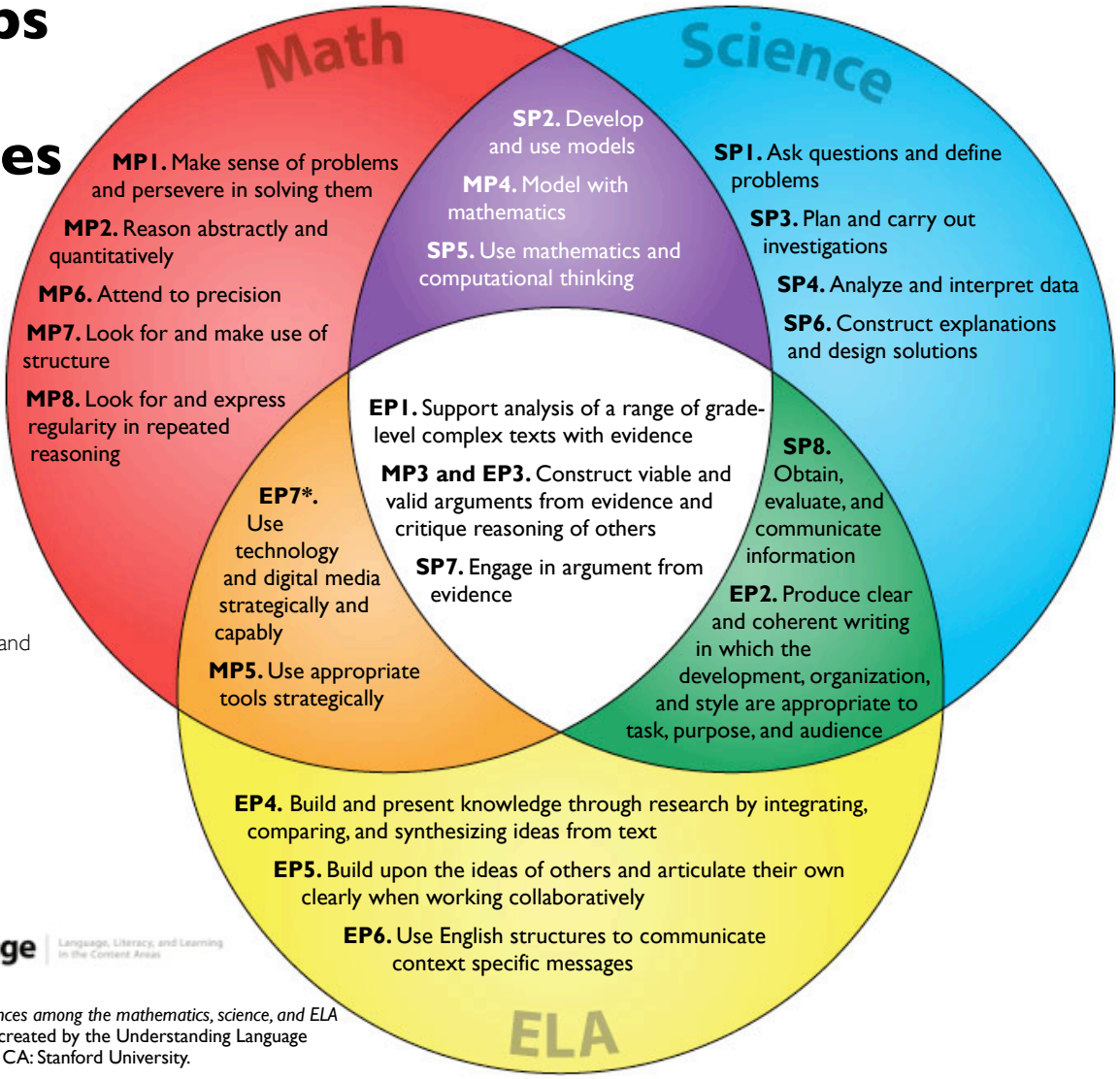
Relationships and Convergences

Found in:
1. CCSS for Mathematics (practices)
2a. CCSS for ELA & Literacy (student capacity)
2b. ELPD Framework (ELA "practices")
3. NGSS (science and engineering practices)

Notes:
1. MP1–MP8 represent CCSS Mathematical Practices (p. 6–8).
2. SP1–SP8 represent NGSS Science and Engineering Practices.
3. EP1–EP6 represent CCSS for ELA "Practices" as defined by the ELPD Framework (p. 11).
4. EP7* represents CCSS for ELA student "capacity" (p. 7).



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Understanding Language | Language, Literacy, and Learning in the Content Areas

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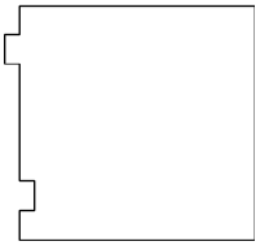
Cheuk, T. (2013). *Relationships and convergences among the mathematics, science, and ELA practices*. Refined version of diagram created by the Understanding Language Initiative for ELP Standards. Stanford, CA: Stanford University.

Crazy Cakes (grade 3)

Divide each of the cakes below into two parts with equal area.
Be able to explain your reasoning to your partner.

A



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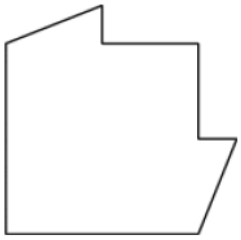

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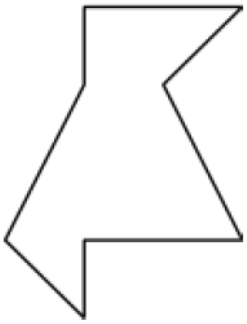

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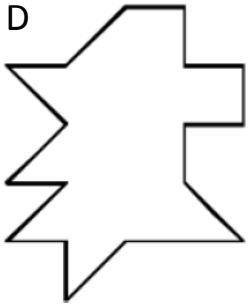


MP3. *Construct viable arguments and critique the reasoning of others.*
3MD5. Recognize area as an attribute of plane figures and understand concepts of area measurement.
3MD7. Recognize area as additive.

What is argument?

Argument is…	Comments:
a disagreement.	
a conflict.	
a confrontation.	
an explanation.	
an understanding.	
a line of reasoning.	
a proposition.	
a negotiation.	
(Other suggestions/thought)	

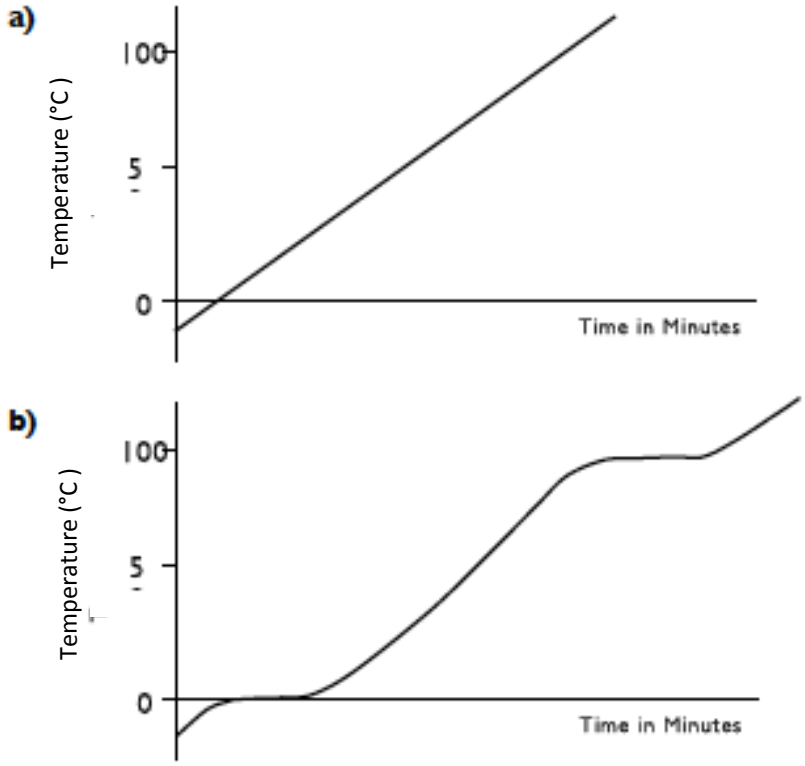
What is evidence?

Evidence is…	Comments (as it relates to **ELA, Science, and History/SS**):
data.	
a fact.	
a theory.	
logical.	
information.	
an appeal.	
objective.	
a claim.	
verifiable.	
(Other suggestions/ thought)	

Heating Ice to Steam (Middle School)

Alex and Beatrice are studying the physical and chemical properties of water. Alex thinks diagram A is the correct representation of heating ice to steam. Beatrice thinks diagram B is the correct representation.

1. Why does Alex think he is correct?
2. Why does Beatrice think she is correct?



Examples of evidence that may be helpful in your argument…

① Ice will melt when it is heated and turns into water.
② In solids, there are bonds between the particles that hold them together in a fixed shape.
③ When you heat a substance, the supply of heat energy is usually constant.
④ Energy is needed to break bonds between particles.
⑤ Ice melts at 0°C and water boils at 100°C.
⑥ When energy is being used to break bonds between particles, there will be no temperature change.
⑦ When substances are heated, the particles in them absorb heat energy and move about more quickly.