

PISA Year 3

Lesson Design Rubric

Criteria	Exemplary (3)	Making Progress (2)	Needs Improvement (1)	Score
Alignment with standards (Weight 1)	Direct and explicit links to appropriate NJCCCS.	Clearly contributes to students' learning of one or more standards, which are not explicitly listed OR Either process or content standards are ignored	Not well aligned with standards	
Goal orientation or Objectives (Weight 2)	Explicit learning goals and objectives for the unit are comprehensive and clearly comprise a big idea of science. Lesson activities clearly support goals and objectives	Learning goals and objectives are accurate but <ul style="list-style-type: none"> ▪ Are implied rather than explicitly stated ▪ Do not fully encompass the big idea of the topic area ▪ Are too vague to assess or include inappropriate level of detail ▪ Are not completely supported by the lesson activities 	Learning goals and objectives <ul style="list-style-type: none"> ▪ Are not implied by the planned learning activities ▪ Reflect an inaccurate understanding of the topic ▪ Do not help students attain understanding of the big idea ▪ Are not reflected in the planned learning activities 	
Content Accuracy (Weight 3)	Factual information is accurate and complete with respect to standards and objectives	Factual information is mostly accurate and may not completely reflect the learning goals or standards cited	Inaccurate factual information or other errors are present	
Content Presentation (Weight 3)	<ul style="list-style-type: none"> ▪ Levels of detail and abstraction are challenging but accessible to most students; represents high 	<ul style="list-style-type: none"> ▪ Level of detail and/or abstraction is not challenging to a significant proportion of 	<ul style="list-style-type: none"> ▪ Level of detail or abstraction is inappropriate for the course; reflects average to low 	

	<ul style="list-style-type: none"> ▪ expectation ▪ The sequence of topics is appropriate ▪ Appropriate examples are included 	<ul style="list-style-type: none"> ▪ the class ▪ Level of detail and/or abstraction is not accessible to a significant proportion of the class ▪ The sequence of topics is somewhat disjointed ▪ Appropriate examples are lacking 	<ul style="list-style-type: none"> ▪ expectations for all students ▪ The sequence of topics seems random or illogical ▪ Inappropriate examples are included 	
Pre-assessment (Weight 2)	The lesson plan is structured to actively solicit students' preconceptions at the start of a topic, and refers to possible ways in which instruction could be modified in response to pre-assessment information.	The lesson plan does include pre-assessment activities, but information is not used to inform instruction OR teacher simply attempts to refute or replace misconceptions with correct information.	The lesson does not reflect an understanding that students' preconceptions can affect how they understand new information.	
Assessment (Weight 3)	<ul style="list-style-type: none"> ▪ Includes effective tool(s) that assess for conceptual understanding ▪ Includes criteria and/or rubrics for performance-based assessments (reports, participation, etc.) if necessary 	Includes tools or suggestions for assessment that may address conceptual understanding but emphasize factual recall.	Assessment tools to not measure student conceptual understanding OR there is no assessment tool or method described.	
Appropriate use of technology (Weight 1 IF applicable)	Appropriate use of available technology (e.g., digital projector, laboratory probes, Internet resources)	Could be better utilize available technology resources	Inappropriate use of technology that distracts from learning goals	
Adaptability (Weight 1)	Discuss ways to adapt the lesson to a variety of types of students (i.e., varying levels of achievement and interest, grade level, etc.)	Has potential to be adaptable to various needs, but is not explicitly addressed	Narrow range of use (type of student, class size, etc.)	
Hands-on exploration (Weight 2)	Well utilized and integrated to promote student exploration and learning, and includes meaningful assessment of that	Used to verify topics, illustrate or apply processes after instruction has taken place OR promotes student exploration	<ul style="list-style-type: none"> ▪ Used solely as diversions ▪ Not integrated into the curriculum ▪ OR there are no 	

	learning	and learning of content, but is not meaningfully assessed	appropriate hands-on experiences included in the lesson	
Nature of science (Weight 3 IF applicable)	<p>Reflects a sophisticated view of the nature and processes of science:</p> <ul style="list-style-type: none"> ▪ Explicit mention of how theories are tentative and develop and change over time based on new evidence or new treatment of previous evidence ▪ Science is treated as a social endeavor including argumentation and explanation 	<p>Reflects attempts to represent the nature of science:</p> <ul style="list-style-type: none"> ▪ Some mention of the tentative nature of scientific knowledge ▪ Mixed messages about the nature of “truth” and the “right answer” ▪ Illustrates the tentative and social nature of science, through exposure to the history of science in lieu of students’ own experiences 	<p>Treats science <i>exclusively</i> as a body of factual knowledge to be committed to memory AND/OR Treats experimentation <i>exclusively</i> as a way to find the “truth”</p>	
Approach to Problem-based Learning (Weight 3)	<p>Students are engaged in PBL approach to learning:</p> <ul style="list-style-type: none"> ▪ Defining the problem ▪ Proposing solutions to solve the problem ▪ Gathering and evaluating information ▪ Synthesizing and forming solutions 	<p>Students do not engage in PBL themselves, but do learn about PBL by following step-by-step directions OR Some effort at engaging students in PBL is evident, with an emphasis on <i>telling</i> students the problem and solutions to the problem.</p>	<p>Students learn science exclusively by being told the accepted canon of scientific knowledge without an attempt to involve them in the PBL processes</p>	
Analytical Skills (Weight 3 IF applicable)	<p>Students are supported in drawing (or refuting) conclusions based on evidence in order to develop their analytical skills; evidence may include quantitative data or qualitative observations</p>	<p>Students are asked to draw conclusions based on evidence without sufficient or accurate teacher support or guidance; choice of variables, type of observation, etc. are not scaffolded appropriately for students’ level</p>	<p>Age-appropriate analytical skills are not developed because</p> <ul style="list-style-type: none"> ▪ There is no opportunity provided for students to analyze qualitative or quantitative data ▪ Students are allowed to draw conclusions based on opinions or outside 	

			information, rather than evidence <ul style="list-style-type: none"> ▪ Students use quantitative data or “plug and chug” using formulas to arrive at the “right answer” 	
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Rubric adapted from Jacobs, C., Martin, S., & Otieno, T. (2008). A Science Lesson Plan Analysis Instrument for Formative and Summative Program Evaluation of a Teacher Education Program. *Science Education*, 92, 1096-1126.