

Science 6-12
Standard Course of Study and
Extended Content Standards with Demonstrators

Subject: Science Inquiry	Grade Level: 6	
Competency Goal 1: The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.		
Objectives:		
1.01 Identify and create questions and hypotheses that can be answered through scientific investigations.		
1.02 Develop appropriate experimental procedures for: Given questions, Student generated questions.		
1.03 Apply safety procedures in the laboratory and in field studies: Recognize potential hazards, Manipulate materials and equipment. Conduct appropriate procedures.		
1.04 Analyze variables in scientific investigations: Identify dependent and independent. Use of a control. Manipulate. Describe relationships between. Define operationally.		
1.05 Analyze evidence to: Explain observations. Make inferences and predictions. Develop the relationship between evidence and explanation.		
1.06 Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations: Measurement. Analysis of data. Graphing. Prediction models.		
1.07 Prepare models and/or computer simulations to: Test hypotheses. Evaluate how data fit.		
1.08 Use oral and written language to: Communicate findings. Defend conclusions of scientific investigations.		
1.09 Use technologies and information systems to: Research. Gather and analyze data. Visualize data. Disseminate findings to others.		
1.10 Analyze and evaluate information from a scientifically literate viewpoint by reading, hearing, and/or viewing: Scientific text. Articles. Events in the popular press.		
Extended Standard: The learner will choose questions, choose procedures with guidance, follow safety procedures, observe, collect data (use measurement tools), analyze data and communicate results in scientific investigation		
Symbolic Access Points	Early Symbolic Access Points	Pre-symbolic Access Points
<p style="color: red;">Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Ask questions relevant to topic • Identify problem • Identify safety concerns • Conduct investigation • Identify and use measurement tool/equipment • Observe and identify conditions that lead to a result • Chart (graphs, tables, diagrams, etc.) data • Communicate results 	<p style="color: red;">Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Indicate questions relevant to topic • Indicate problem • Indicate safety rules • Conduct investigation • Indicate and use appropriate measurement tool/equipment • Observe and indicate conditions that lead to a result • Chart (graphs, tables, diagrams, etc.) data • Communicate results 	<p style="color: red;">Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Indicate awareness of topic • Indicate awareness of problem • Indicate awareness of safety rules • Participate in investigation • Indicate appropriate measurement tool/equipment and participate in its function • Observe and indicate conditions that lead to a result • Participate/indicate Charting data (graphs, tables, diagrams, etc.) • Indicate awareness of results

Grade 6, Comp 1 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Plant Growth (Competency Goal 4):</u></p> <ul style="list-style-type: none"> • When presented with 3 soil types (sand, humus, clay), students will manipulate soils and ask questions regarding soils (test soil for water penetration); • Given choices of correct answer and 2 distractors (written or picture) students will identify the problem (ex: how plants grow in different soils, what makes the sun rise; what plants are food); • Review and discuss picture symbol/written rules for science safety (don't eat the materials); • Follow written or picture list of planting and watering procedures (3 identical sprouts in 3 soil conditions – sand, humus, clay); • Identify appropriate tool to measure plant (ruler vs. scale); • Use checklist to monitor conditions related to growth (planted in the same size pot; same amount of water and sunlight); • Chart growth (picture or other visual system) over days; • Demonstrate understanding of results by answering questions, creating a visual display, give verbal presentation. 	<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Plant Growth(Competency Goal 4):</u></p> <ul style="list-style-type: none"> • When presented with 3 soil types (sand, humus, clay), students will manipulate soils and indicate questions regarding soils (test soil for water penetration); • Given choices of correct answer and 2 distractors (picture or object) students will indicate the problem (ex: how plants grow in different soils, what makes the sun rise; what plants are food); • Indicate and discuss picture symbol rules for science safety (examples vs. non-examples; don't eat the materials vs. walk in the hall); • Follow picture list of planting and watering procedures (3 identical sprouts in 3 soil conditions – sand, humus, clay); • Indicate and participate in using appropriate tool to measure plant (ruler vs. scale); • Use picture checklist to monitor conditions related to growth (planted in the same size pot; same amount of water and sunlight); • Chart growth (picture or other visual system) over days; • Demonstrate knowledge of results by answering questions, creating a visual display. 	<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Plant Growth(Competency Goal 4):</u></p> <ul style="list-style-type: none"> • When presented with 3 soil types (sand, humus, clay), students will manipulate soils and indicate awareness of soil differences (observe/test soil for water penetration); • Given choices of correct answer and 1 distractor (picture or object) students will indicate the problem (ex: how plants grow in different soils, what makes the sun rise); • Indicate awareness of picture symbol rules for science safety (examples; eye gaze to "Don't eat the materials," "Don't touch until teacher directs," etc.); • Participate by choosing the order of soils (sand, humus, clay) for sprouts to be planted in; choose order in which 3 samples are watered, placed in sun, etc. • Indicate appropriate tool to measure plant (ruler vs. scale); • Indicate awareness of plant growth (big/little/none); • Indicate/ participate in charting growth (picture or other visual system) over days; • Demonstrate awareness of results by indicating which plant grew well.

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Science Technological Design		Grade Level: 6	
Competency Goal 2: The learner will demonstrate an understanding of technological design.			
Objectives:			
2.01 Explore evidence that "technology" has many definitions. Artifact or hardware. Methodology or technique. System of production. Social-technical system.			
2.02 Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.			
2.03 Evaluate technological designs for: Application of scientific principles. Risks and benefits. Constraints of design. Consistent testing protocols.			
2.04 Apply tenets of technological design to make informed consumer decisions about: Products. Processes. Systems.			
Extended Standard: The learner will demonstrate an understanding of technological design			
Symbolic Access Points		Early Symbolic Access Points	
<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <ul style="list-style-type: none"> • Demonstrate understanding of the use of specific technology devices • Demonstrate understanding of the use of technology with application to solving human problems • Demonstrate understanding of the advantages and disadvantages of specific technology devices • Demonstrate understanding of how design of technology devices helps produce desired result • Demonstrate understanding of procedures for safe use of technology 		<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <ul style="list-style-type: none"> • Demonstrate knowledge of the use of specific technology devices • Demonstrate knowledge of the use of technology with application to solving human problems • Demonstrate knowledge of the advantages and disadvantages of specific technology devices • Demonstrate understanding of how design of technology devices helps produce desired result • Demonstrate knowledge of procedures for safe use of technology 	
Pre-symbolic Access Points		<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <ul style="list-style-type: none"> • Demonstrate awareness of the use of specific technology devices • Demonstrate awareness of the use of technology with application to solving human problems • Demonstrate awareness of procedures for safe use of technology 	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 6, Comp 2 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<p>Use these demonstrators in connection with demonstrators in following 6th grade competencies</p> <ul style="list-style-type: none"> Identify uses of specific technology devices (computer, telescope, radio satellite, thermometer, GPS, measuring tools for length and volume, etc.) Identify uses of specific technology devices when applying to human problems (tools of disposal – recycling bins, waste management vehicles, etc./ tools to address erosion – canvass cloth, seeding, drainage devices, etc./ tools of heating and air conditioning – radiant heaters, fan, cooling systems, etc.) Identify advantages and disadvantages of specific technology devices (microscope vs. telescope for viewing moon, ruler vs. yardstick for measuring plant growth, satellite vs. radio tower for transmission of cell phone signal, etc.) Identify how design of technology devices helps produce desired result (design of lens to magnify what we observe, design of canvas fence to reduce erosion, design of ruler (vs. yardstick) is the appropriate size to measure plant growth, design of earth-sun model to show day/night, etc.) Identify procedures for safe use of appliances/technology (electrical safety - fan, computer/ temperature safety – heater/ glass safety - thermometer, etc.) – use safety symbols 	<p>Use these demonstrators in connection with demonstrators in following 6th grade competencies</p> <ul style="list-style-type: none"> Indicate uses of specific technology devices (computer, telescope, thermometer, measuring tools for length and volume, etc.) Indicate uses of specific technology devices when applying to human problems (tools of disposal – recycling bins, waste management vehicles, etc./ tools to address erosion – canvass cloth, seeding, drainage devices, etc./ tools of heating and air conditioning – radiant heaters, fan, cooling systems, etc.) Indicate advantages and disadvantages of specific technology devices (microscope vs. telescope for viewing moon, ruler vs. yardstick for measuring plant growth, etc.) Indicate how design of technology devices helps produce desired result (design of telescope [look through both ends] to magnify what we observe, design of barrier [canvas fence] to reduce erosion [across slope instead of down slope – using model], design of ruler (vs. yardstick) is the appropriate size to measure plant growth, design of earth-sun model to show day/night, etc.) Indicate procedures for safe use of appliances/technology (electrical safety - fan, computer/ temperature safety – heater/ glass safety - thermometer, etc.) – use safety symbols 	<p>Use these demonstrators in connection with demonstrators in following 6th grade competencies</p> <ul style="list-style-type: none"> Indicate uses of specific technology devices (computer, measuring tools for length and volume, etc.) Indicate uses of specific technology devices when applying to human problems (tools of disposal – recycling bins, waste management vehicles, etc./ tools of heating and air conditioning – radiant heaters, fan, cooling systems, etc.) Indicate procedures for safe use of appliances/technology (electrical safety - fan, computer/ temperature safety – heater/ glass safety - thermometer, etc.)

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Earth/Environmental		Grade Level: 6
Competency Goal 3: The learner will build an understanding of the geological cycles, forces, processes and agents which shape the lithosphere		
Objectives:		
3.01 Evaluate the forces that shape the lithosphere including: Crustal plate movement. Folding and faulting. Deposition. Volcanic Activity. Earthquakes.		
3.02 Examine earthquake and volcano patterns.		
3.03 Explain the model for the interior of the earth.		
3.04 Describe the processes which form and the uses of earth materials. Rock cycle. Minerals. Characteristics of rocks. Economic use of rocks and minerals. Value of gems and precious metals. Common gems, minerals, precious metals and rocks found in N.C.		
3.05 Analyze soil properties that can be observed and measured to predict soil quality including: Color. Horizon profile. Infiltration. Soil temperature. Structure. Consistency. Texture. Particle size. pH. Fertility. Soil moisture.		
3.06 Evaluate ways in which human activities have affected Earth's pedosphere and the measures taken to control the impact: Vegetative cover. Agriculture. Land use. Nutrient balance. Soil as a vector.		
3.07 Assess the use of technology and information systems in monitoring lithospheric phenomenon.		
3.08 Conclude that the good health of environments and organisms requires: Monitoring of the pedosphere. Taking steps to maintain soil quality. Stewardship.		
Extended Standard: The learner will describe forces and processes that shape the earth • Observe and describe geological processes (volcanoes, earthquakes, plate tectonics, rock formation, minerals, etc.) • Observe, describe and investigate soil and human activities that impact soil properties.		
Symbolic Access Points	Early Symbolic Access Points	Pre-symbolic Access Points
<ul style="list-style-type: none"> Classify soil types by properties Demonstrate understanding of forces and processes that cause change Demonstrate understanding of human impact on natural resources and soil 	<ul style="list-style-type: none"> Demonstrate knowledge of forces and geological processes that cause change Classify soil by type Demonstrate knowledge of human impact on natural resources and soil 	<ul style="list-style-type: none"> Demonstrate awareness of forces and geological processes cause change Demonstrate awareness of rocks vs. soil Demonstrate awareness of human impact on natural resources and soil

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 6, Comp 3 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • After creating a compost pit & observing over time –(grass clippings, food scraps, leaf mold in layers), identify decay of material • After creating a compost pit & observing over time –(with items that do not decompose – plastic, tin foil, metal, glass), identify decay of material • Identify trash that will not decompose and effect on soil quality • Identify proper disposal (including recycling practices), waste management practices • Identify soil conservation practices (seeding, contouring, soil fences/barriers, etc.) • Identify texture of soils – coarse, fine, clay • Predict, identify & describe which soil best supports plant growth given an experiment of planting sprouts in different soils (clay, sand, rich humus) • Predict and describe porosity of soil types when given two models – one of soft, porous soil (sand, loose humus) and one of solid rock or compacted clay • Identify/describe properties of rocks and minerals – hardness/streak, shiny, dull, brittle, color, smooth/rough surface, etc. • Predict & demonstrate the effect of wind on soil erosion (identify and predict movement of sand from a fan, identify and predict movement of clay from a fan, etc.) • Predict & demonstrate the effect of moving water (stream vs. flood) on soil erosion (predict effect of water on thin layer of dirt, on rock, on sand) • Predict and demonstrate the effect of water moving down a contoured slope (create contoured rows on ‘hill side’ of sand or dirt and pour water at top of ‘hill’) • Predict & demonstrate the effect of ice (ice wedging) as it impacts rock formations, as a result of experiments on water expansion (freezing in a full plastic bottle, full zip lock bag, etc.) • Create a model and describe layers of rock (using a layered candy bar cut in half, sand art bottle, layered sandwich, terrarium, etc.) • Describe relationship of model to photos of roadside excavation along highways • Identify and describe results (mountains, sink holes, cracks, earth formations) of forces (wind, volcanoes, earthquake, water, etc.) that change the earth’s surface; demonstrate by pushing two cut pieces of layered candy bar together and bar is cut lengthwise • Identify impact of volcanoes on surrounding environment (using pictures, video of volcanic activity) 	<ul style="list-style-type: none"> • After creating a compost pit & observing over time – (grass clippings, food scraps, leaf mold in layers), indicate decay of material • After creating a compost pit & observing over time – (with items that do not decompose – plastic, tin foil, metal, glass), indicate decay of material • Choose an instrument to use water to wash off a dirty sidewalk (rake versus water-hose). • Sorts trash vs. recyclable vs. compost • Sorts recyclable materials (paper, plastic, aluminum, glass, etc.) • Indicate texture of soils – coarse, fine, clay • Indicate which soil best supports plant growth given an experiment of planting sprouts in different soils (clay, sand, rich humus) • Indicate properties of rocks and minerals – hardness, color, smooth/rough surface, etc. • Indicate/predict & demonstrate the effect of wind on soil erosion (indicate/predict movement of sand from a fan, indicate/predict movement of clay from a fan, etc.) • Indicate/predict & demonstrate the effect of moving water (stream vs. flood) on soil erosion (predict effect of water on thin layer of dirt, on rock, on sand) • Indicate/predict & demonstrate the effect of ice (ice wedging) as it relates to rock formations, as a result of experiments on water expansion (freezing in a full plastic bottle vs. freezing in a half full bottle, full zip lock bag vs. half full zip lock bag, etc.; Is it broken or different?) • Indicate & demonstrate layering as it relates to rock layers (layered cake, sandwich, etc.) • Indicate forces (pushing, pulling) that create changes as they relate to the earth’s surface (mountains, sink holes, cracks, earth formations); demonstrate and indicate change as a result of fan (wind) on sand pile blown against side of box or other surface, as a result of rocks pushed across sand pile 	<ul style="list-style-type: none"> • Demonstrate awareness of effect of water on soil by using water to wash dirt off hands. Place dirty hand beneath water. Indicate that dirt is being washed off hand. • Demonstrate awareness of wind as a force by observing effects of air. Accesses switch, given a distractor, to activate fan. • Uses a source of wind (fan, blow through straw) in order to create a force by which air changes the environment (knocks over cards, moves feathers). • Indicate receptacle for trash • Indicate receptacles for recycled materials • Given two choices of growing medium (soil vs. rock), indicate where seed would go • Indicate which of two materials can be sifted (soil property) (rock vs. humus or sand)

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Life Science		Grade Level: 6	
Competency Goal 4: The learner will investigate the cycling of matter			
Objectives:			
4.01 Describe the flow of energy and matter in natural systems: Energy flows through ecosystems in one direction, from the sun through producers to consumers to decomposers. Matter is transferred from one organism to another and between organisms and their environments. Water, nitrogen, carbon dioxide, and oxygen are substances cycled between the living and non-living environments.			
4.02 Evaluate the significant role of decomposers.			
4.03 Examine evidence that green plants make food. Photosynthesis is a process carried on by green plants and other organisms containing chlorophyll. During photosynthesis, light energy is converted into stored energy which the plant, in turn, uses to carry out its life processes.			
4.04 Evaluate the significance of photosynthesis to other organisms: The major source of atmospheric oxygen is photosynthesis. Carbon dioxide is removed from the atmosphere and oxygen is released during photosynthesis. Green plants are the producers of food that is used directly or indirectly by consumers.			
4.05 Evaluate designed systems for ability to enable growth of certain plants and animals.			
Extended Standard: Explore, observe, communicate and investigate the cycling of matter and the flow of energy in biological systems • Photosynthesis • Producers • Consumers • Decomposers			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> Identify aspects of the physical environment that support living things 		<ul style="list-style-type: none"> Demonstrate knowledge of relationships between sun and plants and consumers 	
		Pre-symbolic Access Points	
		Demonstrate awareness of • Edible vs. non-edible plants • Heat energy sources • Living vs. non-living	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 6, Comp 4 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Given identical growing conditions except for lighting (direct, indirect, very low) over a period of two weeks, predict, identify & describe how plants grow toward light and are affected by amount of light • Identify that soil and water are non-living factors necessary to plant growth • Given a set of written/picture illustrations (water, oil, trash, sun, soil), choose features necessary for plant growth • Given an experiment involving covering a plant with a plastic bag, identify and describe changes in condensation on inside of bag • Given experiments involving planting sprouts, identify ideal situation for plant growth – soil, sunlight, water and temperature • Identify producers & consumers that fit within different ecosystems (ocean/beach, forest, desert) - sort photos • Identify role performed by producers & consumers within an ecosystem (as it relates to food chain, photosynthesis, respiration) • Create or fill in a model that illustrates the life cycle (food chain) within an ecosystem • Create or fill in a model that illustrates the water cycle • Given compost with earthworms, identify that earthworms (decomposer) break down organic matter to create soil for plants (producer) 	<ul style="list-style-type: none"> • Given identical growing conditions except for lighting (direct, indirect, very low) over a period of two weeks, indicate that plants grow toward light • Given a set of objects or photos (water, plastic, book), choose a feature necessary for plant growth • Sorts living and non-living things • Given a choice of putting a plant (while growing) in a freezer or in the window, choose environment where the plant will grow (knowledge of need for warmth) • Given a choice of placing plant in a box vs. in the window, identify where the plant will grow • Given a choice of water or paint to put on a plant, indicate which one the plant needs for growth • Given a choice of plants, indicate what a consumer (cow, chicken, etc.) will eat • Match animal or plant to environment (water vs. land) • Categorize foods as plants or animals • Indicate self as consumer- create a book or chart about what I eat 	<ul style="list-style-type: none"> • Indicate living vs. non-living. Vocalize, gesture or eye-gaze indicating a living organism (pet, human) versus non-living (rock). • Indicate living vs. non-living through appropriate pet care (pets dog, holds pet in lap). • Indicate a need for a heat source (leaning, moving toward, etc. when cold (moves to heater, reaches for coat) • When given two choices, discriminates edible vs. non-edible plants by eating food on plate, not plant in pot

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Earth/Environmental	Grade Level: 6	
Competency Goal 5: The learner will build understanding of the Solar System		
Objectives:		
5.01 Analyze the components and cycles of the solar system including: Sun. Planets and moons. Asteroids and meteors. Comets. Phases. Seasons. Day/year. Eclipses.		
5.02 Compare and contrast the Earth to other planets in terms of: Size. Composition. Relative distance from the sun. Ability to support life.		
5.03 Relate the influence of the sun and the moon's orbit to the gravitational effects produced on Earth. Solar storms. Tides.		
5.04 Describe space explorations and the understandings gained from them including: N.A.S.A. Technologies used to explore space. Historic timeline. Apollo mission to the moon. Space Shuttle. International Space Station. Future goals.		
5.05 Describe the setting of the solar system in the universe including: Galaxy. Size. The uniqueness of Earth.		
5.06 Analyze the spin-off benefits generated by space exploration technology including: Medical. Materials. Transportation. Processes. Future research.		
Extended Standard: Observe and describe aspects of the solar system • Sun, moon and related cycles, planets (including earth) and comets • Space exploration and related technology		
Symbolic Access Points	Early Symbolic Access Points	Pre-symbolic Access Points
<ul style="list-style-type: none"> Demonstrate understanding of the cycles of the solar system 	<ul style="list-style-type: none"> Demonstrate knowledge of sun and moon 	<ul style="list-style-type: none"> Demonstrate awareness of celestial bodies

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 6, Comp 5 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Given a model of earth's rotation around the sun, identify how day and night occur • Given a model of earth's rotation (tilted axis) around the sun, identify sequence of seasons • Given a model of earth, moon and sun, manipulate the model to show how we see the phases of the moon • Using a post/stick in the ground, place a marker on the shadow throughout the day to chart movement of earth. • Use the newspaper to track the phases of the moon throughout the month • Creates a model of the solar system from photo/picture or diagram 	<ul style="list-style-type: none"> • Indicate sun and moon in sky • Indicate that sun comes up in the morning and goes down at night • Cut and paste the phases of the moon from the newspaper into their calendar each day • When the moon is visible in the sky, match the photo of the phase • Indicate sky when asked, 'where do you see stars at night?' 	<ul style="list-style-type: none"> • Indicate light outside or at window when asked 'where is the sun?' • When moon is visible during day, indicate sky when asked 'where is the moon?'

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Physical Science		Grade Level: 6	
Competency Goal 6: The learner will conduct investigations and examine models and devices to build an understanding of the characteristics of energy transfer and/or transformation			
Objectives:			
6.01 Determine how convection and radiation transfer energy.			
6.02 Analyze heat flow through materials or across space from warm objects to cooler objects until both objects are at equilibrium.			
6.03 Analyze sound as an example that vibrating materials generate waves that transfer energy. Frequency. Amplitude. Loudness. How sound travels through different material. Form and function of the human ear.			
6.04 Evaluate data for qualitative and quantitative relationships associated with energy transfer and/or transformation.			
6.05 Analyze the physical interactions of light and matter: Absorption. Scattering. Color perception. Form and function of the human eye.			
6.06 Analyze response to heat to determine the suitability of materials for use in technological design: Conduction. Expansion. Contraction.			
6.07 Analyze the Law of Conservation of Energy: Conclude that energy cannot be created or destroyed, but only changed from one form into another. Conclude that the amount of energy stays the same, although within the process some energy is always converted to heat. Some systems transform energy with less loss of heat than others.			
Extended Standard: Explore, observe, communicate and investigate how sound, heat and light cause change			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> Communicate understanding of flow of energy from hot to cold until it reaches equilibrium 		<ul style="list-style-type: none"> Demonstrate knowledge through observation of flow of energy from hot to cold until it reaches equilibrium 	
		Pre-symbolic Access Points	
		<ul style="list-style-type: none"> Develop awareness through exploration of flow of energy from hot to cold until it reaches equilibrium 	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 6, Comp 6 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Given temperature chart and container with melting ice (see experiment in comp.1), identifies temperatures and time sequence from freezing to room temperature • Given same experiment, identifies various foods and materials that will warm to room temperature if left out • Uses tuning fork (and other vibrating sound sources) in multiple ways to demonstrate transfer of vibration (places tuning fork on own body to feel vibration, on hard surface to hear vibration of other surface, on surface of container filled with water to show waves in water) • Carries out experiment and identifies how dark colors absorb light (and heat) and light colors reflect light (and absorb less heat) • Carries out experiment and identifies materials that are good conductors of heat (metal, water, etc.) • Identifies energy sources in the home and their proper use • Carries out experiment and identifies materials that are good insulators of heat (hot mitt, thick cloth, wood, insulated walls, etc.) • Upon carrying out experiment with 2 thermometers and 2 containers of water (one with ice cubes), measuring temperature every 15 minutes and charting temperatures, identifies that cold water returns to room temperature over time and identifies equilibrium • Upon carrying out experiment with 3 thermometers and 3 containers of water (one with ice cubes, one with hot water, one with room temperature water), measuring temperature every 15 minutes and charting temperatures, identifies that cold water and hot water returns to room temperature over time and identifies equilibrium • Upon carrying out experiment with heated water and thermometer, measuring temperature every 10-15 minutes, identifies equilibrium and energy transfer to air • Identifies and describes effect of radiant heat source (radiator, heater, etc.) and how heat is conducted through air • Given an experiment involving observation of mylar balloon in cool condition/warm condition, notes expansion and contraction and condition that lead to these 	<ul style="list-style-type: none"> • Given temperature picture chart and container with melting ice (see experiment in comp.1), indicates that contents of container warms up to room temperature over time • Indicates that ice cream/ice will melt if left out • Student places food into microwave for the purpose of being heated. • Student places food into refrigerator for the purpose of cooling/preserving. • Indicates to put in ice cube to cool hot beverage • Places food into microwave for the purpose of being heated. • Indicates that microwave heats food • Indicates to put food in cooler to keep food cold • Places food into refrigerator for the purpose of cooling/preserving. • Indicates 'hot' at stove, oven, heater, heated food containers and moves away, behaves so as to avoid contact, etc. • Uses tuning fork (and other vibrating sound sources) to demonstrate transfer of vibration in at least one fashion (places tuning fork on own body to feel vibration, on hard surface to hear vibration of other surface, on surface of container filled with water to show waves in water) • Indicates colors of clothing that will be most comfortable in summer heat • Given a choice of glass objects, indicates that prism/crystal will scatter light and produce spectrum of color • Indicates electrical outlet and behaves so as to avoid shock (where to hold plug, danger of prongs of plug, avoidance of standing water, dry off before operating electrical appliances) • Uses hot mitt to move heated food containers • Given an experiment involving observation of mylar balloon in cool condition/warm condition, indicates expansion and contraction with symbol 	<ul style="list-style-type: none"> • Given experiment involving touching and observing ice and melted ice, indicates which one is melted • Given a choice of frozen popsicle vs. partially melted popsicle, indicates/chooses frozen popsicle • Closes refrigerator door to keep food cold. • Hit switch to request heating pad or to turn on heating pad • Student closes microwave oven door to warm food. • Student allows food/beverage to cool before consuming. • Activates tuning fork to listen to/feel vibration • Points to/indicates electrical outlet to turn on preferred device (sound and light toy, etc.) • Activates switch for microwave. • Given repeated experiment involving choice/touching of a black t-shirt and a white t-shirt on a warm day, chooses what to wear outside • Indicates to put white cover on black wheelchair on a hot day • Given an experiment involving repeated observation of mylar balloon in warm and cool conditions, indicates to put balloon in warm condition to make it tight/hard

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Life Science		Grade Level: 6
Competency Goal 7: The learner will conduct investigations and use technologies and information systems to build an understanding of population dynamics		
Objectives:		
7.01 Describe ways in which organisms interact with each other and with non-living parts of the environment Coexistence/Cooperation/Competition. Symbiosis. Mutual dependence.		
7.02 Investigate factors that determine the growth and survival of organisms including: Light. Temperature range. Mineral availability. Soil/rock type. Water. Energy.		
7.03 Explain how changes in habitat may affect organisms.		
7.04 Evaluate data related to human population growth, along with problems and solutions: Waste disposal. Food supplies. Resource availability. Transportation. Socio-economic patterns.		
7.05 Examine evidence that overpopulation by any species impacts the environment.		
7.06 Investigate processes which, operating over long periods of time, have resulted in the diversity of plant and animal life present today: Natural selection. Adaptation.		
Extended Standard: Explore, observe, communicate and investigate the factors that influence the growth and decline of populations over time • Physical environment • Biological relationships • Human population dynamics • Natural selection and adaptation		
Symbolic Access Points	Early Symbolic Access Points	Pre-symbolic Access Points
<ul style="list-style-type: none"> • Demonstrate understanding of relationship between population and resources • Demonstrate understanding of balance within a population • Identify the effects of a change on an environment 	<ul style="list-style-type: none"> • Develop knowledge of population density • Demonstrate knowledge of a change in an environment 	<ul style="list-style-type: none"> • Develop an awareness of population density • Demonstrate awareness of a change in an environment

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 6, Comp 7 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> Given pictures of flocks, herds, crowds as well as ecosystems/habitats (forest, desert, swamp, farm, zoo, etc.), identifies population and community Given a model of population density and food resources (ant farm, termites, fruit flies), indicates what is needed to prevent depletion of food resources as numbers increase (increase size of farm, add food resources, etc.) Given an activity in which there are more students than items (cookies, food, books, other resources), identify parallel to consumers and resource supply and identify what consumers would do (look elsewhere, go next door, etc.) Given a model of population density, indicates how changes leads to other environmental changes (presence of traffic – road kill, food source loss - displacement, presence of houses – less forest, etc.) Given two ‘biomes,’ identifies amount/intensity of factors in one biome (sun, temperature, water, etc.) and how the same factors differ in another biome Given examples of species and their environment (chameleon, walking stick [insect], etc.), identifies features of species that help it survive Identifies how differences in structure of mouth for different animals assists them live – shark vs. finch vs. frog Identify environmental pollutants related to human population density (garbage, human waste, industrial waste) Identify means of properly disposing of 4 different human pollutants (recycling vs. solid waste vs. sewage vs. chemical incineration) Given a population map and illustration of ecosystem (desert, arctic, tropical), identify factors (water supply, food resources, climate) that affect population density Given a model or description of two species (ants and aphids, etc.), identify mutual dependence and how the species depend on each other 	<ul style="list-style-type: none"> Given pictures of flocks, herds, crowds as well as ecosystems/habitats, indicates populations (similar, group, etc.) Given a model of population density, indicates increase/decrease in number of population Identifies areas that are crowded (lots of people – cafeteria, etc.) vs. few people (small room/ quiet space with 1 person) Given an activity in which there are more students than items (cookies, food, books, other resources), identify what consumers would do when given choices Given a model of population density (space/grid with trees where you must remove trees to put in monopoly houses), indicates how one change leads to another environmental change (new house – one less tree) Given two ‘biomes’ (aquatic and desert terrarium), indicates where various different living organisms live Identifies 3 different ecosystems and 3 living organisms in each Given a source of environmental pollution (industrial chimney) and two choices of outcome (polluted air vs. clean air), identifies result of pollution Given a source of environmental pollution (people throwing trash out of car) and two choices of outcomes (heavily littered highway vs. air pollution), identifies result of pollution 	<ul style="list-style-type: none"> Indicates my group (population) vs. another group (population) – Indicate to which group student belongs (my family vs. your family; my class vs. your class) Indicate to which group student belongs (my family vs. your family; my class vs. your class) Given a model of two populations (extremely different – 2 termites vs. termite farm, teacher vs. whole class), indicates many, more, bigger Given an activity in which there are more students than items (cookies, food, books, other resources), identify what would you do (look elsewhere, share, and distractor) Given a model of population density, indicates to move a tree to put in a house Given two ‘biomes’ (aquatic and desert terrarium), indicates where organism goes to survive (example – fish) Identifies location for waste products: garbage Identifies location for waste products: recycling Identifies location for waste products: toilet Identify ‘dirty’ (polluted) water given a choice of clean vs. dirty and indicates that it is not safe to drink

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Science Inquiry		Grade Level: 7
Competency Goal 1: The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.		
Objectives:		
1.01 Identify and create questions and hypotheses that can be answered through scientific investigations.		
1.02 Develop appropriate experimental procedures for: Given questions. Student generated questions.		
1.03 Apply safety procedures in the laboratory and in field studies: Recognize potential hazards. Manipulate materials and equipment. Conduct appropriate procedures.		
1.04 Analyze variables in scientific investigations: Identify dependent and independent. Use of a control. Manipulate. Describe relationships between. Define operationally.		
1.05 Analyze evidence to: Explain observations. Make inferences and predictions. Develop the relationship between evidence and explanation.		
1.06 Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations: Measurement. Analysis of data. Graphing. Prediction models.		
1.07 Prepare models and/or computer simulations to: Test hypotheses. Evaluate how data fit.		
1.08 Use oral and written language to: Communicate findings. Defend conclusions of scientific investigations.		
1.09 Use technologies and information systems to: Research. Gather and analyze data. Visualize data. Disseminate findings to others.		
1.10 Analyze and evaluate information from a scientifically literate viewpoint by reading, hearing, and/or viewing: Scientific text. Articles. Events in the popular press.		
Extended Standard: The learner will choose questions, choose procedures with guidance, follow safety procedures, observe, collect data (use measurement tools), analyze data and communicate results in scientific investigation		
Symbolic Access Points	Early Symbolic Access Points	Pre-symbolic Access Points
<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Ask questions relevant to topic • Identify problem • Identify safety concerns • Conduct investigation • Identify and use measurement tool/equipment • Observe and identify conditions that lead to a result • Chart (graphs, tables, diagrams, etc.) data • Communicate results 	<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Indicate questions relevant to topic • Indicate problem • Indicate safety rules • Conduct investigation • Indicate and use appropriate measurement tool/equipment • Observe and indicate conditions that lead to a result • Chart (graphs, tables, diagrams, etc.) data • Communicate results 	<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Indicate awareness of topic • Indicate awareness of problem • Indicate awareness of safety rules • Participate in investigation • Indicate appropriate measurement tool/equipment and participate in its function • Observe and indicate conditions that lead to a result • Participate/indicate Charting data (graphs, tables, diagrams, etc.) • Indicate awareness of results

Grade 7, Comp 1 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Simple Machines (Competency Goal 6):</u></p> <ul style="list-style-type: none"> • When presented with an example of an inclined plane (ramp) students will manipulate object up the ramp and ask questions regarding ramp; • Given choices of correct answer and 2 distractors (written or picture) students will identify the problem (ex: which is easier, lifting an object or pushing/pulling it up the ramp; is it hot or cold today; is the object heavy or light); • Review and discuss picture symbol/written rules for science safety (Do not touch materials until teacher directs); • Follow written or picture list of procedures for lifting and pushing/pulling object up the ramp (object should be the same for both investigations); • Identify appropriate tool to measure amount of force required to lift and pull up the ramp (ruler vs. spring scale); IF spring scale is not available, students make direct observation of which is easier: lifting or pushing/pulling • Use checklist to monitor conditions related to force required (lifting straight up vs. using a ramp); • Chart force (picture or other visual system) needed for pushing/pulling/lifting different objects • Demonstrate understanding of results by answering questions, creating a visual display, give verbal presentation. 	<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Simple Machines (Competency Goal 6):</u></p> <ul style="list-style-type: none"> • When presented with an example of an inclined plane (ramp) students will manipulate object up the ramp and indicate questions regarding ramp; • Given choices of correct answer and 2 distractors (picture/object) indicate the problem (ex: which is easier, lifting an object or pushing/pulling it up the ramp; is it hot or cold today; is the object heavy or light); • Indicate and discuss picture symbol rules for science safety (examples vs. non-examples - Do not touch materials until teacher directs vs Walk in the hall); • Follow picture list of procedures for lifting and pushing/pulling object up the ramp (object should be the same for both investigations); • Indicate and participate in using appropriate tool to measure force (ruler vs. spring scale); IF spring scale is not available, students make direct observation of which is easier: lifting or pushing/pulling • Use picture checklist to monitor conditions related to force required (lifting straight up vs. using a ramp) • Chart force (picture or other visual system) needed for pushing/pulling/lifting different objects • Demonstrate knowledge of results by answering questions, creating a visual display. 	<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Simple Machines (Competency Goal 6):</u></p> <ul style="list-style-type: none"> • When presented with an example of an inclined plane (ramp) students will manipulate object up the ramp and indicate awareness regarding ramps; • Given choices of correct answer and 1 distractor (picture/object) indicate the problem (ex: which is easier, lifting an object or pushing/pulling it up the ramp; is it hot or cold today); • Indicate awareness of picture symbol rules for science safety (examples; eye gaze to “Don’t eat the materials,” “Don’t touch until teacher directs,” etc.); • Participate by choosing method of movement (lift/push/pull) to start investigation and then to continue investigation; • Indicate appropriate tool to measure force (ruler vs. spring scale); IF spring scale is not available, students make direct observation of which is easier: lifting or pushing/pulling; IF spring scale is not available, and/or students cannot physically participate, they will make choice of who or what measures the force (teacher/classmate vs. ruler) • Indicate awareness of use of ramp (yes/no); • Indicate/ participate in charting (picture or other visual system); • Demonstrate awareness of benefit of using ramp by indicating which was easier, lifting or pushing/pulling

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Science Technological Design		Grade Level: 7	
Competency Goal 2: The learner will demonstrate an understanding of technological design.			
Objectives:			
2.01 Explore evidence that "technology" has many definitions. Artifact or hardware. Methodology or technique. System of production. Social-technical system.			
2.02 Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.			
2.03 Evaluate technological designs for: Application of scientific principles. Risks and benefits. Constraints of design. Consistent testing protocols.			
2.04 Apply tenets of technological design to make informed consumer decisions about: Products. Processes. Systems.			
Extended Standard: The learner will demonstrate an understanding of technological design			
Symbolic Access Points		Early Symbolic Access Points	
<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <ul style="list-style-type: none"> • Demonstrate understanding of the use of specific technology devices • Demonstrate understanding of the use of technology with application to solving human problems • Demonstrate understanding of the advantages and disadvantages of specific technology devices • Demonstrate understanding of how design of technology devices helps produce desired result • Demonstrate understanding of procedures for safe use of technology 		<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <ul style="list-style-type: none"> • Demonstrate knowledge of the use of specific technology devices • Demonstrate knowledge of the use of technology with application to solving human problems • Demonstrate knowledge of the advantages and disadvantages of specific technology devices • Demonstrate understanding of how design of technology devices helps produce desired result • Demonstrate knowledge of procedures for safe use of technology 	
Pre-symbolic Access Points		<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <ul style="list-style-type: none"> • Demonstrate awareness of the use of specific technology devices • Demonstrate awareness of the use of technology with application to solving human problems • Demonstrate awareness of procedures for safe use of technology 	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 7, Comp 2 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<p>Use these demonstrators in connection with demonstrators in following 6th grade competencies</p> <ul style="list-style-type: none"> Identify uses of specific technology devices (rain gauge, weather vane, barometer, stethoscope, simple machines [pulley], slope, lubricants, chart, graph, spring scale, etc.) Identify uses of specific technology devices when applying to human problems (rain gauge - flooding, barometer – drop in pressure/ weather safety, stethoscope – healthy heart rate, lever and fulcrum - move heavy object) Identify advantages and disadvantages of specific technology devices (long lever vs. short level to move heavy object, stethoscope vs. blood pressure cuff to determine heart rate, barometer vs. thermometer to measure air pressure, choice of building material to resist severe weather, etc.) Identify how design of technology devices helps produce desired result (preference of graph over chart to show heart rate in various activities, chart over graph to show shared family traits, how weather vane (pinwheel) catches wind, spring scale vs. pulley for measuring force, etc.) Identify procedures for safe use of appliances/technology (eye safety – simple machines, clothing protection – weather, fumes – create ventilation) – use safety symbols 	<p>Use these demonstrators in connection with demonstrators in following 6th grade competencies</p> <ul style="list-style-type: none"> Indicate uses of specific technology devices (rain gauge, weather vane, stethoscope, simple machines [pulley], slope, lubricants, spring scale, etc) Indicate uses of specific technology devices when applying to human problems (rain gauge - flooding, lever and fulcrum - move heavy object,) Indicate advantages and disadvantages of specific technology devices (lubricant- oil on a slope vs slope without oil, long lever vs. short level to move heavy object, choice of building material to resist severe weather- use models to demonstrate, etc.) Indicate how design of technology devices helps produce desired result (how weather vane (pinwheel) catches wind, spring scale vs. pulley for measuring force, lubricant- experiment with more than one lubricant on a slope to see which will make things go faster, etc.) Indicate procedures for safe use of appliances/technology (eye safety – simple machines, clothing protection – weather, fumes – create ventilation) – use safety symbols 	<p>Use these demonstrators in connection with demonstrators in following 6th grade competencies</p> <ul style="list-style-type: none"> Indicate uses of specific technology devices (simple machines [pulley], slope, lubricants, rain gauge- more or less, etc) Indicate uses of specific technology devices when applying to human problems (hammer to drive nail, lever to move heavy object, lever to stop/brake object [wheelchair]) Indicate procedures for safe use of appliances/technology (eye safety – simple machines, clothing protection – weather, fumes – indicate need for help)

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Earth/Environmental		Grade Level: 7	
Competency Goal 3: The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the atmosphere.			
Objectives:			
3.01 Explain the composition, properties and structure of the atmosphere: Mixture of gases. Stratified layers. Each layer has distinct properties. As altitude increases, air pressure decreases. Equilibrium.			
3.02 Describe properties that can be observed and measured to predict air quality: Particulate matter. Ozone.			
3.03 Conclude that the good health of environments and organisms requires: The monitoring of air quality. Taking steps to maintain healthy air quality. Stewardship.			
3.04 Evaluate how humans impact air quality including: Air quality standards. Point and non-point sources of air pollution in North Carolina. Financial and economic trade-offs. Local air quality issues.			
3.05 Examine evidence that atmospheric properties can be studied to predict atmospheric conditions and weather hazards: Humidity. Temperature. Wind speed and direction. Air pressure. Precipitation. Tornadoes. Hurricanes. Floods. Storms.			
3.06 Assess the use of technology in studying atmospheric phenomena and weather hazards: Satellites. Weather maps. Predicting. Recording. Communicating information about conditions.			
Extended Standard: Extension 1: Observe, describe and investigate air quality Extension 2: Observe, describe and investigate weather • Prediction • Weather hazards			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> • Demonstrate understanding of weather hazards • Demonstrate understanding of air quality safety 		<ul style="list-style-type: none"> • Demonstrate knowledge of safety regarding air quality • Demonstrate knowledge of weather safety 	
Pre-symbolic Access Points			
<ul style="list-style-type: none"> • Demonstrate awareness of bad air vs. good air • Demonstrate awareness of weather 			

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze, etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 7, Comp 3 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> Identify safety procedures relating to severe weather Identify and respond to smells associated with air safety (car exhaust, burning smells, smoke, etc.) Given 4 beakers (one of air, one of smoke, one of water, one with vapor from dry ice) and a flashlight, identifies how light passes through each Relates findings from flashlight/beaker experiment to atmosphere Given a pan of hot water, a flask or bottle with a balloon over the opening, tongs, and ice, will describe effects of heat and cold on air in the balloon Given time to observe a weather vane in motion, identifies how wind moves, noting general direction within movement pattern Identify effect of water and weather on steel, iron and note how to prevent rust Identify symbols for high pressure, low pressure, cold front and warm front When asked what happens at the meeting of high and low pressure zones, identify that precipitation will occur 	<ul style="list-style-type: none"> Indicate weather safety by indicating reason for appropriate clothing/gear (gloves/scarf/hood prevents frostbite, sun lotion/glasses/hat prevents sunburn, etc.) for weather safety. Indicate weather safety procedures by identifying (e.g. vocalization, gesture, verbalization) a weather safety signal. When presented with various sounds, indicate the weather safety signal (tornado drill alarm versus dog barking). Classify a variety of smells/objects by matching of good/bad smell. Sort picture symbols into categories of good/bad smell. Given a burning smell (e.g. burnt popcorn, scorched milk), locates (gains attention) an adult. Given a choice of light and heavy objects, choose object that will move farthest and places in front of fan Classify or indicate soil attributes (wet/dry, clay vs. sand, dark vs. light – dirt vs. sand) Indicate weather map symbols for rain, clouds, and sunshine 	<ul style="list-style-type: none"> Indicate an anticipatory response (e.g. look, reach, turn toward, eye gaze) for an appropriate item regarding weather: sunny/sunglasses or hat; cold/coat; rain/poncho. Show signs of anticipating being moved or makes movement towards door as a result of safety weather signal Indicate bad air vs. good air. When in an environment where air smells (open garbage can, bus fumes, diaper trash), indicate a preference (leave, move, put a lid on it). Given dark clouds in the sky, indicates that a storm may occur (by choosing to not go outside, by getting raingear, etc.)

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Life Science		Grade Level: 7	
Competency Goal 4: The learner will conduct investigations, use models, simulations, and appropriate technologies and information systems to build an understanding of the complementary nature of the human body system			
Objectives:			
4.01 Analyze how human body systems interact to provide for the needs of the human organism: Musculoskeletal. Cardiovascular. Endocrine and Nervous. Digestive and Circulatory. Excretory. Reproductive. Respiratory. Immune. Nervous system.			
4.02 Describe how systems within the human body are defined by the functions it performs.			
4.03 Explain how the structure of an organ is adapted to perform specific functions within one or more systems. Liver. Heart. Lung. Brain. Stomach. Kidney.			
4.04 Evaluate how systems in the human body help regulate the internal environment.			
4.05 Analyze how an imbalance in homeostasis may result from a disruption in any human system.			
4.06 Describe growth and development of the human organism.			
4.07 Explain the effects of environmental influences on human embryo development and human health including: Smoking. Alcohol. Drugs. Diet.			
4.08 Explain how understanding human body systems can help make informed decisions regarding health.			
Extended Standard: Demonstrate knowledge of how the human body works			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> Demonstrate understanding of how human body works and of human body systems 		<ul style="list-style-type: none"> Demonstrate an knowledge of major organs of the human body 	
Pre-symbolic Access Points			
<ul style="list-style-type: none"> Demonstrate awareness of parts of the human body 			

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 7, Comp 4 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> Given an experiment of holding a soda cracker in mouth for 30-45 seconds, recognizes that and describes how digestion begins in the mouth Identify the course of the digestive system, given a model using flexible tubing for the esophagus, a zip lock bag with two openings for the stomach, a curly straw or winding tubing for the intestine and semi-liquid substance (mashed cracker and juice) Identify that the heart pumps blood to all parts of the body (may use experiment of very small ball of clay pressed flat on wrist pulse with cardboard match stuck in it to 'see' pulse) Identify how exertion or exercise leads to increased heart rate Identify joints and describe bending of joints – connective tissue Given a large bucket of water half-filled and the experiment to fill a plastic bag with air from exhalation and immerse the bag, identifies how the lungs fill with air when we breathe Identify (describe, select written/picture cues of people experiencing sensation from an array) various sensations associated with the nervous system: touch, pain, heat, cold, pressure Indicate bones within own body and indicates function (arm and leg bones provide support for walking, kicking, throwing, etc., ribs protect lungs, skull protects brain, etc.) Identify and describe how the body grows until adulthood – baby, childhood, adolescence, adult (muscles, bones, hair, more teeth, physical changes of sexual organs in puberty, etc.) 	<ul style="list-style-type: none"> Indicates that food goes in mouth, then goes to stomach, then is expelled as waste Indicates that tongue and teeth aid in chewing of food before swallowing Indicates point where arm bends or where fingers bend or where knee bends, etc. Indicates that air comes from chest to blow out candle, to blow wind toy, to blow up a balloon Indicates what sensation various stimuli create (touch ice pack -cold, cut- pain, hug- pressure, touch heat pack – warm) Indicates that bones within own body are hard (skull, elbow, leg, etc.) Indicates increased size of body parts as person grow older (hands, feet, legs, etc.) for child over baby, for adolescent over child, for adult over child 	<ul style="list-style-type: none"> Indicates where food goes in, where food comes out Indicates knee, elbow, wrist, ankle, etc. Indicates with mouth or breath for someone to blow up a balloon, to blow out a candle, to blow a wind toy With eyes closed, indicates where, on body, sensation (heat, cold, touch, pressure) was presented Indicates location of bones in body (skull, elbow, etc.) Indicates increased size of body parts for adult over child (hands, feet)

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Life Science		Grade Level: 7	
Competency Goal 5: The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of heredity and genetics			
Objectives:			
5.01 Explain the significance of genes to inherited characteristics: Genes are the units of information. Parents transmit genes to their offspring. Some medical conditions and diseases are genetic.			
5.02 Explain the significance of reproduction: Sorting and recombination of parents' genetic material. Potential variation among offspring.			
5.03 Identify examples and patterns of human genetic traits: Dominant and recessive. Incomplete dominance.			
5.04 Analyze the role of probability in the study of heredity: Role of each parent in transfer of genetic traits. Analysis of pedigrees.			
5.05 Summarize the genetic transmittance of disease.			
5.06 Evaluate evidence that human characteristics are a product of: Inheritance. Environmental factors, and Lifestyle choices.			
Extended Standard: Observe and investigate patterns of heredity			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> • Demonstrate understanding of human characteristics and understanding of heredity and genetics • Demonstrate an understanding of making informed decisions regarding health 		<ul style="list-style-type: none"> • Demonstrate knowledge of human characteristics • Demonstrate knowledge of human characteristics and lifestyle choices regarding health 	
Pre-symbolic Access Points			
<ul style="list-style-type: none"> • Demonstrate awareness of human characteristics • Demonstrate awareness of human characteristics and lifestyle choices regarding health 			

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze, etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 7, Comp 5 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> Given a family tree with traits of family members, identify traits shared by family members Compare and contrast traits of siblings vs. self in family tree, identifying where traits originated Given a family tree showing disease within a family, predict whether a disease is likely in children in this family Identify healthy life style choices (no cheeseburgers) that are important given predisposition to a disease (heart disease) Identify multiple physical traits that are inherited (eye color, hair thickness, height, skin color, dimples, hair color, etc.) vs. personal traits that are not (angry, loud, sleepy, hungry, thirsty) Graph number of students in class with a trait (hair color, eye color, dimples, roll tongue) to compare and contrast number of students with traits Create a student graph based on a character trait (student identify options – brown, black, blond hair, not pink, blue) 	<ul style="list-style-type: none"> Given a personal photo family tree, indicate in self where multiple traits came from (red hair-grandmother, green eyes – father, etc.) Given a personal genetic characteristic (spina bifida, heart defect), indicate need for tool, specific diet, pattern of activity (postural support, low salt food), etc. Given a photo family tree showing disease or genetic health issue, indicate from choice of two what disease is more likely to occur (be inherited) Given several personal genetic characteristics, indicate reason for need for specific supports, activity, or diet Indicate physical traits that are inherited (eye color, skin color, dimples, hair color, etc.) vs. personal traits that are not (loud, hungry, short hair) Graph (arrange pictures, arrange students, etc.) number of students in class with a trait (hair color, eye color, dimples, roll tongue) to determine which is most common 	<ul style="list-style-type: none"> Indicate physical trait that are inherited (eye color, skin color, dimples, hair color, etc.) Put picture of self on class graph or chart to indicate personal trait (eye color, hair color as indicated by graph) Indicate physical trait in ‘me’ (who has red hair?)

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Physical Science	Grade Level: 7	
<p>Competency Goal 6: The learner will conduct investigations, use models, simulations, and appropriate technologies and information systems to build an understanding of motion and forces</p>		
<p>Objectives:</p>		
<p>6.01 Demonstrate ways that simple machines can change force.</p>		
<p>6.02 Analyze simple machines for mechanical advantage and efficiency.</p>		
<p>6.03 Evaluate motion in terms of Newton's Laws: The force of friction retards motion. For every action there is an equal and opposite reaction. The greater the force, the greater the change in motion. An object's motion is the result of the combined effect of all forces acting on the object: A moving object that is not subjected to a force will continue to move at a constant speed in a straight line. An object at rest will remain at rest.</p>		
<p>6.04 Analyze that an object's motion is always judged relative to some other object or point.</p>		
<p>6.05 Describe and measure quantities that characterize moving objects and their interactions within a system: Time. Distance. Mass. Force. Velocity. Center of mass. Acceleration.</p>		
<p>6.06 Investigate and analyze the real world interactions of balanced and unbalanced forces: Sports and recreation. Transportation. The human body.</p>		
<p>Extended Standard: Explore, observe, and communicate Newton's Laws of Motion • The force of friction retards motion • For every action there is an equal and opposite reaction • The greater the force, the greater the change in motion • An object's motion is the result of the combined effect of all forces acting on the object • A moving object that is not subjected to a force will continue to move at a constant speed in a straight line • An object at rest will remain at rest</p>		
Symbolic Access Points	Early Symbolic Access Points	Pre-symbolic Access Points
<ul style="list-style-type: none"> • Communicate understanding of Newton's Laws of motion • Identify how and why machines work 	<ul style="list-style-type: none"> • Demonstrate knowledge through observation of Newton's Laws of motion • Demonstrate knowledge of simple machines 	<ul style="list-style-type: none"> • Develop awareness through exploration of Newton's Laws of motion • Demonstrate awareness of simple machines

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze, etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 7, Comp 6 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Identifies conditions under which movement is more likely – increasing the steepness of an incline, use of lubricant on surface, etc. • Identifies effects of different lubricants on movement and reduction of friction • Predicts effect of flat or curved surface when ball is thrown at surface (throw ball at wall vs. trash can or barrel) • Predicts effect of heavy vs. light objects thrown at an object or target • When throwing an object from different distances at a flat surface, compares and predicts how far it will bounce back or roll • Uses a spring scale to quantify/identify effect of lubricants on friction when pushing or pulling an object • Identifies how far wind up toys travel on different inclines (flat, downward, upward) and describe effect of gravity related to force • After using a spring balance to record amount of pressure needed to lift a 100 gram weight on one end of a board (fulcrum at center, half as close to weight, half again as close to weight), identifies where to put fulcrum to lift larger weight • Sort familiar items into categories of simple machine (inclined plane, lever, wheel & axle, pulley) 	<ul style="list-style-type: none"> • During play (bowling, racing cars down ramp, etc.), indicate preference between ramps having different inclines to get faster roll • Successfully predicts where an object will land when thrown • Predicts the effect of an open space vs. a wall or barrier when throwing a ball - where will object bounce back? • Identify machine or tool to complete task: 1) given choice of claw hammer and screwdriver, determines what to use to remove nail partially driven into wood, etc. 2) uses wrench to remove pipe • Given a heavy object and a choice of two simple machines, indicates which machine will best move the object • Indicates the characteristic of an item that is crucial to a simple machine (wheel on rolling cart, lever on outside of faucet, etc.) 	<ul style="list-style-type: none"> • Develops awareness of brakes (wheelchair), by touching, depressing or acknowledging by gesture or eye gaze. • Recognize that an object stops motion. For examples, dartboard that stops velcro darts. • Identifies tool for familiar task from two choices: hammer drives nail • Uses a wheel and axle to move heavy object • Uses a lever to move heavy object

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Science Inquiry		Grade Level: 8	
Competency Goal 1: The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.			
Objectives:			
1.01 Identify and create questions and hypotheses that can be answered through scientific investigations.			
1.02 Develop appropriate experimental procedures for: Given questions, Student generated questions.			
1.03 Apply safety procedures in the laboratory and in field studies: Recognize potential hazards, Manipulate materials and equipment. Conduct appropriate procedures.			
1.04 Analyze variables in scientific investigations: Identify dependent and independent. Use of a control. Manipulate. Describe relationships between. Define operationally.			
1.05 Analyze evidence to: Explain observations. Make inferences and predictions. Develop the relationship between evidence and explanation.			
1.06 Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations: Measurement. Analysis of data. Graphing. Prediction models.			
1.07 Prepare models and/or computer simulations to: Test hypotheses. Evaluate how data fit.			
1.08 Use oral and written language to: Communicate findings. Defend conclusions of scientific investigations.			
1.09 Use technologies and information systems to: Research. Gather and analyze data. Visualize data. Disseminate findings to others.			
1.10 Analyze and evaluate information from a scientifically literate viewpoint by reading, hearing, and/or viewing: Scientific text. Articles. Events in the popular press.			
Extended Standard: The learner will choose questions, choose procedures with guidance, follow safety procedures, observe, collect data (use measurement tools), analyze data and communicate results in scientific investigation			
Symbolic Access Points		Early Symbolic Access Points	
<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Ask questions relevant to topic • Identify problem • Identify safety concerns • Conduct investigation • Identify and use measurement tool/equipment • Observe and identify conditions that lead to a result • Chart (graphs, tables, diagrams, etc.) data • Communicate results 		<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Indicate questions relevant to topic • Indicate problem • Indicate safety rules • Conduct investigation • Indicate and use appropriate measurement tool/equipment • Observe and indicate conditions that lead to a result • Chart (graphs, tables, diagrams, etc.) data • Communicate results 	
		Pre-symbolic Access Points	
		<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Indicate awareness of topic • Indicate awareness of problem • Indicate awareness of safety rules • Participate in investigation • Indicate appropriate measurement tool/equipment and participate in its function • Observe and indicate conditions that lead to a result • Participate/indicate Charting data (graphs, tables, diagrams, etc.) • Indicate awareness of results 	

Grade 8, Comp 1 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Solubility (Competency Goal 4):</u></p> <ul style="list-style-type: none"> When presented with a powder(solute) and liquid (solvent), (ex: powdered drink mix and water) student will explore materials and ask questions regarding what you might do with materials; Given choices of correct answer and 2 distractors (written or picture) student will identify the problem (ex: what will happen when you mix these materials together; what will happen when the sun goes down; what will happen when you heat water); Review and discuss picture symbol/written rules for science safety (don't eat the materials, use gloves, etc); Identify appropriate tool/equipment to contain materials (ruler vs cup); Follow written or picture list of mixing solute and solvent (powder and water); Use checklist to monitor conditions related to change in materials (solvent + solute = solution; red powder + clear liquid = red liquid); Create table (picture or other visual system) showing process (container of water-red powder-combined makes red liquid); Demonstrate understanding of results by answering questions, give verbal presentation. 	<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Solubility(Competency Goal 4):</u></p> <ul style="list-style-type: none"> When presented with powder (solute) and liquid (solvent), (ex: powdered drink mix and water) students will explore materials and indicate questions regarding what you might do with materials; Given choices of correct answer and 2 distractors (picture or object) students will indicate the problem (ex: what will happen when you mix these materials together; what will happen when the sun goes down; what will happen when you heat water); Indicate and discuss picture symbol rules for science safety (examples vs non-examples; don't eat the materials vs walk in the hall); Indicate and participate in using appropriate tool/equipment to contain materials (ruler vs cup); Follow picture list of mixing solute and solvent (powder and water); Use picture checklist to monitor conditions related to change in materials (solvent + solute = solution; red powder + clear liquid = red liquid); Create table (picture or other visual system) showing process (container of water-red powder-combined makes red liquid); Demonstrate knowledge of results by answering questions. 	<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Solubility (Competency Goal 4):</u></p> <ul style="list-style-type: none"> When presented with powder (solute) and liquid (solvent), students will explore materials and indicate awareness of differences (wet vs. dry/ clear vs. colored); Given choices of correct answer and 1 distractor (picture or object) students will indicate the problem (ex: what will happen when you mix these materials together; what will happen when the sun goes down); Indicate awareness of picture symbol rules for science safety (examples; eye gaze to "Don't eat the materials," "Don't touch until teacher directs," etc.); Indicate appropriate tool/equipment to contain materials (ruler vs. cup); When given required steps, participate by choosing order of picture/object list to mix solute and solvent (student is allowed to make errors and learn from incorrect sequences-then retry); Indicate awareness of change in materials (wet vs. dry/clear vs. colored); Create table (picture or other visual system) showing process (container of water-red powder-combined makes red liquid); Demonstrate awareness of results by indicating what was created with the materials (solution)

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Science Technological Design		Grade Level: 8	
Competency Goal 2: The learner will demonstrate an understanding of technological design.			
Objectives:			
2.01 Explore evidence that "technology" has many definitions. Artifact or hardware. Methodology or technique. System of production. Social-technical system.			
2.02 Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.			
2.03 Evaluate technological designs for: Application of scientific principles. Risks and benefits. Constraints of design. Consistent testing protocols.			
2.04 Apply tenets of technological design to make informed consumer decisions about: Products. Processes. Systems.			
Extended Standard: The learner will demonstrate an understanding of technological design			
Symbolic Access Points		Early Symbolic Access Points	
<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <ul style="list-style-type: none"> • Demonstrate understanding of the use of specific technology devices • Demonstrate understanding of the use of technology with application to solving human problems • Demonstrate understanding of the advantages and disadvantages of specific technology devices • Demonstrate understanding of how design of technology devices helps produce desired result • Demonstrate understanding of procedures for safe use of technology 		<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <ul style="list-style-type: none"> • Demonstrate knowledge of the use of specific technology devices • Demonstrate knowledge of the use of technology with application to solving human problems • Demonstrate knowledge of the advantages and disadvantages of specific technology devices • Demonstrate understanding of how design of technology devices helps produce desired result • Demonstrate knowledge of procedures for safe use of technology 	
Pre-symbolic Access Points		<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <ul style="list-style-type: none"> • Demonstrate awareness of the use of specific technology devices • Demonstrate awareness of the use of technology with application to solving human problems • Demonstrate awareness of procedures for safe use of technology 	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 8, Comp 2 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<p>Use these demonstrators in connection with demonstrators in following 8th grade competencies</p> <ul style="list-style-type: none"> Identify uses of specific technology devices (thermometer, graph / chart, maps [water], measuring tools for volume and mass, microscope, first-aid kit, refrigerator, etc.) Identify uses of specific technology devices when applying to human problems (thermometer – temperature of water or chemical solution, microscope – identify cells and parts, first-aid kit – illustrating first aid procedures, refrigerator – cooling food to slow decomposition, graph / chart – comparing data for water quality, etc.) Identify advantages and disadvantages of specific technology devices (beaker vs. weight scale to measure mass, microscope vs. magnifying glass for viewing cells, refrigerator vs. oven for preserving food, suitability of materials for technological design, etc.) Identify how design of technology devices helps produce desired result (model of superposition to show rock layers, parts / functions of microscope to produce magnified image, how weight scale / balance measures mass, etc.) Identify procedures for safe use of appliances/technology (eye safety – chemicals and bacteria, clothing protection – chemicals, hand washing – hygiene and disease, temperature safety – refrigerator / oven, glass safety – thermometer / beaker, etc.) – use safety symbols 	<p>Use these demonstrators in connection with demonstrators in following 8th grade competencies</p> <ul style="list-style-type: none"> Indicate uses of specific technology devices (thermometer, measuring tools for volume and mass, microscope, magnifying glass, first-aid kit, refrigerator, etc.) Indicate uses of specific technology devices when applying to human problems (thermometer – temperature of water or food, first-aid kit – illustrating first aid procedures, refrigerator – cooling food to slow decomposition, etc.) Indicate advantages and disadvantages of specific technology devices (beaker vs. weight scale to measure mass, microscope vs. magnifying glass for viewing cells, refrigerator vs. oven for preserving food, suitability of materials for technological design – use models to demonstrate, etc.) Indicate how design of technology devices helps produce desired result (model of superposition to show rock layers, parts / functions of microscope to produce magnified image, how weight scale / balance measures mass, etc.) Indicate procedures for safe use of appliances/technology (eye safety – chemicals and bacteria, clothing protection – chemicals, hand washing – hygiene and disease, temperature safety – refrigerator / oven, glass safety – thermometer / beaker, etc.) – use safety symbols 	<p>Use these demonstrators in connection with demonstrators in following 8th grade competencies</p> <ul style="list-style-type: none"> Indicate uses of specific technology devices (thermometer, measuring tools for volume and mass, magnifying glass, first-aid kit, refrigerator, etc.) Indicate uses of specific technology devices when applying to human problems (thermometer – temperature of water or food, first-aid kit – illustrating first aid procedures, refrigerator – cooling food to slow decomposition, etc.) Indicate procedures for safe use of appliances/technology (eye safety – chemicals and bacteria, clothing protection – chemicals, hand washing – hygiene and disease, temperature safety – refrigerator / oven, glass safety – thermometer / beaker, etc.) – indicate need for help

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Earth/Environmental		Grade Level: 8	
Competency Goal 3: The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the hydrosphere			
Objectives:			
3.01 Analyze the unique properties of water including: Universal solvent. Cohesion and adhesion. Polarity. Density and buoyancy. Specific heat.			
3.02 Explain the structure of the hydrosphere including: Water distribution on earth. Local river basin. Local water availability.			
3.03 Evaluate evidence that Earth's oceans are a reservoir of nutrients, minerals, dissolved gases, and life forms: Estuaries. Marine ecosystems. Upwelling. Behavior of gases in the marine environment. Value and sustainability of marine resources. Deep ocean technology and understandings gained.			
3.04 Describe how terrestrial and aquatic food webs are interconnected.			
3.05 Analyze hydrospheric data over time to predict the health of a water system including: Temperature. Dissolved oxygen. pH. Nitrates. Turbidity. Bio-indicators.			
3.06 Evaluate technologies and information systems used to monitor the hydrosphere.			
3.07 Describe how humans affect the quality of water: Point and non-point sources of water pollution in North Carolina. Possible effects of excess nutrients in North Carolina waters. Economic trade-offs. Local water issues.			
3.07 Recognize that the good health of environments and organisms requires: Monitoring of the hydrosphere. Water quality standards. Methods of water treatment. Maintaining safe water quality. Stewardship.			
Extended Standard: Extension 1 - Describe and demonstrate knowledge of the distribution of water on Earth			
Extension 2 - Observe, describe and investigate water properties and human impact on water resources			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> • Demonstrate understanding of the distribution of water on earth • Demonstrate understanding of the human impact on water resources 		<ul style="list-style-type: none"> • Demonstrate knowledge of various bodies of water • Demonstrate knowledge of the human impact on water resources (pollution) 	
Pre-symbolic Access Points			
<ul style="list-style-type: none"> • Demonstrate awareness of water (fresh and salty) • Demonstrate awareness of the uses of water 			

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 8, Comp 3 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Categorize fresh water resources (lakes, streams, aquifers, ground water resources) vs. salt water resources (oceans, brackish water) • Categorize water resources as safe/not safe for drinking • Label bodies of water on a map • Identify and describe connections between water resources on map and population centers • Create a web or display describing water uses • Create a list of ways to conserve water in the home • Create a chart of ways to conserve water at school • Identify sources of water pollution • Identify connections between terrestrial and aquatic life (creates an oceanic food chain, then identifies terrestrial connections) • Identify how runoff and flood water containing dirt affects landforms (erosion and soil deposits- sandbar, deltas) • Identify/describe power of ocean currents, moving streams and rivers, high waves and floods 	<ul style="list-style-type: none"> • Indicate clean vs. polluted water • Indicate salt vs. fresh water • Student will demonstrate awareness of the human impact on water resources by sorting objects into what is polluting and non-polluting (fish-good, oil-bad, sewage-bad) • Indicate multiple uses for water (wash dishes, drinking, bathing, cleaning, etc.) • Use water conservation strategies: flush once, turn off faucet, wash full load in washing machine or in dishwasher, etc.) • Given a float or toy boat in a stream, will indicate that water runs downhill and where water will go • Indicate danger of fast-moving water: moves away from stream or flooded area, wears life jacket in boat or at water park 	<ul style="list-style-type: none"> • Indicate source of safe drinking water – faucet, cooler, bottle • Reject unsafe source of drinking water – stream, puddle, bucket of soapy water, muddy water, etc. • Indicate need to put water on sponge to clean surface • Indicate need to turn on faucet to wash hands, to wash dishes, to bathe, etc.

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject: Physical & Life Science		Grade Level: 8	
Competency Goal 4: The learner will conduct investigations and utilize technology and information systems to build an understanding of chemistry			
Objectives:			
4.01 Understand that both naturally occurring and synthetic substances are chemicals.			
4.02 Evaluate evidence that elements combine in a multitude of ways to produce compounds that account for all living and nonliving substances.			
4.03 Explain how the periodic table is a model for: Classifying elements. Identifying the properties of elements.			
4.04 Describe the suitability of materials for use in technological design: Electrical Conductivity. Density. Magnetism. Solubility. Malleability.			
4.05 Identify substances based on characteristic physical properties: Density. Boiling/Melting points. Solubility. Chemical reactivity. Specific heat.			
4.06 Describe and measure quantities related to chemical/physical changes within a system: Temperature. Volume. Mass. Precipitate. Gas production.			
4.07 Identify evidence supporting the law of conservation of matter. During an ordinary chemical reaction matter cannot be created or destroyed. In a chemical reaction, the total mass of the reactants equals the total mass of the products mass of the products.			
4.08 Identify evidence that some chemicals may contribute to human health conditions including: Cancer. Autoimmune disease. Birth defects. Heart disease. Diabetes. Learning and behavioral disorders. Kidney disease. Asthma.			
4.09 Describe factors that determine the effects a chemical has on a living organism including: Exposure. Potency. Dose and the resultant concentration of chemical in the organism. Individual susceptibility. Possible means to eliminate or reduce effects.			
4.10 Describe risks and benefits of chemicals including: Medicines. Food preservatives. Crop yield. Sanitation.			
Extended Standard: Observe and investigate the effects of chemicals on human health and conditions. Explore, observe, communicate and investigate chemical/physical changes within a system • Temperature • Mass • Volume • Precipitate (iron nail in water) • Solubility (what dissolves in water) • Gas production			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> • Demonstrate understanding of proper storage and handling of chemicals • Demonstrate understanding of the harmful effects of chemicals on the body (medicines, preservatives, pesticides, sanitation) • Demonstrate understanding of the benefits of chemicals on the body (medicines, preservatives, pesticides, sanitation) • Communicate understanding of conservation of matter 		<ul style="list-style-type: none"> • Demonstrate knowledge of proper storage and handling of chemicals • Demonstrate knowledge through observation of conservation of matter 	
		Pre-symbolic Access Points	
		<ul style="list-style-type: none"> • Develop awareness of proper storage and handling of chemicals • Develop awareness through exploration of conservation of matter 	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 8, Comp 4 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Create an advantages/disadvantages chart on frequently used medications and chemical substances: laxative, ibuprophen, aspirin, etc. • Create a pro/con chart on frequently used drugs: caffeine, alcohol, etc. • Identify words/symbols that indicate danger (warning, poison, keep out, hazard) • Identify and respond safely to ‘safety symbols’ during science experiments: Disposal, Biological, Sharp Object, Fume, Electrical, Toxic, Flammable, Irritant, Eye Safety, Hand washing • Identify safe ways to handle harmful chemicals when using household cleaners (wear gloves, use in ventilated areas, wear a mask) • Sequence written directions/pictures for taking over the counter medication • Identify and locate words/terminology to determine need for refrigeration on packaged food items. • Classify physical change vs. chemical change: (identify HDPE plastic being formed into different shapes [various size bottles, containers, etc.] - physical, ice vs. water - physical, solution of water and sugar – physical/ iron and oxygen= rust, fire and wood – chemical, vinegar and baking soda = chemical, hydrogen peroxide and liver = chemical) • Identify chemical reactions in normal daily activity: spoilage (curdling) of milk, apple slice + air = browning, shriveling, paper + fire = ash + smoke, oxygen + iron = rust • Describe conservation of matter by noting production of gas and solid in chemical reactions: paper and fire, baking soda and vinegar, etc.) • Identify that refrigeration retards spoilage: describe rate of chemical change as related to temperature (grapes in refrigerator vs. grapes on window sill) • Identify rate of chemical change related to heat (baking cake batter turns it into spongy cake vs. spoilage of fruit at room temperature vs. spoilage of fruit near heat source) • Identify how bacteria and fungi assist in spoilage and danger associated with storing certain foods at room temperature • Identify that first aid practices prevent bacteria from creating infection (producing a chemical change in body tissue) 	<ul style="list-style-type: none"> • Match symbols such as: danger, keep out, poison, warning • Respond appropriately to visual presentation of warning vs. informational signs (Keep Out vs. Enter) • Indicate symbols/words that indicate danger (Poison , Keep out, etc.) • Indicate and respond safely to ‘safety symbols’ during science experiments: Disposal, Sharp Object, Electrical, Toxic, Flammable, Hand washing • After experiment making 2 separate solutions (vinegar and salt) and ((vinegar and baking soda), indicate which one had a chemical change • Indicate items to be worn when handling household chemicals when compared to similar items (rubber gloves vs. mittens, mask vs. scarf) • Categorize foods that need to be refrigerated vs. non-refrigerated items (mayonnaise, juice vs. crackers, chips) • Indicate and dispose of spoiled foods appropriately • Indicate basic first aid practices using ointments, sanitizers and germ-barriers (antibiotic cream, peroxide, alcohol) • After observing burning of flash paper in bell jar, indicate products created from a set of three picture choices (smoke, ash, cup) • Indicate melted ice vs. solid ice. 	<ul style="list-style-type: none"> • Indicate appropriate location for things to drink (refrigerator) vs. dangerous (supplies under sink) • Indicate appropriate location of common food items (cereal in cabinet-milk in refrigerator; popcon in cabinet-open juice in refrigerator) • Indicate warning of dangerous situations (boiling water, household chemicals, spoiled food)by choosing appropriate switch or object (Stop! / Danger • After experiment making 2 separate solutions (vinegar and salt) and ((vinegar and baking soda), indicate which one had a chemical change • Indicate recognition of spoilage by choosing fresh fruit over spoiled fruit • Dispose of spoiled food appropriately • Indicate melted ice vs. solid ice.

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Earth/Environmental	Grade Level: 8	
<p>Competency Goal 5: The learner will conduct investigations and utilize technology and information systems to build an understanding of evolution in organisms and landforms</p> <p>Objectives:</p> <p>5.01 Interpret ways in which rocks, fossils, and ice cores record Earth's geologic history and the evolution of life including: Geologic Time Scale. Index Fossils. Law of Superposition. Unconformity. Evidence for climate change. Extinction of species. Catastrophic events.</p> <p>5.02 Correlate evolutionary theories and processes: Biological. Geological. Technological.</p> <p>5.03 Examine evidence that the geologic evolution has had significant global impact including: Distribution of living things. Major geological events. Mechanical and chemical weathering.</p> <p>5.04 Analyze satellite imagery as a method to monitor Earth from space: Spectral analysis. Reflectance curves.</p> <p>5.05 Use maps, ground truthing and remote sensing to make predictions regarding: Changes over time. Land use. Urban sprawl. Resource management.</p>		
Extended Standard: Describe evidence of geological events and change over time		
Symbolic Access Points	Early Symbolic Access Points	Pre-symbolic Access Points
<ul style="list-style-type: none"> • Demonstrate understanding of Earth's geologic history • Demonstrate understanding of processes in rock formation • Demonstrate understanding of change over time, land and resource use through maps 	<ul style="list-style-type: none"> • Demonstrate knowledge of Earth's geologic history • Demonstrate knowledge of processes in rock formation • Demonstrate knowledge of change over time, land and resource use through maps 	<ul style="list-style-type: none"> • Demonstrate awareness of biological and geological artifacts • Demonstrate awareness of processes in rock formation

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 8, Comp 5 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Create a model to show how shells from dead shellfish wash up on shore and are pounded into sand • Create a model to show how shells might be embedded in mud on sea floor, compressed, and become fossilized • Identify embedded fossilized remains in rocks and earth materials • Sequence illustrations to show how material is embedded in soil or rock, dissolves or crumbles, leaving an impression, and is replaced by sediment to create a cast • Identify trails or burrows in soil and compares these with fossilized trails or burrows in rock formations • Use a model of superposition (pile of magazines with dates of publication to show oldest at the bottom) to compare to rock layers and identify relative age of rock layers • Identify rock layers and tilts and folds in rock layers • Use a model to show and identify folding and tilting of rock layers • Given a fossil and where it is found, make predictions/assumptions about life at time of early fossil formation • Given pictures, maps or computer generated images (internet search of geological surveys) of before/after location, show how erosion, land use, urban sprawl or catastrophic event has changed the land. Predict changes in future. 	<ul style="list-style-type: none"> • Create impressions of animal shells and plants in plaster (or mud or other substance) and indicate connection (places in impression to match) between impression and shell or plant material • Indicate impressions of animal shells and plant material in fossilized rocks • Recreate a model of superposition, indicating which comes first in building the model (block layers, rock layers, etc.) using blocks to build a wall, layers of sand to create sand sculpture, layers of ingredients to create a parfait, etc. • Indicate bottom layer as first layer (earliest) in a series of layers • Given a model of layers (parfait in flexible plastic container, layers of sand in container with two sides that can be compressed, etc.) indicate that pressure on sides will create folds • Given pictures, maps or computer generated images (internet search of geological surveys) of before/after location, show how erosion, land use, urban sprawl or catastrophic event has changed the land by indicating before/after. 	<ul style="list-style-type: none"> • Choose and/or use materials to create impressions in plaster (mud or other substance) • Given two materials (one used to create impression and a distractor), indicate material used to create an impression • Indicate layers in a model (parfait, sand layer model, layer cake, etc).

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Life Science		Grade Level: 8	
<p>Competency Goal 6: The learner will conduct investigations, use models, simulations, and appropriate technologies and information systems to build an understanding of cell theory</p> <p>Objectives:</p> <p>6.01 Describe cell theory: All living things are composed of cells. Cells provide structure and carry on major functions to sustain life. Some organisms are single cell; other organisms, including humans, are multi-cellular. Cell function is similar in all living things.</p> <p>6.02 Analyze structures, functions, and processes within animal cells for: Capture and release of energy. Feedback information. Dispose of wastes. Reproduction. Movement. Specialized needs.</p> <p>6.03 Compare life functions of protists: Euglena. Amoeba. Paramecium. Volvox.</p> <p>6.04 Conclude that animal cells carry on complex chemical processes to balance the needs of the organism. Cells grow and divide to produce more cells. Cells take in nutrients to make the energy for the work cells do. Cells take in materials that a cell or an organism needs.</p>			
Extended Standard: Observe and investigate the function of cells and their role in organisms			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> Demonstrate understanding of a cell 		<ul style="list-style-type: none"> Demonstrate knowledge of a cell 	
		<ul style="list-style-type: none"> Demonstrate awareness of a cell 	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 8, Comp 6 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Use microscope to identify protozoa or paramecia and other single cell organisms and describe their movements as a result of observation • Identify features that clarify that single cell organisms are living things (move, have tail [flagellates], eat bacteria, multiply, stop moving when out of water, etc.) • Use a microscope to identify animal cells: describes cell membranes, color of cell, etc. • Identify parts of a cell when given a model or picture • Given the outline of a body, fill the shape with “cells’ to indicate the body is made up of many cells (e.g. hole-punched dots) • Create a cell by placing appropriate objects into model vs. non-cell related objects. (e.g. nucleus, cytoplasm, vs. peanut, button) • Identify that living things have cells and non-living do not. 	<ul style="list-style-type: none"> • Use a magnifying glass to indicate recognition of small living creatures (ants, chiggers, mites, etc.) • Indicate Ina picture of a cell from other small objects. • Indicate the nucleus (center/inside) when looking at a picture or model (peach cut in half to show pit) • Create a cell by placing object into model to indicate nucleus • Given the outline of a body, fill the shape with “cells’ to indicate the body is made up of many cells (e.g. hole-punched dots) • Indicate that living things have cells and non-living do not, when given pictures or objects 	<ul style="list-style-type: none"> • Use a magnifying glass to indicate recognition of small living creatures (ants, chiggers, mites, etc.) • Indicate a model of a cell from other small objects. • Given the outline of a body, fill the shape with “cells’ to indicate the body is made up of many cells (e.g. many buttons, beans, etc.) • Indicate which one has cells when comparing a classmate and a plastic bottle

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Life Science		Grade Level: 8	
Competency Goal 7: The learner will conduct investigations, use models, simulations, and appropriate technologies and information systems to build an understanding of microbiology			
Objectives:			
7.01 Compare and contrast microbes: Size, shape, structure. Whether they are living cells.			
7.02 Describe diseases caused by microscopic biological hazards including: Viruses. Bacteria. Parasites. Contagions. Mutagens.			
7.03 Analyze data to determine trends or patterns to determine how an infectious disease may spread including: Carriers. Vectors. Conditions conducive to disease. Calculate reproductive potential of bacteria.			
7.04 Evaluate the human attempt to reduce the risk of and treatments for microbial infections including: Solutions with anti-microbial properties. Antibiotic treatment. Research.			
7.05 Investigate aspects of biotechnology including: Specific genetic information available. Careers. Economic benefits to North Carolina. Ethical issues. Impact for agriculture.			
Extended Standard: Demonstrate knowledge of the role of microorganisms in human disease			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> • Demonstrate understanding that illnesses may be caused by microbes • Demonstrate understanding of hygienic practices that reduce the presence of microorganisms 		<ul style="list-style-type: none"> • Demonstrate knowledge that illnesses may be caused by microbes • Demonstrate knowledge of hygienic practices that reduce the presence of microorganisms 	
Pre-symbolic Access Points			
<ul style="list-style-type: none"> • Demonstrate awareness of sick vs. well • Demonstrate awareness of hygienic practices that reduce the presence of microorganisms 			

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze, etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 8, Comp 7 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Identify basic first aid practices using ointments, sanitizers and germ-barriers (antibiotic cream, peroxide, alcohol) • Identify and chart times opportunity/need for washing hands or using hand sanitizer is required for the reduction of harmful bacteria (before lunch, after using the restroom, after sneezing, before/after handling food, etc) • Identify procedures to follow when someone has a cold or is sick, when presented with correct/incorrect pictures or visual cues (cover mouth when sneezing vs. not covering mouth, disposing of tissues after use vs. tissues on table, washing hands vs. not washing hands) • Identify the safe storage or cooking temperature needed to keep foods safe to eat using a food temperature chart, meat cooking guide, etc. • Identify indicators used to determine food safety (temperature, time, exposure, etc) ***Look up FAT TOM on NCLEARN.com • Identify ways to eliminate germs (e.g. antibacterial soap or spray, remove garbage, wash hands before food preparation wear rubber gloves during cleaning, cover cut with bandage, wear hat or hairnet when handling food) • Identify the differences in good vs. bad bacteria (Yogurt, cheese vs .spoiled food) • Identify characteristics that indicate bacteria: odor of decaying material, spoiled food, etc. • Identify use of cleaning products – indicate product to clean specific item or surface – dish detergent vs. laundry detergent, etc • Identify that bacteria are living cells we cannot see • After discussing what activities occur at the doctors office (Immunization shots, weight scale, blood pressure, antibiotic shot, etc.) indicate which activity helps to prevent or treat a disease 	<ul style="list-style-type: none"> • Indicate basic first aid practices using ointments, sanitizers and germ-barriers (antibiotic cream, peroxide, alcohol) • Indicate times when student will wash hands/use hand sanitizer. (before lunch, after bathroom visit, before/after handling food) • Demonstrate procedures to follow when someone has a cold or is sick, when presented with pictures or verbal/visual cues (cover mouth when sneezing, disposing of tissues after use, etc.) • Indicate and chart times opportunity/need for washing hands or using hand sanitizer is required for the reduction of harmful bacteria (before lunch, after using the restroom, after sneezing, etc) • Indicate ways to eliminate germs (e.g. antibacterial soap or spray, remove garbage, wash hands before food preparation wear rubber gloves during cleaning, cover cut with bandage, wear hat or hairnet when handling food) • Indicate presence of bacteria (odor, spoiled or decaying food) • Indicate use of cleaning products – indicate product to clean specific item or surface – dish detergent vs. laundry detergent, etc. • Indicate the differences in good vs. bad bacteria (Yogurt, cheese vs. spoiled food) • Indicate when food is safe or unsafe when given a teacher made cooking temperature guide and thermometer readings (e.g. Cooking temperature reads 75 degrees, match to 75 degree on chart and circle unsafe or safe) 	<ul style="list-style-type: none"> • Indicate need for first aid (band aid on cut) for self or others • Demonstrate personal hygiene by accessing hand-soap or hand sanitizer while washing hands. • Indicate a need for a tissue when appropriate for self or others • Indicate ways to eliminate germs (e.g. antibacterial soap or spray, remove garbage, wash hands before/after food preparation, cover cut with bandage) • Indicate spoiled food and disposes of properly • Indicate use of cleaning products – spray and wipe counter, uses detergent in washing dishes, etc.

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Life Science		Grade Level: 9-12	
Competency Goal 1: The learner will develop abilities necessary to do and understand scientific inquiry			
Objectives:			
1.01 Identify biological questions and problems that can be answered through scientific investigations.			
1.02 Design and conduct scientific investigations to answer biological questions. Create testable hypotheses. Identify variables. Use a control or comparison group when appropriate. Select and use appropriate measurement tools. Collect and record data. Organize data into charts and graphs. Analyze and interpret data. Communicate findings.			
1.03 Formulate and revise scientific explanations and models of biological phenomena using logic and evidence to: Explain observations. Make inferences and predictions. Explain the relationship between evidence and explanation.			
1.04 Apply safety procedures in the laboratory and in field studies: Recognize and avoid potential hazards. Safely manipulate materials and equipment needed for scientific investigations.			
1.05 Analyze reports of scientific investigations from an informed, scientifically literate viewpoint including considerations of: Appropriate sample. Adequacy of experimental controls. Replication of findings. Alternative interpretations of the data.			
Extended Standard: The learner will choose questions, choose procedures with guidance, follow safety procedures, observe, collect data (use measurement tools), analyze data and communicate results to complete biological investigations			
Symbolic Access Points		Early Symbolic Access Points	
<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Ask questions relevant to topic • Identify problem • Identify safety concerns • Conduct investigation • Identify and use measurement tool/equipment • Observe and identify conditions that lead to a result • Chart (graphs, tables, diagrams, etc.) data • Communicate results 		<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Indicate questions relevant to topic • Indicate problem • Indicate safety rules • Conduct investigation • Indicate and use appropriate measurement tool/equipment • Observe and indicate conditions that lead to a result • Chart (graphs, tables, diagrams, etc.) data • Communicate results 	
Pre-symbolic Access Points			
<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Indicate awareness of topic • Indicate awareness of problem • Indicate awareness of safety rules • Participate in investigation • Indicate appropriate measurement tool/equipment and participate in its function • Observe and indicate conditions that lead to a result • Participate/indicate Charting data (graphs, tables, diagrams, etc.) • Indicate awareness of results 			

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze, etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 1 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Classification (Competency Goal 4):</u></p> <ul style="list-style-type: none"> • When presented with zip lock bags with parts of plants, animal replicas and non-living objects, student will explore materials and ask questions related to categorization; • Student will identify the strategies needed to categorize the materials in the bag (ex: sort by groups, identifying characteristics of objects); • Review and discuss picture symbol/written rules for science safety (don't eat the materials, don't smell materials, wash hands after handling materials, etc.); • Identify appropriate tools/equipment to sort materials (ruler, scale, magnifying glass, etc); • Student will generate categories and sort materials accordingly; • Chart data (Count and chart number of objects in each student generated category) • Student will sort materials by teacher generated categories (plants, animals, non-living); • Chart data (Count and chart number of objects in each teacher generated category) • Demonstrate understanding of results by answering questions, give verbal presentation. 	<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Classification (Competency Goal 4):</u></p> <ul style="list-style-type: none"> • When presented with zip lock bags with parts of plants, and non-living objects, student will manipulate materials and indicate questions related to the objects (What is it? What do I do? What does it do? Is it real? Etc.); • When presented with choices of categories student will indicate category(s) they will use to sort (ex: color, shape, plants, size, texture, etc.); • Review picture symbol/written rules for science safety (don't eat the materials, don't smell materials, wash hands after handling materials, etc.); • Indicate appropriate tools/equipment to sort materials (color sorting trays, size sorting trays, etc); • Student will sort materials according to their category choice(s); • Chart data (Group objects for data display) • Student will sort materials by teacher generated categories (plants, non-living); • Chart data (Group objects for data display) • Answer teacher/peer questions and share results. 	<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Classification (Competency Goal 4):</u></p> <ul style="list-style-type: none"> • When presented with objects, student will explore materials and indicate awareness of same and different • Review and indicate awareness of classroom routines and rules for science safety (don't eat the materials, don't smell materials, wash hands after handling materials, etc.); • Given two appropriate tools student will indicate choice of tool (color sorting trays, size sorting trays, etc); • Student will match materials according to tool choice; • Match objects to teacher created data display; • Indicate that objects are matched; • Indicate finished work when presented with teacher question "Which one of these did you use?" Student will indicate color sorting trays or size sorting trays.

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Life Science		Grade Level: 9-12	
Competency Goal 2: The learner will develop an understanding of the physical, chemical and cellular basis of life			
Objectives:			
2.01 Compare and contrast the structure and functions of the following organic molecules: Carbohydrates. Proteins. Lipids. Nucleic acids.			
2.02 Investigate and describe the structure and functions of cells including: Cell organelles. Cell specialization. Communication among cells within an organism.			
2.03 Investigate and analyze the cell as a living system including: Maintenance of homeostasis. Movement of materials into and out of cells. Energy use and release in biochemical reactions.			
2.04 Investigate and describe the structure and function of enzymes and explain their importance in biological systems.			
2.05 Investigate and analyze the bioenergetic reactions: Aerobic Respiration. Anaerobic Respiration. Photosynthesis.			
Extended Standard: Observe and investigate the structure and function of cells and how they contribute to biological systems.			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> Demonstrate understanding of cells, cell parts and their function 		<ul style="list-style-type: none"> Demonstrate knowledge of cell/parts of living things 	
		Pre-symbolic Access Points	
		<ul style="list-style-type: none"> Demonstrate awareness of cells/parts of living things 	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 2 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Identify differences in types of body cells (hair, skin, nails, cheek, saliva, etc.) • Identify differences in types of animal cells (fish scales, fur, feathers, etc.) • Identify differences in plant and animal cells (presence of chlorophyll) • Identify three main parts of a cell (cell membrane, nucleus and cytoplasm) • Identify or show how cell membrane is a wall that lets certain substances in and prevents other substances from entering • Identify what makes a healthy cell (plant cell needs light, all cells need water, nutrition, etc.) • Identify that healthy cells replace damaged cells (give examples & describe – cut on hand, burn, etc.) • Create a model of a plant cell (nucleus, cell membrane cell wall, cytoplasm, chloroplast and vacuole) • Create a model of an animal cell (cell membrane, nucleus, cytoplasm, and mitochondria) • Using cell models, identify 2 or more differences in plant and animal cells (shape, cell wall, mitochondria, chloroplast, vacuole) • Using pictures/illustrations, identify purpose of cell part and its function (nucleus = boss; cell membrane = protection, cytoplasm = cushion) • Relate the function of a cell part to function of other familiar aspects of life (example – similarities of cell membrane to skin, to clothing, to wall, nucleus to brain, to leader, to hard drive, etc.) 	<ul style="list-style-type: none"> • Indicate parts of a plant (leaf, stem, root, etc.) • Indicate parts of an animal (fur, fins, feathers, body parts, etc.) • Indicate parts of a human being (eyes, ears, stomach, etc.) • Categorize differences in parts of living things (human vs. plant, fish vs. birds, animal vs. human, etc.) • Use a magnifying glass to indicate that skin, eye, leaf, fish scale, etc. contain smaller parts • Indicate that plant parts and animal parts look different in size, shape or color • Indicate what makes a healthy cell (plant cell needs light, all cells need water, nutrition, etc.) • Indicate that healthy cells replace damaged cells (give examples & describe– cut on hand, burn, etc.) • Indicate that cells combine to make organisms 	<ul style="list-style-type: none"> • Given choice of two parts, choose which part goes with a whole, using models of living things (i.e., puts leaf on a plant, puts feather with a bird, puts fin with a fish, etc.) • Put parts of animal together in model or puzzle (indicate that parts make a whole) • Put parts of plant together in model or puzzle (indicate that parts make a whole) • Put parts of human together in model or puzzle (indicate that parts make a whole)

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Life Science		Grade Level: 9-12	
Competency Goal 3: The learner will develop an understanding of the continuity of life and the changes of organisms over time			
Objectives:			
3.01 Analyze the molecular basis of heredity including: DNA replication. Protein synthesis (transcription, translation). Gene regulation.			
3.02 Compare and contrast the characteristics of asexual and sexual reproduction.			
3.03 Interpret and predict patterns of inheritance. Dominant, recessive and intermediate traits. Multiple alleles. Polygenic inheritance. Sex-linked traits. Independent assortment. Test cross. Pedigrees. Punnett squares.			
3.04 Assess the impact of advances in genomics on individuals and society. Human genome project. Applications of biotechnology.			
3.05 Examine the development of the theory of evolution by natural selection including: Development of the theory. The origin and history of life. Fossil and biochemical evidence. Mechanisms of evolution. Applications (pesticide and antibiotic resistance).			
Extended Standard: Structure and function of DNA • Heredity (passing of traits to offspring) • Dominant and recessive traits • Natural selection			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> • Demonstrate understanding of the function of DNA • Demonstrate understanding of heredity • Demonstrate understanding of natural selection (survival of the fittest) 		<ul style="list-style-type: none"> • Demonstrate knowledge of the function of DNA • Demonstrate knowledge of the patterns of heredity • Demonstrate knowledge of natural selection (survival of the fittest) 	
Pre-symbolic Access Points			
<ul style="list-style-type: none"> • Demonstrate awareness of traits 			

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze, etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 3 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Given a picture puzzle (use photos of living things and cut into pieces/write ‘DNA’ on back); assemble & tape the puzzle with ‘DNA’ side up, flip & discuss separate features of the living thing and identify that DNA creates unique living things • Identify individual differences in human beings that are inherited (eye color, hairline, widow’s peak, handedness, etc.), identify traits or characteristics that are not inherited (injury, hair dye, tattoo, etc.) • Identify how individual trait-related information is used in everyday life (blood type, finger prints, dental records, etc.) • Complete a family tree and identify traits and patterns that are shared by members of a family (height, hair color, disease, eye color, etc.) • Given a set of traits from two parents (human, dogs, cats, etc.), identify how different traits could be evident in offspring (using photos, Punnett square, etc.) • Identify traits that increase the chance of survival – natural selection (look at relationship of moth color to habitat - mimicry, chameleon to habitat, toxins in wings of a swallowtail butterfly, etc.) • Identify commonalities in group of animals, plants, humans that are related to genetic make-up (birds have beaks and wings – inherited traits as a result of DNA, etc.) • Identify that DNA gives you your traits 	<ul style="list-style-type: none"> • Given a picture puzzle of self, assemble the puzzle and indicate different traits (parts) • Indicate individual characteristics that are different between people • Indicate individual characteristics that are shared by family members • Indicate characteristics that are not shared by family members • Indicate commonalities in group of animals (fish in an aquarium, birds in a flock, etc.) • Indicate how animals may use camouflage to hide in their environment to stay alive (example – camouflaged deer in a brown field vs. deer in green meadow, moth on bark vs. moth in air, etc.) • Indicate which animals in a group are likely to survive 	<ul style="list-style-type: none"> • Indicate familiar people • Indicate people with a certain trait (brown hair, etc) • Indicate physical trait in self • Indicate physical trait in animal • Indicate trait of plant (leaves, flower, spines, etc.)

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Life Science		Grade Level: 9-12	
Competency Goal 4: The learner will develop an understanding of the unity and diversity of life			
Objectives:			
4.01 Analyze the classification of organisms according to their evolutionary relationships. The historical development and changing nature of classification systems. Similarities and differences between eukaryotic and prokaryotic organisms. Similarities and differences among the eukaryotic kingdoms: Protists, Fungi, Plants, Animals. Classify organisms using keys.			
4.02 Analyze the processes by which organisms representative of the following groups accomplish essential life functions including: Unicellular protists, annelid worms, insects, amphibians, mammals, non vascular plants, gymnosperms and angiosperms. Transport, excretion, respiration, regulation, nutrition, synthesis, reproduction, and growth and development.			
4.03 Assess, describe and explain adaptations affecting survival and reproductive success. Structural adaptations in plants and animals (form to function). Disease-causing viruses and microorganisms. Co-evolution.			
4.04 Analyze and explain the interactive role of internal and external factors in health and disease: Genetics. Immune response. Nutrition. Parasites. Toxins.			
4.05 Analyze the broad patterns of animal behavior as adaptations to the environment. Innate behavior. Learned behavior. Social behavior.			
Extended Standard: Extension 1: Observe, compare and contrast organisms and determine classification based on characteristics. Examine physiological structure, function, behavior and health of organisms.			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> • Demonstrate the ability to classify organisms based on characteristics • Demonstrate understanding of structures & functions of different organisms, including human body • Demonstrate understanding of the factors required for health of organisms, including the human body • Demonstrate understanding of animal behavior 		<ul style="list-style-type: none"> • Demonstrate knowledge of characteristics in organisms • Demonstrate knowledge of the functions of the human body • Demonstrate knowledge of the factors required for health of the human body • Demonstrate knowledge of human behavior 	
		Pre-symbolic Access Points	
		<ul style="list-style-type: none"> • Demonstrate awareness of different types of living things • Demonstrate awareness of needs of living things • Demonstrate awareness of physical differences in plants and animals • Demonstrate awareness of cause and effect as related to human behavior 	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 4 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> Organize groups of organisms based on characteristics (including plants/animals, vertebrate/invertebrate, birds/mammals/reptiles) Identify bone structures and how they provide support and protection for humans Identify structures of plants and their functions (roots, stem, leaves, etc.) Identify differences in structures of plants and animals Identify major organs of specific systems (digestive, respiratory, reproductive, circulatory) in humans and other animals Identify function of systems in humans and other animals Create a chart that illustrates a balanced diet of nutritional foods Identify effects of balanced diet compared to an unbalanced diet Identify the effect of dirty water and spoiled food on health Identify factors of a healthy lifestyle (rest, diet, exercise, hygiene) Identify animal behaviors that are learned (teaching a dog to sit) vs. instinctive behavior (dog growling) Identify social norms in different environments (i.e. fish swimming in schools, birds migrate in groups, people wait their turn, people wait in lines, etc.) 	<ul style="list-style-type: none"> Organize groups of organisms based on characteristics (plants vs. animals) Indicate function of various bones in the body: run with legs, pick up with arms, jump with legs, turn head with neck, etc. Indicate differences in bones of different animals – bird wing vs. pelvis of human Indicate primary structures for plant support (stem or trunk hold plant up; roots hold the plant in the ground) Indicate location of primary organs: stomach, heart, lungs, etc. Indicate location of body parts related to illness (head, throat, stomach, etc.) Indicate healthy vs. non-healthy foods Indicate healthy portion size of foods Given a choice board of options, indicate factors of a healthy lifestyle Indicate factors of a healthy lifestyle through actions (choose a healthy snack; take an appropriate sized serving) Follow routine social expectations in different environments (i.e. wait their turn, wait in lines, quiet in the library, etc.) 	<ul style="list-style-type: none"> Indicate human vs plant Indicate personal needs: drink, eat, sleep, reposition, movement Indicate features/characteristics of plants & animals (including leaves, flowers, legs, head, etc.) Indicate human or plant when presented with objects (leaf, hair, flower) Follow a direction or command when provided with appropriate object (cup for snack; diaper for bathroom)

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Life Science		Grade Level: 9-12	
Competency Goal 5: The learner will develop an understanding of the ecological relationships among organisms			
Objectives:			
5.01 Investigate and analyze the interrelationships among organisms, populations, communities, and ecosystems. Techniques of field ecology. Abiotic and biotic factors. Carrying capacity.			
5.02 Analyze the flow of energy and the cycling of matter in the ecosystem. Relationship of the carbon cycle to photosynthesis and respiration. Trophic levels direction and efficiency of energy transfer.			
5.03 Assess human population and its impact on local ecosystems and global environments: Historic and potential changes in population. Factors associated with those changes. Climate change. Resource use. Sustainable practices/stewardship.			
<ul style="list-style-type: none"> • Extended Standard: Examine the relationships between/among populations, organisms and ecosystems. Examine the cycling of matter in the ecosystem. Examine human population and its impact on ecosystems. 			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> • Demonstrate understanding of the diversity of living organisms and where they live • Demonstrate understanding of the inter-relationship between populations and changes in environment (including human population) • Demonstrate understanding of relationship between living organisms and non-living elements 		<ul style="list-style-type: none"> • Demonstrate knowledge of the diversity of living organisms and where they live • Demonstrate knowledge (specific relationships) of the food chain • Demonstrate knowledge of variations in environment and effects on populations • Distinguish between living organisms and non-living elements 	
Pre-symbolic Access Points			
<ul style="list-style-type: none"> • Demonstrate awareness that organisms belong to a group • Demonstrate awareness of the needs of living organisms for non-living elements 			

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 5 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Identify characteristics of different types of habitats (river, desert, forest, etc.) • Identify characteristics required for organisms to live in their habitats (fish have gills and fins so they can live in water, polar bears have thick fur and blubbery fat so they can live in the cold, cacti have thick waxy cuticles so they can preserve water to live in the desert, etc.) • Compare models of food chains • Create a model of the water cycle and show effect on living organisms • Identify two populations within a habitat • Manipulate a model of a human population to show multiple effects of growth on the environment (more people = fewer trees, more pollution, less fresh water) • Identify how increase in population affects individual access to resources (more people with need for same resources = less for each person) • Identify how natural disasters affect populations (tornadoes –destroyed trees; drought-water restrictions) • Compare effect of non-living elements on plant growth (sun, water, soil type, temperature, pollution, etc.) • Identify producers (plants) and consumers (animals) in an ecosystem • Identify the effects of limited resources in a three-step chain (drought=limited plant growth=starving cattle) 	<ul style="list-style-type: none"> • Indicate different types of habitats (river, desert, forest, etc.) • Match animal or plant to a habitat (fish in water; lizard in desert; bird in tree) • Indicate a missing element of a food chain given two choices • Connect consumers to food sources (bird to worm; cow to grass; horse to hay) • Show effects of water cycle on living things (rains-ground gets wet; sun comes out-ground dries) • Compare different amounts of a non-living element on plant growth (sun vs. no sun; water vs. no water, etc.) • Indicate that increase in population leads to need for more resources (more people = more food/more water) 	<ul style="list-style-type: none"> • Indicate which animal goes with which group (fish in fish bowl with other fish; ant in ant farm with other ants) • Indicate to which group student belongs (my family vs. your family; my class vs. your class) • Indicate my group (population) vs. another group (population) – my class vs. class next door; my family vs. another family • Indicate personal need for non-living elements (clothes, water, light, heat, etc.)

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Earth Environmental		Grade Level: 9-12	
Competency Goal 1: The learner will develop abilities necessary to do and understand scientific inquiry in the earth and environmental sciences			
Objectives:			
1.01 Identify questions and problems in the earth and environmental sciences that can be answered through scientific investigations.			
1.02 Design and conduct scientific investigations to answer questions related to earth and environmental science. Create testable hypotheses Identify variables. Use a control or comparison group when appropriate. Select and use appropriate measurement tools. Collect and record data. Organize data into charts and graphs. Analyze and interpret data. Communicate findings.			
1.03 Evaluate the uses of satellite images and imaging techniques in the earth and environmental sciences.			
1.04 Apply safety procedures in the laboratory and in field studies: Recognize and avoid potential hazards. Safely manipulate materials and equipment needed for scientific investigations.			
1.05 Analyze reports of scientific investigations and environmental issues from an informed scientifically literate viewpoint including considerations of: Appropriate sample. Adequacy of experimental controls. Replication of findings. Alternative interpretations of the data.			
1.06 Identify and evaluate a range of possible solutions to earth and environmental issues at the local, national, and global level including considerations of: Interdependent human and natural systems. Diverse perspectives. Short and long range impacts. Economic development, environmental quality and sustainability. Opportunities for and consequences of personal decisions. Risks and benefits of technological advances.			
Extended Standard: Conduct scientific investigations to answer questions related to earth and environmental science			
Symbolic Access Points		Early Symbolic Access Points	
<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Ask questions relevant to topic • Identify problem • Identify safety concerns • Conduct investigation • Identify and use measurement tool/equipment • Observe and identify conditions that lead to a result • Chart (graphs, tables, diagrams, etc.) data • Communicate results 		<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Indicate questions relevant to topic • Indicate problem • Indicate safety rules • Conduct investigation • Indicate and use appropriate measurement tool/equipment • Observe and indicate conditions that lead to a result • Chart (graphs, tables, diagrams, etc.) data • Communicate results 	
		Pre-symbolic Access Points	
		<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Indicate awareness of topic • Indicate awareness of problem • Indicate awareness of safety rules • Participate in investigation • Indicate appropriate measurement tool/equipment and participate in its function • Observe and indicate conditions that lead to a result • Participate/indicate Charting data (graphs, tables, diagrams, etc.) • Indicate awareness of results 	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 1 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Impact of Human Activities on Land</u> (Competency Goal 2):</p> <ul style="list-style-type: none"> • When presented with a pile of classroom trash, use gloves to explore materials and ask questions related to the variety (amount, type, etc) of contents; • Student will identify how to reduce everyday waste in the classroom (ex: recycling, using 2 sides of the paper, etc.); • Review and discuss picture symbol/written rules for science safety (don't smell materials, wear gloves when handling materials, etc.); • Identify appropriate tools/equipment to sort materials (scale, trash can, trash bags, recycling bin, etc); • Student will sort materials by teacher generated categories (recyclable trash [paper, plastic, cans], reusable items, and disposable trash); • Chart data (weigh or compare amount of categorized items to create a graph) • Identify personal strategies for reducing trash and relate them to strategies for minimizing human impact on land. 	<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Impact of Human Activities on Land</u> (Competency Goal 2):</p> <ul style="list-style-type: none"> • When presented with a pile of classroom trash, use gloves to manipulate materials and indicate questions related to the objects (What is it? Is it paper? Is it plastic? Can we use it again? Etc.); • Student will indicate how to reduce everyday waste in the classroom (ex: recycling, using 2 sides of the paper, etc.); • Review picture symbol/written rules for science safety (don't smell materials, wear gloves when handling materials, etc); • Indicate appropriate tools/equipment to sort materials (trash can, trash bags, recycling bin, etc); • Student will sort materials by teacher generated categories (recyclable trash [paper, plastic, cans], reusable items, and disposable trash); • Chart data (compare trash bags; which has more/ which has less; Which is bigger/which is smaller) • Indicate personal strategies for reducing classroom trash (Put recycling in recycling bin, trash in trash bin, etc.) 	<p>Example of inquiry within context. A similar procedure can be used across all science competencies.</p> <p><u>Impact of Human Activities on Land</u> (Competency Goal 2):</p> <ul style="list-style-type: none"> • When presented with a pile of selected trash and recyclables, student will explore materials and indicate awareness of differences (paper vs. plastic, etc.) • Review and indicate awareness of classroom routines and rules for science safety (don't eat the materials, don't smell materials, wash hands after handling materials, etc.); • Given two appropriate containers (recycling bin; trash bin) student will match materials according to containers; • Data/Organize Materials: Appropriately distribute trash in designated containers (trash vs. recyclables) on a consistent basis • Indicate finished work when presented with teacher question "What did you do with the paper?" "Where did you put the plastic?"

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Earth Environmental	Grade Level: 9-12	
Competency Goal 2: The learner will build an understanding of lithospheric materials, tectonic processes, and the human and environmental impacts of natural and human-induced changes in lithosphere		
Objectives:		
2.01 Analyze the dependence of the physical properties of minerals on the arrangement and bonding of their atoms.		
2.02 Analyze the historical development of the theory of plate tectonics.		
2.03 Investigate and analyze the processes responsible for the rock cycle: Analyze the origin, texture and mineral composition of rocks. Trace the path of elements through the rock cycle. Relate rock formation to plate tectonics. Identify forms of energy that drive the rock cycle. Analyze the relationship between the rock cycle and processes in the atmosphere and hydrosphere.		
2.04 Analyze seismic waves including velocity and refraction to: Infer Earth's internal structure. Locate earthquake epicenters. Measure earthquake magnitude. Evaluate the level of seismic activity in North Carolina.		
2.05 Create and interpret topographic, soil and geologic maps using scale and legends.		
2.06 Investigate and analyze the importance and impact of the economic development of earth's finite rock, mineral, soil, fossil fuel and other natural resources to society and our daily lives: Availability. Geographic distribution. Conservation/Stewardship. Recycling. Environmental impact. Challenge of rehabilitation of disturbed lands.		
2.07 Analyze the sources and impacts of society's use of energy. Renewable and non-renewable sources. The impact of human choices on Earth and its systems.		
Extended Standard: Identify appropriate uses of natural resources. • Economic uses • Conservation/stewardship • Environmental impact • Observe and investigate the results of geological processes (what are rocks and why are they here) • Earthquakes as a result of tectonic movement • Maps		
Symbolic Access Points	Early Symbolic Access Points	Pre-symbolic Access Points
<ul style="list-style-type: none"> • Demonstrate an understanding of the impact of human activities of land and related resources • Demonstrate an understanding of the relationship between economics and natural resources • Demonstrate understanding of conservation and stewardship • Demonstrate understanding of rocks and minerals • Demonstrate an understanding of earthquakes • Demonstrate ability to use maps 	<ul style="list-style-type: none"> • Demonstrate knowledge of human impact on land • Demonstrate knowledge of conservation and stewardship • Classification of rocks by physical characteristics • Demonstrate ability to use a map within immediate environment 	<ul style="list-style-type: none"> • Demonstrate routines that support conservation • Demonstrate awareness of rocks vs. non-rocks • Demonstrate an awareness of specific areas within a location

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 2 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Identify and provide reasons for energy saving practices • Create a table of various energy sources (fossil fuels, wind, hydroelectric, solar) • Create an chart listing advantages/disadvantages of energy sources • Create model to illustrate personal energy use • Choose products for use that reduce waste (do not have excess packaging) and identify reason – choose bulk items in shopping over individually packaged items • Conduct an investigation on the amount of paper waste produced in one week’s time • Create a simple chart to show origin of various natural resources • Create model or chart to compare gasoline use of different cars (hybrid vs. non-hybrid) • Identify the characteristics of different types of rocks (sedimentary, igneous, metamorphic) • Identify the different stages of the rock cycle (sedimentation, pressurization, heat and pressurization, melting) • Identify uses of various rocks and minerals within household use and industry (diamonds for cutting, granite for stone buildings, copper for pipes, iron for steel in various products) • Identify the effect of tectonic movement by manipulating multiple models (place miniature houses and trees on each model: crushing rocks together on a flat surface; pulling apart a candy bar; rubbing together two pieces of sod) • Use a map to navigate personal surroundings for school (room number, hall, locker) and/or community (landmarks, road/street names, etc) • Use a map to locate land forms (water, land, mountains) 	<ul style="list-style-type: none"> • Perform energy saving practices (check appliances and energy using devices before leaving room) • Sort recyclable paper from non-recyclable (food contaminated) paper • Sort multiple recyclable products (paper vs. plastics vs. bottles vs. cans) • Sort types of HDPE plastic from non-recyclable plastic products • Check for dripping faucet and corrects drip or seeks assistance to do so • Demonstrate use of appliances to assure conservation: fills washing machine with full load before running, fills dishwasher with full load before running • Conserve resources by closing windows and doors while heat or air conditioning are on • Sort stones for jewelry, mosaic tile, landscaping project by characteristic (color, smooth, flat surface for stacking) • Use a photo/picture map with symbols to locate room within a large building 	<ul style="list-style-type: none"> • Conserve resources by turning off lights before leaving room • Conserve resources by turning off appliances after use • Indicate products that can/cannot be recycled • Sort two types of recycling (bottles vs. cans) • Distinguish and sorts waste products from recyclable material after a meal (given paper trash and bottles – sorts into separate containers) • Sort familiar objects in multiple locations within a setting – sort plates on one shelf and pots in cabinet, sort boxes on one shelf and bottles in refrigerator, sort pans under oven and glasses on shelf • Sort and store materials for projects (sand vs. pebbles, soil vs. gravel, smooth stones vs. mosaic tiles, etc.) • Indicate building/rock materials for specific project on a shelf given an object cue (finds smooth pebbles for aquarium project, finds sand for art project, etc.

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student’s mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Earth Environmental		Grade Level: 9-12	
Competency Goal 3: The learner will build an understanding of the origin and evolution of the earth system			
Objectives: 3.01 Assess evidence to interpret the order and impact of events in the geologic past: Relative and absolute dating techniques. Statistical models of radioactive decay. Fossil evidence of past life. Uniformitarianism. Stratigraphic principles. Divisions of Geologic Time. Origin of the earth system. Origin of life. 3.02 Evaluate the geologic history of North Carolina.			
Extended Standard: Observe and describe evidence of the geologic and biological past (dinosaurs)			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> Demonstrate understanding of fossils, dinosaurs and historic life forms 		<ul style="list-style-type: none"> Demonstrate knowledge of historic species 	
		Pre-symbolic Access Points	
		<ul style="list-style-type: none"> Demonstrate awareness of old and new within the context of earth history 	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze, etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 3 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> • Identify and describe layering of rock in earth's surface from photos and direct experience • Create a model to demonstrate layering of rock and the pressures that lead to bending, buckling and faulting of layers • Identify and describe fossil remains as life buried in rock • Using 3 distinct leaves and modeling clay, create imprints to replicate fossils then match leaves to correct fossil. 	<ul style="list-style-type: none"> • Indicate fossil of plant when given choices of rock, one with plant fossil, one or more without • Indicate fossil of animal material when given two choices of rock, one with animal fossil, one or more without • Using 3 distinct leaves and modeling clay, student create imprints to replicate fossils 	<ul style="list-style-type: none"> • Indicate fossil in rock when given two choices • Create fossil using leaf or hand and modeling clay.

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Earth Environmental	Grade Level: 9-12	
Competency Goal 4: The learner will build an understanding of the hydrosphere and its interactions and influences on the lithosphere, the atmosphere, and environmental quality		
Objectives:		
4.01 Evaluate erosion and depositional processes: Formation of stream channels with respect to the work being done by the stream (i.e. down-cutting, lateral erosion, and transportation). Nature and characteristics of sediments. Effects on water quality. Effect of human choices on the rate of erosion.		
4.02 Analyze mechanisms for generating ocean currents and upwelling: Temperature. Coriolis effect. Climatic influence.		
4.03 Analyze the mechanisms that produce the various types of shorelines and their resultant landforms: Nature of underlying geology. Long and short term sea-level history. Formation and breaking of waves on adjacent topography. Human impact.		
4.04 Evaluate water resources: Storage and movement of groundwater. Ecological services provided by the ocean. Environmental impacts of a growing human population. Causes of natural and manmade contamination.		
4.06 Investigate and analyze environmental issues and solutions for North Carolina's river basins, wetlands, and tidal environments: Water quality. Shoreline changes. Habitat preservation.		
Extended Standard: Observe and describe the role of water in the environment • Erosion and deposition • Ocean currents and upwelling • Shoreline changes • Water resources • Environmental issues		
Symbolic Access Points	Early Symbolic Access Points	Pre-symbolic Access Points
<ul style="list-style-type: none"> • Demonstrate understanding of water as an agent of change • Identify water resources and uses. • Demonstrate understanding of environmental quality. 	<ul style="list-style-type: none"> • Demonstrate knowledge of water resources and uses • Demonstrate knowledge of environmental quality 	<ul style="list-style-type: none"> • Demonstrate awareness of wet and dry • Demonstrate awareness of environmental quality

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 4 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> Using a model of ground layers (percolating soil, aquifer and impermeable rock) identify how a well is dug to assure that water will be available Identify that fresh water resources (streams, lakes, etc.) contain bacteria that must be treated to prevent illness Relate bodies of water on a map to population centers and identify means of transport or access Identify and describe how densely populated areas affect water resources, using a model or map to indicate problems and connections Create a web or display describing the water cycle (sun assists evaporating, condenses in clouds, rain, runoff to water source) Use the display describing the water cycle to identify importance of waste management and control of ground pollutants (identify what uncontrolled industrial waste and runoff can produce) Given activities in competency 5 on air pollution and runoff, identify where air pollutants went after rain and wind conditions (runoff in streams and lakes and oceans) and identify potential long term effects on environment Use a graphic display (pie graph) to describe where most household water is used Use a pie graph of household water use to describe where conservation is crucial Identify devices for reducing water usage and for water conservation (tight fitting hose connection, shower head for reduced water use, toilet for reduced water flow, etc.) Identify means by which water pollutants affect water quality (sewage spills, unsecured drains, severe weather damage to hog farms, etc.) Identify connections between terrestrial and aquatic life and water pollutants (effect on human food sources as well) Use a model to describe how pollutants, silt and runoff dirt settle out in still water Use a model to determine how to filter water out of a septic tank or other water waste treatment pond or tank Identify/describe sources of ocean pollution (oil spills, sludge dumping, trash dumping) Identify proper disposal of household chemical wastes to protect groundwater (paints, solvents, etc.) 	<ul style="list-style-type: none"> Given the opportunity to collect stream or runoff water and to allow particulates to settle, indicate 'dirt' in stream water Indicate that stream or runoff water is dirty and can make you sick Indicate proper disposal of household chemicals (not dump down drain, not spill on ground, place in separate disposal container, etc.) Create a display to indicate multiple uses for water (wash dishes, drinking, bathing, cleaning, etc.) Use water conservation strategies: flush once, turn off faucet unless rinsing dishes, plug drain before washing dishes, wash full load in washing machine or in dishwasher, etc.) Prior to placing a float or toy boat in a stream or current, indicate that water runs downhill and where floating item/water will go 	<ul style="list-style-type: none"> Conserve water resources by stopping up sink before drawing water for dishes Indicate source of safe drinking water – faucet, cooler, bottle Reject unsafe source of drinking water – stream, puddle, bucket of soapy water, muddy water, etc. Indicate need to put water on sponge/cloth to clean surface, spills, stains Indicate need to turn on faucet to wash hands, to wash dishes, to bathe, etc. Indicate to turn off faucet when finished washing Indicate to plug drain before bathing, washing, etc.

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Earth Environmental		Grade Level: 9-12	
Competency Goal 5: The learner will build an understanding of the dynamics and composition of the atmosphere and its local and global processes influencing climate and air quality			
Objectives: 5.01 Analyze air masses and the life cycle of weather systems: Planetary wind belts. Air masses. Frontal systems. Cyclonic systems. 5.02 Evaluate meteorological observing, analysis, and prediction: Worldwide observing systems. Meteorological data depiction. 5.03 Analyze global atmospheric changes including changes in CO ₂ , CH ₄ , and stratospheric O ₃ and the consequences of these changes: Climate change. Changes in weather patterns. Increasing ultraviolet radiation. Sea level changes.			
Extended Standard: Observe and identify global and local weather systems and their effects on daily lives			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> Demonstrate understanding of weather systems and weather patterns Demonstrates understanding of relationship between weather patterns and self 	<ul style="list-style-type: none"> Demonstrate knowledge of weather to predict effect on daily life 	<ul style="list-style-type: none"> Demonstrate awareness of weather events 	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 5 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
<ul style="list-style-type: none"> Given temperature conditions and weather map showing high and low pressure, identify what type of precipitation might occur Plan activities according to weather information presented on map or chart (reads temperature and predicted weather conditions to make appropriate choice) Identify resources to contact when sensing danger from fire (get an adult; call 911-fire dept.) Identify locations within building that are safest during severe weather Identify precautions to take to prevent wind damage during severe winds (put yard objects indoors, put vehicles in shelter if possible, remove furniture from porch, cover windows in case of hurricane, etc.) Compare and contrast photos of city (other areas) during various conditions of air pollution and relate wind and rain conditions to immediate changes in air pollution As a result of comparison, identify what aspects of high density population lead to air pollution Identify ways to reduce smog, air pollutants, water pollutants through own actions Use a model of the earth's rotation around the sun (tilted axis of earth) to identify seasons of year and relationship of tilt to length of day and temperature change (see also Competency 6) Use models of trapped heat (car in hot sun, thermometer in black glass container in sun, etc.) to identify how light and heat are trapped Create model of earth's atmosphere to show how smog and greenhouse gases reflect heat back into atmosphere Relate knowledge of model of trapped heat to model of earth's atmosphere in which heat is reflected back by air pollutants, smog, greenhouse gases 	<ul style="list-style-type: none"> Classify a variety of smells/objects by matching of good/bad smell. Sort picture symbols into categories of good/bad smell. Given a burning smell (e.g. burnt popcorn, scorched milk) student locates (gains attention) an adult. Given a burning smell (e.g. burnt popcorn, scorched milk) student locates (gains attention) an adult. Indicate and respond to smells associated with air safety (car exhaust, burning smells, smoke, etc.) by alerting adult and by moving away Indicate reason for appropriate clothing/gear (gloves/scarf/hood prevents frostbite, sun lotion/glasses/hat prevents sunburn, etc.) for weather safety. Choose or reject activity based on appropriate weather (sees rain outside, chooses indoor recreation activity) Indicate (e.g. vocalization, gesture, verbalization) a weather safety signal and alerting to the need to take precautions (move, find shelter, engage in weather safety routine).. Indicate danger of high wind by going inside and by alerting an adult Indicate weather map symbols for rain, clouds, and sunshine Indicate to bring in outdoor recreation objects when sees rainy or windy conditions 	<ul style="list-style-type: none"> When presented with various sounds, indicate the weather safety signal (tornado drill alarm versus dog barking). Indicate danger of smoke by alerting an adult Indicate an anticipatory response (e.g. look, reach, turn toward, eye gaze) for an appropriate item regarding weather: sunny/sunglasses or hat; cold/coat; rain/poncho. Reject clothing not related to present weather conditions Show signs of anticipating being moved or makes movement towards door as a result of safety weather signal When in an environment where air smells (open garbage can, bus fumes, diaper trash) indicate a preference (leave, move, put a lid on it). Given dark clouds in the sky, indicate that a storm may occur (by choosing to not go outside, by getting raingear, etc.)

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Earth Environmental	Grade Level: 9-12	
Competency Goal 6: The learner will acquire an understanding of the earth in the solar system and its position in the universe		
Objectives:		
6.01 Analyze the theories of the formation of the universe and solar system.		
6.02 Analyze planetary motion and the physical laws that explain that motion: Rotation. Revolution. Apparent diurnal motions of the stars, sun and moon. Effects of the tilt of the earth's axis.		
6.03 Examine the sources of stellar energies. Life cycle of stars. Hertzsprung - Russell Diagram.		
6.04 Assess the spectra generated by stars and our sun as indicators of motion and composition (the Doppler effect).		
6.05 Evaluate astronomers' use of various technologies to extend their senses: Optical telescopes. Cameras. Radio telescopes. Spectroscope.		
Extended Standard: Observe and identify the position and apparent movement of the earth, moon, planets, sun and stars		
Symbolic Access Points	Early Symbolic Access Points	Pre-symbolic Access Points
<ul style="list-style-type: none"> • Demonstrate understanding of the relationship of the sun and earth to night and day • Demonstrate understanding of rotation and revolution of the earth and moon 	<ul style="list-style-type: none"> • Demonstrate knowledge of earth's rotation to night vs. day activities • Demonstrate knowledge of celestial objects 	<ul style="list-style-type: none"> • Demonstrate awareness of day and night • Demonstrate awareness of different celestial objects (moon, sun, stars)

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 6 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
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Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Physical Science		Grade Level: 9-12	
Competency Goal 1: The learner will develop abilities necessary to do and understand scientific inquiry			
Objectives:			
1.01 Identify questions and problems that can be answered through scientific investigations.			
1.02 Design and conduct scientific investigations to answer questions about the physical world. Create testable hypotheses. Identify variables. Use a control or comparison group when appropriate. Select and use appropriate measurement tools. Collect and record data. Organize data into charts and graphs. Analyze and interpret data. Communicate findings.			
1.03 Formulate and revise scientific explanations and models using logic and evidence to: Explain observations. Make inferences and predictions. Explain the relationship between evidence and explanation.			
1.04 Apply safety procedures in the laboratory and in field studies: Recognize and avoid potential hazards. Safely manipulate materials and equipment needed for scientific investigations.			
1.05 Analyze reports of scientific investigations from an informed scientifically literate viewpoint including considerations of: Appropriate sample. Adequacy of experimental controls. Replication of findings. Alternative interpretations of the data.			
Extended Standard: Conduct scientific investigations to answer questions about the physical world			
Symbolic Access Points		Early Symbolic Access Points	
<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Ask questions relevant to topic • Identify problem • Identify safety concerns • Conduct investigation • Identify and use measurement tool/equipment • Observe and identify conditions that lead to a result • Chart (graphs, tables, diagrams, etc.) data • Communicate results 		<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Indicate questions relevant to topic • Indicate problem • Indicate safety rules • Conduct investigation • Indicate and use appropriate measurement tool/equipment • Observe and indicate conditions that lead to a result • Chart (graphs, tables, diagrams, etc.) data • Communicate results 	
Pre-symbolic Access Points			
<p>Principles of this competency goal and its extension should be used and demonstrated in student performance of all other competency goals</p> <p><u>During a scientific inquiry:</u></p> <ul style="list-style-type: none"> • Indicate awareness of topic • Indicate awareness of problem • Indicate awareness of safety rules • Participate in investigation • Indicate appropriate measurement tool/equipment and participate in its function • Observe and indicate conditions that lead to a result • Participate/indicate Charting data (graphs, tables, diagrams, etc.) • Indicate awareness of results 			

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze, etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 1	Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Physical Science		Grade Level: 9-12	
Competency Goal 2: The learner will build an understanding of forces and motion			
Objectives:			
2.01 Measure and mathematically/graphically analyze motion: Frame of reference (all motion is relative - there is no motionless frame). Uniform motion. Acceleration.			
2.02 Investigate and analyze forces as interactions that can change motion: In the absence of a force, an object in motion will remain in motion or an object at rest will remain at rest until acted on by an unbalanced force. Change in motion of an object (acceleration) is directly proportional to the unbalanced outside force and inversely proportional to the mass. Whenever one object exerts a force on another, an equal and opposite force is exerted by the second on the first.			
Extended Standard: Observe, measure and demonstrate knowledge of forces and motion			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> Demonstrate understanding of how size and force affects motion 		<ul style="list-style-type: none"> Identify the effects of change in weight or force on motion 	
Pre-symbolic Access Points			
<ul style="list-style-type: none"> Demonstrate awareness of the following • Near-far • Push-pull • Heavy-light • Fast-slow 			

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 2 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
•	•	•

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Physical Science		Grade Level: 9-12	
Competency Goal 3: The learner will analyze energy and its conservation			
Objectives:			
3.01 Investigate and analyze storage of energy: Kinetic energy. Potential energies: gravitational, chemical, electrical, elastic, nuclear. Thermal energy.			
3.02 Investigate and analyze transfer of energy by work: Force. Distance.			
3.03 Investigate and analyze transfer of energy by heating: Thermal energy flows from a higher to a lower temperature. Energy will not spontaneously flow from a lower temperature to a higher temperature. It is impossible to build a machine that does nothing but convert thermal energy into useful work.			
3.04 Investigate and analyze the transfer of energy by waves: General characteristics of waves: amplitude, frequency, period, wavelength, velocity of propagation. Mechanical waves. Sound waves. Electromagnetic waves (radiation).			
Extended Standard: Observe, measure and demonstrate knowledge of the storage and transfer of energy • Potential energy • Kinetic energy • Thermal energy • Transfer of energy by work • Transfer of energy by heating • Transfer of energy by waves			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> • Demonstrate understanding of different types of energy: • Potential • Kinetic • Thermal • Demonstrate understanding of energy transfer 		<ul style="list-style-type: none"> • Identify different types of energy: Potential • Kinetic • Thermal 	
		Pre-symbolic Access Points	
		<ul style="list-style-type: none"> • Demonstrate awareness of rest and motion 	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 3 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
•	•	•

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Physical Science		Grade Level: 9-12	
Competency Goal 4: The learner will develop an understanding of electricity and magnetism			
Objectives:			
4.01 Investigate and analyze the nature of static electricity and the conservation of electrical charge: Positive and negative charges. Opposite charges attract and like charges repel. Analyze the electrical charging of objects due to the transfer of charge.			
4.02 Investigate and analyze direct current electrical circuits: Ohm's law. Series circuits. Parallel circuits.			
4.03 Investigate and analyze magnetism and the practical applications of the characteristics of magnets. Permanent magnets. Electromagnetism. Movement of electrical charges.			
Extended Standard: Observe, measure and demonstrate knowledge of electricity and magnetism • Static electricity • Direct current circuits • Magnetism			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> • Demonstrate understanding of magnetic properties • Demonstrate understanding of static electricity • Demonstrate understanding of direct current circuits 		<ul style="list-style-type: none"> • Identify magnetic properties • Identify ways to transfer static electricity • Identify uses of electricity 	
		Pre-symbolic Access Points	
		<ul style="list-style-type: none"> • Demonstrate awareness of magnetic properties • Demonstrate awareness of static electricity • Demonstrate awareness of electricity 	

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 4 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
•	•	•

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Physical Science		Grade Level: 9-12	
Competency Goal 5: The learner will build an understanding of the structure and properties of matter			
Objectives:			
5.01 Develop an understanding of how scientific processes have led to the current atomic theory. Dalton's atomic theory. J.J. Thomson's model of the atom. Rutherford's gold foil experiment. Bohr's planetary model. Electron cloud model.			
5.02 Examine the nature of atomic structure: Protons. Neutrons. Electrons. Atomic mass. Atomic number. Isotopes.			
5.04 Identify substances through the investigation of physical properties: Density. Melting point. Boiling point.			
Extended Standard: Demonstrate knowledge of molecular basis of physical properties • Phases of matter (solid, liquid, gas) • Properties of matter (density, melting point, boiling point) • Atomic structure			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> Demonstrate understanding of the phases of matter 		<ul style="list-style-type: none"> Identify phases of matter 	
Pre-symbolic Access Points			
<ul style="list-style-type: none"> Demonstrate awareness of the phases of matter 			

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze, etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 5 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
•	•	•

Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).

Subject Physical Science		Grade Level: 9-12	
Competency Goal 6: The learner will build an understanding of regularities in chemistry			
Objectives:			
6.01 Analyze the periodic trends in the physical and chemical properties of elements. Groups (families). Periods.			
6.02 Investigate and analyze the formation and nomenclature of simple inorganic compounds. Ionic bonds (including oxidation numbers). Covalent bonds. Metallic bonds.			
6.03 Identify the reactants and products of chemical reactions and balance simple equations of various types: Single replacement. Double replacement. Decomposition. Synthesis.			
6.04 Measure and analyze the indicators of chemical change including: Development of a gas. Formation of a precipitate. Release/absorption of energy (heat or light).			
6.05 Investigate and analyze the properties and composition of solutions: Solubility curves. Concentration. Polarity. pH scale. Electrical conductivity.			
6.06 Describe and explain radioactivity and its practical application as an alternative energy source: Alpha, beta, and gamma decay. Fission. Fusion. Nuclear waste.			
Extended Standard: Observe, investigate, and measure chemical properties and reactions, including regularities as organized by the periodic table (solubility, acids/bases, mixture of substances, etc.) • Chemical properties • Chemical reactions • Periodic table			
Symbolic Access Points		Early Symbolic Access Points	
<ul style="list-style-type: none"> Demonstrates the ability to distinguish the difference between physical and chemical changes 		<ul style="list-style-type: none"> Identifies physical and chemical changes 	
Pre-symbolic Access Points			
<ul style="list-style-type: none"> Demonstrates awareness of physical and chemical changes 			

Communicate or Demonstrate Understanding: At this level, the student is actively demonstrating understanding of the concept through actions or words. The student manipulates materials with a understanding of properties (e.g., chooses metal materials that will attach to a magnet, acts to prevent exposure of electronic equipment to water, engages in safe practice such as turning off stove to prevent burns or fire, etc.). The student will use the concept with familiar materials and situations and begins to apply the concept in a new situation.

Demonstrate Knowledge: Demonstrating knowledge requires active and functional manipulation of the materials. Does the student demonstrate the ability to predict an action or to connect related objects or materials through a concept (e.g., connect baby to mature animal, note that burner will boil water, put on coat when sees snow or ice outside, etc.)? Demonstrating knowledge implies acting with some knowledge of a concept (e.g., knowing to touch a baby animal gently, pointing to the sky when student sees a picture of the moon, noting that a plastic bottle goes in a recycle bin through eye gaze. etc.).

Demonstrate Awareness: Demonstrating awareness through repeated exposure to materials and their use at a functional level, does the student demonstrate familiarity or expectation of a specific result with the materials through eye gaze and attention, through movements, or through expression?

Grade 9-12, Comp 6 Symbolic Demonstrators	Early Symbolic Demonstrators	Pre-Symbolic Demonstrators
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Identify: The student generates response independently and communicates the response in their mode of communication (verbal, eye gaze, switch, picture communication, etc).

Indicate: The student chooses from an array of responses (concrete objects, pictures, etc) via the student's mode of communication (verbal, eye gaze, switch, picture communication, etc).