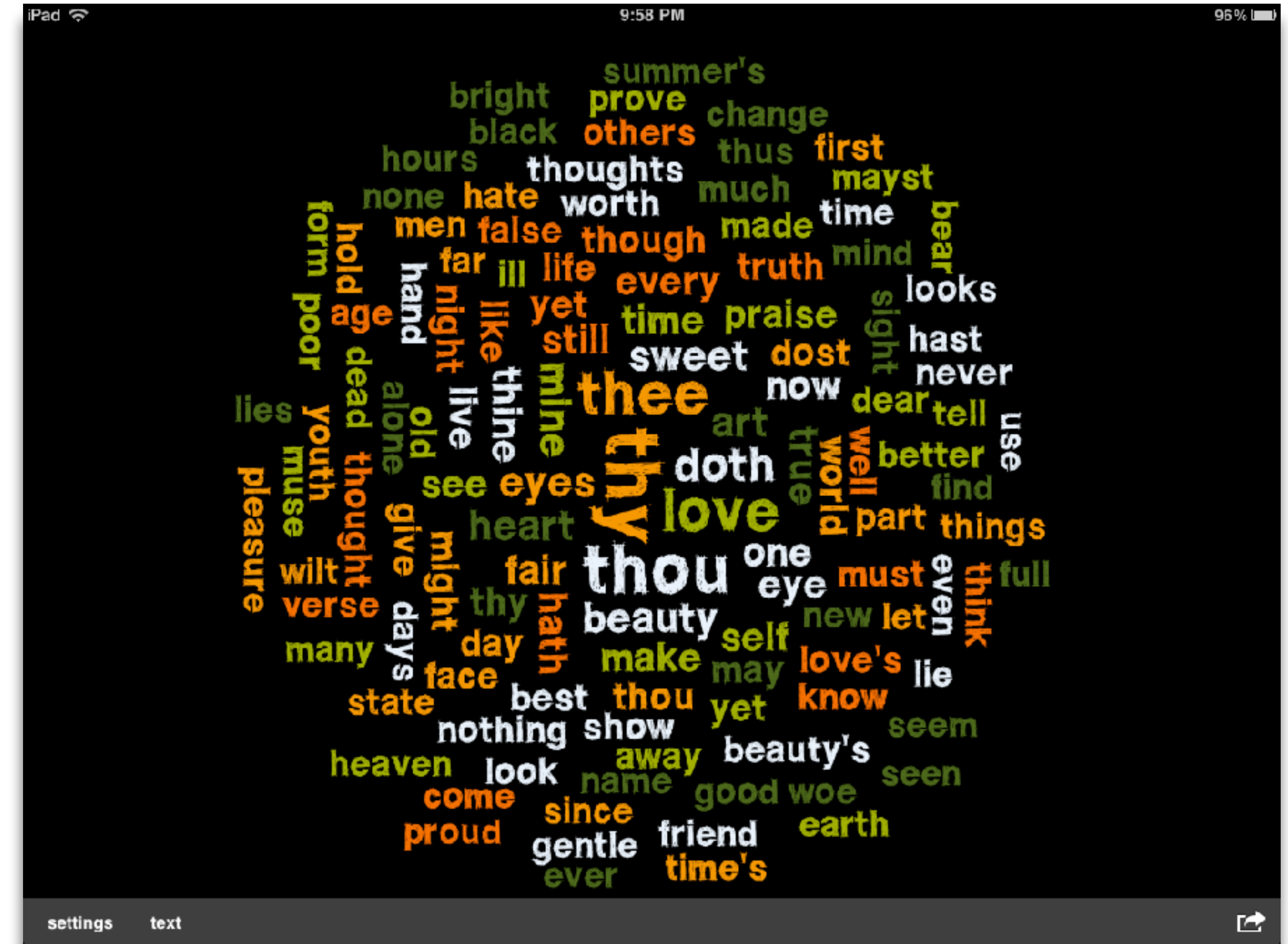
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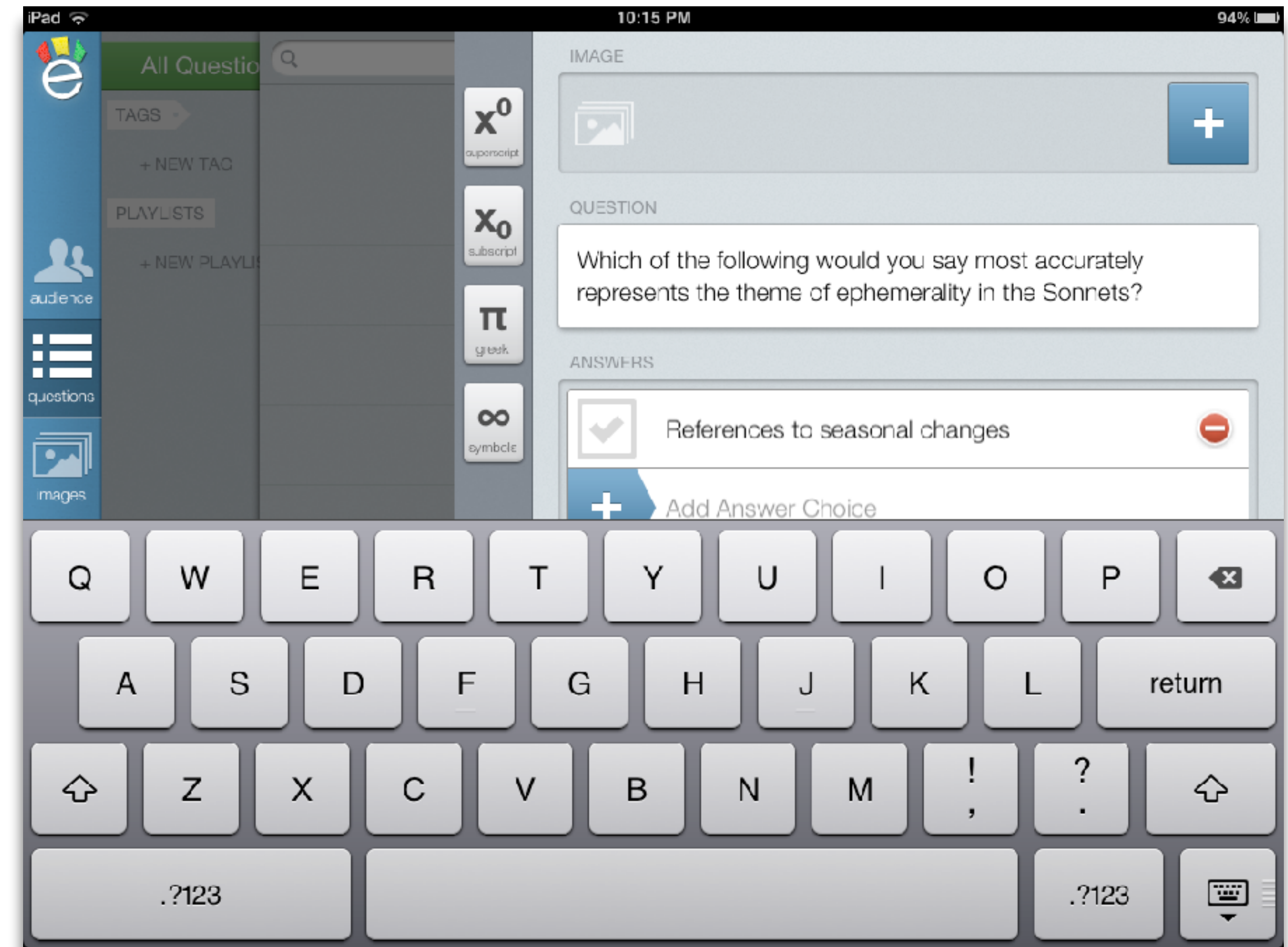
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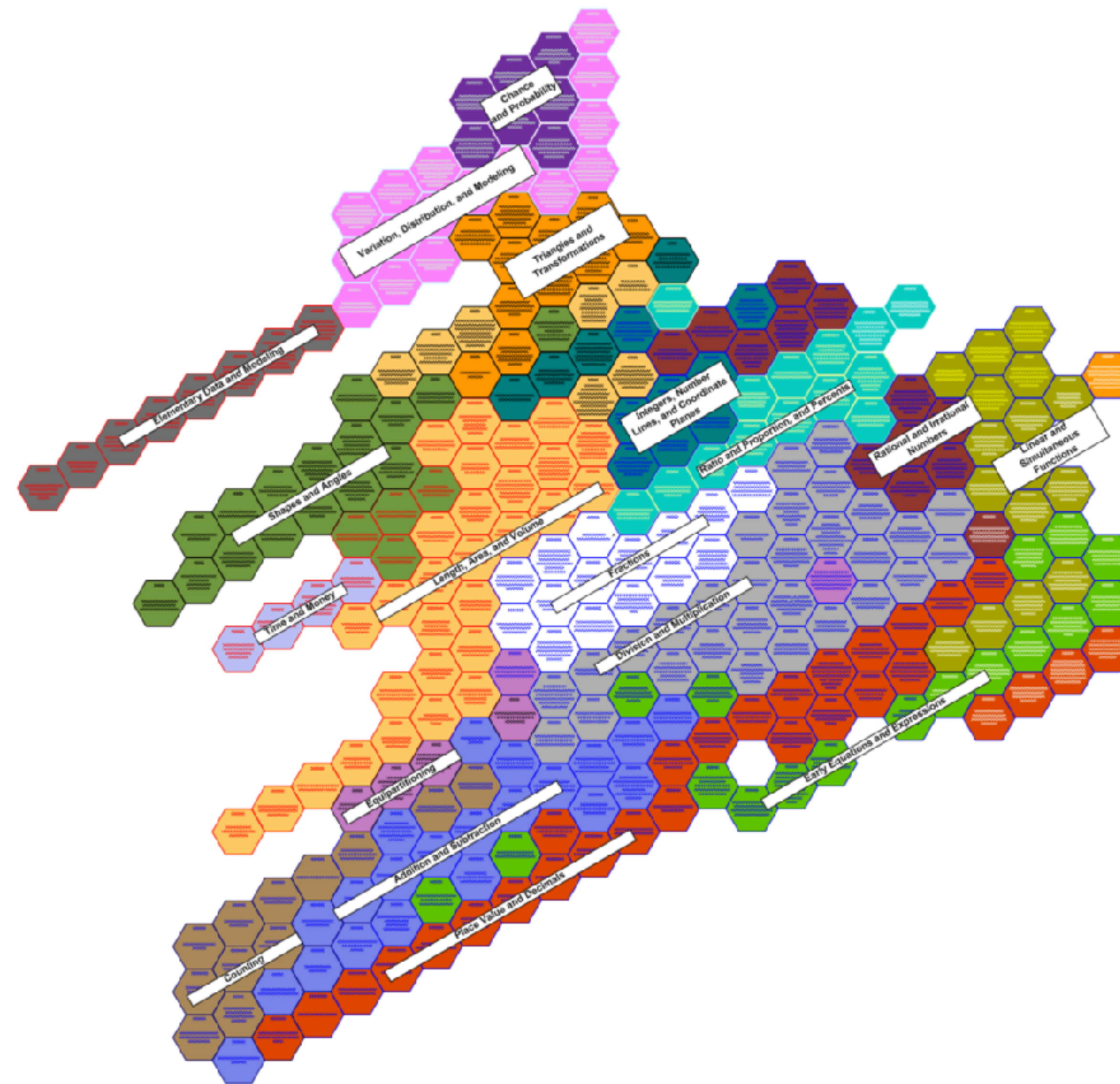
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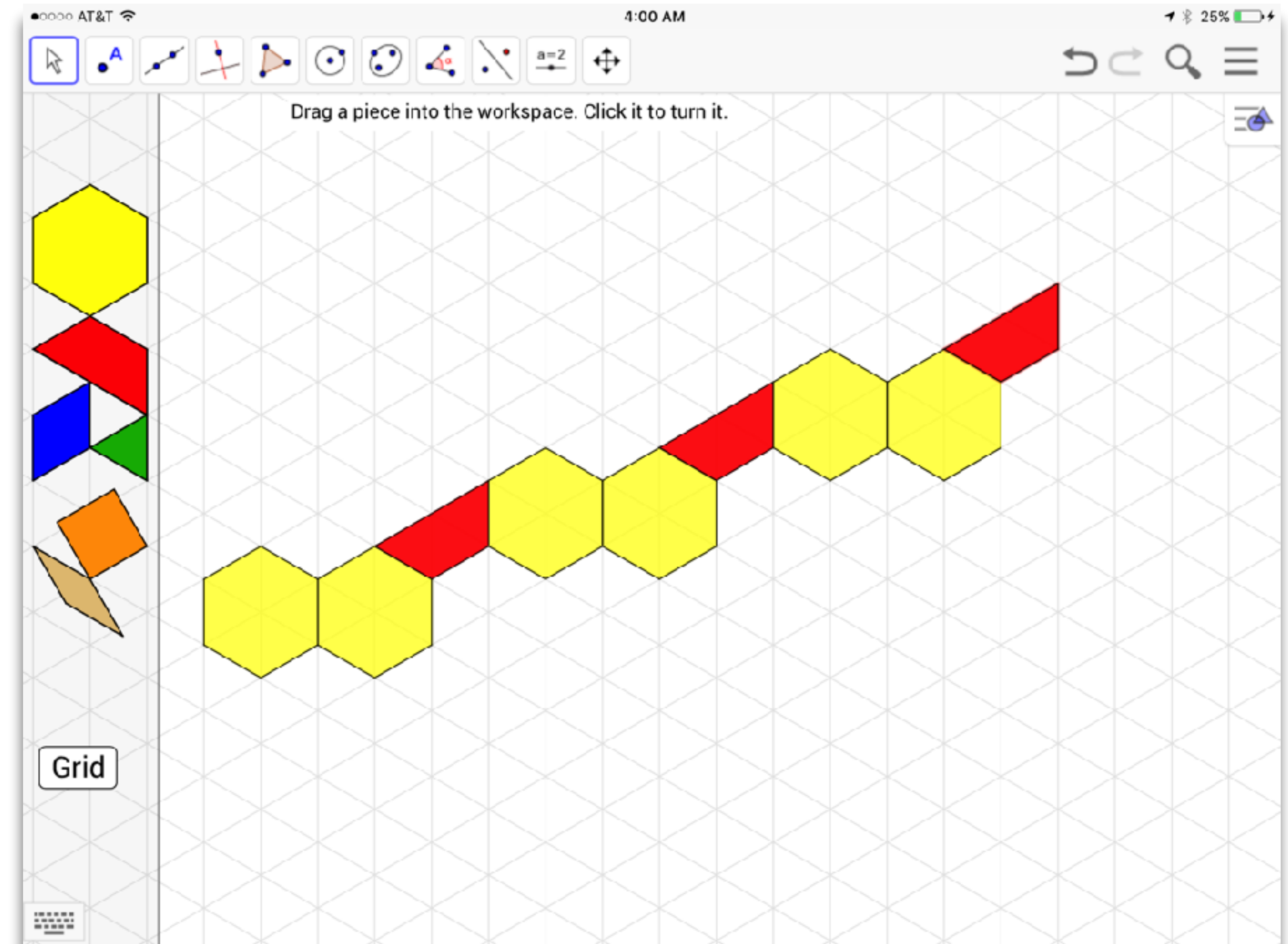
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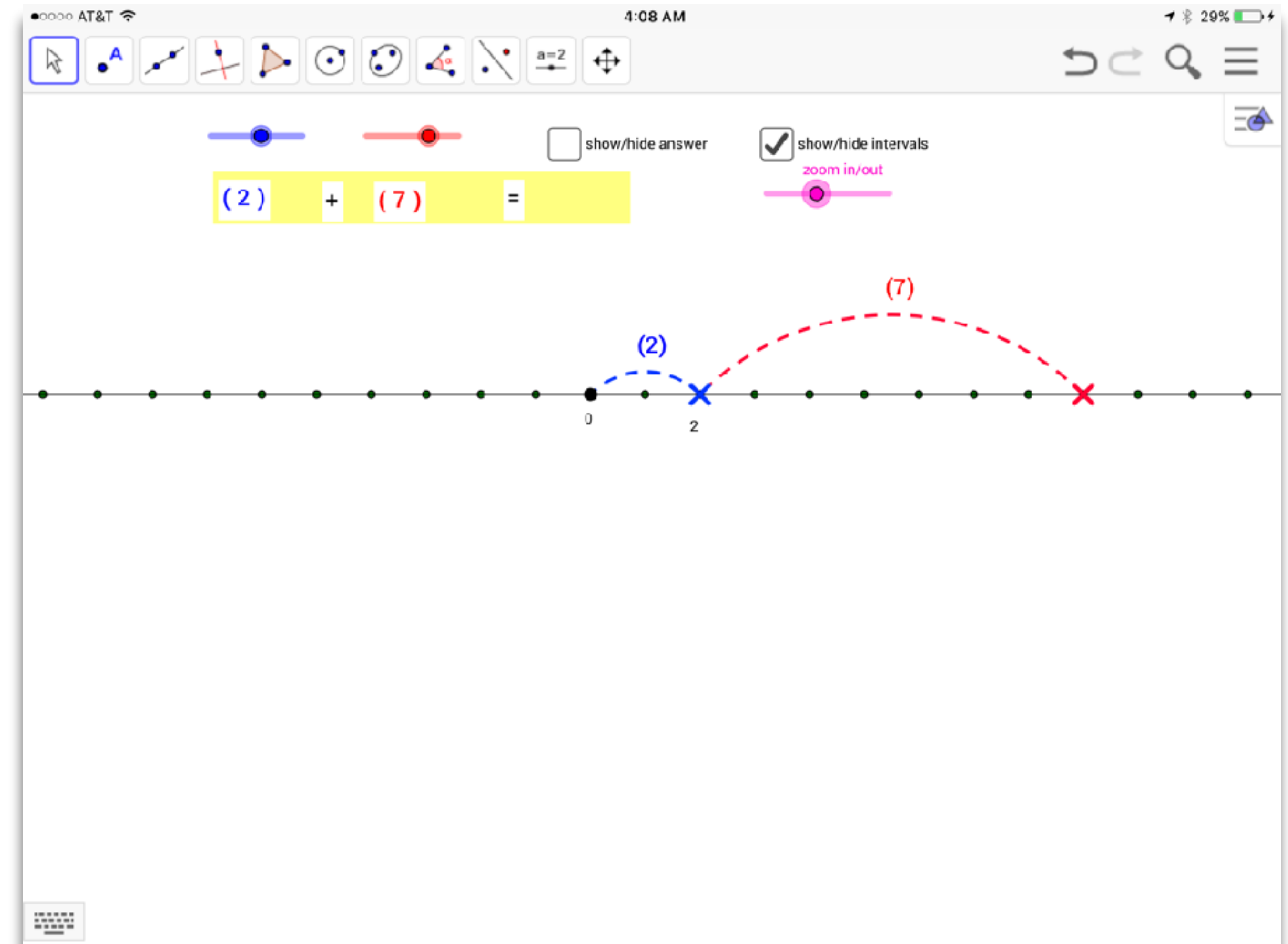
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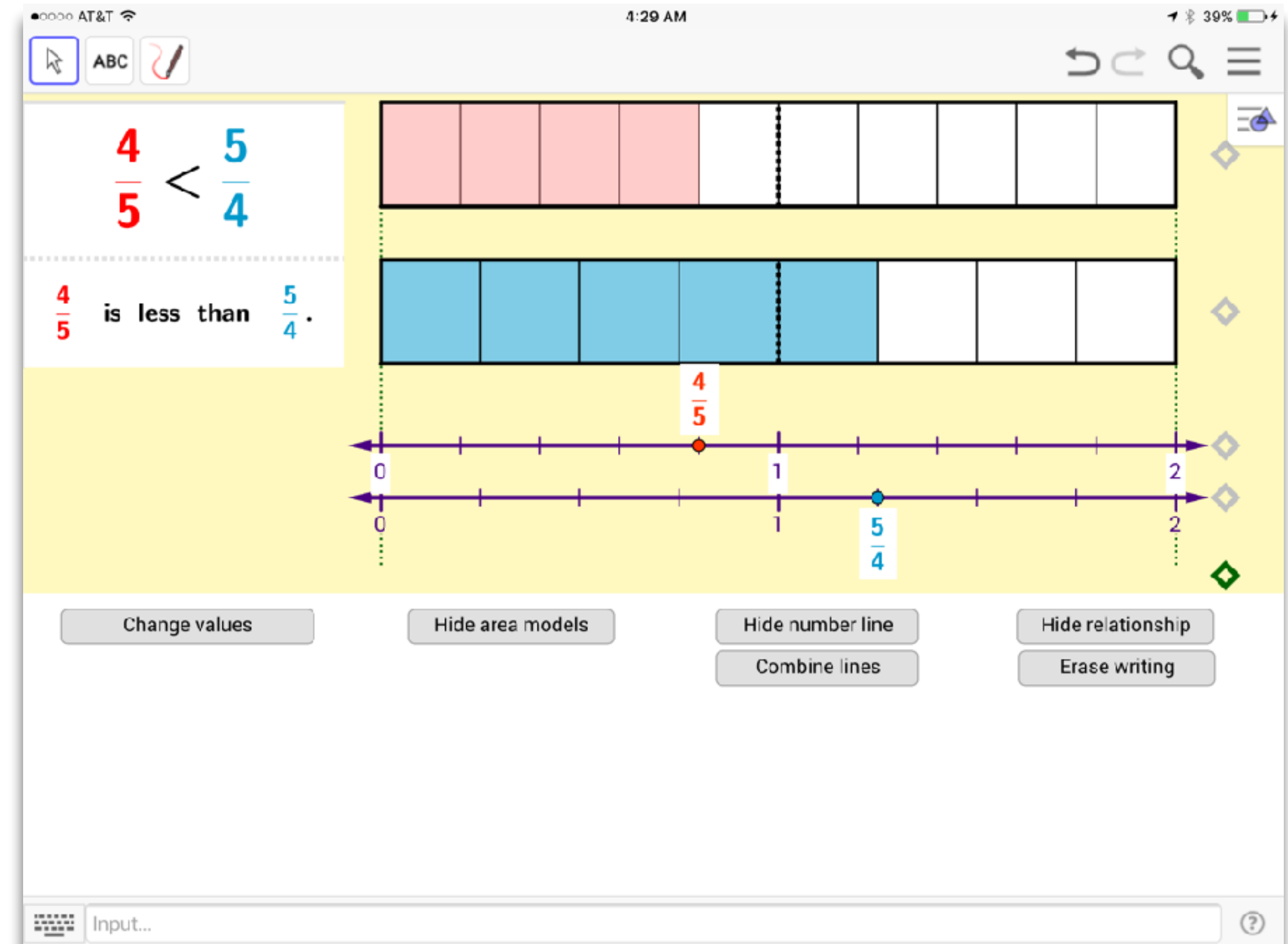
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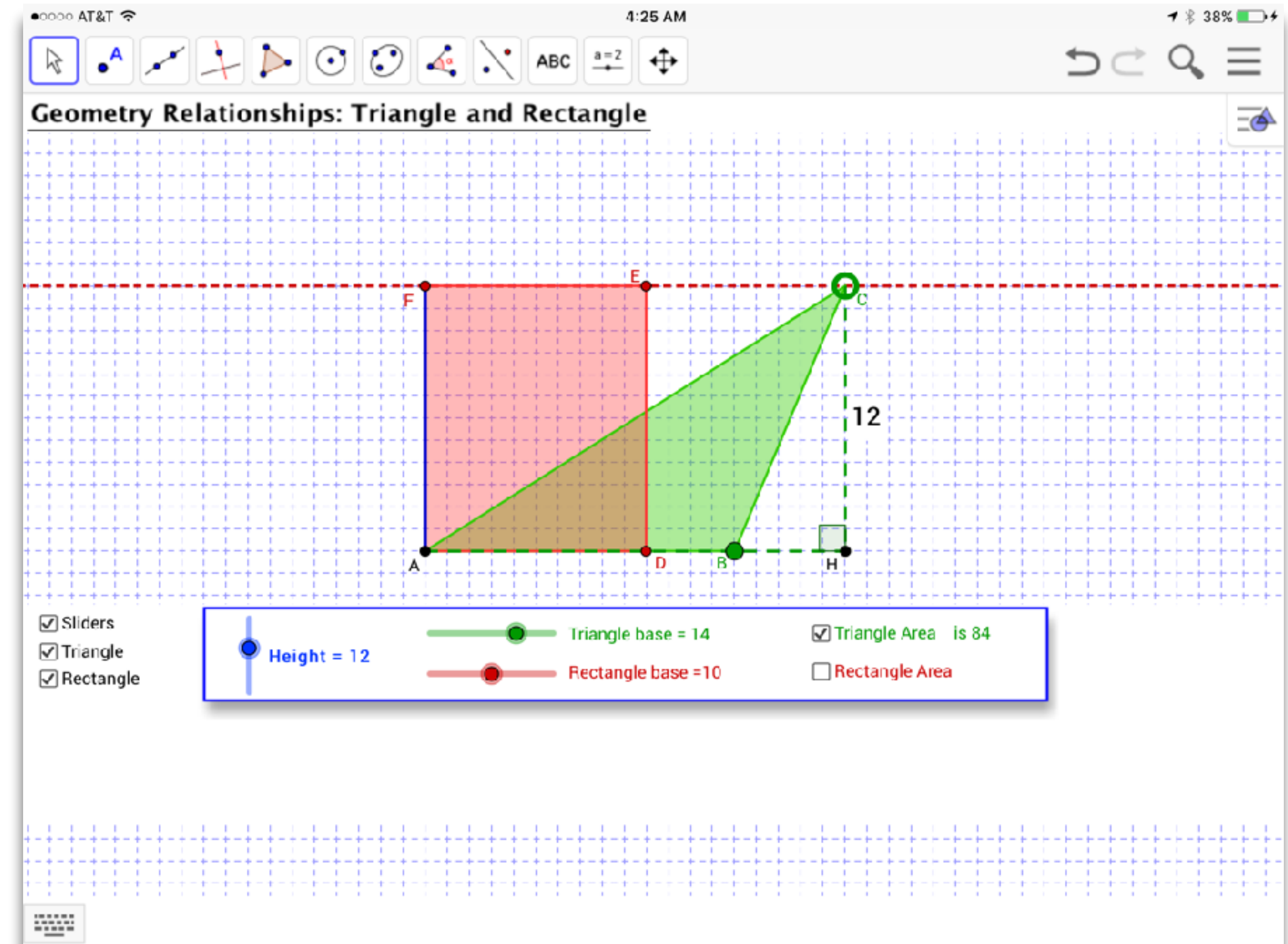
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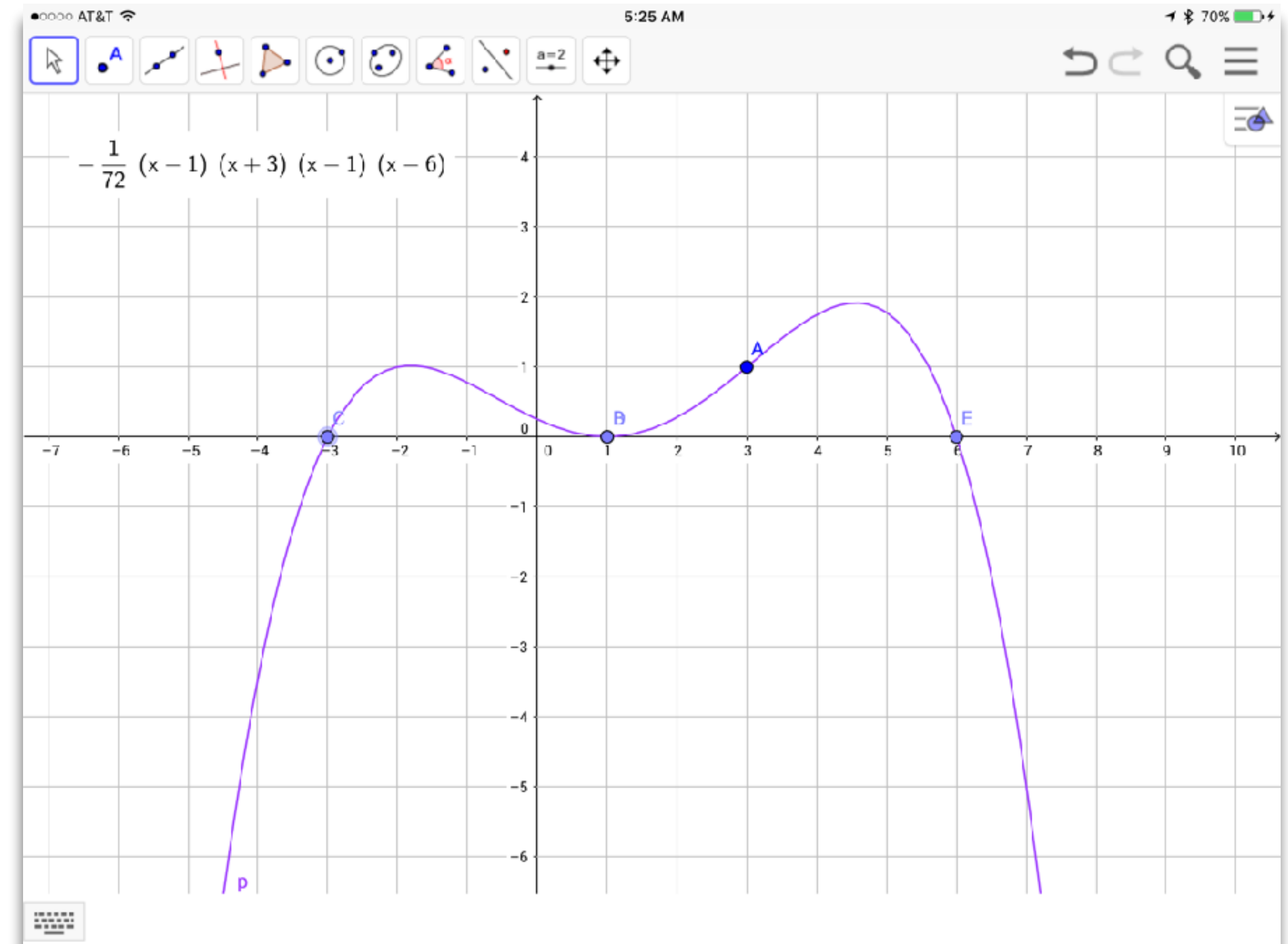
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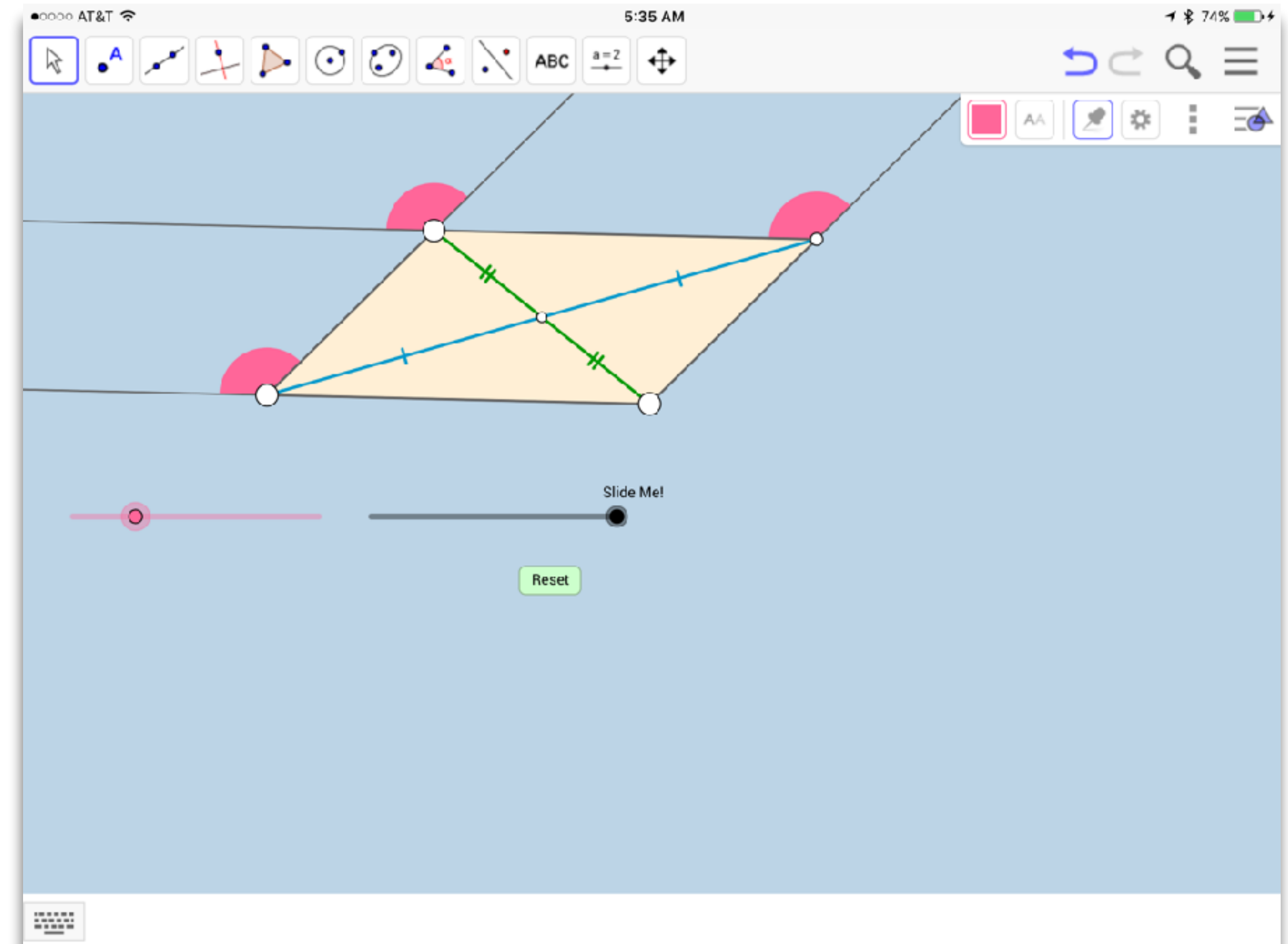
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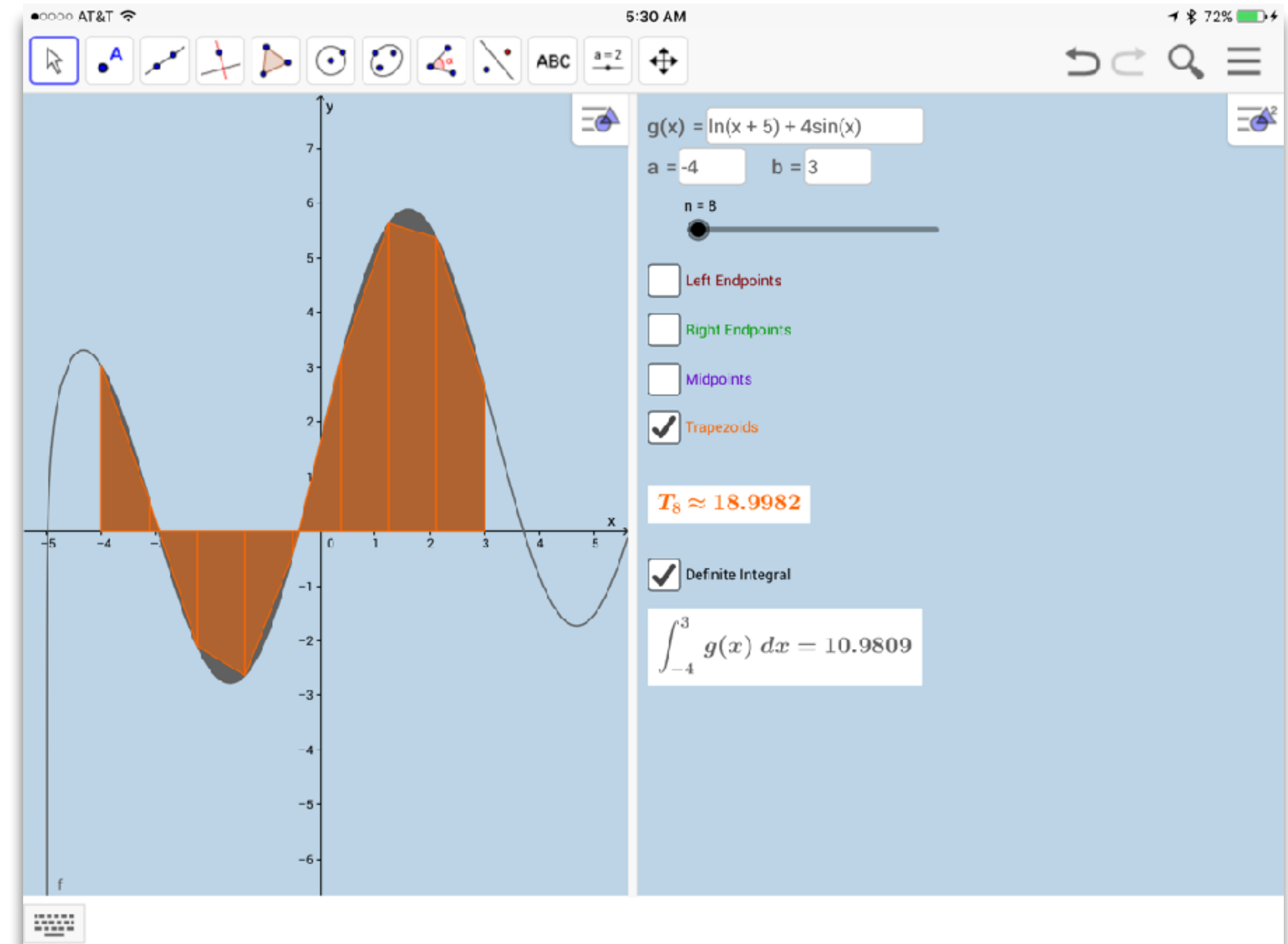
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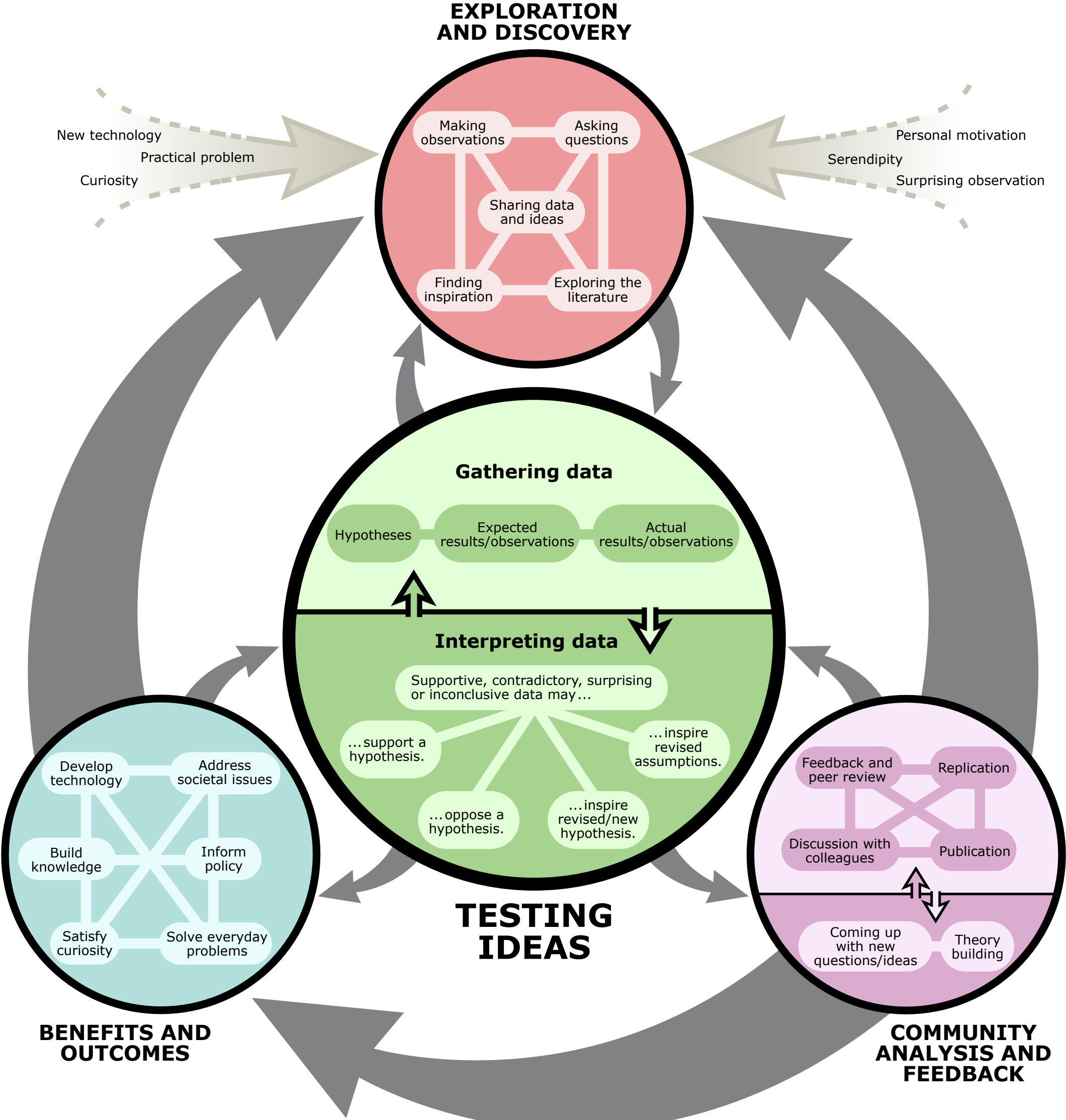
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How science works



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chill_astro96 · 10 months ago

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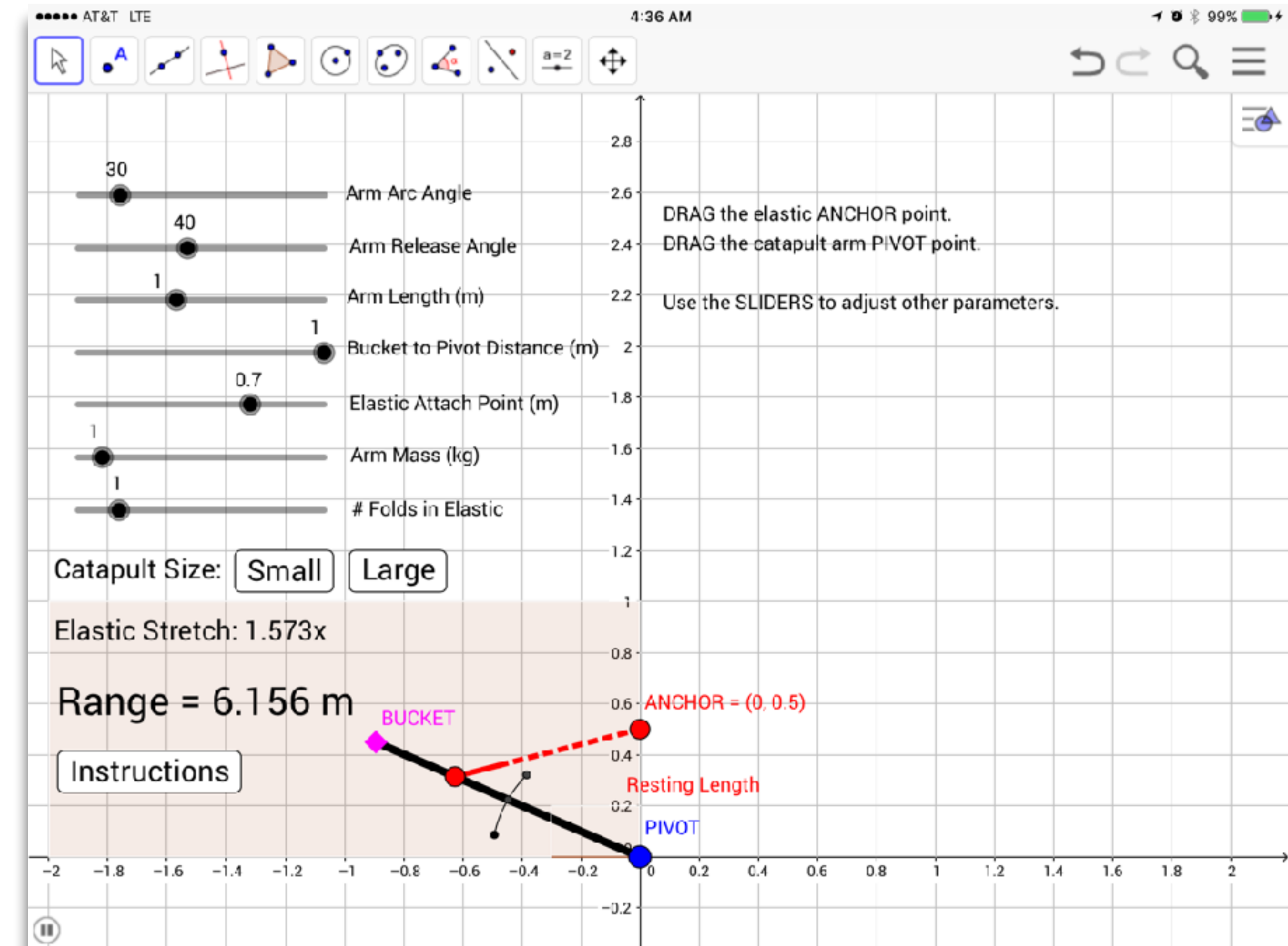
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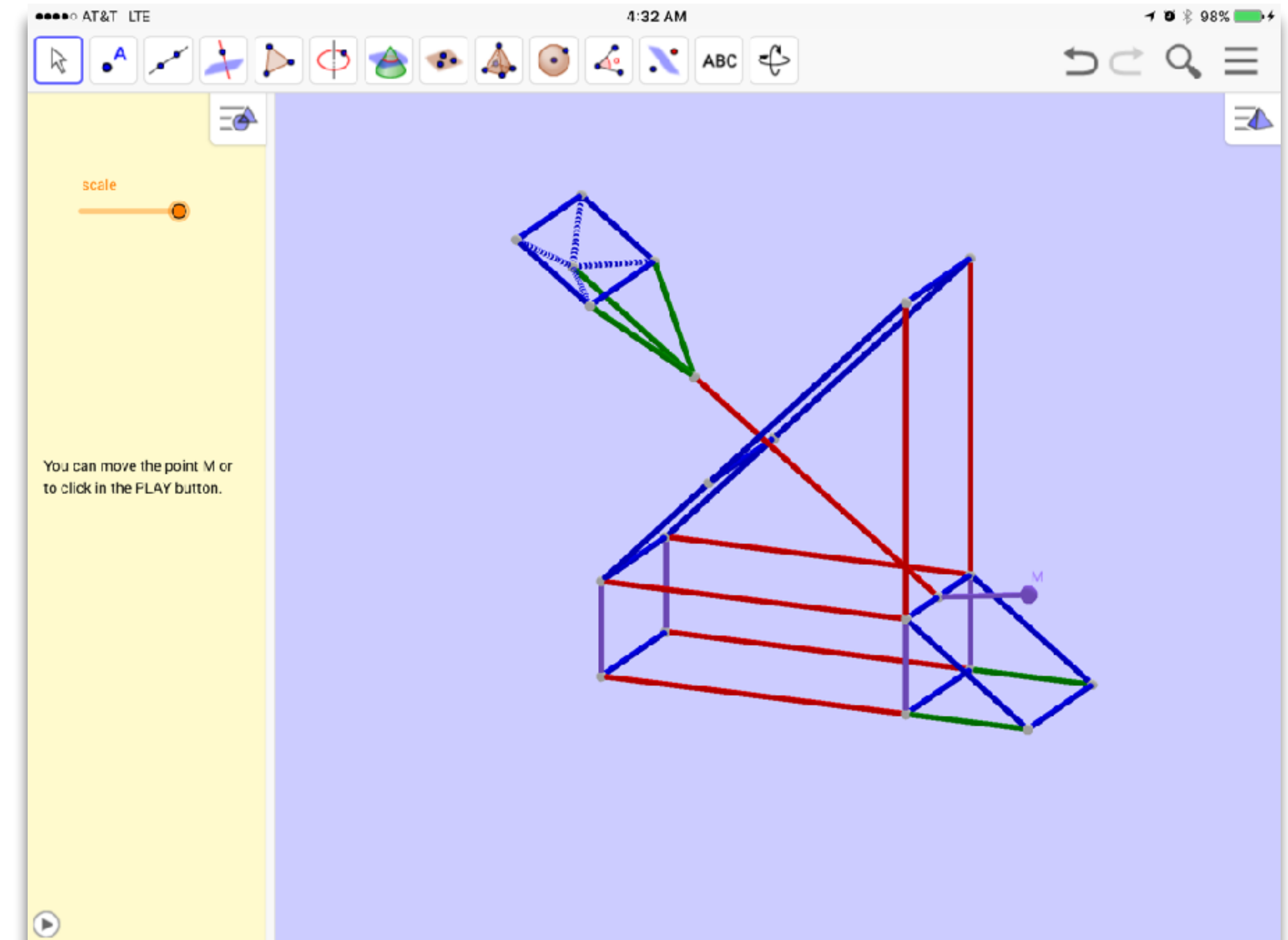
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ITEA Standards for Technological Literacy

1. The Nature of Technology:

- The characteristics and scope of technology
- The core concepts of technology
- The relationships among technologies and the connections between technology and other fields

2. Technology and Society:

- The cultural, social, economic, and political effects of technology
- The effects of technology on the environment
- The role of society in the development and use of technology
- The influence of technology on history

3. Design:

- The attributes of design
- Engineering design
- The role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving

4. Abilities for a Technological World

- Apply the design process
- Use and maintain technological products and systems
- Assess the impact of products and systems

5. The Designed World

- Medical technologies
- Agricultural and related biotechnologies
- Energy and power technologies
- Information and communication technologies
- Transportation technologies
- Manufacturing technologies
- Construction technologies

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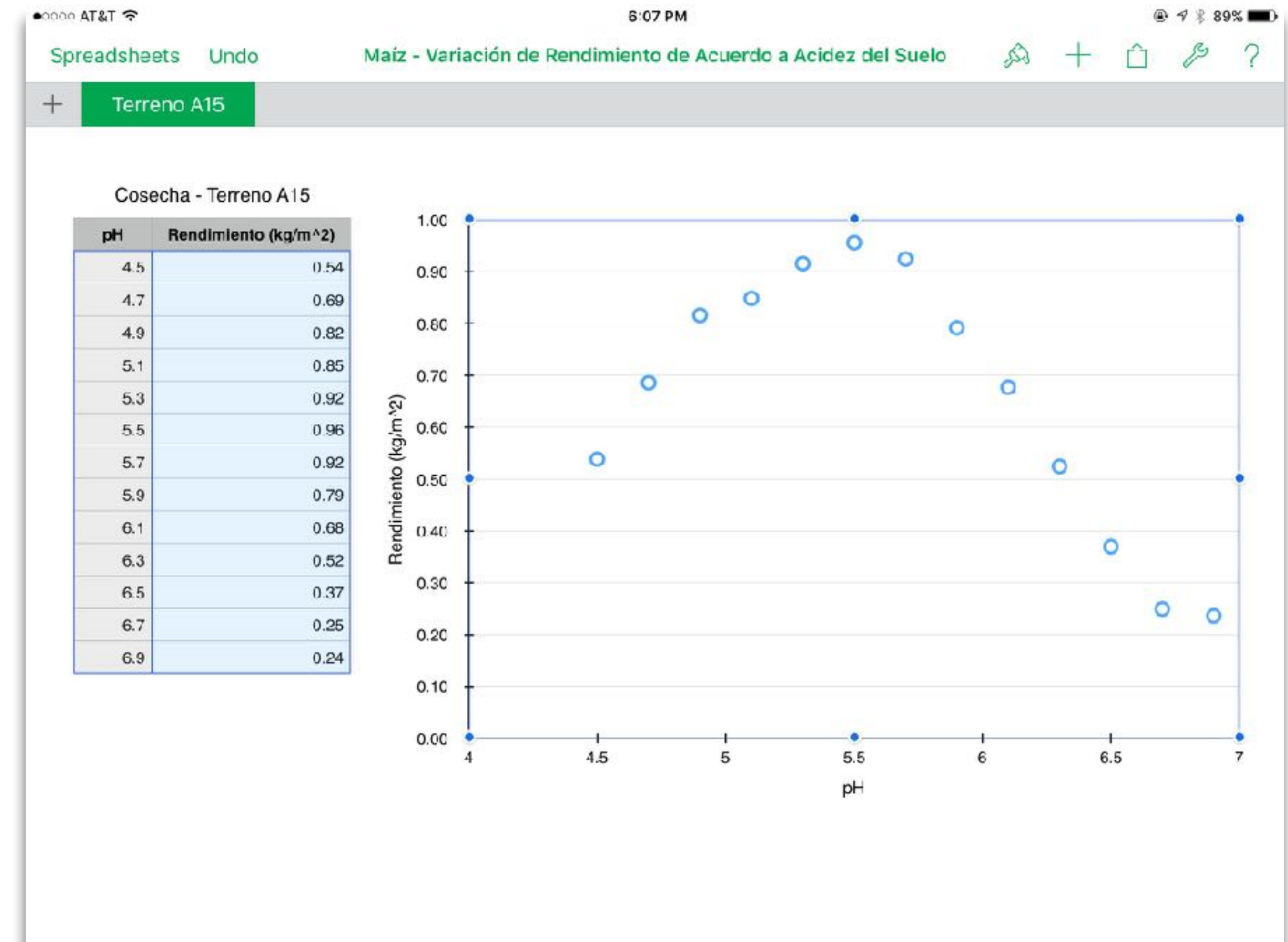
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