

GS-1311 Physical Science Technician

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Physical Science Technician Competency Model

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Physical Science Technician Competency Model Study Summary

The DOI Office of Human Capital (OHC) conducted a comprehensive study to identify the critical competencies and tasks for successful performance of Physical Science Technician work across the Department. OHC worked with Physical Science Technician subject matter experts from across the Department in order to create a thorough and accurate representation of the work performed by DOI Physical Science Technician professionals and the knowledge, skills, and abilities required to perform that work.

The study involved a variation of the U.S. Office of Personnel Management's Multipurpose Occupational Systems Analysis Inventory – Closed-Ended (MOSAIC) method for gathering and analyzing information about work. The MOSAIC approach has been utilized to study and describe work performed within the Federal Government for over 25 years. The study included a wide-ranging literature review to build lists of tasks and competencies used to describe Physical Science Technician work across the Department. Next, focus groups with DOI Physical Science Technician subject matter experts were held to ensure these lists were complete and accurately represented the job. A trained job analyst also linked each task to competencies to confirm they were required to perform the work. DOI Physical Science Technician professionals rated the tasks and competencies to demonstrate the importance and utility of each component of the study. Finally, Physical Science Technician subject matter experts reviewed the results of the study to ensure its accuracy.

The results of this study establish a common set of Physical Science Technician tasks and competencies across the Department, which can be used to create assessment and selection techniques and tools and establish common practices and terminology for recruitment, performance management, workforce planning, training, and employee development. This work provides DOI with current, validated information that can be used to ensure its Physical Science Technician workforce has the tools to meet future challenges.

Please reference the Competency Model Interpretive Guidance for assistance in interpreting and applying the results of this study.

Physical Science Technician Competency Model

Table 1: General Competencies by Grade¹

The following general competencies are valid for assessment and selection, performance management, and other related human capital functions across the Physical Science Technician occupational series included in this study at the grade levels listed below.

GS-1	GS-2	GS-3	GS-4	GS-5	GS-6
• <i>Accountability</i> • <i>Attention to Detail</i> • <i>Compliance (2)</i> • <i>Customer Service</i> • <i>Flexibility</i> • <i>Integrity/Honesty</i> • <i>Interpersonal Skills</i> • <i>Learning</i> • <i>Problem Solving</i> • <i>Stress Tolerance</i> • <i>Teamwork</i> • <i>Technical Competence</i> • <i>Writing</i>	• Accountability • Attention to Detail • Compliance (2) • Customer Service • Flexibility • Integrity/Honesty • Interpersonal Skills • Learning • Problem Solving • Stress Tolerance • Teamwork • Technical Competence • Writing	• Accountability • Attention to Detail • Compliance (2) • Customer Service • Flexibility • Integrity/Honesty • Interpersonal Skills • Learning • Problem Solving • Stress Tolerance • Teamwork • Technical Competence • Writing	• Accountability • Attention to Detail • Compliance (2) • Flexibility • Integrity/Honesty • Interpersonal Skills • Learning • Problem Solving • <i>Reading Comprehension</i> • <i>Self-Management</i> • Stress Tolerance • Teamwork • Technical Competence • Writing	• Accountability • Attention to Detail • Compliance (2) • Customer Service • Flexibility • Information Management • Integrity/Honesty • Interpersonal Skills • Learning • Oral Communication • <i>Planning and Evaluating</i> • Problem Solving • Reading Comprehension • Reasoning • Self-Management • Stress Tolerance • Teamwork • Technical Competence • Writing	• Accountability • Attention to Detail • Compliance (2) • <i>Creative Thinking</i> • Customer Service • Flexibility • Information Management • Integrity/Honesty • Interpersonal Skills • Learning • Oral Communication • <i>Planning and Evaluating</i> • Problem Solving • Reading Comprehension • Reasoning • Self-Management • Stress Tolerance • Teamwork • Technical Competence • Writing

¹ Italics represent the lowest grade at which the competency appears.

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GS-7	GS-8	GS-9	GS-10	GS-11	GS-12	GS-13
• Accountability • Attention to Detail • Compliance (2) • Creative Thinking • Customer Service • Flexibility • Information Management • Integrity/Honesty • Interpersonal Skills • Learning • Oral Communication • Planning and Evaluating • Problem Solving • Reading Comprehension • Reasoning • Self-Management • Stress Tolerance • Teamwork • Technical Competence • Writing	• Accountability • Attention to Detail • Compliance (2) • Creative Thinking • Customer Service • Flexibility • Information Management • Integrity/Honesty • Interpersonal Skills • Learning • Oral Communication • Planning and Evaluating • Problem Solving • Reading Comprehension • Reasoning • Self-Management • Stress Tolerance • Teamwork • Technical Competence • Writing	• Accountability • Attention to Detail • Compliance (2) • Creative Thinking • Customer Service • Flexibility • Information Management • Integrity/Honesty • Interpersonal Skills • Learning • Oral Communication • Planning and Evaluating • <i>Organizational Awareness</i> • Problem Solving • Reading Comprehension • Reasoning • Self-Management • Stress Tolerance • Teamwork • Technical Competence • Writing	• Accountability • Attention to Detail • Compliance (2) • Creative Thinking • Customer Service • Flexibility • Information Management • Integrity/Honesty • Interpersonal Skills • Learning • Oral Communication • Planning and Evaluating • Problem Solving • Reading Comprehension • Reasoning • Self-Management • Stress Tolerance • Teamwork • Technical Competence • Writing	• Accountability • Attention to Detail • Compliance (2) • Creative Thinking • Customer Service • Flexibility • Information Management • Integrity/Honesty • Interpersonal Skills • Learning • Oral Communication • Planning and Evaluating • Organizational Awareness • Problem Solving • Reading Comprehension • Reasoning • Self-Management • Stress Tolerance • Teamwork • Technical Competence • Writing	• Accountability • Attention to Detail • Compliance (2) • Creative Thinking • Customer Service • Flexibility • Information Management • Integrity/Honesty • Interpersonal Skills • Learning • Oral Communication • Planning and Evaluating • Organizational Awareness • Problem Solving • Reading Comprehension • Reasoning • Self-Management • Stress Tolerance • Teamwork • Technical Competence • Writing	• Accountability • Attention to Detail • Compliance (2) • Customer Service • Flexibility • Information Management • Information Management • Integrity/Honesty • Interpersonal Skills • Learning • Oral Communication • Planning and Evaluating • Oral Communication • Problem Solving • Reading Comprehension • Reasoning • Self-Management • Stress Tolerance • Teamwork • Technical Competence • Writing

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Table 2: Required Proficiency Levels by Grade Level

Proficiency Level Scale Definitions

Proficiency Level	General Competencies	Technical Competencies
5 = Expert	• Applies the competency in exceptionally difficult situations • Serves as a key resource and advises others	• Applies the competency in exceptionally difficult situations • Serves as a key resource and advises others • Demonstrates comprehensive expert understanding of concepts and processes
4 = Advanced	• Applies the competency in considerably difficult situations • Generally requires little or no guidance	• Applies the competency in considerably difficult situations • Generally requires little or no guidance • Demonstrates understanding of concepts and processes
3 = Intermediate	• Applies the competency in difficult situations • Requires occasional guidance	• Applies the competency in difficult situations • Requires occasional guidance • Demonstrates understanding of concepts and processes
2 = Basic	• Applies the competency in somewhat difficult situations • Requires frequent guidance	• Applies the competency in somewhat difficult situations • Requires frequent guidance • Demonstrates familiarity with concepts and processes
1 = Awareness	• Applies the competency in simplest situations • Requires close and extensive guidance	• Applies the competency in simplest situations • Requires close and extensive guidance • Demonstrates awareness of concepts and processes

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Table 2: Required Proficiency Levels of General Competencies²

Table 7: Required Proficiency Levels of General Competencies³

	GS-1	GS-2	GS-3	GS-4	GS-5	GS-6	GS-7	GS-8	GS-9	GS-10	GS-11	GS-12	GS-13
Accountability	3	3	3	3	3	3	4	4	4	4	4	4	5
Attention to Detail	1	1	2	2	3	3	4	4	4	5	5	5	5
Compliance (2)	1	1	1	2	2	2	3	3	3	4	4	4	5
Creative Thinking						2	2	3	3	4	5	5	
Customer Service	1	1	1		2	2	3	3	3	4	4	4	5
Flexibility	1	1	2	2	2	3	3	3	3	3	4	4	5
Information Management					2	2	3	3	4	4	5	5	5
Integrity/Honesty	3	3	3	3	4	4	4	4	4	5	5	5	5
Interpersonal Skills	1	1	2	2	3	3	3	4	4	5	5	5	4
Learning	1	1	1	2	2	2	3	3	4	4	4	4	4
Oral Communication					3	3	3	4	4	5	5	5	5
Organizational Awareness (2)									3		4	5	5
Planning and Evaluating						1	2	2	3	4	4	5	5
Problem Solving	1	1	1	2	2	2	3	3	3	4	4	4	5
Reading Comprehension				2	3	3	3	4	4	5	5	5	5
Reasoning					2	2	3	3	4	4	4	5	5
Self-Management				2	3	3	3	3	4	4	5	5	5
Stress Tolerance	1	1	1	2	2	2	3	3	3	4	4	4	5
Teamwork	1	1	2	2	3	3	4	4	4	5	5	5	5
Technical Competence	1	1	1	2	2	2	3	3	4	4	4	5	5
Writing	1	1	2	2	3	3	3	4	4	5	5	5	5

² Bolded competencies are validated for use for assessment and selection purposes.

³ Bolded competencies are validated for use for assessment and selection purposes.

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Table 3: Behavioral Examples for Competencies

The following competency specific behavioral examples can be used when designing rubrics/rating forms. Please see the DOI Assessment Guide for additional clarification, information, and examples regrading rating rubrics and rating forms.

Competency Name	Definitions
Accountability	Holds self and others accountable for measurable high-quality, timely, and cost-effective results. Determines objectives, sets priorities, and delegates work. Accepts responsibility for mistakes. Complies with established control systems and rules. • <i>Takes responsibility for results and work products</i> • <i>Ensures work is completed on time and at the level of quality required</i> • <i>Understands the rules and regulations of the work performed and ensures compliance with them</i> • <i>Demonstrates responsibility with important materials, critical processes, or confidential information</i>
Attention to Detail	Is thorough when performing work and conscientious about attention to detail. Recalls information that has been presented previously. • <i>Sets the standards for the quality of the work completed for the organization</i> • <i>Leads others in attending to detail in difficult and/or high-pressure circumstances</i> • <i>Reviews and edits work completed by others to ensure that the quality of work meets acceptable work standards</i> • <i>Independently completes thorough and accurate work</i>
Compliance (2)	Ensure adherence to regulatory requirements, laws, regulations, industry standards, and agency policies. Ability to identify, manage and mitigate compliance risks while fostering a culture of ethical behavior and accountability within the organization. • <i>Shows familiarity with the structure and terminology of various rules and regulations of the Federal Government</i> • <i>Demonstrates the ability to search for and find appropriate rules or regulations</i> • <i>Understands how to apply appropriate rules and regulations to guide direction of work or make decisions</i>
Creative Thinking	Uses imagination to develop new insights into situations and applies innovative solutions to problems; designs new methods where established methods and procedures are inapplicable or are unavailable. • <i>Creates a work environment that encourages creative thinking and innovation</i> • <i>Explores new ideas, methodologies, and alternatives to reach outcomes</i> • <i>Introduces new concepts or strategies that significantly improve or revise the way work is performed</i> • <i>Suggests or proposes alternative ways to view or define problems; is not constrained by conventional thinking and established approaches</i> • <i>Combines ideas in unique ways or makes connections between disparate ideas</i>

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Customer Service	Works with clients and customers (that is, any individuals who use or receive the services or products that your work unit produces, including the general public, individuals who work in the agency, other agencies, or organizations outside the Government) to assess their needs, provide information or assistance, resolve their problems, or satisfy their expectations; knows about available products and services; is committed to providing quality products and services. • <i>Commits to serving the public and understands their advisory role</i> • <i>Utilizes outreach, needs assessment, evaluation, and other marketing skills to identify and anticipate customer needs and provide exemplary customer service</i> • <i>Understands diverse customer groups, their perspectives, issues and needs</i> • <i>Works to ensure customers' needs are met, even when those needs are outside of the typical role of the position</i> • <i>Identifies and develops metrics to assess customer service satisfaction</i> • <i>Continuously improves products and services</i> • <i>Works and plans strategically, using a systems perspective to anticipate developing customer issues and needs and to provide timely solutions that focus on long-term benefits</i>
Flexibility	Is open to change and new information; adapts behavior or work methods in response to new information, changing conditions, or unexpected obstacles; effectively deals with ambiguity. • <i>Effectively adjusts strategies or course of action in response to changing conditions</i> • <i>Makes quality decisions when faced with ambiguous situations</i> • <i>Is willing to incorporate new information into decision making process</i> • <i>Adapts behavior to overcome challenges</i>
Information Management	Identifies a need for and knows where or how to gather information; organizes and maintains information or information management systems. • <i>Demonstrates an understanding of where and how data or other information are maintained</i> • <i>Shows familiarity with the information management systems of the organization</i> • <i>Effectively searches for and finds appropriate information to address the needs of a project</i> • <i>Uses discretion when handling sensitive content</i>
Integrity/Honesty	Contributes to maintaining the integrity of the organization; displays high standards of ethical conduct and understands the impact of violating these standards on an organization, self, and others; is trustworthy. • <i>Takes pride in exhibiting personal and organizational integrity and honesty</i> • <i>Acts in a just, fair, and ethical manner and encourages ethical behavior among others, even when risky to do so</i> • <i>Inspires trust and confidence among stakeholders through reliability, authenticity, and accountability</i>

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Interpersonal Skills	Treats others with courtesy, sensitivity, and respect. Considers and responds appropriately to the needs and feelings of different people in different situations. • <i>Shows respect for the values and ideas of others, even when not agreeing with them</i> • <i>Empathizes with the concerns of others</i> • <i>Demonstrates tact and courtesy when interacting with associates</i> • <i>Is proactive in defusing arguments among peers</i> • <i>Seeks feedback from others to avoid blind-spots that can cause misunderstandings</i> • <i>Explores issues with the team; shares information; solicits ideas' uses participative decision-making processes</i>
Learning	Uses efficient learning techniques to acquire and apply new knowledge and skills; uses training, feedback, or other opportunities for self-learning and development. • <i>Is proactive in seeking out new knowledge</i> • <i>Devotes time to building new skillsets or further developing existing skillsets</i> • <i>Understands instructions or assignments without much need for additional explanation or clarification</i> • <i>Is open to constructive feedback on performance</i> • <i>Rarely makes the same mistake more than once</i> • <i>Effectively applies new knowledge or skills in applied environments</i>
Oral Communication	Expresses information (for example, ideas or facts) to individuals or groups effectively, taking into account the audience and nature of the information (for example, technical, sensitive, controversial); makes clear and convincing oral presentations; listens to others, attends to nonverbal cues, and responds appropriately. • <i>Speaks honestly, effectively and with integrity</i> • <i>Makes convincing, articulate, and accurate oral presentations using non-verbal and vocal qualities that support the verbal spoken message</i> • <i>Effectively uses various communication channels, including meetings, presentations and briefings</i> • <i>Actively considers, plans for, and reacts appropriately to the audience and the contextual environment in order to minimize barriers to understanding</i> • <i>Explains complex information clearly and accurately, and seeks feedback to determine that understanding has occurred</i> • <i>Acts as an effective facilitator in group or team settings</i>
Organizational Awareness (2)	Analyze organizational structures and dynamics to identify key stakeholders, understand internal processes, and effectively navigate the workplace environment to align strategies with the organization's goals and culture. • <i>Demonstrates awareness of the mission, functions, and various levels of the organization</i> • <i>Understands how decisions or actions of one organizational component may affect other components</i> • <i>Leverages knowledge of organizational components, programs, and directions to improve products, actions, or decisions</i> • <i>Shows familiarity with the rules and regulations of the organization</i>

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Planning and Evaluating	Organizes work, sets priorities, and determines resource requirements; determines short- or long-term goals and strategies to achieve them; coordinates with other organizations or parts of the organization to accomplish goals; monitors progress and evaluates outcomes. • <i>Sets difficult but obtainable goals, benchmarks, or milestones</i> • <i>Determines resources required for successful completion of work and works with others to procure these resources</i> • <i>Collaborates effectively with other components of the organization</i> • <i>Establishes meaningful, observable metrics to track progress or evaluate performance</i> • <i>Ensures a clear and appropriate division of labor among team members</i>
Problem Solving	Identifies problems; determines accuracy and relevance of information; uses sound judgment to generate and evaluate alternatives, and to make recommendations. • <i>Examines problems and solutions with a long-term perspective</i> • <i>Effectively leads others in the effort of developing, identifying, and formulating problem solving strategies consistent with organizational goals</i> • <i>Uses logic to develop and implement innovative tools and techniques to resolve complex problems and issues</i> • <i>Uses logic to resolve complex, unique, or unusual problems</i> • <i>Consistently anticipates challenges that are not obvious to others</i> • <i>Determines the relevance of information in reaching effective conclusions</i> • <i>Formulates recommendations for the best course of action to address problems</i>
Reading Comprehension	Understands and interprets written material, including technical material, rules, regulations, instructions, reports, charts, graphs, or tables; applies what is learned from written material to specific situations. • <i>Demonstrations proper interpretation of written material</i> • <i>Applies what is learned from written material to specific situations</i> • <i>Can interpret various forms of written text or graphics to include charts, graphs, and tables</i>
Reasoning	Identifies rules, principles, or relationships that explain facts, data, or other information; analyzes information and makes correct inferences or draws accurate conclusions. • <i>Determines the relevance of information in reaching effective conclusions</i> • <i>Uses logic to determine relationships among information in order to reach conclusions</i> • <i>Makes appropriate inferences from data, rules, or other information</i>
Self-Management	Sets well-defined and realistic personal goals; displays a high level of initiative, effort, and commitment towards completing assignments in a timely manner; works with minimal supervision; is motivated to achieve; demonstrates responsible behavior. • <i>Sets own goals and priorities and coordinates activities and deadlines with others to ensure project goals are met</i> • <i>Continually applies significant effort and persistence toward achievement of goals in all situations</i> • <i>Takes initiative and seeks out new or additional responsibilities and tasks</i> • <i>Completes work and meets objectives with minimal supervisory intervention</i>

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Stress Tolerance	Deals calmly and effectively with high stress situations (for example, tight deadlines, hostile individuals, emergency situations, dangerous situations). • <i>Remains calm and focused when facing tight deadlines, high workload, or unexpected operational challenges.</i> • <i>Maintains professional conduct and clear judgment when dealing with difficult stakeholders or emotionally charged situations.</i> • <i>Continues performing essential duties effectively during emergencies, disruptions, or rapidly changing conditions.</i> • <i>Uses coping and prioritization strategies to manage stress and prevent negative impact on work quality.</i>
Teamwork	Encourages and facilitates cooperation, pride, trust, and group identity; fosters commitment and team spirit; works with others to achieve goals. • <i>Volunteers to assist associates with projects</i> • <i>Commits to working toward team or group goals</i> • <i>Displays team pride and empowers team pride among other group members</i> • <i>Works effectively in group settings in order to achieve team objectives</i>
Technical Competence	Uses knowledge that is acquired through formal training or extensive on-the-job experience to perform one's job; works with, understands, and evaluates technical information related to the job; advises others on technical issues. • <i>Demonstrates proficiency of technical subject matter area</i> • <i>Performs job tasks using the required physical and cognitive skills and abilities</i> • <i>Models technical task performance for others</i> • <i>Maintains currency on technical knowledge and technique</i>
Writing	Recognizes or uses correct English grammar, punctuation, and spelling; communicates information (for example, facts, ideas, or messages) in a succinct and organized manner; produces written information, which may include technical material that is appropriate for the intended audience. • <i>Composes clear, concise, and logical documents or correspondence involving complex technical information</i> • <i>Consistently and effectively tailors written products to a wide range of audiences and for diverse purposes in order to achieve a desired outcome</i> • <i>Proofreads and edits the writing of others</i> • <i>Effectively explains complex technical material to a non-technical audience</i> • <i>Uses correct grammar, punctuation, and spelling</i> • <i>Writes in an organized fashion that is easy to understand</i>

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Table 4: General Competencies by Assessment Tool

When considering which assessment tool to utilize to assess various competencies, the following tables lists a variety of assessment tools and indicates how well-suited each tool generally is for measuring each competency. For each competency, each assessment tool is listed as high, medium, or low, potential for effectiveness in assessing the competency.

Competency	Structured Resume Review	Structured Interview	Situational Judgment Test	Writing Assessment (Work Sample)
Accountability	Low	High	High	Low
Attention to Detail	Medium	Medium	Low	High
Compliance (2)	Medium	High	Low	Low
Creative Thinking	Low	High	Low	High
Customer Service	Low	High	Low	Low
Flexibility	Low	High	Medium	Low
Information Management	Medium	Medium	Medium	High
Integrity/Honesty	Low	High	Medium	Low
Interpersonal Skills	Low	High	Low	Low
Learning	Medium	Medium	Low	Medium
Oral Communication	Medium	High	Medium	Medium
Organizational Awareness (2)	Medium	High	Medium	Medium
Planning and Evaluating	Medium	High	Medium	High
Problem Solving	Low	High	Medium	High
Reading Comprehension	Low	Low	High	Medium
Reasoning	Low	Low	High	Medium
Self-Management	Low	High	Low	Low
Stress Tolerance	Low	High	Medium	High
Teamwork	Medium	Medium	Medium	Medium
Technical Competence	Medium	High	Medium	High
Writing	Medium	Low	Low	High

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Competency	Accomplishment Record	Personality Inventory	Biodata	Cognitive Ability Test
Accountability	Low	High	High	Low
Attention to Detail	Medium	Medium	Low	High
Compliance (2)	Low	High	Low	Low
Creative Thinking	Low	Medium	Medium	Medium
Customer Service	Medium	High	Low	Low
Flexibility	Low	High	Medium	Low
Information Management	Medium	Low	Medium	Medium
Integrity/Honesty	Low	High	Medium	Low
Interpersonal Skills	Low	High	Low	Low
Learning	Low	Low	Medium	High
Oral Communication	Low	Medium	Medium	Low
Organizational Awareness (2)	Low	High	Low	Low
Planning and Evaluating	High	Medium	Medium	Low
Problem Solving	Low	Low	Medium	High
Reading Comprehension	Low	Low	Low	High
Reasoning	Low	Low	Low	High
Self-Management	Medium	Medium	Medium	Low
Stress Tolerance	Low	Medium	Medium	Low
Teamwork	Low	Medium	Medium	Low
Technical Competence	High	Low	Low	Low
Writing	High	Low	Medium	Low

Table 5: Technical Competencies for Assessment & Selection

The following technical competencies are valid for assessment and selection, performance management, and other related human capital functions for the occupational series listed below. (NOTE: While the technical competencies below have been validated for assessment and selection for the series listed below, other technical competencies not listed below may be required depending on the position. Rely on the results of a job analysis and feedback from the hiring manager and subject matter experts to determine the exact technical competencies needed for a particular hire).

Table 5: Technical Competencies for Assessment & Selection by Grade GS-1311 – Physical Science Technician	
• Chemistry (2) * • Data Interpretation • Data Management (2) • Database management Systems (2) • Earth Science (2) • Education and Training (2) • Field Data Collection • Geographical Sciences (3) • Geology + • Geophysics (2) • Geospatial Information Systems (2)* • Hazardous Materials (2) • Hydrology (2)	• Manages and Organizes Information • Mechanical (3) • Physical Sciences (2) • Physics (2)* • Project Management (2) • Quality Management (2) • Remote Sensing (2) • Research and Statistics (2) • Soil Science (2) • Surveying (2) • Vehicle Operations (2) • Water Quality Testing • Water Safety Readiness

**Geospatial Information Systems (2) and Physics (2) were validated as a competencies that are needed at entry but not important for the community. While it is included in the model, they are most likely only important for certain positions. Thus proper alignment with the position duties should be considered before using these competency.*

** Chemistry (2) was validated for being Important for the job, however it is not needed at entry. It is not officially included in the model as the model depicts competencies that are validated for Needed at Entry as well as Importance. It might be a competency that the community trains to, however it shouldn't be used in hiring.*

Appendix A: Physical Science Technician General Competencies

The following lists highlight the key competencies that were identified through the Job Task Analysis (JTA) with the community. Competencies are an observable, measurable pattern of skills, knowledges, abilities, behaviors, and other characteristics that an individual needs to perform work roles or occupational functions successfully. Competencies can be used in the hiring process, to shape training programs, guide professional development, and support performance evaluations- ensuring consistency and alignment across the Department. Both the General and Technical Competencies for the job are listed.

Accountability	Holds self and others accountable for measurable high quality, timely, and cost-effective results. Determines objectives, sets priorities, and delegates work. Accepts responsibility for mistakes. Complies with established control systems and rules.
Attention to Detail	Is thorough when performing work and conscientious about attention to detail.
Compliance (2)	Ensure adherence to regulatory requirements, laws, regulations, industry standards, and agency policies. Ability to identify, manage and mitigate compliance risks while fostering a culture of ethical behavior and accountability within the organization.
Creative Thinking	Uses imagination to develop new insights into situations and applies innovative solutions to problems; designs new methods where established methods and procedures are inapplicable or are unavailable.
Customer Service	Works with clients and customers (that is, any individuals who use or receive the services or products that your work unit produces, including the general public, individuals who work in the agency, other agencies, or organizations outside the Government) to assess their needs, provide information or assistance, resolve their problems, or satisfy their expectations; knows about available products and services; is committed to providing quality products and services.
Flexibility	Is open to change and new information; adapts behavior or work methods in response to new information, changing conditions, or unexpected obstacles; effectively deals with ambiguity.
Information Management	Identifies a need for and knows where or how to gather information; organizes and maintains information or information management systems.

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Integrity/Honesty	Contributes to maintaining the integrity of the organization; displays high standards of ethical conduct and understands the impact of violating these standards on an organization, self, and others; is trustworthy.
Interpersonal Skills	Treats others with courtesy, sensitivity, and respect. Considers and responds appropriately to the needs and feelings of different people in different situations.
Learning	Uses efficient learning techniques to acquire and apply new knowledge and skills; uses training, feedback, or other opportunities for self-learning and development.
Oral Communication	Expresses information (for example, ideas or facts) to individuals or groups effectively, taking into account the audience and nature of the information (for example, technical, sensitive, controversial); makes clear and convincing oral presentations; listens to others, attends to nonverbal cues, and responds appropriately.
Organizational Awareness (2)	Analyze organizational structures and dynamics to identify key stakeholders, understand internal processes, and effectively navigate the workplace environment to align strategies with the organization's goals and culture.
Planning and Evaluating	Organizes work, sets priorities, and determines resource requirements; determines short- or long-term goals and strategies to achieve them; coordinates with other organizations or parts of the organization to accomplish goals; monitors progress and evaluates outcomes.
Problem Solving	Identifies problems; determines accuracy and relevance of information; uses sound judgment to generate and evaluate alternatives, and to make recommendations.
Reading Comprehension	Understands and interprets written material, including technical material, rules, regulations, instructions, reports, charts, graphs, or tables; applies what is learned from written material to specific situations.
Reasoning	Identifies rules, principles, or relationships that explain facts, data, or other information; analyzes information and makes correct inferences or draws accurate conclusions.
Self-Management	Sets well-defined and realistic personal goals; displays a high level of initiative, effort, and commitment towards completing assignments in a timely manner; works with minimal supervision; is motivated to achieve; demonstrates responsible behavior.
Stress Tolerance	Deals calmly and effectively with high stress situations (for example, tight deadlines, hostile individuals, emergency situations, dangerous situations).
Teamwork	Encourages and facilitates cooperation, pride, trust, and group identity; fosters commitment and team spirit; works with others to achieve goals.

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Technical Competence	Uses knowledge that is acquired through formal training or extensive on-the-job experience to perform one's job; works with, understands, and evaluates technical information related to the job; advises others on technical issues.
Writing	Recognizes or uses correct English grammar, punctuation, and spelling; communicates information (for example, facts, ideas, or messages) in a succinct and organized manner; produces written information, which may include technical material that is appropriate for the intended audience.

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Appendix B: Physical Science Technician Technical Competencies⁴

Cartography (2)	Applies cartographic principles, theories, and methods in the design, development, revision and/or interpretation of maps, charts, and related cartographic products, and photogrammetric and cartographic processing.
Chemistry (2) *	Applies knowledge of chemical concepts, principles, and theories to understand and evaluate the composition, structure, and properties of substances, as well as the processes and transformations they undergo—including the use and interaction of chemicals, identification of hazard indicators, and appropriate production and disposal methods.
Data Interpretation	Skill in collecting, analyzing, and interpreting data and policies, to determine actions and develop and propose guidance.
Data Management (2)	Application of the principles, procedures, and tools of data management, such as modeling techniques, data backup, data recovery, data dictionaries, data warehousing, data mining, data archiving, data disposal, and data standardization processes.
Database management Systems (2)	Utilizing database management systems to ensure data integrity, and security for effective information retrieval and storage.
Earth Science (2)	Application of interdisciplinary disciplines associated with the earth's composition, structure, or other physical aspects, including atmosphere.
Education and Training (2)	Develop and deliver learning opportunities, create educational materials, assess learner needs, and evaluate program outcomes to enhance skills and knowledge.
Field Data Collection	Ability to collect, record, and ensure accuracy of field data, for example, stream and river discharge measurements.
Geographical Sciences (3)	Application of the concepts, principles, theories, and methods for describing the location and distribution of features and phenomena including their relationships and characteristics.
Geology +	Application of the concepts, principles, and theories of the origins and structure of the earth, including the physical forces that have shaped it and its physical and organic history.
Geophysics (2)	Applies concepts, principles, and theories related to solid earth structure, solid earth processes, atmosphere, and the behavior of the earth's gravitational, magnetic, and electrical fields, and other forces affecting the earth and its environment.
Geospatial Information Systems (2)*	Application of knowledge and skill in manipulating computer systems designed for capturing, storing, checking, and displaying data related to positions on Earth's surface in order to better understand spatial patterns and relationships.

⁴ Includes competencies identified for positions by SMEs that were not considered “critical” across each occupational series. These competencies may still be used for training and development purposes.

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Hazardous Materials (2)	Manage hazardous materials by implementing safety protocols, conducting risk assessments, and ensuring proper handling and disposal to maintain a safe and compliant work environment.
Hydrology (2)	Applies concepts, principles, theories, and methods related to the magnitude, distribution, and quality of water resources including watershed management, climatology, geomorphology, groundwater hydrology, water quality, water resource management, and groundwater/surface water interactions.
Manages and Organizes Information	Identifies a need; gathers, organizes, and maintains information; determines its importance and accuracy, and communicates it by a variety of methods.
Mechanical (3)	Operate and maintain machines and tools, with an understanding of their designs, uses, benefits, repair, and maintenance.
Physical Sciences (2)	Analyze physical phenomena by applying scientific principles and methodologies, testing hypotheses, and interpreting data to advance understanding and solve practical problems in physical sciences.
Physics (2)*	Applies knowledge of physical principles, laws, and systems to understand, analyze, and predict natural phenomena, including the behavior of air and water, material dynamics, light, atomic and thermal processes, electrical theory, geological formations, and meteorological conditions.
Project Management (2)	Coordinating project execution by planning, organizing resources, coordinating tasks, and managing timelines to ensure successful completion and achievement of project goals.
Quality Management (2)	Application of the principles, methods, and tools of quality assurance, quality control, and reliability used to ensure that a project, system, or product fulfills requirements and standards.
Remote Sensing (2)	Process and analyze remote sensing data to extract insights, applying appropriate techniques and technologies to interpret imagery and spatial information for decision-making.
Research and Statistics (2)	Application of scientific principles, methods, and tools of basic and applied research (for example, statistics and data analysis) used to conduct a systematic inquiry into a subject matter area.
Soil Science (2)	Evaluate soil properties by conducting tests, analyzing soil composition, and applying findings to improve land use practices and support sustainable agricultural and environmental management.
Surveying (2)	Measure and map land, utilizing appropriate tools and techniques to gather data for the measurement or determination of land boundaries, distances, elevations, areas, angles, and other features of the earth's surface and/or environmental assessment.

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Vehicle Operations (2)	Applies organizational procedures and safety standards to operate motor vehicles—ensuring safe, compliant, and effective transportation in operational contexts.
Water Quality Testing	Uses correct measurement techniques to assess water quality, such as the concentration of dissolved oxygen, bacterial levels, the amount of salt (or salinity), and/or turbidity.
Water Safety Readiness	Maintain situational awareness, physical preparedness, and sound judgment when working in, on, or around water environments to ensure personal and operational safety. Applies knowledge of water-related hazards, emergency procedures, and safety protocols to prevent accidents, and respond effectively to unexpected conditions

**Geospatial Information Systems (2) and Physics (2) were validated as a competencies that are needed at entry but not important for the community. While it is included in the model, they are most likely only important for certain positions. Thus proper alignment with the position duties should be considered before using these competency.*

** Chemistry (2) was validated for being Important for the job, however it is not needed at entry. It is not officially included in the model as the model depicts competencies that are validated for Needed at Entry as well as Importance. It might be a competency that the community trains to, however it shouldn't be used in hiring.*

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Appendix C: Physical Science Technician Study Tasks

The following list identifies the essential tasks for the Security Guard Dispatchers. It was compiled through the Job Task Analysis with the community. This task list can be used to develop job descriptions, guide training and competency programs, support performance evaluations, and inform recruitment criteria-ensuring consistency and alignment across the organization.

1	Collects, compiles, and organizes information.
2	Monitors, maintains, or updates data, records, or other information.
3	Conducts evaluations, examinations, or other fact finding studies to obtain or verify information.
4	Designs or conducts analytical studies or other research.
5	Acquires, validates and/or quality checks data or other information.
6	Analyzes samples using instrumentation.
7	Creates tables, charts, graphs, or diagrams to organize or show information.
8	Reviews reports, documents, records, data, or other materials to verify completeness, correctness, consistency, compliance, or authenticity.
9	Drafts correspondence or other written work (for example, Standard Operating Procedures, manuals, technical reports, research, or contract proposals).
10	Discusses results, problems, plans, suggestions, terms, or conditions with others.
11	Explains or justifies decisions, conclusions, findings, or recommendations.
12	Recommends improvements or solutions to problems, or determines appropriate actions.
13	Develops, modifies, or provides input on plans, goals, or objectives for projects, programs, systems, or operations.
14	Reviews and provides feedback on the content of complex information.
15	Keeps abreast of latest technology, information, research, etc., to maintain knowledge in field of expertise.
16	Assists with developing models or theoretical approaches.
17	Provides technical advice in subject matter area to others.
18	Conducts environmental impact, health, or safety analyses.
19	Reads and records data obtained from technical or scientific instruments, or indicators.
20	Collects and prepares samples for laboratory testing.
21	Conducts quality checks or inspections to determine quality or condition.
22	Processes or analyzes data using computer systems or applications.
23	Participates in meetings with members of the public, industry, or other Federal and state agencies.
24	Instructs classes or conducts training sessions.
25	Designs, develops, or manages geographical information systems or global positioning systems data and/or databases.
26	Coordinates immediate and long-range objectives and plans.
27	Ensures adherence to conduct and safety protocols of employees during the performance of duties.
28	Develops computer scripts and tools that support data management and data analysis.
29	Explains technical or other complex information to a nontechnical audience.

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30	Mentors staff members.
31	Designs, develops, and implements advanced processing workflows and tasks through the use of currently accepted techniques or the development, testing, and application of new techniques.
32	Maintains, designs, tests, calibrates, installs, troubleshoots or repairs instrumentation systems.
33	Calibrates or installs technical equipment.
34	Constructs, operates, and maintains technical equipment (e.g., gaging equipment, recorders and sensors).
35	Makes suggestions based on data analysis.
36	Conducts field site visits, measurements, and evaluations.
37	Evaluates needs, makes recommendations on procurement priorities and prepares requests.
38	Coordinates with others to determine studies or evaluations necessary at sites.
39	Determines and acquires resources needed for projects, such as instrumentation.
40	Contributes to field mapping of terrain, sea floor, unique topographic features or rugged topography.
41	Produces maps, tabular data, overlays, and analysis results.
42	Assists scientists in field or laboratory settings in data collection, sample collection, field observations, or analysis.
43	Receives, examines, identifies, and verifies samples, checking type, quantity, condition, and temperature against accompanying request forms.
44	Assigns unique identifiers or bar-code labels and logs samples into a laboratory information management system for tracking.
45	Validates schedule, code, volume, preservation, and filtration information using reference systems; determines correct values when information is missing or erroneous.
46	Performs wet-laboratory procedures such as filtration, pH measurement, and sample weighing following established procedures.
47	Maintains inventory of expendable supplies, equipment, and chemicals; and places orders.
48	Archives results and associated metadata to permanent or national records to support data preservation.
49	Contacts data reporters or submitting parties to resolve errors and exceptions, and advises them on regulatory and data-standard compliance.
50	Verifies and corrects classification and indexing information for records; edits and revises erroneous data.
51	Identifies potential incidents of noncompliance and refers them for appropriate enforcement action.
52	Utilizes specialized database, query, and mapping applications to access, retrieve, and process technical data.
53	Informs scientists, engineers, and other users on accessing and using corporate databases.
54	Plans and carries out the successive steps of assignments, coordinating with others and selecting among alternative procedures.
55	Design and fabricate custom equipment.
56	Identifying and mitigating points of failure.
57	Maintain physical equipment.
58	Safely handle hazardous materials.
59	Creates reagents to support laboratory testing.
60	Operates specialized instruments and equipment.

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61	Maintain valid drivers license.
62	Maintain small boat operators license.
63	Create custom configurations to record data (e.g. earthquake and oceanographic data).
64	Design and install low voltage power systems.
65	Configures telemetry systems.
66	Design telemetry networks.
67	Follow and apply Quality Management System (QMS).
68	Conduct IP and computer networking.
69	Oversee contractor work performance and compliance with the scope of work.
70	Draft scopes of work for contractual bid.