

# Appendix

## **Missing Money Mystery Standards Matrix**

*Missing Money Mystery* is a 10-lesson program that helps learners meet the Next Generation Science Standards and the Common Core State Standards (CCSS)

Ideally suited for learners in grades 3-5, *Missing Money Mystery* meets many of the practices, cross-cutting concepts, and disciplinary core ideas that comprise the Next Generation Science Standards. The practices, concepts, and disciplinary ideas specifically covered in this unit include:

### **PRACTICES:**

- Asking Questions and Defining Problems
  - ➔ Ask questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles.
- Planning and Carrying Out Investigations
  - ➔ Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon.
  - ➔ Plan an investigation individually and collaboratively, and in the design: identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim.
  - ➔ Conduct an investigation to produce data to serve as the basis for evidence that can meet the goals of the investigation.
- Analyzing and Interpreting Data
  - ➔ Analyze and interpret data to determine similarities and differences in findings.
- Engaging in Argument from Evidence

➔ Support an argument with evidence, data, or a model.

- Scientific Knowledge is Based on Empirical Evidence
  - ➔ Science knowledge is based upon logical and conceptual connections between evidence and explanations.
  - ➔ Science disciplines share common rules of obtaining and evaluating empirical evidence.

### **CROSS CUTTING CONCEPTS:**

- Patterns
  - ➔ Patterns can be used to identify cause-and-effect relationships.
  - ➔ Graphs, charts, and images can be used to identify patterns in data.

### **DISCIPLINARY CORE IDEAS:**

- PS1.A: Structure and Properties of Matter
  - ➔ Measurements of a variety of properties can be used to identify materials
- LS3.B: Variation of Traits
  - ➔ In sexually reproducing organisms, each parent contributes half of the genes acquired (at random) by the offspring. Individuals have two of each chromosome and hence two alleles of each gene, one acquired from each parent. These versions may be identical or may differ from each other.

In addition to aligning to the underlying concepts that comprise the Next Generation Science Standards (NGSS), this unit meets Common Core Learning Standards (CCLS) in Mathematics and English Language Arts and Literacy in grades 3-5. Specific CCLS addressed include:

- CCSS.ELA-Literacy.CCRA.SL.1: Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their



own clearly and persuasively.

- CCSS.ELA-Literacy.CCRA.SL.2: Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
- CCSS.ELA-Literacy.CCRA.SL.4: Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
- CCSS.ELA-Literacy.CCRA.R.1: Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
- CCSS.ELA-LITERACY.CCRA.R.3: Analyze how and why individuals, events, or ideas develop and interact over the course of a text.
- CCSS.Math.Content.3.MD.B.3: Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.
- CCSS.Math.Content.3.MD.B.4: Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

Standard	Lesson											
	1	2	3	4	5	6	7	8	9	10	11	12
<i>Next Generation Science Standards</i>												
Practice: Asking Questions and Defining Problems	*	*	*	*	*	*			*	*		
Practice: Planning and Carrying Out Investigations	*	*	*	*	*	*	*		*	*		
Practice: Analyzing and Interpreting Data				*			*				*	*
Practice: Engaging in Argument from Evidence		*	*	*	*	*	*		*	*	*	*
Practice: Scientific Knowledge is Based on Empirical Evidence	*	*	*	*	*	*			*	*		
Cross-Cutting Concept: Patterns					*				*			
Disciplinary Core Idea: PS1.A: Structure and Properties of Matter			*			*						
Disciplinary Core Idea: LS3.B: Variation of Traits										*		
<i>Common Core State Standards</i>												
CCSS.ELA-Literacy.CCRA.SL.1: Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.	*	*	*	*	*	*	*	*	*	*	*	*
CCSS.ELA-Literacy.CCRA.SL.2: Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.		*	*	*	*	*	*	*	*	*	*	*
CCSS.ELA-Literacy.CCRA.SL.4: Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.							*				*	*
CCSS.ELA-Literacy.CCRA.R.1: Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.											*	*
CCSS.ELA-LITERACY.CCRA.R.3: Analyze how and why individuals, events, or ideas develop and interact over the course of a text.	*	*	*	*	*	*	*	*	*	*	*	*
CCSS.Math.Content.3.MD.B.3: Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.									*			
CCSS.Math.Content.3.MD.B.4: Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.	*	*			*		*					

