NCSC Geometry 5.GM.1c3 | Nu Design Pattern 2753

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Title	[Edit]	NCSC Geometry 5.GM.1c3 notes
Overview	[Edit]	CCC: Use ordered pairs to graph given points
Rationale	[Edit]	R1. Learning Target (5-8): GM-1 Apply reasoning using properties of two- and three dimensional shapes to analyze, represent, and model geometric relationships: - Classify objects based on attributes and properties and solve problems using geometric relationships and properties; - Decompose figures into new figures and construct figures with given conditions; - Apply concepts of parallel and perpendicular. Big Idea: Transformation in the Coordinate Plane Progress Indicator: M.GM.1c demonstrating the use of a coordinate system by locating/graphing a given point or polygon using ordered pairs
Focal KSAs	[Edit]	FK1. Ability to use ordered pairs to graph points
Add'l KSAs: Cognitive Background Knowledge	[Edit]	AK1. Knowledge of what ordered pairs represent AK2. Knowledge of conventions of graphing: X-axis, Y-axis, location and meaning of origin, the numbers in the 1st quadrant are positive and increase from the origin, the numbering scale AK3. Ability to use graph paper
Add'l KSAs: Perceptual (Receptive)	[Edit]	Ability to perceive images in the stimulus material and question. (e.g., through print, objects, holistic description, Braille, audio description, tactile images) (Image in this case means a picture, drawing, table, map, graph, or photograph and not a mental image) Ability to perceive physical objects required for the task. (e.g., see physical objects used to relate a story) Ability to perceive the linguistic components of the stimulus material and question. (e.g., through print, objects, audio, Braille, tactile images)
Add'l KSAs: Skill and Fluency (Expressive)	[Edit]	Ability to communicate response. (e.g., respond verbally, by using pictures, by making a selection from a group) Ability to express a response in text. (e.g., by writing, drawing, using Braille, using a scribe, using Dragon Dictate) Ability to manipulate digital/electronic equipment. (e.g., assistive technology) Ability to manipulate physical materials. (e.g., dexterity, strength, and mobility) Knowledge of how to use physical materials or digital/electronic equipment. (e.g., familiarity, assistive technology)
Add'l KSAs: Language and Symbols	[Edit]	Ability to comprehend text, symbols, images, or objects. (Image in this case means a picture, drawing, table, map, graph, or photograph, and not a mental image) Ability to decode text, symbols, tactile images, images, or objects. (Image in this case means a picture, drawing, table, map, graph, or photograph, and not a mental image) Ability to recognize text, symbols, tactile images, images, or objects. (Image in this case means a picture, drawing, table, map, graph, or photograph,

		and not a mental image) Ability to understand English vocabulary and syntax. (If the student doesn't have the linguistic competency then it would be hard to support. If a student speaks another language then a bilingual translator can be used)
Add'l KSAs: Cognitive	[Edit]	Ability to attend to stimuli. (Stimuli include item prompt, response options, and associated materials [e.g., images, text passages]; the stimuli can be represented in any modality) Ability to perform. (e.g., answer questions, solve simple problems, write sentences or words, mark corrections/edit text, apply punctuation) Ability to process multi-step (requires a explicit sequence of procedures) or multiple component (requires multiple cognitive decisions) problems or questions. Ability to recall and use information presented in a task/item (working memory). Ability to recall related background knowledge. (Background information refers to information learned outside of the assessment situation [not working memory]) Ability to understand the meaning of an example. (e.g., use of a non-construct relevant example) Ability to understand the structure of "organizers" used to present information or to scaffold responses. (e.g., understand meaning of headers, subtitles, etc. in diverse media)
Add'l KSAs: Executive	[Edit]	Ability to plan and sequence. (e.g., for items with a sequence of steps that must be completed in a particular order (could be a single step problem) that are likely to be administered in one session) Ability to self-regulate and reflect during problem solving. (e.g., ability to check one's work or one's understanding as an individual completes a problem; particularly appropriate for items with significant cognitive demands and attention to detail and/or that have multiple components [may require reading several passages or multiple computations])
Add'l KSAs: Affective	[Edit]	Ability to engage. (e.g., task-specific motivation) Ability to persist and sustain effort.
Potential Observations	[Edit]	PO1. Given a number of ordered pairs, the student correctly graphs the points (e.g., Student is given the following ordered pairs and correctly graphs them: (5, 8) (8, 4).) PO2. Given three graphed representations of ordered pairs, the student correctly identifies the graph showing the target pair (e.g., Student is given a graph showing (5, 8); (8, 5); and (5, 7). Student correctly identifies the graph showing (5, 8).
Potential Rubrics	[Edit]	
Potential Work Products	[Edit]	PW1. Constructed Response PW2. Selected Response
Characteristic Features	[Edit]	CF1. Limit to positive integers no greater than 20 CF2. The scale on the axes are labeled by 1s CF3. Squares in the graph paper must be large enough to label every tick mark and be a size that the student is familiar with (e.g., equal to or greater than 1/4 inch) CF4. The graph axes will be labeled with x and y and include a numbering scale
Variable Features: Cognitive	[Edit]	VF1. Remind student that ordered pairs show where to put points on a graph using an x and a y value

Background Knowledge		VF2. Provide student with an example graph and remind student of the features of the graph (e.g., X-axis, Y-axis, location and meaning of origin, the numbers in the 1st quadrant are positive and increase from the origin, the numbering scale) (example graph should be the same type of graph used in the item but must use different data than the item) VF3. Provide student with an non-construct relevant example of a point located on a graph and demonstrate how that point represents an ordered pair VF4. Remind student that the x- and y-axis can be drawn as lines on graph paper to create a right angle, and that if your follow a vertical line from the x-axis and a horizontal line from the y-axis you can find the point where they intersect
Variable Features: Perceptual (Receptive)		• Delivery mechanisms by which the question is perceived. (e.g., read aloud verbatim/read aloud paraphrase, pictures, large print, printed text, Braille, text, symbols, rebuses, concrete objects, description of objects or images, text to speech, signing, auditory amplification, closed captioning, CCTV - close circuit TV to increase size of font, vary contrast, etc.) • Delivery parameters for oral presentation of material. (e.g., speed of reading, volume, amount of expression used, student ability to pause, stop and/or repeat information read aloud) • Supports for the use of equipment required for the task. (e.g., communication board, CD player; Possible to reprogram communication board to include punctuation, capitalization, etc.)
Variable Features: Skill and Fluency (Expressive)		• Supports for manipulating physical materials. (e.g., use of velcro, size of materials, teacher manipulation of materials; In writing, student can manipulate cards with punctuation symbols on them and velcro on back to apply correct punctuation to a sentence) • Supports for manipulating digital/electronic equipment. (e.g., pointers, teacher manipulation of equipment, spoken commands, stylus for input, larger keyboard/buttons, adaptive mouse) • Supports for composing a response in text. (e.g., speech to text, written by teacher, keyboarding, word prediction software) • Practice with familiar equipment. • Response mode options. (e.g., pointing, speech and verbalization, writing, signing, switch or other assistive device/augmentative communication device, eye gaze; for lowest functioning students: predictable behavioral response, tolerate assistance such as hand over hand) • Practice tutorials with unfamiliar physical materials or digital/electronic equipment. (Practice tutorials can be used to introduce students to new item formats or modeled examples using materials that are not construct relevant or new tools to support test taking)
Variable Features: Language and Symbols		• Embedded support for vocabulary and symbols. (e.g., technical and non-technical glossary, hyperlinks/footnotes to definitions, illustrations, background knowledge) • Digital text with or without automatic text to speech. • Highlight essential elements, words, or phrases. • All key information in the dominant language (e.g., English) is also available in prevalent first languages (e.g., Spanish) for second language learners. • All key information available in sign language for students who are deaf. • Digital Braille with or without automatic Braille to speech. • Alternate syntactic levels (simplified text). • Level of abstraction required of student. (e.g., concrete objects, images, text) • New vs. pre-taught vocabulary and symbols. • Use of multiple representations. (e.g., physical models, demonstrations, acting out scenarios) • Read language and symbols aloud.

Variable Features: Cognitive

- Options for supporting critical features, big ideas, and relations: provide graphic organizers.
- Options for supporting critical features, big ideas, and relations: provide alternative forms of key concepts.
- Options for guiding exploration and information processing: familiar materials and their use. (This includes the presentation of familiar organizational tools [e.g., tables] and familar concrete objects and/or using familar organizational processes [e.g., how highlighting is used])
- Options for supporting critical features, big ideas, and relations: provide a response template.
- Options for supporting critical features, big ideas, and relations: outline information.
- Options for guiding exploration and information processing: allow viewing of stimuli from previous stages and parts.
- Options for guiding exploration and information processing: provide modeled prompts. (A modeled prompt is a demonstration of the process or procedures needed to successfully complete an item but does not provide the correct answer for the item being tested. A prompt is an action engaged in by the assessor to stimulate the appropriate behavior from a student. E.g., modeled prompt: in a sorting task, assessor can model sorting of cards into bins but without referencing the content being assessed [if shape is construct being assessed, assessor can sort by color but not shape]; NOT A MODELED PROMPT: assessor models correct answer for student [student asked to point to a picture of himself, student doesn't respond so assessor points to picture of student and asks student to do the same])
- Options for guiding exploration and information processing: provide multiple entry points.
- Options for guiding exploration and information processing: mask part of the information. (Masking incorrect response in a selected response item [aka strike out]. Student selects the incorrect response to be masked. Teacher presents all response options at first trial and then if response is incorrect the teacher masks the student's incorrect response item [see Florida approach; note: state test level decision on how to deal with incorrect responses when there is multiple response options])
- Options for supporting critical features, big ideas, and relations: provide modeled prompts.
- Options for guiding exploration and information processing: provide a practice item or task.
- Options for supporting critical features, big ideas, and relations: Remind student of the function of tools/features designed to aide comprehension and processing of information. (e.g., highlighting, graphic organizers, captions, and headings)
- Options for supporting memory and transfer: note-taking.
- Options for supporting memory and transfer: present items as a discrete unit or embed in a scenario.
- Options for supporting memory and transfer: locate items near relevant text.
- Options for supporting memory and transfer: mnemonic aids.
- Options for guiding exploration and information processing: use consistent signals/cues. (Signals/cues may include designations in assessments such as line numbers in passages, symbols for directions [e.g., stop signs to stop, arrows to continue], or behavioral gestures indicating where a student should mark a response)
- Options for guiding exploration and information processing: provide sequential highlighting. (Definition: to emphasize or make information prominent as it appears in a sequence by differentiated use of color, lighting, sound, or tactile surface [e.g., highlight the paragraph in yellow and highlight each word as it is read in blue])
- Options for supporting background knowledge - provide analogies and examples.
- Options for supporting background knowledge - pre-teach background content. (e.g., pre-teach definitions of unfamiliar words or concepts unrelated to the standard; pre-teach means teaching a student for the first

		time the definition of a word or concept that is included in the narrative of a test item but not part of the construct being measured) • Options for supporting background knowledge - provide concept maps. • Options for guiding exploration and information processing: provide a guide or checklist for prioritization of steps in multi-step problems. • Options for supporting background knowledge - provide hyperlinks to multi-media. • Options for supporting background knowledge - provide links to familiar materials. • Options for supporting background knowledge - provide links to related information. • Options for supporting background knowledge - remind student of materials or activities used to teach foundational reading/English language arts skills. • Options for supporting background knowledge - remind student of prior experiences. • Options for supporting memory and transfer: reread question/stimulus. • Options for supporting critical features, big ideas, and relations: highlight information.
Variable Features: Executive		• Representations of progress. (e.g., before and after photos, graphs and charts) • Prompts, scaffolds, and questions to monitor progress, to "stop and think", and for categorizing and systematizing. • Prompts and scaffolds to estimate effort, resources, and difficulty. • Guides, checklists, graphic organizers, and/or templates for goal setting, prioritizing, breaking long-term objectives into reachable short-term goals, self-reflection, and self-assessment. • Adjust levels of challenge and support. (e.g., adjustable leveling and embedded support, alternative levels of difficulty, alternative points of entry)
Variable Features: Affective		• Task options for engagement: variety of stimuli. • Task options for engagement: item/task format. (e.g., selected response vs. constructed response, performance) Task options for writing: Student writes 2-3 sentences, Present a written sentence and student corrects it, Compose sentences using words and punctuation from words/punctuation represented on cards, Technology-enhanced writing tasks • Task options for engagement: heighten salience. • Task options for engagement: enhance relevance, value, and authenticity of tasks. (task refers to the assessment items, stimulus "story", and materials) In writing: create a letter to a friend, use stories with their own names or names of classmates, content out of students' personal life • Teacher options for providing supports for attention and engagement: provide varied levels of challenge and support. • Teacher options for providing supports for attention and engagement: provide supports to reduce student frustration. (e.g., noise reduction, extended test taking time, contingencies, number of items administered at one time) • Teacher options for providing supports for attention and engagement: provide optimal student positioning (positions which encourage alertness, not recumbent). • Teacher options for providing supports for attention and engagement: provide feedback to support engagement. • Teacher options for providing supports for attention and engagement: prompt student to engage/re-engage. • Teacher options for providing supports for attention and engagement: cover up part of text so student isn't overwhelmed. • Task options for engagement: vary amount of context supporting tasks. (e.g., discrete tasks vs. scenarios) • Teacher options for providing supports for attention and engagement: administer assessment at optimal time of day for student engagement. • Teacher options for providing supports for attention and engagement:

		provide verbal/gestural prompts.
Educational Standards	[Edit]	CCSS: 5.G.1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the Ãƒ Â¢?? on each line and a given point in the plane located by using an ordered pair of numbers called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond.
I am a part of		NCSC Geometry Task 5.GM.1c3. (Task Family #2778)

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