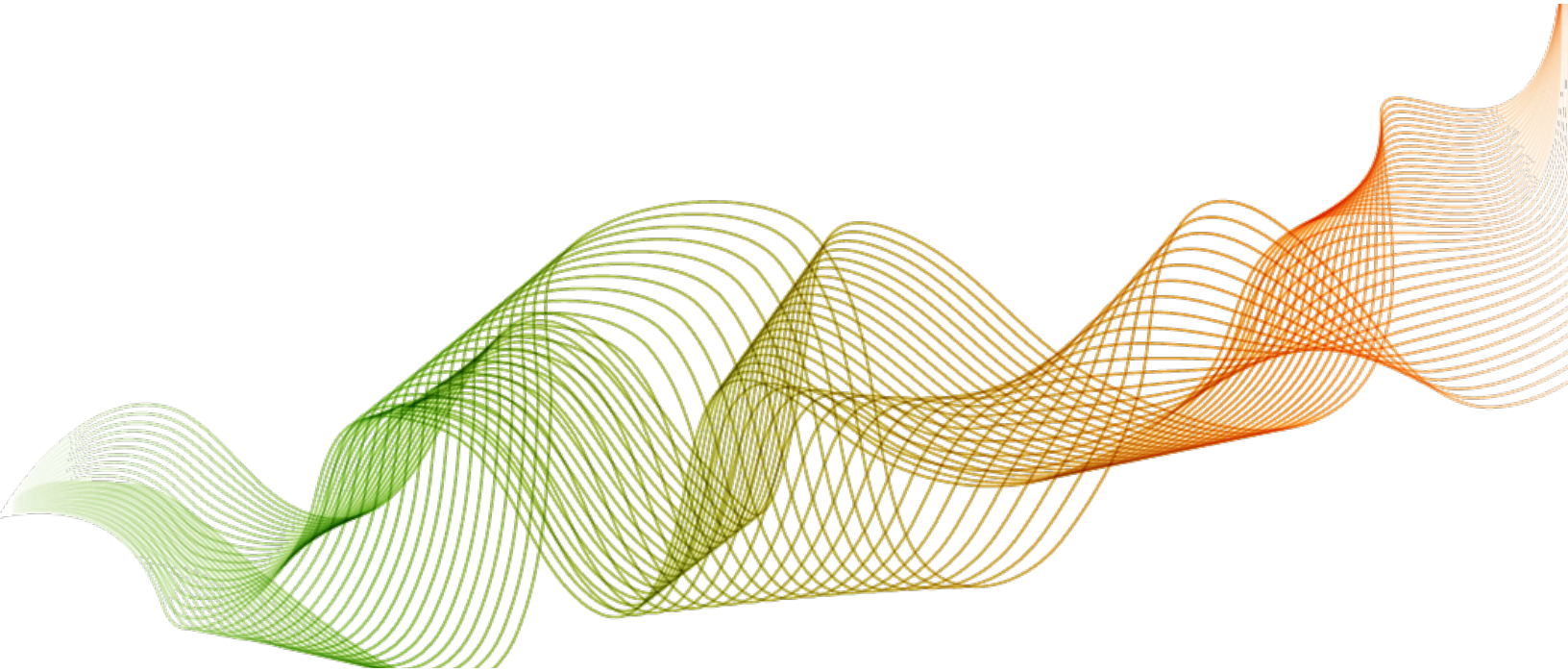
CFIT

Crystallized and Fluid Intelligence Test

Professional Guide

Interpreting CFIT Scores in Relation to OaSIS

Occupational and Skills Information System



Institut de Recherches Psychologiques

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Interpreting CFIT Scores in Relation to OaSIS

As job requirements change, employers need to understand how an individual's cognitive abilities relate to the demands of a role.

The Occupational and Skills Information System (OaSIS), known in French as the Système d'information sur les professions et les compétences (SIPeC), describes the abilities, skills, and other requirements of Canadian occupations. The Institut de Recherches Psychologiques (IRP) developed the Crystallized and Fluid Intelligence Test (CFIT) to assess individual cognitive abilities.

This guide explains how human resources professionals, organizational psychologists, and other practitioners can use CFIT results alongside OaSIS occupational profiles in recruitment, development, and workforce planning.

CFIT Framework and Applications

Theoretical Foundations

The CFIT draws on the Cattell–Horn theory of intelligence, which distinguishes fluid and crystallized intelligence.

- Fluid intelligence (Gf) is the ability to reason abstractly, identify relationships, and solve unfamiliar problems with relatively little reliance on previously acquired knowledge.
- Crystallized intelligence (Gc) reflects knowledge and skills acquired through education and experience, including vocabulary and the ability to apply learned rules and concepts.

The CFIT also reports a general intelligence composite (G), which summarizes performance across the cognitive domains assessed by the test.

Structure and Content of the CFIT

The CFIT assesses four domains.

- Verbal aptitude includes word associations, analogies, and comprehension.
- Numerical aptitude includes numerical reasoning and recognition of sequences.
- Spatial aptitude includes visualization tasks such as mentally folding and unfolding shapes.
- Matrices assess nonverbal abstract reasoning.

The CFIT is administered online and scored automatically. The professional report presents standardized scores on an IQ scale, percentile ranks, and a graphical profile.

Practical Applications

The CFIT can inform decisions in several settings.

- In recruitment and selection, use CFIT results to assess how a candidate's cognitive profile relates to the demands of a role.
- In skills development, use the profile to identify areas for development and guide training.
- In talent management, use the results to inform decisions about internal mobility, succession planning, and career development.

The OaSIS Occupational Framework

Objectives and Structure

Employment and Social Development Canada (ESDC) developed OaSIS to describe the requirements of Canadian occupations. Its occupational profiles draw on the Skills and Competencies Taxonomy (SCT), which distinguishes skills, abilities, knowledge, and other descriptors.

OaSIS serves several purposes.

- Give employers, job seekers, training providers, and policymakers a common vocabulary for discussing job requirements.
- Help users identify skill needs across sectors.
- Help users assess how skills transfer across roles.
- Support workforce planning at the local, regional, and national levels.
- Inform recruitment, career guidance, training, and reskilling.
- Make information about occupational requirements accessible.

ESDC used several sources and methods to develop OaSIS.

- The initial development matched Canadian occupational groups from the National Occupational Classification (NOC) to occupational profiles in the U.S. O*NET database.
- ESDC converted the initial ratings to the OaSIS scale and reviewed them against Canadian occupational sources.
- Canadian sources included the Career Handbook, occupational standards, and provincial government sources.
- Subsequent reviews use Canadian sources and apply the criteria in the relevant Canadian Rating Guide.

OaSIS groups abilities into cognitive, physical, psychomotor, and sensory categories. It rates the proficiency required for each applicable ability on a scale from 1 to 5. The rating describes the requirements of a specific ability within an occupation.

Occupational Proficiency Levels

The examples below illustrate how cognitive demands can increase across five proficiency levels. Consult the OaSIS profile and the relevant Canadian Rating Guide for the criteria and rating for a specific ability.

For the official rating methodology, see https://noc.esdc.gc.ca/OaSIS/OaSISMethodology?GoCTemplateCulture=en-CA

Level 1 Routine Tasks and Clear Instructions

Tasks at this level are typically concrete and repetitive. They require little abstract reasoning or integration of information. Workers follow clear instructions and established procedures.

Typical requirements include the following.

- Follow simple steps.
- Recognize objects visually.
- Repeat a task using the same procedure.

Examples include production support roles and other jobs with limited decision-making responsibility.

Level 2 Familiar Procedures and Some Variation

Tasks are primarily concrete, with some variation. Workers apply familiar rules and procedures to similar situations and make simple decisions within established guidelines.

Typical requirements include the following.

- Apply familiar rules to similar situations.
- Choose a solution from a limited set of options.
- Adjust to modest changes in the task.

Examples include cashier, clerical, office support, and fixed-route driving roles.

Level 3 Moderately Complex Tasks and Integration of Information

Workers integrate information from several sources, choose among alternatives, and apply basic deductive or inductive reasoning. They exercise some judgment independently.

Typical requirements include the following.

- Compare alternatives and choose the most suitable option.
- Prioritize actions using established criteria.
- Follow a plan while accounting for changing constraints.

Examples include administrative assistants, technicians, first-line supervisors, and customer service staff who handle complex inquiries.

Level 4 Complex Tasks and Problem Solving

Workers exercise considerable judgment, plan their work, and solve unfamiliar problems. They analyze data, develop hypotheses, respond to unexpected events, and may adapt or improve procedures.

Typical requirements include the following.

- Identify a problem and analyze its causes.
- Adapt procedures to an unusual situation.
- Make decisions when some relevant information is uncertain.

Examples include teaching, analytical, nursing, coordination, and middle management roles.

Level 5 Strategic Planning and Innovation

Workers develop strategies, manage complex systems, reconcile competing constraints, and devise new approaches. They often exercise judgment in situations with few established procedures.

Typical requirements include the following.

- Design a new system, plan, or method.
- Anticipate the long-term impact of decisions.
- Manage ambiguity and reconcile competing objectives.

Examples include senior executive, research, strategic planning, and organizational consulting roles. Across all five levels, the examples illustrate possible job demands. Actual ratings vary by occupation and ability.

Cognitive Abilities Described in OaSIS

OaSIS describes the cognitive abilities that may be required across occupations.

The following descriptions summarize the 21 cognitive ability descriptors used in OaSIS.

Information ordering involves arranging items or actions in a specified sequence or pattern according to a rule.

Categorization flexibility involves using different rules to group the same items in different ways.

Deductive reasoning involves applying a general rule to reach a logical conclusion in a specific case.

Inductive reasoning involves drawing a general rule or conclusion from separate pieces of information.

Fluency of ideas is the ability to generate many ideas on a given topic.

Form perception involves noticing visual details and distinguishing shapes, shading, dimensions, or patterns.

General learning ability involves understanding new information and instructions, recognizing their underlying principles, and applying reasoning and judgment.

Problem identification involves recognizing an existing or potential problem.

Numerical ability involves carrying out arithmetic operations accurately.

Mathematical reasoning involves choosing and applying appropriate mathematical methods or formulas to solve a problem.

Memorizing involves retaining and recalling information such as facts, instructions, or sequences.

Multitasking involves alternating between activities or sources of information within the same period.

Pattern identification involves detecting a familiar pattern hidden within other information or material.

Pattern organization speed is the ability to combine and arrange information quickly into meaningful patterns.

Perceptual speed involves comparing letters, numbers, objects, or patterns quickly and accurately.

Spatial orientation involves determining one's position in an environment or locating objects relative to oneself.

Spatial visualization involves picturing geometric forms and anticipating how objects change when moved or transformed.

Verbal ability involves understanding the meaning and relationships of spoken words and using them appropriately in context.

Written comprehension involves understanding information and ideas presented in writing.

Written expression involves communicating ideas clearly in writing and adapting the style to the audience.

Selective attention involves maintaining focus on a task despite distractions.

The indicators vary by ability. They may include the complexity of rules, the number of factors to consider, the level of abstraction, or the speed required. These indicators help practitioners compare occupational demands with the abilities assessed by the CFIT or another aptitude test.

For the official descriptors, see https://noc.esdc.gc.ca/OaSIS/OasisSkillsCompetencies?GoCTemplateCulture=en-CA

How IRP Links CFIT Scores to OaSIS

IRP developed the alignment in three steps.

- Review the OaSIS descriptors and their proficiency levels.
- Identify the constructs measured by the CFIT scales and subtests.
- Compare the abilities measured by the CFIT with the occupational requirements described in OaSIS.

The resulting correspondence is a guide for interpreting scores in relation to job demands. The CFIT score cutoffs used for this alignment are confidential.

Correspondence Between CFIT Scales and OaSIS Abilities

Numerical, verbal, and spatial aptitudes have the clearest links to specific OaSIS descriptors.

The sections below describe what each CFIT scale measures and which occupational requirements may be relevant. The strength of the correspondence depends on the tasks involved in the specific role.

Numerical Reasoning

The CFIT assesses numerical aptitude through tasks that involve recognizing relationships among numbers, identifying sequences, and solving quantitative problems. These tasks relate to two OaSIS descriptors. Numerical ability concerns arithmetic operations, and mathematical reasoning concerns choosing appropriate methods to solve mathematical problems.

For roles such as financial analyst, engineer, or planner, a CFIT numerical aptitude score can help practitioners assess an aspect of the candidate's profile relevant to quantitative work.

Verbal Aptitude

The CFIT assesses verbal aptitude using analogies, synonyms, word associations, and tasks that require identifying relationships between words. These tasks assess language abilities relevant to understanding instructions and interpreting written information.

OaSIS distinguishes verbal ability, written comprehension, and written expression. CFIT verbal scores can help interpret the language demands of occupations such as teaching, management, writing, and counselling. Assess written expression and oral communication with tasks that sample those skills directly when they are central to the role.

Spatial Reasoning

The CFIT spatial scale uses tasks such as mentally folding or unfolding shapes and rotating objects. These tasks relate most closely to the OaSIS descriptors for spatial visualization and form perception.

Spatial visualization can be relevant to the work of design technicians, mechanical engineers, pilots, architects, and workers in some skilled trades. The CFIT score provides information about performance on standardized spatial tasks that involve some of the same mental operations.

Why These Abilities Are Easier to Compare

The numerical, verbal, and spatial domains are easier to compare with OaSIS descriptors for three reasons.

- The abilities have clearly defined content, such as arithmetic operations, relationships between words, or the mental manipulation of objects.
- OaSIS describes the required proficiency for individual abilities, which gives practitioners a reference when reviewing job demands.
- The tasks involve observable performance, such as calculating accurately, identifying a relationship between words, or mentally rotating a shape.

Inductive and Deductive Reasoning in the Matrices Test

Matrix tasks require the individual to infer relationships among visual elements and apply the resulting rules. Inductive and deductive reasoning both contribute to performance.

Deductive reasoning involves applying a general rule to a specific case. In a matrix item, the individual can apply a proposed rule, such as a rule about symmetry or rotation, to the other elements to check whether it holds and determine which response completes the pattern.

Inductive reasoning involves inferring a general rule from particular observations. In matrix tasks, the individual compares visual elements, looks for recurring relationships, and infers a rule that explains the pattern.

The individual often alternates between inferring a rule and testing it against other elements in the matrix. More complex items may require applying several rules at once, such as combining a rotation with a numerical progression.

A matrix score summarizes performance on tasks that draw on both forms of reasoning. Separate evidence is needed to determine whether a difficulty lies in inferring a rule, applying it, or coordinating the two processes.

This distinction is useful when interpreting a matrices score alongside the rest of the cognitive profile.

How the CFIT Assesses Fluid Intelligence

The CFIT uses the matrices and spatial subtests to estimate fluid intelligence (Gf). Both require reasoning through unfamiliar problems with relatively little reliance on acquired knowledge. The verbal and numerical subtests contribute to crystallized intelligence (Gc).

Matrices assess the ability to discover relationships among abstract visual elements and apply inferred rules. They draw on induction to identify a pattern and deduction to test and apply it.

Spatial tasks assess the ability to represent and manipulate objects mentally. Folding, unfolding, and mentally rotating shapes require the individual to anticipate changes without physically handling the objects.

The composite captures performance across both abstract pattern reasoning and visuospatial tasks. This gives practitioners a broader sample of performance than either type of task provides on its own.

These two sources of information help practitioners interpret how an individual approaches unfamiliar abstract and spatial problems.

How to Interpret the Five CFIT Reporting Levels

The CFIT reporting levels give practitioners a common scale for comparing test results with occupational requirements described in OaSIS.

The occupational interpretation in this guide focuses on Levels 3 to 5, where the examples involve integrating information, adapting to new situations, solving problems, or developing new approaches.

Levels 1 and 2 describe lower proficiency requirements. Tasks at these levels generally involve applying familiar procedures or making simple adjustments within established guidelines. The examples can help illustrate the range of demands across occupations.

- The CFIT report presents five levels, from 1 to 5. The levels summarize relative test performance.
- CFIT scores are interpreted using a normative reference sample.
- The CFIT reporting levels group scores into ordered bands. The percentage of test takers in each band depends on the score distribution and the cutoffs used.
- A CFIT reporting level describes an individual's test performance. An OaSIS proficiency rating describes the demand associated with a particular ability in an occupation.

Levels 1 and 2 remain part of the full CFIT reporting scale. When interpreting any level in relation to a job, review the actual tasks and the relevant occupational descriptors.

The occupational examples below illustrate the kinds of demands that may be relevant when reviewing CFIT results.

The examples show how fluid and crystallized intelligence can contribute to tasks of varying complexity.

Fluid Intelligence (Gf)

Examples of demands relevant to Gf include the following.

- Level 3. Handle moderately complex tasks.
- Level 4. Integrate varied information to solve complex problems.
- Level 5. Develop original solutions to unfamiliar problems.

Crystallized Intelligence (Gc)

Gc is relevant when tasks require the use of acquired knowledge.

- Levels 1 and 2. Apply familiar knowledge and procedures.
- Levels 3 to 5. Adapt and apply acquired knowledge to increasingly complex tasks.

Illustrative Links Between CFIT Scales and Occupational Demands

CFIT Scale	Related Occupational Demand	Illustrative Levels	Example Occupations
Verbal	Understanding words and written information	2–5	Teacher, manager
Numerical	Working with numerical information	2–5	Financial analyst, engineer
Spatial	Visualizing objects and transformations	2–4	Design technician, pilot
Gf	Solving unfamiliar problems	3–5	Researcher, R&D director
Gc	Applying acquired knowledge	2–5	Specialized technician, consultant, manager

Practical Application of Results

Practitioners can use CFIT results and OaSIS occupational profiles in several settings.

- In recruitment or potential assessment, compare relevant cognitive abilities with the demands of the role.
- In skills development, use results to inform individual training plans.
- In workforce planning, identify abilities that future roles may require.

From GATB Classes to CFIT Reporting Levels

The earlier General Aptitude Test Battery (GATB)–CFIT grid used the former National Occupational Classification (NOC) skill levels A to D as a reference. The grid reported five performance classes in descending order, with Class 1 at the top of the range and Class 5 at the bottom.

- Class 1 is above the 90th percentile.
- Class 2 covers the 70th through 90th percentiles.
- Class 3 covers the 36th through 69th percentiles.
- Class 4 covers the 11th through 35th percentiles.
- Class 5 is at or below the 10th percentile.

The historical grid and the current report use opposite numbering conventions.

The current CFIT report uses ascending reporting levels for comparison with OaSIS occupational requirements.

Level 1 is the lowest CFIT reporting level and Level 5 is the highest.

For example, a Gf result at Level 4 can inform an assessment of job demands involving abstract reasoning, integration of information, and responses to unfamiliar situations. Assess the fit by reviewing the specific role and other evidence about the individual.

The ascending scale makes the report easier to read alongside OaSIS profiles.

- It gives HR professionals, managers, and development advisors a consistent reporting convention.
- It uses the same direction as the OaSIS occupational proficiency scale.
- The labels “class” and “level” distinguish the two conventions when comparing historical and current reports.

The alignment uses occupational distributions informed by the 2021 Census. The CFIT normative sample provides the reference for standardized test scores and percentile ranks. These two sources serve different purposes.

Reading the Current Scale

- Level 5 represents the upper end of the CFIT reporting scale.
- Level 1 represents the lower end of the CFIT reporting scale.

Occupational Distributions Based on the 2021 Census

The tables show the percentage distribution and cumulative percentages used in the occupational comparison. In OaSIS, a rating of 0 indicates that the descriptor does not apply to the occupation. Candidate CFIT reporting levels run from 1 to 5.

Percentage at Each Level

Ability	0	1	2	3	4	5
General learning ability	0.0%	13.8%	28.1%	33.6%	17.7%	6.9%
Crystallized Intelligence (Gc)	0.9%	18.4%	29.6%	30.9%	14.2%	6.0%
Fluid Intelligence (Gf)	5.7%	19.5%	35.9%	25.1%	11.3%	2.5%
Verbal aptitude	0.0%	18.7%	24.8%	35.4%	16.1%	5.0%
Numerical aptitude	1.9%	18.1%	34.3%	26.3%	12.2%	7.1%
Spatial aptitude	11.4%	21.2%	38.0%	19.6%	8.0%	1.9%
Matrices	0.0%	17.9%	33.8%	30.6%	14.6%	3.2%

Cumulative Percentage at or Below Each Level

Ability	0	1	2	3	4	5
General learning ability	0.0%	13.8%	41.9%	75.4%	93.1%	100.0%
Crystallized Intelligence (Gc)	0.9%	19.4%	48.9%	79.8%	94.0%	100.0%
Fluid Intelligence (Gf)	5.7%	25.2%	61.1%	86.2%	97.5%	100.0%
Verbal aptitude	0.0%	18.7%	43.6%	78.9%	95.0%	100.0%
Numerical aptitude	1.9%	20.0%	54.3%	80.7%	92.9%	100.0%
Spatial aptitude	11.4%	32.5%	70.5%	90.1%	98.1%	100.0%
Matrices	0.0%	17.9%	51.7%	82.3%	96.8%	100.0%

Census source. Statistics Canada, Table 98-10-0593-01, 2021 Census of Population, 25% sample data. The table covers the labour force aged 15 and older in private households and reports employment information by occupation and worker characteristics. https://doi.org/10.25318/9810059301-eng

Recommendations for Professionals

Use CFIT results alongside OaSIS profiles to examine how an individual's cognitive abilities relate to the demands of a specific role.

- Consider the full profile. Review cognitive test results alongside relevant experience, technical and interpersonal skills, values, and motivation. A CFIT score alone is insufficient to determine suitability for a role.
- Use the alignment as an interpretive guide. Consider the specific duties, organizational context, and any accommodations relevant to the assessment.
- Interpret lower reporting levels in context. Review how the score relates to the actual duties and consider other assessment evidence before making a selection decision.
- Protect CFIT results under applicable privacy laws and professional requirements. Share them only with authorized recipients for the intended assessment purpose. Keep the CFIT score cutoffs used for the OaSIS alignment confidential.
- Supplement the CFIT with evidence from a structured interview, a work sample, or other relevant assessments.
- Verify that the cognitive abilities assessed are relevant to the role and that the expected proficiency is supported by the actual duties.

Conclusion

The CFIT describes individual cognitive performance. OaSIS profiles describe the abilities typically required in Canadian occupations. Used together, they can help practitioners decide which aspects of an individual's cognitive profile are relevant to a role.

The comparison can inform three types of decisions.

- Recruitment and development decisions that account for the cognitive demands of a role.
- Workforce planning that identifies abilities the organization may need in the future.
- Assessment design that draws on a common occupational vocabulary.

Interpret the correspondence alongside job analysis and other assessment evidence, including relevant experience and technical and interpersonal skills.

The value of the comparison depends on how closely the assessment reflects the work the person will be expected to do.