Fourth Grade Science SBRC Rubric

1-Does Not Meet Standards 2-Approaching Standards 3-Meets Standards E-Exceeds Standards

Demonstrates Understanding of unit Concepts- (4-ESS1-1), (4-ESS2-1), (4-ESS2-2) Science Unit 1- How Earth has Changed throughout Time 8 weeks **Science Unit 2 – Plate Tectonics and Natural Hazards (Introduction)				
Score	**1**= 0-1 out of 5 bullets	**2**= 2-3 out of 5 bullets	**3**= 4-5 out of 5 bullets	**E**
Trimester-1	Student is unable or rarely able to demonstrate understanding of key concepts. • Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. • Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. • **Read maps to identify and compare Earth's surface features. • **Identify patterns in Earth's surface features.	Student is beginning to demonstrate understanding of key concepts. • Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. • Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. • **Read maps to identify and compare Earth's surface features. • **Identify patterns in Earth's surface features. • Student is beginning to communicate or sometimes communicates using acquired vocabulary.	Student demonstrates understanding of key concepts by using them effectively throughout the units taught. • Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. • Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. • **Read maps to identify and compare Earth's surface features. • **Identify patterns in Earth's surface features. • Student communicates using acquired vocabulary.	Student independently meets standards and extends understanding through application to real-life situations. Example: Student can construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.

	• Student is unable or rarely able to communicate using acquired vocabulary.			
Assessment: worktext responses, projects, experiments, and investigations Examples: water stream investigation, mudslide investigation, trail design, model of plate tectonics, volcano demonstration, tsunami investigation				

Plans and carries out investigation using models.- (3-5ETS1-1-3 SCI.3-5.1-8)				
All units.				
Score	**1**= 0-1 out of 5 bullets	**2**= 2-3 out of 5 bullets	**3**= 4-5 out of 5 bullets	**E**
Trimester- All	Student is unable or rarely able to plan and carry out investigations. • Identify the purpose of the investigation or the question to be answered through building of model. • Use materials and tools correctly. • Plan procedures and carry them out accurately. • Use time well and stay focused. • Label models and diagrams. • Include an explanation of the	Student is beginning to plan and carry out investigations. • Identify the purpose of the investigation or the question to be answered through building of model. • Use materials and tools correctly. • Plan procedures and carry them out accurately. • Use time well and stay focused. • Label models and diagrams. • Include an explanation of the scientific concept modeled	Student consistently plans and carries out investigations. • Identify the purpose of the investigation or the question to be answered through building of model. • Use materials and tools correctly. • Plan procedures and carry them out accurately. • Use time well and stay focused. • Label models and diagrams. • Include an explanation of the scientific concept modeled	Not applicable.

	scientific concept modeled			
Assessment: experiments, and investigations				

Expresses scientific ideas effectively using writing, discussion, and /or drawing. Uses data/evidence collected to support explanations of a topic. (3-5ETS1-1-3 SCI.3-5.1-8)				
All units.				
Score	**1**=0-3 out of 9 bullets	**2**=4-6 out of 9 bullets	**3**=7-9 out of 9 bullets	**E**
Trimester- All	Student is unable or rarely able to express scientific ideas effectively using writing, discussion, and /or drawing. • Write data that are scientifically appropriate to support the claim. • Write claim that is a reasonable answer to the question and is based on general knowledge. • Write data that is sufficient and convincing. • Use scientific terms.	Student is beginning to express scientific ideas effectively using writing, discussion, and /or drawing. • Write data that are scientifically appropriate to support the claim. • Write claim that is a reasonable answer to the question and is based on general knowledge. • Write data that is sufficient and convincing. • Use scientific terms. • Include charts/ diagrams/ or models. • Include evidence that is qualitative, using senses, or	Student consistently expresses scientific ideas effectively using writing, discussion, and /or drawing. • Write data that are scientifically appropriate to support the claim. • Write claim that is a reasonable answer to the question and is based on general knowledge. • Write data that is sufficient and convincing. • Use scientific terms. • Include charts/ diagrams/ or models. • Include evidence that is qualitative, using senses,	Student independently meets standards and extends understanding. Example: • Write a claim that is a reasonable answer to the question and is based on general knowledge and describe the relationship between dependent and independent variables.

	• Include charts/ diagrams/ or models. • Include evidence that is qualitative, using senses, or quantitative, using numbers. • Include multiple pieces of evidence. • Write response that adequately expresses ideas and include scientifically appropriate descriptions and vocabulary that is focused mainly on question at hand with a logical progression of ideas. • Provide the justification for why this evidence is important to this claim.	quantitative, using numbers. • Include multiple pieces of evidence. • Write response that adequately expresses ideas and include scientifically appropriate descriptions and vocabulary that is focused mainly on question at hand with a logical progression of ideas. • Provide the justification for why this evidence is important to this claim.	or quantitative, using numbers. • Include multiple pieces of evidence. • Write response that adequately expresses ideas and include scientifically appropriate descriptions and vocabulary that is focused mainly on question at hand with a logical progression of ideas. • Provide the justification for why this evidence is important to this claim.	
Assessment: work text responses, projects, experiments, and investigations				

Demonstrates Understanding of unit Concepts- (4-ESS2-2), (4-ESS3-2), (4-ESS3-1), (4-PS3-2), (4-PS3-1), (4-PS3-3), (4-PS3-4)
Science Unit 2 – Plate Tectonics and Natural Hazards 9 weeks (finishing from the first trimester) Science Unit 3 – Conservation of Energy 5 weeks **Science Unit 4- Forces and motions 6 weeks (Introduction)

Score	1= 0-3 out of 11 bullets	2 =4-7 out of 11 bullets	3 = 8-11 out of 11 bullets	E
Trimester-2	Student is unable or rarely able to demonstrate • Read maps to identify and compare Earth's surface features. • Identify patterns in Earth's surface features. • Create a model of a topographic map. • Explain how tectonic movement and weather related natural hazards can negatively affect humans and explain how these dangers can be minimized. • Use models, conduct investigations, and design solutions to reduce the harmful impacts caused by them. • Make observations to provide evidence that energy can be transferred from place to	Student is beginning to demonstrate understanding of key concepts. • Read maps to identify and compare Earth's surface features. • Identify patterns in Earth's surface features. • Create a model of a topographic map. • Explain how tectonic movement and weather related natural hazards can negatively affect humans and explain how these dangers can be minimized. • Use models, conduct investigations, and design solutions to reduce the harmful impacts caused by them. • Make observations to provide evidence that energy can be transferred from place to place by sounds, light, heat, and electric currents. • Obtain and combine information to describe that energy and fuel are derived from natural resources and their uses affect the environment.	Student demonstrates understanding of key concepts by using them effectively throughout the units taught. • Read maps to identify and compare Earth's surface features. • Identify patterns in Earth's surface features. • Create a model of a topographic map. • Explain how tectonic movement and weather related natural hazards can negatively affect humans and explain how these dangers can be minimized. • Use models, conduct investigations, and design solutions to reduce the harmful impacts caused by them. • Make observations to provide evidence that energy can be transferred from place to place by sounds, light, heat, and electric currents. • Obtain and combine information to describe that energy and fuel are derived from	Student independently meets standards and extends understanding through application to real-life situations. Example: Student can describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

	place by sounds, light, heat, and electric currents. • Obtain and combine information to describe that energy and fuel are derived from natural resources and their uses affect the environment. • ** Use evidence to construct an explanation relating the speed of an object to the energy of the object. • **Ask questions and predict outcomes about the changes in energy that occur when objects collide. • **Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. • Student is unable or rarely able to communicate using acquired vocabulary.	• ** Use evidence to construct an explanation relating the speed of an object to the energy of the object. • **Ask questions and predict outcomes about the changes in energy that occur when objects collide. • **Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. • Student is beginning to communicate or sometimes communicates using acquired vocabulary.	natural resources and their uses affect the environment. • ** Use evidence to construct an explanation relating the speed of an object to the energy of the object. • **Ask questions and predict outcomes about the changes in energy that occur when objects collide. • **Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. • Student communicates using acquired vocabulary.	

Assessment: worktext responses, projects, experiments, and investigations Examples: earthquake investigation, topography map construction, electrical investigations in circuits, wind turbine construction and design, race car track model

Demonstrates Understanding of unit Concepts- (4-PS3-2), (4-PS3-1), (4-PS3-3), (4-PS3-4), (4-PS4-3)				
**Science Unit 4- Forces and motions 6 weeks (Introduction) Science Unit 5- Waves and Information 8 weeks				
Score	**1**= 0-2 out of 6 bullets	**2**= 3-4 out of 6 bullets	**3**= 5-6 out of 6 bullets	**E**
Trimester-3	Student is unable or rarely able to demonstrate • ** Use evidence to construct an explanation relating the speed of an object to the energy of the object. • **Ask questions and predict outcomes about the changes in energy that occur when objects collide. • **Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. • Develop a model of waves to describe patterns in terms of amplitude and wavelength and show	Student is beginning to demonstrate understanding of key concepts. • ** Use evidence to construct an explanation relating the speed of an object to the energy of the object. • **Ask questions and predict outcomes about the changes in energy that occur when objects collide. • **Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. • Develop a model of waves to describe patterns in terms of amplitude and wavelength and show that waves can cause objects to move.	Student demonstrates understanding of key concepts by using them effectively throughout the units taught. • ** Use evidence to construct an explanation relating the speed of an object to the energy of the object. • **Ask questions and predict outcomes about the changes in energy that occur when objects collide. • **Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. • Develop a model of waves to describe patterns in terms of amplitude and wavelength and show	Student independently meets standards and extends understanding through application to real-life situations. Example: Student can explain gravitational force.

	that waves can cause objects to move. • Generate and compare multiple solutions that use patterns to transfer information. • Student is unable or rarely able to communicate using acquired vocabulary.	• Generate and compare multiple solutions that use patterns to transfer information. • Student is beginning to communicate or sometimes communicates using acquired vocabulary.	that waves can cause objects to move. • Generate and compare multiple solutions that use patterns to transfer information. • Student communicates using acquired vocabulary.	
Assessment: worktext responses, projects, experiments, and investigations Examples: wave experiments with water slinky experiment, code investigation				