New York Science

High School Regents Chemistry (2024)

Standard	
Structure and Properties of Matter HS-PS1-1	1 Use the periodic table as a model to identify the patterns of electrons in the outermost energy level of atoms or relative properties of the elements within a group or period. HS-PS1-1 - LEVEL1
Use the periodic table as a model to construct a representation of chemical behavior using relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. HS-PS1-1 - LEVEL5	5 Use the periodic table as a model to construct a representation of chemical behavior using relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. HS-PS1-1 - LEVEL5
Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. HS-PS1-1 - LEVEL4	4 Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. HS-PS1-1 - LEVEL4
Use the periodic table as a model to describe the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. HS-PS1-1 - LEVEL3	3 Use the periodic table as a model to describe the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. HS-PS1-1 - LEVEL3

Use the periodic table as a model to identify the patterns of electrons in the outermost energy level of atoms and the relative properties of elements within a group or period. HS-PS1-1 - LEVEL2	**2 Use the periodic table as a model to identify the patterns of electrons in the outermost energy level of atoms and the relative properties of elements within a group or period.** HS-PS1-1 - LEVEL2
Structure and Properties of Matter HS-PS1-3	**1 Use data from an investigation or provided information to identify a pattern in bulk scale properties of substances as it relates to the relative strength of electrical forces between particles.** HS-PS1-3 - LEVEL1
Plan and conduct multiple investigations to gather and evaluate evidence that compares the structure of substances at the bulk scale to explain the strength of electrical forces between particles. HS-PS1-3 - LEVEL5	**5 Plan and conduct multiple investigations to gather and evaluate evidence that compares the structure of substances at the bulk scale to explain the strength of electrical forces between particles.** HS-PS1-3 - LEVEL5
Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles. HS-PS1-3 - LEVEL4	**4 Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.** HS-PS1-3 - LEVEL4
Given a plan, conduct an investigation or given the results of an investigation or provided information, describe patterns of the relative strength of electrical forces between particles, based on structures, and/or the resulting properties at bulk	**3 Given a plan, conduct an investigation or given the results of an investigation or provided information, describe patterns of the relative strength of electrical forces between particles, based on structures, and/or the resulting properties at bulk scale.** HS-PS1-3 - LEVEL3

scale. HS-PS1-3 - LEVEL3	
Given a plan, conduct an investigation or given the results of an investigation or provided information, make a claim that compares the relative strength of electrical forces between particles of substances at the bulk scale. HS-PS1-3 - LEVEL2	**2 Given a plan, conduct an investigation or given the results of an investigation or provided information, make a claim that compares the relative strength of electrical forces between particles of substances at the bulk scale.** HS-PS1-3 - LEVEL2
Structure and Properties of Matter HS-PS1-8	**1 Use information to identify a particulate level structure or function of a designed material.** HS-PS1-8 - LEVEL1
Compare, integrate, and evaluate scientific and technical information about the structure and function of various designed materials at the particulate-level to optimize the functionality of a product. HS-PS1-8 - LEVEL5	**5 Compare, integrate, and evaluate scientific and technical information about the structure and function of various designed materials at the particulate-level to optimize the functionality of a product.** HS-PS1-8 - LEVEL5
Communicate scientific and technical information about why the particulate-level structure is important in the functioning of designed materials. HS-PS1-8 - LEVEL4	**4 Communicate scientific and technical information about why the particulate-level structure is important in the functioning of designed materials.** HS-PS1-8 - LEVEL4
Use scientific or technical information to explain how the particulate-level structure is important to the functioning of designed material(s). HS-PS1-8 - LEVEL3	**3 Use scientific or technical information to explain how the particulate-level structure is important to the functioning of designed material(s).** HS-PS1-8 - LEVEL3

Use information to describe how the particulate-level structure of designed material(s) supports its function. HS-PS1-8 - LEVEL2	**2** **Use information to describe how the particulate-level structure of designed material(s) supports its function.** HS-PS1-8 - LEVEL2
Structure and Properties of Matter HS-PS1-9 (NYSED)	**1** **Use data/information to identify the relationship between two variables in the combined gas law when the third variable and molar quantity are held constant.** HS-PS1-9 (NYSED) - LEVEL1
Plan and conduct an investigation to gather and analyze data that validates the claim that the combined gas law describes the relationships among volume, pressure, and temperature for a sample of an ideal gas. HS-PS1-9 (NYSED) - LEVEL5	**5** **Plan and conduct an investigation to gather and analyze data that validates the claim that the combined gas law describes the relationships among volume, pressure, and temperature for a sample of an ideal gas.** HS-PS1-9 (NYSED) - LEVEL5
Analyze data to support the claim that the combined gas law describes the relationships among volume, pressure, and temperature for a sample of an ideal gas. HS-PS1-9 (NYSED) - LEVEL4	**4** **Analyze data to support the claim that the combined gas law describes the relationships among volume, pressure, and temperature for a sample of an ideal gas.** HS-PS1-9 (NYSED) - LEVEL4
Use data/information that provides evidence to make and/or support a claim about the relationship between two variables in the combined gas law when the third variable and molar quantity are held constant. HS-PS1-9 (NYSED) - LEVEL3	**3** **Use data/information that provides evidence to make and/or support a claim about the relationship between two variables in the combined gas law when the third variable and molar quantity are held constant.** HS-PS1-9 (NYSED) - LEVEL3

Given data, construct a mathematical representation and/or calculate the value of an unknown variable in the combined gas law when the molar quantity is held constant. HS-PS1-9 (NYSED) - LEVEL2	**2** **Given data, construct a mathematical representation and/or calculate the value of an unknown variable in the combined gas law when the molar quantity is held constant.** HS-PS1-9 (NYSED) - LEVEL2
Structure and Properties of Matter HS-PS1-10 (NYSED)	**1** **Use data/information to identify a relationship between the formation, property, and/or behavior of one or more solutions.** HS-PS1-10 (NYSED) - LEVEL1
Evaluate the validity of claims, evidence, and/or reasoning of currently accepted explanations regarding formation, properties and behaviors of solutions at bulk scales. HS-PS1-10 (NYSED) - LEVEL5	**5** **Evaluate the validity of claims, evidence, and/or reasoning of currently accepted explanations regarding formation, properties and behaviors of solutions at bulk scales.** HS-PS1-10 (NYSED) - LEVEL5
Use evidence to support claims regarding the formation, properties and behaviors of solutions at bulk scales HS-PS1-10 (NYSED) - LEVEL4	**4** **Use evidence to support claims regarding the formation, properties and behaviors of solutions at bulk scales** HS-PS1-10 (NYSED) - LEVEL4
Use data/information that provides evidence to make and/or support a claim that identifies relationships between the formation, properties and/or behaviors of solutions at bulk scales. HS-PS1-10 (NYSED) - LEVEL3	**3** **Use data/information that provides evidence to make and/or support a claim that identifies relationships between the formation, properties and/or behaviors of solutions at bulk scales.** HS-PS1-10 (NYSED) - LEVEL3
Construct and/or use a mathematical representation as evidence to determine the quantities required to form or describe a	**2** **Construct and/or use a mathematical representation as evidence to determine the quantities required to form or describe a solution.** HS-PS1-10 (NYSED) - LEVEL2

solution. HS-PS1-10 (NYSED) - LEVEL2	
Chemical Reactions HS-PS1-2	**1** Given possible reaction outcomes, identify the outcome of a simple chemical reaction using the outermost electron states of atoms, trends in the periodic table, or knowledge of the patterns of chemical properties. HS-PS1-2 - LEVEL1
Construct, revise, and evaluate explanations for the outcome of simple chemical reactions based on the predictable behavior of reactants, the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties. HS-PS1-2 - LEVEL5	**5** Construct, revise, and evaluate explanations for the outcome of simple chemical reactions based on the predictable behavior of reactants, the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties. HS-PS1-2 - LEVEL5
Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties. HS-PS1-2 - LEVEL4	**4** Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties. HS-PS1-2 - LEVEL4
Construct or revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and/or knowledge of the patterns of chemical properties. HS-PS1-2 - LEVEL3	**3** Construct or revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and/or knowledge of the patterns of chemical properties. HS-PS1-2 - LEVEL3

Predict the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and/or knowledge of the patterns of chemical properties. HS-PS1-2 - LEVEL2	**2** **Predict the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and/or knowledge of the patterns of chemical properties.** HS-PS1-2 - LEVEL2
Chemical Reactions HS-PS1-4	**1** **Use a model/information to identify the changes in energy in a chemical reaction system.** HS-PS1-4 - LEVEL1
Develop and critique models to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy. HS-PS1-4 - LEVEL5	**5** **Develop and critique models to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.** HS-PS1-4 - LEVEL5
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy. HS-PS1-4 - LEVEL4	**4** **Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.** HS-PS1-4 - LEVEL4
Develop and/or use a model to describe the energy associated with the formation and/or the breaking of a bond(s) between atoms. HS-PS1-4 - LEVEL3	**3** **Develop and/or use a model to describe the energy associated with the formation and/or the breaking of a bond(s) between atoms.** HS-PS1-4 - LEVEL3
Use a model to describe the release or absorption of energy from a chemical reaction system. HS-PS1-4 - LEVEL2	**2** **Use a model to describe the release or absorption of energy from a chemical reaction system.** HS-PS1-4 - LEVEL2

Chemical Reactions HS-PS1-5	**1** Use provided information to identify the evidence for how the rate of a physical or chemical change is affected when conditions are varied. HS-PS1-5 - LEVEL1
Construct explanations and design solutions, using student-generated evidence, that apply scientific principles to explain how the rate of chemical changes are affected when conditions are varied. HS-PS1-5 - LEVEL5	**5** Construct explanations and design solutions, using student-generated evidence, that apply scientific principles to explain how the rate of chemical changes are affected when conditions are varied. HS-PS1-5 - LEVEL5
Apply scientific principles and evidence to explain how the rate of a physical or chemical change is affected when conditions are varied. HS-PS1-5 - LEVEL4	**4** Apply scientific principles and evidence to explain how the rate of a physical or chemical change is affected when conditions are varied. HS-PS1-5 - LEVEL4
Use data/information that provides evidence to predict and explain how the rate of a physical or chemical change is affected when conditions are varied. HS-PS1-5 - LEVEL3	**3** Use data/information that provides evidence to predict and explain how the rate of a physical or chemical change is affected when conditions are varied. HS-PS1-5 - LEVEL3
Predict and/or describe how the rate of a physical or chemical change is affected when conditions are varied. HS-PS1-5 - LEVEL2	**2** Predict and/or describe how the rate of a physical or chemical change is affected when conditions are varied. HS-PS1-5 - LEVEL2
Chemical Reactions HS-PS1-6	**1** Use information provided to identify a change in the experimental conditions that would modify the amount of products or reactants at equilibrium. HS-PS1-6 - LEVEL1
Optimize the design of a chemical system by explaining how multiple changes to experimental conditions will increase the amounts of products	**5** Optimize the design of a chemical system by explaining how multiple changes to experimental conditions will increase the amounts of products in a system at equilibrium. HS-PS1-6 - LEVEL5

in a system at equilibrium. HS-PS1-6 - LEVEL5	
Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium. HS-PS1-6 - LEVEL4	**4** **Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium.** HS-PS1-6 - LEVEL4
Explain how a change in the design of a chemical system and/or experimental conditions would affect the amount of products and/or reactants at equilibrium. HS-PS1-6 - LEVEL3	**3** **Explain how a change in the design of a chemical system and/or experimental conditions would affect the amount of products and/or reactants at equilibrium.** HS-PS1-6 - LEVEL3
Identify a modification to the design or to the experimental conditions of a chemical system and/or describe the effect on the products and/or reactants at equilibrium. HS-PS1-6 - LEVEL2	**2** **Identify a modification to the design or to the experimental conditions of a chemical system and/or describe the effect on the products and/or reactants at equilibrium.** HS-PS1-6 - LEVEL2
Chemical Reactions HS-PS1-7	**1** **Use information provided to identify mathematical representations that demonstrate atoms and/or mass are conserved during a chemical reaction.** HS-PS1-7 - LEVEL1
Create and revise mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction. HS-PS1-7 - LEVEL5	**5** **Create and revise mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.** HS-PS1-7 - LEVEL5

Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction. HS-PS1-7 - LEVEL4	**4** **Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.** HS-PS1-7 - LEVEL4
Construct a mathematical representation and/or calculate a quantity (e.g. # of particles, volume of a gas, etc.), using the relationship that atoms and/or mass are conserved during a chemical reaction. HS-PS1-7 - LEVEL3	**3** **Construct a mathematical representation and/or calculate a quantity (e.g. # of particles, volume of a gas, etc.), using the relationship that atoms and/or mass are conserved during a chemical reaction.** HS-PS1-7 - LEVEL3
Use or complete a mathematical representation to demonstrate that atoms and/or mass are conserved during a chemical reaction. HS-PS1-7 - LEVEL2	**2** **Use or complete a mathematical representation to demonstrate that atoms and/or mass are conserved during a chemical reaction.** HS-PS1-7 - LEVEL2
Chemical Reactions HS-PS1-11 (NYSED)	**1** **Given an investigation plan or provided information, select appropriate tools and/or materials that could be used to identify a property or behavior of an acid or base.** HS-PS1-11 (NYSED) - LEVEL1
Plan and conduct multiple investigations to compare, explain, and predict properties and behaviors of acids and bases. HS-PS1-11 (NYSED) - LEVEL5	**5** **Plan and conduct multiple investigations to compare, explain, and predict properties and behaviors of acids and bases.** HS-PS1-11 (NYSED) - LEVEL5
Plan and conduct an investigation to compare properties and behaviors of acids and bases. HS-PS1-11 (NYSED) - LEVEL4	**4** **Plan and conduct an investigation to compare properties and behaviors of acids and bases.** HS-PS1-11 (NYSED) - LEVEL4

Given a plan, conduct an investigation or given the results of an investigation or provided information, compare the properties and/or behaviors of acids and/or bases. HS-PS1-11 (NYSED) - LEVEL3	**3** **Given a plan, conduct an investigation or given the results of an investigation or provided information, compare the properties and/or behaviors of acids and/or bases.** HS-PS1-11 (NYSED) - LEVEL3
Given the results of an investigation or provided information, calculate a quantity or make a claim to identify a property and/or behavior of an acid or base. HS-PS1-11 (NYSED) - LEVEL2	**2** **Given the results of an investigation or provided information, calculate a quantity or make a claim to identify a property and/or behavior of an acid or base.** HS-PS1-11 (NYSED) - LEVEL2
Chemical Reactions HS-PS1-12 (NYSED)	**1** **Use provided information to identify a reaction or a component(s) in a model that illustrates the transfer of electrons within a system.** HS-PS1-12 (NYSED) - LEVEL1
Evaluate claims and analyze evidence to communicate that some chemical reactions involve the transfer of electrons as an energy conversion occurs within a system. HS-PS1-12 (NYSED) - LEVEL5	**5** **Evaluate claims and analyze evidence to communicate that some chemical reactions involve the transfer of electrons as an energy conversion occurs within a system.** HS-PS1-12 (NYSED) - LEVEL5
Use evidence to illustrate that some chemical reactions involve the transfer of electrons as an energy conversion occurs within a system. HS-PS1-12 (NYSED) - LEVEL4	**4** **Use evidence to illustrate that some chemical reactions involve the transfer of electrons as an energy conversion occurs within a system.** HS-PS1-12 (NYSED) - LEVEL4
Use a model (e.g. electrochemical cell) or information that provides evidence to make a claim or support the argument that some chemical reactions	**3** **Use a model (e.g. electrochemical cell) or information that provides evidence to make a claim or support the argument that some chemical reactions involve the transfer of electrons as an energy conversion occurs within a system.** HS-PS1-12 (NYSED) - LEVEL3

involve the transfer of electrons as an energy conversion occurs within a system. HS-PS1-12 (NYSED) - LEVEL3	
Use or provide evidence to demonstrate that some chemical reactions involve the transfer of electrons within a system. HS-PS1-12 (NYSED) - LEVEL2	**2 Use or provide evidence to demonstrate that some chemical reactions involve the transfer of electrons within a system.** HS-PS1-12 (NYSED) - LEVEL2
Energy HS-PS3-1	**1 Use mathematical representation or information provided to identify energy change(s) in one or more components of a system.** HS-PS3-1 - LEVEL1
Create and revise a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known. HS-PS3-1 - LEVEL5	**5 Create and revise a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.** HS-PS3-1 - LEVEL5
Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known. HS-PS3-1 - LEVEL4	**4 Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.** HS-PS3-1 - LEVEL4
Use a given computational model or mathematical representation to calculate the change in the energy of one component in a system	**3 Use a given computational model or mathematical representation to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.** HS-PS3-1 - LEVEL3

when the change in energy of the other component(s) and energy flows in and out of the system are known. HS-PS3-1 - LEVEL3	
Use a mathematical representation, data or a given model to predict and/or describe the energy transfer of a component of a system. HS-PS3-1 - LEVEL2	**2** Use a mathematical representation, data or a given model to predict and/or describe the energy transfer of a component of a system. HS-PS3-1 - LEVEL2
Energy HS-PS3-5	**1** Use a model/information of two objects interacting to identify the forces between objects or the changes in energy of the objects due to the interaction. HS-PS3-5 - LEVEL1
Develop and identify the limitations of a model of two objects interacting through electric or magnetic fields to explain the effect of the forces between objects, and describe the changes in energy of the objects due to the interaction. HS-PS3-5 - LEVEL5	**5** Develop and identify the limitations of a model of two objects interacting through electric or magnetic fields to explain the effect of the forces between objects, and describe the changes in energy of the objects due to the interaction. HS-PS3-5 - LEVEL5
Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction. HS-PS3-5 - LEVEL4	**4** Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction. HS-PS3-5 - LEVEL4
Develop a model of two objects interacting and illustrate the forces between objects or the	**3** Develop a model of two objects interacting and illustrate the forces between objects or the changes in energy of the objects due to the interaction. HS-PS3-5 - LEVEL3

changes in energy of the objects due to the interaction. HS-PS3-5 - LEVEL3	
Use a model of two objects interacting to describe and/or show the forces between objects or the changes in energy of the objects due to the interaction. HS-PS3-5 - LEVEL2	**2** Use a model of two objects interacting to describe and/or show the forces between objects or the changes in energy of the objects due to the interaction. HS-PS3-5 - LEVEL2
Waves and Electromagnetic Radiation HS-PS4-4	**1** Based on evidence, identify the frequency, wavelength, relative energy, or effect on matter of electromagnetic radiation when one of these is provided. HS-PS4-4 - LEVEL1
Gather and evaluate a variety of valid and reliable sources to formulate a claim on the effects that different frequencies of electromagnetic radiation have when absorbed by matter, citing qualitative evidence with scientific reasoning. HS-PS4-4 - LEVEL5	**5** Gather and evaluate a variety of valid and reliable sources to formulate a claim on the effects that different frequencies of electromagnetic radiation have when absorbed by matter, citing qualitative evidence with scientific reasoning. HS-PS4-4 - LEVEL5
Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter. HS-PS4-4 - LEVEL4	**4** Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter. HS-PS4-4 - LEVEL4
Make and support a claim, using scientific and/or technical information, that describes the effects of a frequency and/or wavelength of	**3** Make and support a claim, using scientific and/or technical information, that describes the effects of a frequency and/or wavelength of electromagnetic radiation when absorbed by matter. HS-PS4-4 - LEVEL3

electromagnetic radiation when absorbed by matter. HS-PS4-4 - LEVEL3	
Use information that provides evidence to support a claim that describes the effects of different frequencies, relative energies, and/or wavelengths of electromagnetic radiation when absorbed by matter. HS-PS4-4 - LEVEL2	**2** Use information that provides evidence to support a claim that describes the effects of different frequencies, relative energies, and/or wavelengths of electromagnetic radiation when absorbed by matter. HS-PS4-4 - LEVEL2
Matter and Energy in Organisms and Ecosystems HS-LS1-5	**1** Use a model/information to identify how the process of photosynthesis transforms light energy into stored chemical energy. HS-LS1-5 - LEVEL1
Create a model, given input and output of matter and energy, to demonstrate how photosynthesis transforms light energy into stored chemical energy. HS-LS1-5 - LEVEL5	**5** Create a model, given input and output of matter and energy, to demonstrate how photosynthesis transforms light energy into stored chemical energy. HS-LS1-5 - LEVEL5
Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy. HS-LS1-5 - LEVEL4	**4** Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy. HS-LS1-5 - LEVEL4
Use a model to describe how the process of photosynthesis conserves energy and/or matter. HS-LS1-5 - LEVEL3	**3** Use a model to describe how the process of photosynthesis conserves energy and/or matter. HS-LS1-5 - LEVEL3
Use a model/information demonstrating photosynthesis to	**2** Use a model/information demonstrating photosynthesis to identify energy and matter components. HS-LS1-5 - LEVEL2

identify energy and matter components. HS-LS1-5 - LEVEL2	
Engineering Design HS-ETS1-1	**1** **Given a major global challenge, identify the criteria or constraint for the given solution that best accounts for societal needs or wants.** HS-ETS1-1 - LEVEL1
Evaluate two or more major global challenges to specify qualitative and quantitative criteria and constraints for solutions, which could include new technologies that account for societal needs and wants. HS-ETS1-1 - LEVEL5	**5** **Evaluate two or more major global challenges to specify qualitative and quantitative criteria and constraints for solutions, which could include new technologies that account for societal needs and wants.** HS-ETS1-1 - LEVEL5
Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. HS-ETS1-1 - LEVEL4	**4** **Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.** HS-ETS1-1 - LEVEL4
Analyze a major global challenge to specify qualitative or quantitative criteria and constraints for solutions that account for societal needs and wants HS-ETS1-1 - LEVEL3	**3** **Analyze a major global challenge to specify qualitative or quantitative criteria and constraints for solutions that account for societal needs and wants** HS-ETS1-1 - LEVEL3
Given a major global challenge, describe the qualitative or quantitative criteria or constraint for the given solution that best accounts for societal needs or wants. HS-ETS1-1 - LEVEL2	**2** **Given a major global challenge, describe the qualitative or quantitative criteria or constraint for the given solution that best accounts for societal needs or wants.** HS-ETS1-1 - LEVEL2

Engineering Design HS-ETS1-2	**1** Identify the solution, from those provided, that addresses a smaller, more manageable real world problem. HS-ETS1-2 - LEVEL1
For a complex real world problem, design multiple solutions to sub-problems based on student generated data and/or scientific information from other sources. Describe the rationale, criteria, and constraints of each sub problem. HS-ETS1-2 - LEVEL5	**5** For a complex real world problem, design multiple solutions to sub-problems based on student generated data and/or scientific information from other sources. Describe the rationale, criteria, and constraints of each sub problem. HS-ETS1-2 - LEVEL5
Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. HS-ETS1-2 - LEVEL4	**4** Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. HS-ETS1-2 - LEVEL4
Given a complex real world problem, identify one smaller more manageable problem and describe a solution to that problem that can be solved through engineering. HS-ETS1-2 - LEVEL3	**3** Given a complex real world problem, identify one smaller more manageable problem and describe a solution to that problem that can be solved through engineering. HS-ETS1-2 - LEVEL3
Given a complex real world problem that has been broken down into smaller, more manageable problems, identify a solution to one smaller problem that can be solved through engineering. HS-ETS1-2 - LEVEL2	**2** Given a complex real world problem that has been broken down into smaller, more manageable problems, identify a solution to one smaller problem that can be solved through engineering. HS-ETS1-2 - LEVEL2

Engineering Design HS-ETS1-3	**1** **Identify the solution from those provided, to a complex real-world problem based on given criteria and/or constraints.** HS-ETS1-3 - LEVEL1
Evaluate a solution to a complex real-world problem based on prioritized criteria by generating a prioritized list of criteria and trade offs that account for a range of multiple constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. Explain how these solutions affect society and the environment. HS-ETS1-3 - LEVEL5	**5** **Evaluate a solution to a complex real-world problem based on prioritized criteria by generating a prioritized list of criteria and trade offs that account for a range of multiple constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. Explain how these solutions affect society and the environment.** HS-ETS1-3 - LEVEL5
Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of multiple constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. HS-ETS1-3 - LEVEL4	**4** **Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of multiple constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.** HS-ETS1-3 - LEVEL4
Identify a solution to a complex real-world problem based on prioritized criteria and/or trade-offs (positives and negatives) for a range of constraints, such as cost, safety, reliability, aesthetics, as well as possible social, cultural, or environmental impacts. HS-ETS1-3 - LEVEL3	**3** **Identify a solution to a complex real-world problem based on prioritized criteria and/or trade-offs (positives and negatives) for a range of constraints, such as cost, safety, reliability, aesthetics, as well as possible social, cultural, or environmental impacts.** HS-ETS1-3 - LEVEL3

Describe a solution to a complex real-world problem based on given criteria and constraints. HS-ETS1-3 - LEVEL2	**2** **Describe a solution to a complex real-world problem based on given criteria and constraints.** HS-ETS1-3 - LEVEL2
Engineering Design HS-ETS1-4	**1** **Identify the impact of a given solution to a complex real-world problem.** HS-ETS1-4 - LEVEL1
Use a computer simulation to model the impact of proposed solutions to related complex real-world problems with numerous criteria and constraints on interactions within and between systems relevant to the problem. HS-ETS1-4 - LEVEL5	**5** **Use a computer simulation to model the impact of proposed solutions to related complex real-world problems with numerous criteria and constraints on interactions within and between systems relevant to the problem.** HS-ETS1-4 - LEVEL5
Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem HS-ETS1-4 - LEVEL4	**4** **Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem** HS-ETS1-4 - LEVEL4
Given data (from a computer simulation), describe the impact of proposed solutions to a complex real-world problem with limited criteria and constraints on interactions within and/or between systems relevant to the problem. HS-ETS1-4 - LEVEL3	**3** **Given data (from a computer simulation), describe the impact of proposed solutions to a complex real-world problem with limited criteria and constraints on interactions within and/or between systems relevant to the problem.** HS-ETS1-4 - LEVEL3

Given data (from a computer simulation), identify the impact of a proposed solution to a complex real-world problem, or the impact on an interaction within or between two systems relevant to the problem. HS-ETS1-4 - LEVEL2

2 **Given data (from a computer simulation), identify the impact of a proposed solution to a complex real-world problem, or the impact on an interaction within or between two systems relevant to the problem.** HS-ETS1-4 - LEVEL2