Individual Test Item Specifications

8720320- Building Construction Technologies 2

2015

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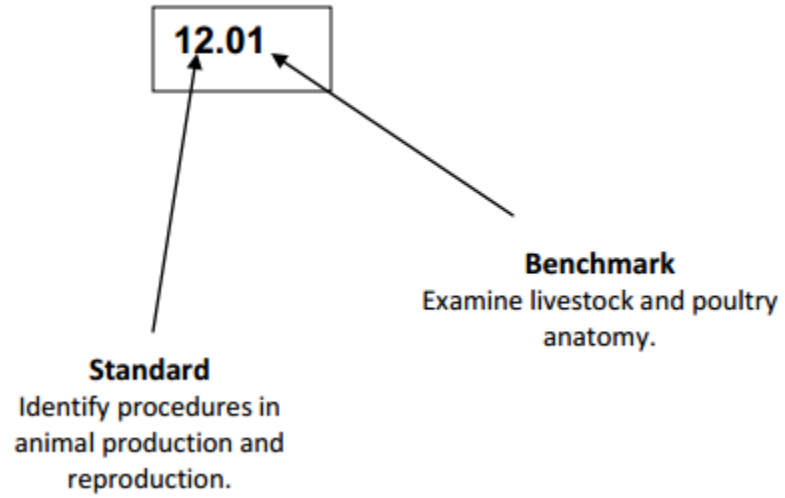
I. Guide to the Individual Benchmark Specifications

Content specific guidelines are given in the *Individual Benchmark Specifications* for each course. The *Specifications* contains specific information about the alignment of items with the Florida Standards. It identifies the manner in which each benchmark is assessed, provides content limits and stimulus attributes for each benchmark, and gives specific information about content, item types, and response attributes.

Benchmark Cl+
assification System

- Each Career and Technical Education course has its own set of course standards. The benchmarks are organized numerically, with two numbers separated by a decimal point. The first number is the standard number, and the second number is the benchmark number. You will see these numbers on the Item Specifications for each course.

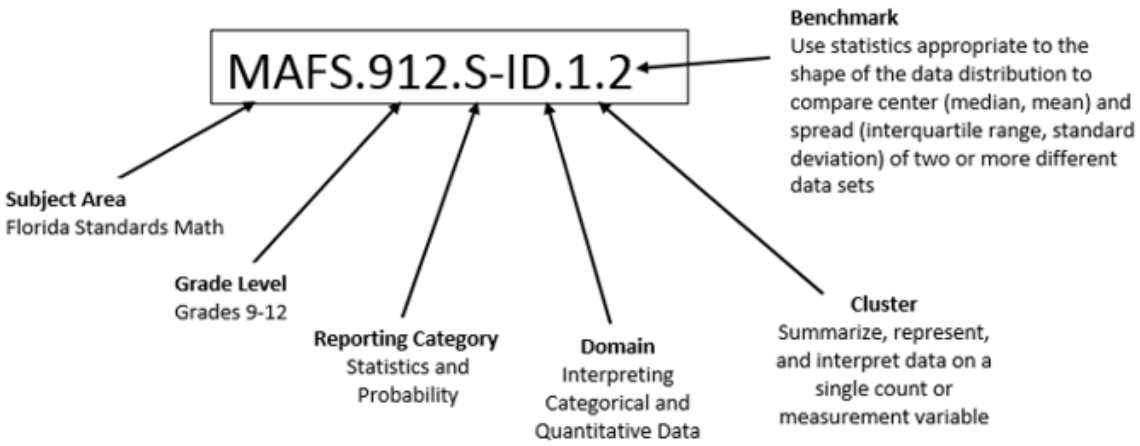
An example, from Agritechnology 1:



The image above describes the components of a Career and Technical Education Standard and Benchmark classification system.

Each MAFS benchmark is labeled with a system of letters and numbers.

- The four letters in the *first position* of the label identify the **Subject**.
- The number(s) in the *second position* represents the **Grade Level**.
- The letter(s) in the *third position* represents the **Category**.
- The number in the fourth position shows the **Domain**.
- The number in the *fifth position* identifies the **Cluster**.
- The number in the last position identifies the specific **Benchmark**.



The image above describes the components of a Florida Standard and Benchmark classification system.

Definitions of Benchmark Specifications

The *Individual Benchmark Specifications* provides standard-specific guidance for assessment item development for the Florida Department of Education Career and Technical Education item banks. For each benchmark assessed, the following information is provided.

Reporting Category	is a grouping of related benchmarks that can be used to summarize and report achievement.
Standard	refers to the standard statement presented in the Florida Standards.
Benchmark	refers to the benchmark statement presented in the Florida Standards. In some cases, two or more related benchmarks are grouped together because the assessment of one benchmark addresses another benchmark.
Item Types	are used to assess the benchmark or group of benchmark.
Cognitive Complexity	ideal level at which item should be assessed.
Benchmark Clarifications	explain how achievement of the benchmark will be demonstrated by students. In other words, the clarification statements explain what the student will do when responding to questions.
Content Limits	define the range of content knowledge and that should be assessed in the items for the benchmark.
Stimulus Attributes	define the types of stimulus materials that should be used in the items, including the appropriate use of graphic materials and item context or content.
Response Attributes	define the characteristics of the answers that a student must choose or provide.
Content Focus	addresses the broad key terms and concepts associated with the examples found in the standards, benchmarks, or benchmark clarifications.
Sample Items	are provided for each type of question assessed. The correct answer for all sample items is provided.

II. Individual Benchmark Specifications

Standard	14.0 Analyze construction components, materials, hardware and characteristics.
Benchmark	14.01 Identify the components of various kinds of structures including slabs and foundations, interior and exterior walls, roofs and flooring systems.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or Identify the components of various kinds of structures including slabs and foundations, interior and exterior walls, roofs and flooring systems.
Content Focus	Wall detail, rebar, plastic, rebar chairs, stake, layout, footer, slab, foundation, roof, flooring systems, shingles, wood, studs, rafters, stucco, paint, siding, tar paper, waterproofing, drywall, concrete
Content Limits	The content limits will include, but not be limited to, components of identifying various kinds of structures including slabs and foundations, interior and exterior walls, roofs and flooring systems. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which part of a structure is designed to support the entire building? A. columns B. footings C. interior walls D. slab Answer: B

Standard	14.0 Analyze construction components, materials, hardware and characteristics.
Benchmark	14.02 Identify the types of wall sections.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or identify the types of wall sections.
Content Focus	Masonry, framed, cast in place concrete, interior, exterior, partition, fire wall, retaining wall
Content Limits	The content limits will include, but not be limited to, components of identifying types of wall sections. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What is the soleplate? A. the main vertical member of a wall B. a wall that subdivides space in a building C. the lowest horizontal part of a wall to which studs are nailed D. a horizontal structural member that supports the load over an opening Answer: C

Standard	14.0 Analyze construction components, materials, hardware and characteristics.
Benchmark	14.03 Identify the types and installation procedures of roof, wall and floor sheathing.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or identify the types and installation procedures of roof, wall and floor sheathing.
Content Focus	Wall, sheathing, floor system, nails, flashing, roof tiles, shingles, rafters, joist, trusses, decking, drip edge, soffit, facia
Content Limits	The content limits will include, but not be limited to identifying the types and installation procedures of roof, wall and floor sheathing. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What is a jointed structure made up of members that are straight and connected only at their intersecting points? A. decking B. gable C. purlin D. truss Answer: D

Standard	14.0 Analyze construction components, materials, hardware and characteristics.
Benchmark	14.04 Identify various roof supports.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or identify various roof supports.
Content Focus	Trusses, sheathing, columns, T bracing, walls, cast in place, masonry, framed, thru wall brace
Content Limits	The content limits will include, but not be limited to identifying various roof supports. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which of the following describes purlins? A. Purlins are a type of wooden roof. B. Purlins are a type of wall component. C. Purlins are used in the construction of building foundations. D. Purlins are often used to support corrugated sheet metal when constructing roofs. Answer: D

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.01 Select the tools and equipment used for mixing mortar.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or select the tools and equipment used for mixing mortar.
Content Focus	Mortar mixer, hoe, wheelbarrow, shovel, trowel, rake
Content Limits	The content limits will include, but not be limited to, components of selecting the tools and equipment used for mixing mortar. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What is the purpose of a mixer? A. to mix concrete to ensure proper workability and consistency B. to smooth the surface of concrete for designing and finishing C. to apply concrete to surfaces needing adhesion or repair D. to keep concrete ingredients separated until needed Answer: A

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.02 Describe the factors that affect the consistency of mortar.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	M
Benchmark Clarification	The student will demonstrate knowledge, make observations or describe the factors that affect the consistency of mortar.
Content Focus	Water, sand, cement, mixing, blend, type N, Type S, mixing time, shake up
Content Limits	The content limits will include, but not be limited to, components of describing the factors that affect the consistency of mortar. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What is shown to affect the consistency of mortar? A. durability B. water retention C. color D. buoyancy Answer: B

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.03 Identify the common ratios (M, N, S and O) of mortar mixtures.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or identify the common ratios (M, N, S and O) of mortar mixtures.
Content Focus	Mixtures, mortar, Type N, Type M, Type S, Type O, ratios, mixture, mix, mixer, mason, spread mortar
Content Limits	The content limits will include, but not be limited to, components of identifying the common ratios (M, N, S and O) of mortar mixtures. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Type N mortar is best described as what? A. least common type of mortar B. most common type of mortar C. strongest type D. weakest type of mortar Answer: B

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.04 Use pointing tools and strike mortar joints.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	H
Benchmark Clarification	The student will demonstrate knowledge, make observations or use pointing tools and strike mortar joints.
Content Focus	Mason, mortar, trowel, pointing, strike, joints, mixer, string line, wheelbarrow, margin trowel
Content Limits	The content limits will include, but not be limited to, components of using pointing tools and strike mortar joints. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What tool is needed to strike brick? A. jointer B. line block C. rake D. zebar Answer: C

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.05 Repoint old work.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or repoint old work.
Content Focus	Mason, mortar, trowel, pointing, strike, joints, mixer, string line, wheelbarrow, margin trowel
Content Limits	The content limits will include, but not be limited to, components of repointing old work. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What tool is used to repoint old work? A. finish trowel B. jointer C. tuck point D. sand float Answer: C

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.06 Prepare a work area, protecting adjacent areas.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or prepare a work area, protecting adjacent areas.
Content Focus	Preparation, clean, tarp, chemicals, tools
Content Limits	The content limits will include, but not be limited to, components of preparing a work area, and protecting adjacent areas. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What does a painter use to protect areas that are under the surfaces that he is painting? A. drop cloth B. lattice C. mesh clothe D. nothing required Answer: A

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.07 Apply mortar.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or apply mortar.
Content Focus	Tools, trowel, mortar, mixer, sand, cement, shovel, tail, autoclave, closure unit, rakeback, ranging, lintel
Content Limits	The content limits will include, but not be limited to, components of applying mortar. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which type of trowel is used to apply mortar to a brick? A. concrete B. margin C. mason D. margin Answer: C

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.08 Use various methods of putting up the line.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or use various methods of putting up the line.
Content Focus	Line, string, line block, roller, mason, tender, dry bond, crowding the line, mason line, twig, corner poles, line pin
Content Limits	The content limits will include, but not be limited to, components of using various methods of putting up the line. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Block or brick that is set too far away from the line is referred to as what? A. close to the line B. crowding the line C. slack to the line D. rack to the line Answer: C

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.09 Explain the uses for various types of trowels.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or explain the uses for various types of trowels.
Content Focus	Trowel, mason trowel, margin trowel, point trowel, finish trowel, spread, finish, float, jointer, edger, float,
Content Limits	The content limits will include, but not be limited to, components of explaining the uses for various types of trowels. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which trowel is designed to get into hard to reach places? A. finish B. mason C. margin D. stucco Answer: C

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.10 Research various types of caulking and application.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or research various types of caulking and application.
Content Focus	Caulk, application, seal
Content Limits	The content limits will include, but not be limited to, components of researching various types of caulking and application. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which tool is used to dispense a tube of caulking? A. trowel B. gun C. dispenser D. applicator Answer: B

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.11 Describe procedures for stucco application and repair.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or describe procedures for stucco application and repair.
Content Focus	Stucco application, stucco repair, Type M, Type N, Type S, trowel, material handling, sand, water, mixing, tools, scaffolding, fall protection, safety
Content Limits	The content limits will include, but not be limited to, components of describing procedures for stucco application and repair. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which is a common type of stucco finish applied to the exterior of a building? A. broomed B. exposed aggregate C. knock down D. swirl Answer: C

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.12 Mix various types of stucco.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or mix various types of stucco.
Content Focus	Stucco application, stucco repair, Type M, Type N, Type S, trowel, material handling, sand, water, mixing, tools, scaffolding, fall protection, safety
Content Limits	The content limits will include, but not be limited to, components of mixing various types of stucco. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	This type of stucco by the fact that it was introduced in the 1950s and is a synthetically based stucco? A. exterior insulation and finish stucco systems B. spray type S stucco C. traditional trowel stucco D. traditional flip brush stucco Answer: A

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.13 Mix various types of concrete, considering application and Pounds per Square Inch (PSI) strength.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or mix various types of concrete, considering application and Pounds per Square Inch (PSI) strength.
Content Focus	Stucco application, stucco repair, Type M, Type N, Type S, trowel, material handling, sand, water, mixing, tools, scaffolding, fall protection, safety, masonry units
Content Limits	The content limits will include, but not be limited to, components of mixing various types of concrete, considering application and Pounds per Square Inch (PSI) strength. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What PSI or pounds per square inch of concrete is most commonly used in commercial construction in Florida? A. 2500 PSI B. 3000 PSI C. 4000 PSI D. 5000 PSI Answer: B

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.14 Identify and select concrete tools.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or identify and select concrete tools.
Content Focus	Grout pump, trowel, finish trowel, float, bull float, margin trowel, screed, placing boom, broom, power screed, come along, stringline, aggregate, concrete mix, level, edger, jointer, curb edger, pipe trowel, midget trowel, power trowel, concrete saw, woo
Content Limits	The content limits will include, but not be limited to, components of identifying and selecting concrete tools. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What is the purpose of troweling? A. to create a float finish B. to create a rough texture C. to create a pebble sand finish D. to create a hard and smooth surface Answer: A

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.15 Install and repair concrete.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	H
Benchmark Clarification	The student will demonstrate knowledge, make observations or install and repair concrete.
Content Focus	Screed, point, patch, resurface, level, float, retop, wheelbarrow, cart, power buggy
Content Limits	The content limits will include, but not be limited to, components of installing and repairing concrete. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What tool is used to initially level concrete during the placement process? A. bull float B. come a long C. screed D. tamp Answer: C

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.16 Identify and select cleaning materials and equipment.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or identify and select cleaning materials and equipment.
Content Focus	Pressure washer, cleaning materials, muriatic acid, dish soap, water, broom, squeegee, sponge, bucket
Content Limits	The content limits will include, but not be limited to, components of identifying and selecting cleaning materials and equipment. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	A 10' x 10' patio that is 4" thick will require how many yards of concrete? A. 1.22 cubic yards B. 2.22 cubic yards C. 3.22 cubic yards D. 4.22 cubic yards Answer: A

Standard	15.0 Demonstrate masonry skills.
Benchmark	15.17 Use safe and proper procedures for cleaning equipment, materials, work areas and workers.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or use safe and proper procedures for cleaning equipment, materials, work areas and workers.
Content Focus	Pressure washer, cleaning materials,broom, squeegee, sponge, bucket, safe areas, adjacent areas, gloves, safety glasses, hard hat, dermatitis, safety equipment, protective clothing, tight clothes, moving parts, hair restraints, power tool safety, distract
Content Limits	The content limits will include, but not be limited to, components of using safe and proper procedures for cleaning equipment, materials, work areas and workers. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What is used to clean concrete off of tools following a concrete pour? A. acid B. soap C. water D. vinegar Answer: C

Standard	16.0 Erect, plumb and brace a simple concrete form with reinforcement.
Benchmark	16.01 Identify the properties of cement.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or identify the properties of cement.
Content Focus	Sand, cement, limestone, lime, water, rock, hydration, moisture, temperature, grainy, acid, forms, properties
Content Limits	The content limits will include, but not be limited to, components of identifying the properties of cement. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which of the following is not a physical property of cement? A. fluidity B. setting time C. soundness D. strength Answer: A

Standard	16.0 Erect, plumb and brace a simple concrete form with reinforcement.
Benchmark	16.02 Describe the composition of concrete.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or describe the composition of concrete.
Content Focus	Slump, water retention, curing, shrinkage, sand, cement, limestone, lime, water, rock, hydration, moisture, temperature, grainy, acid, forms, properties
Content Limits	The content limits will include, but not be limited to, components of describing the composition of concrete. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What is the composition of concrete? A. cement, sand, rock, and water B. cement, rock, asphalt, fiber mesh C. cement, sand, and water D. cement, lime, sand, and water Answer: A

Standard	16.0 Erect, plumb and brace a simple concrete form with reinforcement.
Benchmark	16.03 Perform volume estimates for concrete quantity requirements.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or perform volume estimates for concrete quantity requirements.
Content Focus	Volume, quantity, requirements, estimate, measurements, construction math, ruler, measuring tape, geometry, multiplication, formulas, cubic yards, lineal feet, length, width, depth
Content Limits	The content limits will include, but not be limited to, components of performing volume estimates for concrete quantity requirements. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	A 10' x 10' patio that is 4" thick will require how many cubic yards of concrete? A. 1.22cy B. 2.12cy C. 2.21cy D. 2.22cy Answer: A

Standard	16.0 Erect, plumb and brace a simple concrete form with reinforcement.
Benchmark	16.04 Identify types of concrete reinforcement materials and describe their uses.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	M
Benchmark Clarification	The student will demonstrate knowledge, make observations or identify types of concrete reinforcement materials and describe their uses.
Content Focus	Concrete, reinforcement, rebar, steel, fiber mesh, plastic, aggregate, control joints, slip dowels, steel mesh, carbon fiber, sealers, high strength, PSI, density, slump
Content Limits	The content limits will include, but not be limited to, components of identifying types of concrete reinforcement materials and describe their uses. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which material is used in reinforcing concrete? A. kevlar B. plastic C. poly D. steel Answer: D

Standard	16.0 Erect, plumb and brace a simple concrete form with reinforcement.
Benchmark	16.05 Identify various types of footings and explain their uses.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	M
Benchmark Clarification	The student will demonstrate knowledge, make observations or identify various types of footings and explain their uses.
Content Focus	Footings, uses of footings, types of footings, stem wall, bell, monolithic, continuous, foundations, footers, length, width, depth, reinforcement, size, sheer
Content Limits	The content limits will include, but not be limited to, components of identifying various types of footings and explaining their uses. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which is a type of footing? A. bell footing B. flute footing C. split footing D. tech footing Answer: A

Standard	16.0 Erect, plumb and brace a simple concrete form with reinforcement.
Benchmark	16.06 Identify the parts of various types of forms.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	H
Benchmark Clarification	The student will demonstrate knowledge, make observations or identify the parts of various types of forms.
Content Focus	Forms, types of forms, deflection, floors, slabs, walls, curing, removal, structural engineer, columns, beams, beam sides, elevated slabs, elevated deck, strength, various types of forms, cast in place
Content Limits	The content limits will include, but not be limited to, components of identifying the parts of various types of forms. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What is a common type of form to use when forming a monolithic slab in Florida? A. 2" x 10" wood form B. 2" x 4" rubber form C. 2" x 6" wood form D. 2" x 2" steel form Answer: A

Standard	16.0 Erect, plumb and brace a simple concrete form with reinforcement.
Benchmark	16.07 Explain the safety procedures associated with the construction and use of concrete forms.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or explain the safety procedures associated with the construction and use of concrete forms.
Content Focus	Safety procedures, proper safety gear, hard hat, orientation, tool safety, eye safety,forms, types of forms, deflection, floors, slabs, walls, curing, removal, structural engineer, columns, beams, beam sides, elevated slabs, elevated deck, strength, vario
Content Limits	The content limits will include, but not be limited to, components of explaining the safety procedures associated with the construction and use of concrete forms. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What safety feature ensures concrete forms do not bow or break? A. properly brace B. scaffolding C. shoring D. strapping Answer: A

Standard	17.0 Place concrete.
Benchmark	17.01 Identify equipment used to transport and place concrete.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	M
Benchmark Clarification	The student will demonstrate knowledge, make observations or identify equipment used to transport and place concrete.
Content Focus	Equipment, transport, mixer, chute, concrete pump, concrete truck, wheelbarrow, Georgia buggy, conveyer, hose, hydraulics, plasticizer, chemical, slump, quality control, driver, tools, safety
Content Limits	The content limits will include, but not be limited to, components of identifying equipment used to transport and place concrete. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Distinguish which type of concrete pump uses a robotic arm to place concrete accurately? A. boom pump B. Hydraulic truck pump C. Line pump D. System pump Answer: A

Standard	17.0 Place concrete.
Benchmark	17.02 Research the factors that contribute to the quality of concrete placement.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	H
Benchmark Clarification	The student will demonstrate knowledge, make observations or research the factors that contribute to the quality of concrete placement.
Content Focus	Worker, tools, supervision, project management, curing, experienced, licensed, knowledge, screeding, specifications, hard work, quality control, flatness, level, Ff, Fl, vibration, consolidation, laser screed, power screed, riding trowel, proper floats
Content Limits	The content limits will include, but not be limited to, components of researching the factors that contribute to the quality of concrete placement. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	The concrete industry considers which method the best for consolidating concrete? A. rodding B. tamping C. tapping D. vibration Answer: D

Standard	17.0 Place concrete.
Benchmark	17.03 Place and consolidate concrete into forms.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or place and consolidate concrete into forms.
Content Focus	Forms, consolidate, forklift, combination tools, worker, tools, supervision, project management, curing, experienced, licensed, knowledge, screeding, specifications, hard work, quality control, flatness, level, Ff, Fl, vibration, consolidation, laser scre
Content Limits	The content limits will include, but not be limited to, components of placing and consolidating concrete into forms. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which piece of equipment assists with getting concrete into cast-in-place wall forms? A. concrete conveyor B. concrete mixer C. concrete pump D. concrete chute Answer: C

Standard	17.0 Place concrete.
Benchmark	17.04 Strike off and level concrete using a screed.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or strike off and level concrete using a screed.
Content Focus	Striking, floating, forms, consolidate, forklift, combination tools, worker, tools, supervision, project management, curing, experienced, licensed, knowledge, screeding, specifications, hard work, quality control, flatness, level, Ff, Fl, vibration, conso
Content Limits	The content limits will include, but not be limited to, components of striking off and leveling concrete using a screed. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which tool is used in the step following the use of a strike off screed? A. bull float B. power trowel C. vibrating screed D. vibrator Answer: A

Standard	17.0 Place concrete.
Benchmark	17.05 Use tools to place, float and finish concrete.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or use tools to place, float and finish concrete.
Content Focus	Striking, floating, forms, consolidate, forklift, combination tools, worker, tools, supervision, project management, curing, experienced, licensed, knowledge, screeding, specifications, hard work, quality control, flatness, level, Ff, Fl, vibration, conso
Content Limits	The content limits will include, but not be limited to, components of using tools to place, float and finish concrete. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What is a concrete trowel used for? A. make the surface rough B. make the surface smooth C. make the surface porous D. make the surface ripple Answer: B

Standard	17.0 Place concrete.
Benchmark	17.06 Determine when conditions permit the concrete finishing operation to start.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	H
Benchmark Clarification	The student will demonstrate knowledge, make observations or determine when conditions permit the concrete finishing operation to start.
Content Focus	Temperature, weather, time, feasibility, access, striking, floating, forms, consolidate, forklift, combination tools, worker, tools, supervision, project management, curing, experienced, licensed, knowledge, screeding, specifications, hard work, quality c
Content Limits	The content limits will include, but not be limited to, components of determining when conditions permit the concrete finishing operation to start. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	When is the proper time to place the power trowel on the floor slab during the finishing process? A.immediately after concrete is screeded B.when footprints cause a 1/2" depression in wet concrete C.when the concrete is solid enough to walk on but it is still wet D.when concrete has dried and all water has evaporated from the surface Answer: C

Standard	17.0 Place concrete.
Benchmark	17.07 Name the factors that affect the curing of concrete and describe the methods used to achieve proper curing.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or name the factors that affect the curing of concrete and describe the methods used to achieve proper curing.
Content Focus	Proper curing, curing, hydration, chemical reaction, water cure, covering, concrete hardness, curing concrete, process, retaining moisture, proper hydration, moisture loss, stages of hydration, evaporation, durability, cracks, shrinkage, aggregate, speed
Content Limits	The content limits will include, but not be limited to, components of naming the factors that affect the curing of concrete and describing the methods used to achieve proper curing. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What is curing? A. The process of adding water to the mixture. B. The process of adding salt to the concrete mixture. C. The process associated with the flattening the floor in preparation for either carpet or tile. D. The process of protecting concrete from loss of moisture and maintaining an adequate temperature range. Answer: D

Standard	18.0 Lay masonry units.
Benchmark	18.01 Describe the most common types of masonry units.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or describe the most common types of masonry units.
Content Focus	Brick, block, courses, historical masonry, modular, standard, engineered, utility, closure, split face, fluted, clay, cementitious
Content Limits	The content limits will include, but not be limited to, components of describing the most common types of masonry units. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which explains what makes up a slump brick? A. colored concrete B. dry concrete C. porous concrete D. wet concrete Answer: D

Standard	18.0 Lay masonry units.
Benchmark	18.02 Set up a wall.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or set up a wall.
Content Focus	Masonry units, layout, survey, level, construction, blueprint, planning, measurement, CMU, facing, foundation, wall types, curtain wall, retaining wall, brick, block, courses, historical masonry, modular, standard, engineered, utility, closure, split face
Content Limits	The content limits will include, but not be limited to, components of setting up a wall. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which is often described as the best way to go about constructing a wall? A. Layout and assemble the wall in place. B. Layout and assemble from the top down. C. Layout and assemble the wall on the floor. D. Layout and assemble at the plant, and transport to project. Answer: C

Standard	18.0 Lay masonry units.
Benchmark	18.03 Describe the transformation pattern (I.e., Different brick pattern, floor tile, plywood on floor, vinyl siding, etc.)
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	M
Benchmark Clarification	The student will demonstrate knowledge, make observations or describe the transformation pattern (I.e., different brick pattern, floor tile, plywood on floor, vinyl siding, etc.).
Content Focus	Edge step, internal radial, Dogleg, Watertable, Rowlock, Cornwall, Ogee, stretcher, bullnose, running, common, English, English cross, Flemish, stack, Terracotta
Content Limits	The content limits will include, but not be limited to, components of describing the transformation pattern (I.e., different brick pattern, floor tile, plywood on floor, vinyl siding, etc.). Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which type of bond contributes to the design but has no structural strength for the wall unit? A. American bond B. Common bond C. Dutch bond D. Pattern bond Answer: D

Standard	18.0 Lay masonry units.
Benchmark	18.04 Lay a dry bond.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or lay a dry bond.
Content Focus	Dry bond, beam, measurements, partition, layout, soffit, stone, edge step, internal radial, Dogleg, Watertable, Rowlock, Cornwall, Ogee, stretcher, bullnose, running, common, English, English cross, Flemish, stack, terracotta
Content Limits	The content limits will include, but not be limited to, components of laying a dry bond. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which type of masonry bond is used to ensure proper spacing prior to adding mortar? A. dry bond B. pattern bond C. structural bond D. stacked bond Answer: A

Standard	18.0 Lay masonry units.
Benchmark	18.05 Spread and furrow a bed joint and butter masonry units.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or spread and furrow a bed joint and butter masonry units.
Content Focus	Spread, furrow, bed joint, masonry, butter, trowel, mortar, weep holes, brick, pointing, margin, tuckpointer, parging, duck bill, bucket, tile setting
Content Limits	The content limits will include, but not be limited to, components of spreading and furrowing a bed joint and butter masonry units. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What is the term that refers to placing mortar on the head of the masonry unit? A. bed B. butter C. close D. furrow Answer: B

Standard	18.0 Lay masonry units.
Benchmark	18.06 Describe the different types of masonry bonds.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or describe the different types of masonry bonds.
Content Focus	Dry bond, beam, measurements, partition, layout, soffit, stone, edge step, internal radial, Dogleg, Watertable, Rowlock, Cornwall, Ogee, stretcher, bullnose, running, common, English, English cross, Flemish, stack, terracotta
Content Limits	The content limits will include, but not be limited to, components of describing the different types of masonry bonds. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which bond is made by joining a masonry unit and mortar together? A. general bond B. flexible bond C. mechanical bond D. pattern bond Answer: D

Standard	18.0 Lay masonry units.
Benchmark	18.07 Cut brick and block.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or cut brick and block.
Content Focus	Saw, masonry saw, carborundum, hammer cut, quarterback, measurements, stringline, quarter cut, half cut, saw cut, furrowing, eye safety, chisel, blade, finger safety
Content Limits	The content limits will include, but not be limited to, components of cutting brick and block. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which type of cut has the end of one masonry cell cut out, leaving two masonry cells? A. brick cut B. half cut C. queen cut D. quarterback cut Answer: D

Standard	19.0 Demonstrate science knowledge and skills.
Benchmark	19.01 Explain molecular action as a result of temperature extremes, chemical reaction and moisture content.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	H
Benchmark Clarification	The student will demonstrate knowledge, make observations or explain molecular action as a result of temperature extremes, chemical reaction and moisture content.
Content Focus	Temperature, weather, time,proper curing, curing, hydration, chemical reaction, water cure, covering, concrete hardness, curing concrete, process, retaining moisture, proper hydration, moisture loss, stages of hydration, evaporation, durability, cracks, s
Content Limits	The content limits will include, but not be limited to, components of explaining molecular action as a result of temperature extremes, chemical reaction and moisture content. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Which summarizes where concrete gets its strength? A. chemical reaction between the cement mix and water B. chemical reaction between the sand and water C. chemical reaction between the sand and rock D. chemical reaction between the rock and water Answer: A

Standard	19.0 Demonstrate science knowledge and skills.
Benchmark	19.02 Discuss the role of creativity in constructing scientific questions, methods and explanations.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	H
Benchmark Clarification	The student will demonstrate knowledge, make observations or discuss the role of creativity in constructing scientific questions, methods and explanations.
Content Focus	Data, methods, graphing, scientific, reaction, hypothesis, conclusions, essential questions, testing, experiments, analysis, probability, common occurrence, practices, research
Content Limits	The content limits will include, but not be limited to, components of discussing the role of creativity in constructing scientific questions, methods and explanations. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	Improvements to common construction practices can be measured and improved through the collection of A. historical data B. employee opinions C. supervisor's recommendations D. trends Answer: A

Standard	19.0 Demonstrate science knowledge and skills.
Benchmark	19.03 Formulate scientifically investigable questions, construct investigations, collect and evaluate data and develop scientific recommendations based on findings.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)=X (P)= (ER)=
Cognitive Complexity Level	H
Benchmark Clarification	The student will demonstrate knowledge, make observations or formulate scientifically investigable questions, construct investigations, collect and evaluate data and develop scientific recommendations based on findings.
Content Focus	Investigate, formulate, generate, compute, litigate, demonstrate, data, methods, graphing, scientific, reaction, hypothesis, conclusions, essential questions, testing, experiments, analysis, probability, common occurrence, practices, research
Content Limits	The content limits will include, but not be limited to, components of formulating scientifically investigable questions, constructing investigations, collecting and evaluating data and developing scientific recommendations based on findings. Text and voca
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What does a painter use to protect areas that are under the surfaces that he is painting? A. drop cloth B. lattice C. mesh cloth D. nothing required Answer: A

Standard	19.0 Demonstrate science knowledge and skills.
Benchmark	19.04 Identify health-related problems that may result from exposure to work-related chemicals and hazardous materials, and demonstrate knowledge of the proper precautions required for handling such materials.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or identify health-related problems that may result from exposure to work-related chemicals and hazardous materials, and demonstrate knowledge of the proper precautions required for handling such m
Content Focus	Dermatitis, burns, acid, heat, overexposure, scalding, hydration, sunburn, health, safety, ventilation, MSDS, emergency, first aid, evacuation, protection, eye safety, eye wash, gloves, hard hat, safety glasses, boots, steel toe boots, supervision, lighti
Content Limits	The content limits will include, but not be limited to, components of identifying health-related problems that may result from exposure to work-related chemicals and hazardous materials, and demonstrating knowledge of the proper precautions required for h
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What is one of the most common types of occupational diseases that can be contracted from the workplace. A. Occupational Skin Diseases B. Occupational Heart Diseases C. Occupational Respiratory Diseases D. Occupational Mental Disease Answer: A

Standard	19.0 Demonstrate science knowledge and skills.
Benchmark	19.05 Explain pressure measurement in terms of PSI and inches of mercury.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)= (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or explain pressure measurement in terms of PSI and inches of mercury.
Content Focus	PSI, strength, tensile strength, pressure measurement, mercury, curing, hardening, evaporation, shrinkage, temperature, hydration, water loss
Content Limits	The content limits will include, but not be limited to, components of explaining pressure measurement in terms of PSI and inches of mercury. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What common injury occurs when you handle wet concrete without gloves? A. asphyxiation B. burns C. nerve damage D. paralysis Answer: B

Standard	19.0 Demonstrate science knowledge and skills.
Benchmark	19.06 Explain and demonstrate the use of electrical-system testing devices.
Item Types **(MC)-Multiple Choice** **(SA)-Short Answer** **(P)-Performance** **(ER)-Extended Response**	(MC)=X (SA)= (P)=X (ER)=
Cognitive Complexity Level	M,H
Benchmark Clarification	The student will demonstrate knowledge, make observations or explain and demonstrate the use of electrical-system testing devices.
Content Focus	Electricity, testing, conductors, meter, gauge, receptacle, outlet, ohms, watts, voltage, current, electrical shock, outlet, breaker box, panel box, 110, 230, single phase, double phase, triple phase, wiring, rough in, plug, switch
Content Limits	The content limits will include, but not be limited to, components of explaining and demonstrating the use of electrical-system testing devices. Text and vocabulary will be grade appropriate.
Stimulus Attributes	The stimulus may include vocabulary, video, graphs, diagrams, pictures, performance task, selection, demonstrations and oral explanations via media clips.
Response Attributes	The response may include terms, phrases, sentences, images, diagrams, or charts. Student created written responses or computer generated responses may be used.
Sample Item	What are conductors that lead from a panel board to a variety of locations throughout a structure? A. branch circuit B. circuit breaker C. grounding device D. receptacle Answer: A