

Jigsaw Rubrics

Cycle A: Individual Reflection Rubric

This is the same rubric that your facilitator will use to provide feedback to you on your work. Rate yourself on how well you communicate your personal understanding and make it visible. Reflect on your questions, personal understanding and prior knowledge. Be sure to explain your reasons for each rating with specific references to the assignment. The "rationale" is a direct message from you to your instructor about the quality of your work.

You will automatically earn one point for submitting your assignment on time Use the criteria and indicators below to gauge your own success in earning the remaining points for this assignment

Personal Understanding: How do you explain this to yourself, "I think..."

<p>4 Rating: A summary of your personal understanding and a list of questions that you have or things that you still don't understand or can't explain.</p>	<p>3 Rating: A summary statement of what you think, and some follow up questions.</p>	<p>2 Rating: A description of ideas you have.</p>	<p>1 Rating: A list of some ideas related to the topic.</p>	<p>Rationale Evidence for your rating:</p>
<p>Supported by reasons, "Because..."</p>				
<p>4 Rating: You describe your reasoning including logical explanations (inductive or deductive) about how and why things happen in the Earth's System.</p>	<p>3 Rating: You support your understanding with logical reasons.</p>	<p>2 Rating: You describe where your understanding came from and why you believe it to be accurate or not.</p>	<p>1 Rating: You give some reasons for your understanding.</p>	<p>Rationale Evidence for your rating:</p>
<p>Source: Uses what you currently know, "These reasons come from..."</p>				
<p>4 Rating: You support your explanations and reasons with multiple sources that can be verified and with specific examples from experience.</p>	<p>3 Rating: You cite sources or experiences for your key ideas.</p>	<p>2 Rating: You support your explanations with examples.</p>	<p>1 Rating: You cite some sources for your understanding.</p>	<p>Rationale Evidence for your rating:</p>

Cycle A: Group Sphere Study Rubric

Rate your group's sphere study on its accuracy, depth of reasoning, quality of support and the number of interactions that you had as a group. Be sure to explain your reasons for each rating with specific references to the assignment. The "rationale" is a direct message from you to your instructor about the quality of your work.

You will automatically earn one point for submitting your assignment on time Use the criteria and indicators below to gauge your own success in earning the remaining points for this assignment.

Accuracy				
4 Rating: Presents precise and meticulous scientific understanding.	3 Rating: Uses currently accepted scientific understanding in explaining effects	2 Rating: Uses currently accepted scientific understanding in explaining interactions.	1 Rating: Attempts to explain interactions, but strays from accepted scientific understanding.	Rationale Evidence for your rating:
Depth of Reasoning				
4 Rating: Uses arguments from at least two perspectives for most of the effects and interactions.	3 Rating: Uses scientific reasoning, concepts, and processes to explain each effect and interaction.	2 Rating: Includes science concepts and processes in the reasons provided for each effect and interaction.	1 Rating: Explains at least two reasons for each effect and interaction.	Rationale Evidence for your rating:
Quality of Support				
4 Rating: Cites data and respected authorities, as well as logic, explanations and examples to support statements about the interactions and effects.	3 Rating: Cites data and respected authorities to support statements about the interactions and effects.	2 Rating: Cites data from multiple sources to support statements about the interactions and effects.	1 Rating: Cites respected authorities to support statements about the interactions and effects.	Rationale Evidence for your rating:
Number of Interactions				
4 Rating: Five or more interactions in which people respond directly to each other's ideas to build the group's understanding.	3 Rating: At least three to four interactions that build the group's understanding of the sphere study.	2 Rating: At least two postings per person in which people share what they have learned about the sphere under the conditions or in the context of the module.	1 Rating: At least one posting per person with information about the sphere under the conditions or in the context of the module.	Rationale Evidence for your rating:

Cycle B: Team Event Study Rubric

Rate your team's event study on its accuracy, depth of reasoning, quality of support and the number of causal chains. Be sure to explain your reasons for each rating with specific references to the assignment. The "rationale" is a direct message from you to your instructor about the quality of your work.

You will automatically earn one point for submitting your assignment on time. Use the criteria and indicators below to gauge your own success in earning the remaining points for this assignment.

Accuracy				
4 Rating: Presents precise and meticulous scientific understanding.	3 Rating: Uses currently accepted scientific understanding in explaining effects	2 Rating: Uses currently accepted scientific understanding in explaining interactions.	1 Rating: Attempts to explain interactions but strays from accepted scientific understanding.	Rationale Evidence for your rating:
Depth of Reasoning				

4 Rating: Uses arguments from at least two perspectives for most of the effects and interactions.	3 Rating: Uses scientific reasoning, concepts, and processes to explain each effect and interaction.	2 Rating: Includes science concepts and processes in the reasons for each effect and interaction.	1 Rating: Explains at least two reasons for each effect and interaction.	Rationale Evidence for your rating:
Quality of Support				
4 Rating: Cites data and respected authorities, as well as logic, explanations and examples to support statements about the interactions and effects.	3 Rating: Cites data and respected authorities to support statements about the interactions and effects.	2 Rating: Cites data from multiple sources to support statements about the interactions and effects.	1 Rating:> Cites respected authorities to support statements about the interactions and effects.	Rationale Evidence for your rating:
Number of Causal Chains				
4 Rating: More than eight causal chains.	3 Rating: Six to eight causal chains.	2 Rating: Three to five causal chains.	1 Rating: One or two causal chains.	Rationale Evidence for your rating:

Cycle C: Individual Classroom Application Rubric

Rate your lesson on how well it engages students, the curriculum connections, instructional strategy and assessment methods. Then reflect on how your own understanding has changed. Be sure to explain your reasons for each rating with specific references to the assignment. The "rationale" is a direct message from you to your instructor about the quality of your work.

You will automatically earn one point for submitting your assignment on time. Use the criteria and indicators below to gauge your own success in earning the remaining points for this assignment.

How the lesson engages students

4 Rating: A "hook" into the content that is exciting to students and that they can see immediate use for.	3 Rating: An engaging introductory activity that provokes students' curiosity.	2 Rating: A way to identify and use existing student knowledge and interests for knowledge development.	1 Rating: An opportunity for students to relate what they are learning to their lives and interests.	Rationale Evidence for your rating:
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Curriculum connections

4 Rating: Integrates ideas from different disciplines for systems thinking.	3 Rating: Integrates ideas from several areas through systems thinking.	2 Rating: Uses Earth system science to focus on systems.	1 Rating: Connects Earth, Life, and Physical science around Earth system science.	Rationale Evidence for your rating:
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Instructional strategy

4 Rating: Uses jigsaw groups for cooperative learning with students becoming experts in several areas.	3 Rating: Uses cooperative learning with roles for students to become experts.	2 Rating: Uses cooperative learning with roles.	1 Rating: Uses teams.	Rationale Evidence for your rating:
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Assessment methods				
4 Rating: Assessment is integral to the classroom application as reflection for students. Uses rubrics to show the continuum that is expected.	3 Rating: Begins with revealing students' theories about ESS. Reveals changes in students' ESS thinking over several activities.	2 Rating: Analyzes pre and post knowledge of ESS and systems thinking through activities.	1 Rating: Identifies pre and post knowledge and skills.	Rationale Evidence for your rating:
Personal Reflection on what you have learned				
4 Rating: A detailed comparison of your initial understanding with your current understanding, with an explanation of what caused the evolution of your thinking.	3 Rating: A general comparison of your initial understanding and your current understanding with evidence to support your current understanding.	2 Rating: A basic explanation of why you think your current understanding is more supportable than your original understanding.	1 Rating: A basic description of the ideas that support your current understanding.	Rationale Evidence for your rating:

Final Project Rubric

You will end this course by completing a Final Project. The Final Project is an Event Study Assignment performed individually, so remember that you will not be able to consult your Event Team members or other classmates.

Rate your final ESS analysis on how well you:

Provide a list of the E > S, S > E, and S > S interactions with reasoning and support.

Provide a list of chains of interactions between the event and 3 or more spheres.

You should write as many E > S, S > E, and S > S interactions as you can that include accuracy, depth of reasoning, and quality of support. Use the rubric below to evaluate and improve your analysis.

Using your E > S, S > E, and S > S interactions, create and document causal chains. Your work will be graded based on the rubric being applied to each causal chain that you list. Each causal chain that earns a 3 or 4 rating will be worth one point toward the maximum 10 points you can earn for this assignment.

Be sure to explain your reasons for each rating with specific references to the assignment. The "rationale" is a direct message from you to your instructor about the quality of your work.

You will automatically earn one point for submitting your assignment on time (Click here to read more about Points for Time). Use the criteria and indicators below to gauge your success in earning the remaining points for this assignment (Click here to read more about Jigsaw Grading).

Accuracy

4 Rating: Presents precise and meticulous scientific understanding.	3 Rating: Conforms nearly exactly to accepted scientific understanding.	2 Rating: Deviates only slightly from accepted scientific understanding.	1 Rating: Strays from accepted scientific understanding.	Rationale Evidence for your rating:
Depth of Reasoning				

<p>4 Rating: Reasoning completely supports the hypothesized effect or interaction.</p>	<p>3 Rating: Uses scientific reasoning, concepts, and processes to explain the interaction.</p>	<p>2 Rating: Includes science concepts and processes in the reasons for the effect and the interaction.</p>	<p>1 Rating: Explains at least two reasons for the effect or interaction.</p>	<p>Rationale Evidence for your rating:</p>
<p>Quality of Support</p>				
<p>4 Rating: Compelling use of existing research and knowledge.</p>	<p>3 Rating: Uses logical support that is convincing using data and authority.</p>	<p>2 Rating: Uses reliable data from multiple sources.</p>	<p>1 Rating: Uses relevant and respected authorities.</p>	<p>Rationale Evidence for your rating:</p>
<p>Number of Causal Chains</p>				
<p>4 Rating: More than eight causal chains.</p>	<p>3 Rating: Six to eight causal chains.</p>	<p>2 Rating: Three to five causal chains.</p>	<p>1 Rating: One or two causal chains.</p>	<p>Rationale Evidence for your rating:</p>
<p>Personal Reflection on what you have learned</p>				
<p>4 Rating: A detailed comparison of your initial ESS thinking with your current ideas with an explanation of what caused this evolution.</p>	<p>3 Rating: A comparison of your initial and current knowledge with evidence to support your current understanding.</p>	<p>2 Rating: An explanation of why you believe your current understanding is more supportable than your original ideas.</p>	<p>1 Rating: A description of the ideas that support your current thinking.</p>	<p>Rationale Evidence for your rating:</p>