

1 Background

Elementary



"The more students practice these habits of mind, the better prepared they will be to demonstrate knowledge and skills through various assessments, and to become scientifically literate individuals."

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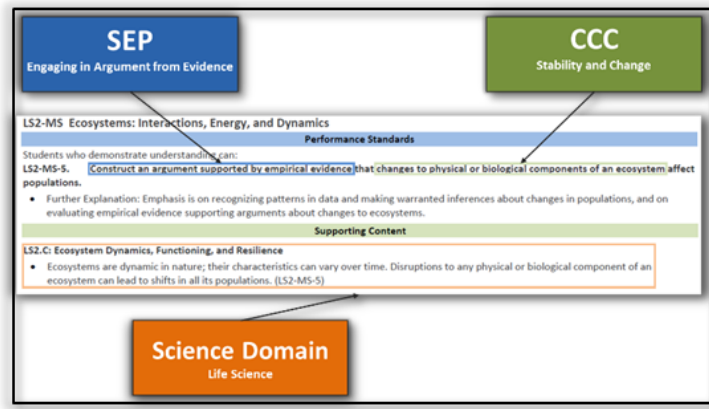
What is included in the elementary science standards?

- Science and Engineering Practices (SEP):** Activities scientists use to generate knowledge, & solve problems.
- Science Domains:** Overlapping content areas that organize and classify scientific knowledge.
- Crosscutting Concepts (CCC):** Habits of mind used by all scientists that unite all science domains.

What are the SEPs, Domains, and CCCs?

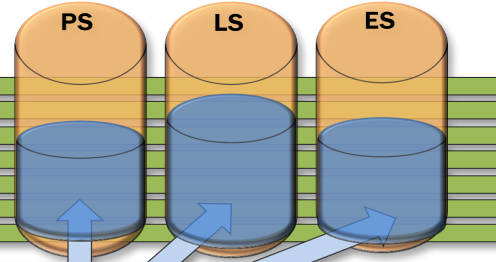
Science & Engineering Practices (SEP)	Science Domains	Crosscutting Concepts (CCC)
Asking Question/ Defining Problems	Life Science	Identifying Patterns
Developing and Using Models	Earth and Space Sciences	Cause and Effect
Planning & Carrying out Investigations	Physical Sciences	Scale, Proportion and Quantity
Analyzing and Interpreting Data		Systems & System Models
Using Mathematics & Computer Technology and Computational Thinking		Energy and Matter: Flows Cycles & Conservation
Constructing Explanations/ Designing Solutions		Structure and Function
Engaging in Argument from Evidence		Stability and Change
Obtaining, Evaluating and Communicating Information		

Where can the SEP, Domain, & CCC be found?



2 Model of ISSS

The orange **science domain** silos are filled with the blue **science and engineering practices**. The green **habits of mind** used by all scientists cut across and unite all of the science domains.



3 SEP x CCC Matrix

The SEP x CCC Matrix can show patterns in the ISSS

	P	CandE	SPQ	Sys	EandM	SandF	SandC	Infl	N/A
Ask									
Ob									
Plan									
Dev									
Analyze									
Using									
Con									
Eng									LS2-MS-5

Engaging in Argument from Evidence (Eng) }
Stability and Change (SandC) } **LS2-MS-5**

4 Key Findings

The 41 ISSS in grades 3 to 5 include all science domains.

	# ISSS w/ CCC	% of Elem ISSS
P	9	21%
CandE	13	32%
SPQ	6	15%
Sys	6	15%
EandM	6	15%
SandF	0	0%
SandC	0	0%
Infl	0	0%
N/A	1	2%

	# ISSS w/ SEP	% of Elem ISSS
Ask	3	7%
Ob	3	7%
Plan	6	15%
Dev	7	17%
Analyze	5	12%
Using	2	5%
Con	7	17%
Eng	8	20%

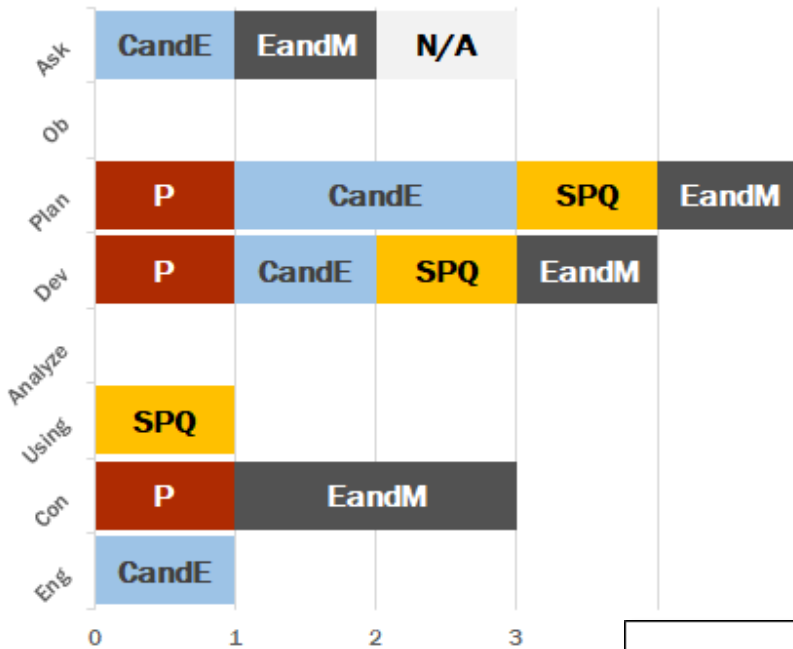
- SEP x CCC in a total of 8 ISSS (20%)
 - ⇒ Analyze & P (4 ISSS)
 - ⇒ Eng & CandE (4 ISSS)
- SEP x CCC in a total of 6 ISSS (15%)
 - ⇒ Con & CandE (3 ISSS)
 - ⇒ Dev & Sys (3 ISSS)





The number and types of CCCs per SEP at each science domain shows how the three dimensions fit together.

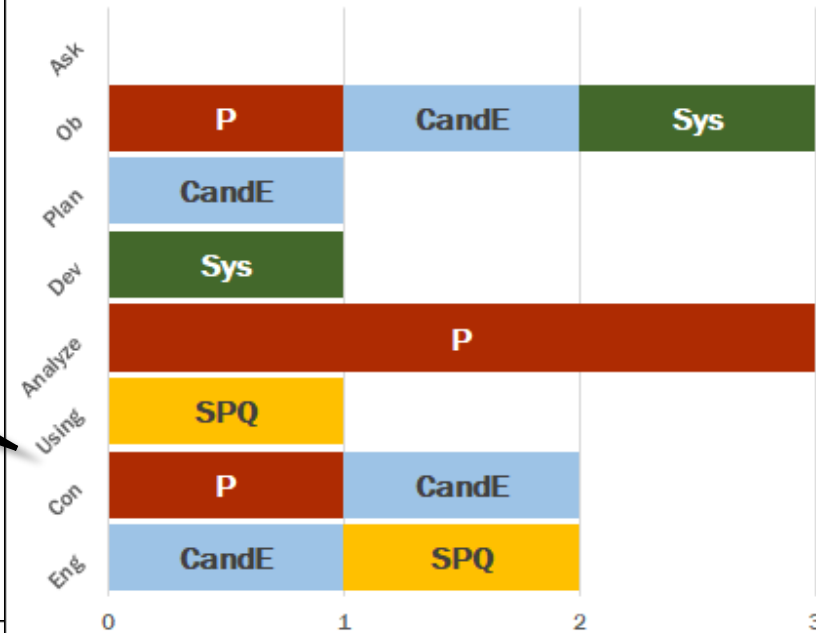
Physical Science



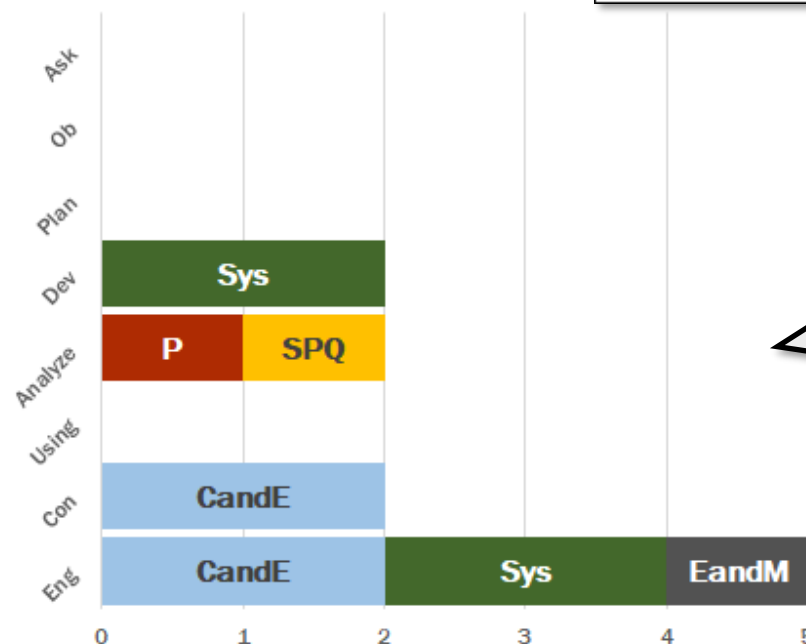
The earth and space sciences domain has 13 ISSS in grades 3-5.

When students analyze earth and space sciences data what are they discovering?

Earth and Space Sciences



Life Science



The physical science domain has a total of 17 ISSS in grades 3-5.

Students construct explanations to reveal patterns in data and clarify the relationship between energy and matter.

What habits of mind do students engage when planning and conducting physical science investigations?

The life science domain has a total of 11 ISSS in grades 3-5.

Students develop and use life science system models.

What habits of mind do students exercise when engaging in argument using evidence?

