Online Resource 7.17 Seventh-Grade Lesson Example

<table>
<tr><td>Description of Unit:</td><td colspan="3">Learning Intention, I will . . . Apply how the cycling of water through Earth's systems driven by energy from the sun and the force of gravity is impacted by and impacts humans.
Success Criteria:</td></tr>
<tr><td></td><td>Surface</td><td>Deep</td><td>Transfer</td></tr>
<tr><td></td><td>I will . . .
• Students explain how water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and crystallization, and precipitation, as well as downhill flows on land.
• Students explain global movements of water and how its changes in form are propelled by sunlight and gravity.</td><td>I will . . .
• Students model the interrelationship between global water movements, sunlight, and gravity.</td><td>I will . . .
• Produce and present on how humans are affected by and can influence the cycling of water
• Present a solution to a real-world problem related to the cycling of water</td></tr>
<tr><td>Leverage</td><td colspan="3">Students are asked the following: What is the impact of climate change on the global ocean conveyor belt?
Students are given a brief statement from the National Ocean Service from the National Oceanic and Atmospheric Administration U.S. Department of Commerce that links the effects of climate change to the "Global Ocean Conveyor Belt." Students are given a definition of the term and then tasked to meet with their learning partner to discuss the impact the issue has on people, places, and things.
• Review the learning intention of the unit
• Review the success criteria for the lesson
• Review student current knowledge/ideas/questions</td></tr>
<tr><td>Link</td><td colspan="3">• The teacher provides students with the learning intentions and success criteria of the unit.
• The teacher gives a self-assessment on the success criteria for the unit.
• The students then share their answers with their learning partner.
• The teacher then shares the answers and has each student learning partner group discuss the areas they need to understand to better recommend solutions to climate change.
• Align feedback, instruction, and learning strategies to surface, deep, and transfer
• Align tasks to the surface, deep, and transfer
• Focuses students on "progress of learning"</td></tr>
<tr><td>Lift</td><td colspan="3">• Students summarize their next steps to meet the learning intention and success criteria of the unit.
• Review individual performance and next steps in learning.</td></tr>
</table>

Online Resource 7.18 Ninth-Grade Unit Example

Note to Teachers: This guide is meant to be a template for you to fill out for a variety of different units, content areas, and grade levels. The responses (indicated in blue) are meant to be guidelines of content you might fill in here yourself.

Unit Design			
Learning Intention(s)			
I will . . .	• Make inferences and justify conclusions from sample surveys, experiments, and observational studies.		
Success Criteria			
	Surface	Deep	Transfer
	• Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	• Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling. • Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant. • Evaluate reports based on data.	• Evaluate the conclusions of arguments using statistical information. • Produce and present a solution to a problem using quantitative data.
Student Tasks			
	Surface	Deep	Transfer
	• Submit responses to a series of questions provided by the teacher. • Submit a shared response to select word problems or case studies.	• Submit evaluation of two reports.	• Produce and present a presentation on the selected case studies in the classroom (minimum 2).
Lessons			
Prior Knowledge	Surface	Deep	Transfer
	• Exposure to, examples of, and definitions of surveys, experiments, and observational studies.	• Potential exposure to using data to estimate a population	• Use of argumentative writing

Lessons	• Lesson 2, 3, 4	• Lesson 5, 6, 7, 8	• Lesson 1, 9, 10
Cross Context (Transfer)			
Purposeful and Provocative	Providing students with cases that relate to contemporary political issues (i.e., perception on border wall funding)		
Perplexing Problems	Reviewing problems that may skew data and the interpretation of data to audiences (e.g., voter turnout, gerrymandering)		
Perspective-Laden	Determining the impact of decisions that impact people unable to vote (such as: felons, people under 18, etc.)		

Calendar					
	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	• Lesson 1: Project Launch • Review of Learning Intentions and Success Criteria • Review of Success Examples • Assignment of Cases • Pre-Assessment	• Lesson 2: Simple hypothesis testing using simulations (connecting transfer to surface)	• Lesson 3: Explaining the purposes of and differences among sample surveys, experiments, and observational studies	• Lesson 4: Reviewing randomization and using data to estimate a population mean or proportion • Develop a margin of error.	• Lesson 5: Use simulations to examine differences between two treatments; determine significance.
Week 2	• Lesson 7: Evaluate reports based on data.	• Lesson 8: Use new simulations to highlight differences between two treatments; determine significance.	• Lesson 9: Create report based on data. • Post-Assessment	• Lesson 10: Receive case study and prepare to produce and present on case.	• Share work. Give and receive feedback.
Week 3	• Lesson 11: Make revisions to case study.	• Share work. Give and receive feedback.	• Students switch cases.	• Share work. Give and receive feedback.	• Conclusions