Next Generation Higher National Unit Grading Pack

Higher National Diploma Data Science

Qualification code: GT9A 48

This qualification is available in a restricted delivery model from academic session 2025

This grading pack provides information about the process of grading the Higher National Diploma (HND) Data Science. It is for lecturers and assessors, and contains all the mandatory information you need to grade the HND.

You must read it alongside the Educator Guide.

Published: October 2025 (version 1.0)

Contents

Approach to grading

Grading in Next Generation: Higher National (NextGen: HN) Qualifications produces a valid and reliable record of a learner's level of achievement across the breadth of the qualification content.

As well as grading the whole qualification, you assess individual units on a pass or fail basis. Each unit has evidence requirements that learners must achieve before you can consider them for whole-qualification grading.

Whole-qualification grade outcomes

Learners who pass NextGen: HN Qualifications receive one of the following grade outcomes for the qualification as a whole:

- Achieved with Distinction
- Achieved with Merit
- Achieved

To determine a learner's whole-qualification grade, you use the grading matrix to assess and judge their performance across the key aspects of the HND. You must align your judgements with the following whole-qualification grade descriptors.

Whole-qualification grade descriptors

Achieved with Distinction

The learner has achieved an excellent standard across the course content, going significantly beyond meeting the qualification requirements. They showed a comprehensive knowledge and understanding of course concepts and principles, and consistently used them to apply skills to complete high-quality work. They engaged significantly with the process of developing their meta-skills in the context of their HN Qualification.

Achieved with Merit

The learner has achieved a very good standard across the course content, going beyond meeting the qualification requirements. They showed a very good knowledge and understanding of course concepts and principles, and consistently used them to apply skills to complete work of a standard above that expected for an Achieved grade. They actively engaged with the process of developing their meta-skills in the context of their HN Qualification.

Achieved

The learner has achieved a good standard across the course content, credibly meeting the qualification requirements. They showed a good knowledge and understanding of course concepts and principles, and used them to apply skills to complete work of the required standard. They engaged with the process of developing their meta-skills in the context of their HN Qualification.

What the whole-qualification grade descriptors do and how they are used

The whole-qualification grade descriptors outline the skills, knowledge and understanding a learner needs to show across the whole qualification to achieve that specific grade. They align with the Scottish Credit and Qualifications Framework (SCQF) level descriptors.

NextGen: HND qualifications are at SCQF level 8. Learners who complete a NextGen: HND can:

- convey an insightful understanding of the subject's core theories, concepts and principles, along with its scope and defining features
- apply skills, knowledge and understanding of the subject in relevant practical and professional contexts, showing some specialist knowledge and using a range of relevant techniques and materials
- describe and explain significant topical issues and specific areas of interest

- exercise autonomy and initiative in carrying out activities, and have developed their professional practice and behaviours relevant to the context of the qualification
- formulate and critically evaluate evidence-based responses to issues in the context of the subject area, appropriately applying research and academic processes

Please use this information, as well as the whole-qualification grade descriptors, to help you understand the standard at which learners should be assessed and graded.

Higher education institutes (HEIs) can use the grade descriptors to set admissions requirements, and employers can use them to help make decisions during a recruitment process.

SQA's quality assurance teams use the grade descriptors and the grading matrix to ensure that grades awarded in a particular NextGen: HN Qualification are at a consistent national standard, regardless of the setting in which they are achieved.

Successful learners receive their grade, along with the grade descriptor, on their certificate.

Using the grading matrix

You must use the grading matrix to judge the learner's whole-qualification grade. You can use the grading matrix at any time, but you only make a whole-qualification grading judgement when you are confident the learner has met all the evidence requirements of all the required units.

The criteria in the grading matrix reflect the knowledge, skills and qualities HEIs and employers can expect of a learner who has completed the qualification. These criteria align with the overall purpose of the qualification and remain the same for its duration.

Each criterion has sector-specific descriptors of a typical learner's performance standard, aligned to the whole-qualification grade outcomes of Achieved, Achieved with Merit and Achieved with Distinction. These descriptors describe the standard a learner of that whole-qualification grade is expected to show.

The guidance accompanying each criterion can include, but is not limited to, information on:

- relevant types of assessment that may produce useful or meaningful evidence for judging that criterion
- mapping to content that is particularly relevant to that criterion
- mapping to meta-skills

This guidance may be updated over time.

When you make your final grading judgement, you must use a 'best fit' approach based on the learner's achievement across the grading matrix. This may be straightforward — for example, if the learner's evidence shows a consistent standard across the grading matrix criteria. If it is not straightforward, you must make a 'best fit' judgement — for example, if a learner shows a mix of standards across the grading matrix criteria, with no clear pattern. The criteria may not always have equal value. You can decide some are more important to the final grade than others.

Meta-skills

Meta-skills are a key part of NextGen: HN Qualifications and learners can develop them throughout the qualification. A learner's engagement with developing their own meta-skills contributes to their qualification grade. You do not assess or grade competence or progress in individual meta-skills — for example, by judging the quality of a learner's feeling or creativity. Instead, you look at the process of development learners go through. This means learners need to provide evidence of planning, developing and reflecting on their meta-skills.

If qualification content also contributes to meta-skills development, it contributes to a learner's whole-qualification grading through the grading matrix approach.

Learning for Sustainability

Learning for Sustainability does not contribute to a learner's whole qualification grade.

The exception is where Learning for Sustainability content is part of the qualification content. In which case the Learning for Sustainability content will contribute to a learner's whole-qualification grade through the grading matrix.

Grading matrix

Criterion 1 descriptors

Criterion 1	Achieved	Merit	Distinction
Demonstrate knowledge and skills in data analysis and insight generation	The learner: • combines data from more than one source using common joins, applies basic cleaning (for example handling missing values and standardising formats), and structures data appropriately • performs exploratory data analysis using summary statistics, frequency distributions, and visual plots to identify trends • identifies relevant findings and describes them in accessible language, using charts or summaries	The learner: • prepares real-world data from multiple structured and unstructured sources; applies context-specific cleaning and transformation with some automation • selects and applies suitable statistical methods (for example correlation, regression, hypothesis tests) matched to the question and data type • connects findings to the original problem or business need, and uses visual and written storytelling to communicate key insights	The learner: • designs an end-to-end data preparation pipeline, assesses data quality and bias, and adjusts transformation steps to improve performance • uses statistical thinking to test assumptions and generate new lines of enquiry, and interprets results in context, with awareness of limitations and biases • builds a compelling narrative from analysis, offers interpretation and implications, and anticipates follow-up questions

Criterion 1	Achieved	Merit	Distinction
Demonstrate knowledge and skills in data analysis and insight generation (continued)	The learner: • uses appropriate software (for example Python, Excel, R) to run analyses and generate outputs	The learner: • selects tools based on analysis type and expected outputs, and demonstrates fluency in tools by combining them to achieve the result	The learner: • justifies tool selection, and integrates coding, visualisation, and statistical analysis seamlessly

Criterion 1 guidance

This competence relates to the professional knowledge and skills required by a data science practitioner to carry out data analysis through the application of the data science workflow, including:

- statistical methods
- exploratory data analysis
- drawing meaningful conclusions from data

This competence can be evidenced in the following units:

Data Science (J6C5 48)

- Demonstrating extract, transform and load (ETL) processes, data transformation methods, and product evidence of cleaned and transformed multivariate datasets from multiple sources.

- Exploratory data analysis using statistical tools, summary statistics, correlation, regression, and tests of hypothesis.
- Creating reports and visualisations explaining patterns and conclusions with evidence from analysis.
- Producing code for data analysis using programming tools (for example Python, R) and statistical libraries.
- Using integrated development environments (IDEs) and application programming interfaces (APIs).

Professional Practice in Data Science (J6C6 48)

- Creating a project portfolio showing acquisition and preparation of a large dataset, with reflection on challenges and ethics, a methodology section of project reports explaining the statistical approach used in data investigation, and a final project report and client presentation outlining conclusions and recommendations.
- Documenting tools and programming languages selected for analysis, including rationale and effectiveness.

Data Visualisation (J6CF 48)

- Creating narrative-based presentations using data visualisations to communicate insights to an audience.

Probability and Statistics for Data Science (J6CK 48)

- Producing product evidence of applied statistical tests, regression models, pattern recognition algorithms, and visual analysis, with programming evidence of statistical analysis, model development, and critical interpretation using applied tools.

Data Engineering (J6CD 48)

- Constructing data pipelines, using ETL tools, and completing complex data preparation tasks for large, multi-format datasets.

Machine Learning (J6CN 48)

- Selecting models and applying algorithmic reasoning classification, regression, and clustering tasks with interpretation.
- Using code packages to train models and improve performance using programmatic methods.

Big Data (J6CB 48)

- Using ETL process diagrams, cleansing and transformation rules, screenshots of process stages, and cloud-based data storage output.
- Analytical reporting of a real-world big data application supported by descriptive statistics and dashboards.

Criterion 2 descriptors

Criterion 2	Achieved	Merit	Distinction
Demonstrate knowledge and skills in programming and automation for data processing	The learner: • writes code that automates basic ETL steps for a local or single-source dataset, including simple transformations and loads of data for analysis • uses standard coding constructs (for example loops, conditions) and common libraries to manipulate data into a usable form • develops scripts or notebooks that reproduce a fixed analysis process, including clear steps and outputs	The learner: • creates ETL workflows using programming and libraries, including modular functions and error handling, and tests with varied data sources • implements reusable functions or classes to streamline data tasks, and applies efficient data structures and advanced features of data libraries • designs workflows that adapt to different inputs or parameters, and uses comments and structure to support reusability	The learner: • develops ETL code that integrates external APIs, optimises transformations, documents assumptions and handles complex data joins • writes modular, maintainable code that balances performance and readability, and makes use of language features and libraries to solve data challenges • integrates data processing, analysis, and reporting in one automated workflow, including configuration, modularity, and documentation for reuse

Criterion 2	Achieved	Merit	Distinction
Demonstrate knowledge and skills in programming and automation for data processing (continued)	The learner: • identifies and corrects basic errors through trial-and-error or output inspection, and their code produces the correct result	The learner: • uses debugging tools or structured techniques, tests with multiple datasets, and improves performance or clarity through code refinement	The learner: • anticipates edge cases and validates code with test data, evaluates alternative approaches, and documents assumptions and revisions made during debugging

Criterion 2 guidance

This competence relates to the professional knowledge and skills required by a data science practitioner when automating data manipulation, including the ETL process. This competence can be evidenced in the following units:

Data Science (J6C5 48)

- Producing code evidence of automated ETL processes using programming languages and APIs to load real-world datasets.
- Using loops, conditionals, and libraries like Pandas or Numpy to clean, transform, and manipulate data programmatically.
- Providing scripts or notebooks demonstrating repeatable data cleaning, analysis, and visualisation processes, code with documented debugging steps and use of testing procedures to validate transformations and calculations.

Professional Practice in Data Science (J6C6 48)

- Creating a project portfolio with documentation of ETL implementation, including:
    - testing and debugging for real data scenarios
    - technical documentation of code development for project tasks using appropriate programming approaches
    - automated project workflows with configuration options and reflections on reproducibility
    - reflection on code testing and debugging challenges within a team project
    - logs showing iterative refinement

Data Engineering (J6CD 48)

- creating source code for pipelines implementing data warehouse loading, scripts using ETL tools with structured logs, ETL code that includes error handling and logs, and corrected outputs from refined scripts.

Probability and Statistics in Data Science (J6CK 48)

- creating source code for statistical computation using loops, vectorisation, and numerical methods.

Machine Learning (J6CN 48)

- Demonstrating code samples implementing machine learning (ML) models, using programmatic approaches with control structures and library functions, and reusable scripts for training, testing, and evaluating models on different datasets.

Big Data (J6CB 48)

- Using ETL process logic diagrams, cleansing and transformation rules, and screenshots from automation tools.

Cloud Computing (J6CC 48)

- Automating cloud services configuration using command-line tools and scripting for repeatable deployment, testing logs, verification of deployment outputs, and remediation of cloud-based data workflows.

Criterion 3 descriptors

Criterion 3	Achieved	Merit	Distinction
Demonstrate knowledge and skills in data engineering and infrastructure management	The learner: • constructs a basic pipeline that moves data from sources to a data store, and applies standard transformation steps using available tools or libraries • creates relational or NoSQL data structures for storing and accessing data and demonstrates a working knowledge of schema design • uses cloud or local infrastructure to store and retrieve data securely, and configures simple databases or object storage with basic access control	The learner: • implements modular pipeline components, handles multiple data types or format, and applies appropriate transformation logic and metadata tagging • applies normalisation, indexing, and joins appropriately, and creates models suited to the data's analytical purpose (for example star or snowflake schema) • implements automated scaling, redundancy, and recovery using cloud tools, and applies load balancing or distributed storage for large data volumes	The learner: • designs pipelines by applying design principles (for example fault tolerance, streaming, scheduling), and integrates and documents choices in a real context • evaluates modelling approaches, and justifies schema design based on access patterns and performance • designs infrastructure with scalability, cost-efficiency, and resilience in mind, and selects between platform options based on project needs

Criterion 3	Achieved	Merit	Distinction
Demonstrate knowledge and skills in data engineering and infrastructure management (continued)	The learner: • demonstrates understanding of access control, encryption, and quality checks, and follows prescribed practices for secure and accurate data handling	The learner: • integrates validation, audit trails, and version control in data processes, and explains governance and quality assurance techniques applied in the build	The learner: • designs and applies policies for governance, data lifecycle, and risk mitigation, and evaluates ethical and legal implications of infrastructure choices

Criterion 3 guidance

This competence relates to the professional knowledge and skills required by a data science practitioner to manipulate data and manage data through the data science workflow. This competence can be evidenced in the following units:

Data Science (J6C5 48)

- Demonstrating data preparation processes, including joins, transformations, and loading routines in code or workflow.

Professional Practice in Data Science (J6C6 48)

- Producing project evidence showing planning and implementation of real-world data acquisition and transformation, team project documentation of platform and tool usage in data implementation, and reflection and documentation of ethical issues and data handling practices during the team project.

Data Management (J6CM 48)

- Providing recommendations for data architecture, metadata use, and standards for structuring and storing organisational data.
- Demonstrating evidence of data governance frameworks, data quality rules, roles and responsibilities, and ethical considerations.

Data Engineering (J6CD 48)

- Providing product evidence of constructed pipelines, warehouse integration, ETL scripts handling varied formats and sources, and evidence of schema design, relational or NoSQL structures, and creation of a data warehouse from transformed data.
- Using cloud technologies and distributed databases for data ingestion, storage, and batch or stream processing.
- Implementing validation, cleaning steps, and schema management in pipeline design.

Big Data (J6CB 48)

- Producing:
    - ETL process models, rules, and screenshots from multi-source processing with transformation for cloud storage
    - a logical data model for ETL, and data warehousing in the cloud environment with support for analytical extraction
    - screenshots and explanations of cloud storage, analytics tools, and use of distributed processing frameworks

Cloud Computing (J6CC 48)

- Configuration of cloud databases, redundancy, and use of relational storage, with query performance considerations.
- Evidencing setting up cloud-based networks, databases, storage access control, autoscaling, and disaster recovery.
- Demonstrating access control configuration, monitoring logs, backup validation, and testing recovery of secure data systems.

Criterion 4 descriptors

Criterion 4	Achieved	Merit	Distinction
Demonstrate knowledge and skills in data visualisation and storytelling	The learner: • selects appropriate standard chart types (for example bar, line, scatter) for basic data types and questions, and avoids misleading visuals • produces clear visual outputs using common tools (for example Excel, Python, Tableau), including labels and titles that make the chart interpretable • summarises findings from data analysis and presents them in a logical sequence; uses visuals to support key points	The learner: • chooses chart types based on the structure, granularity, and audience, and justifies visual design decisions (for example scale, colour, axes, interactivity) • builds interactive dashboards or layered visuals, uses advanced features of tools (for example Plotly, Power BI, matplotlib), and ensures consistency and clarity • builds a narrative around the problem context, using visuals to lead the audience through key patterns and findings, and addresses questions clearly	The learner: • demonstrates proficiency in the use of visual grammar, matches design to analytical purpose and audience need, and uses appropriate annotations and layout • creates multi-layered or real-time visuals that integrate with broader workflows, and shows aesthetic judgment and mastery of a toolset for impact and readability • constructs a persuasive, data-driven argument with clear structure, transitions, and anticipation of audience response, and uses visual and verbal elements to reinforce key messages

Criterion 4	Achieved	Merit	Distinction
Demonstrate knowledge and skills in data visualisation and storytelling (continued)	The learner: • identifies and corrects issues like misleading scales or overplotting, and avoids unnecessary decoration	The learner: • applies best practices in visual perception and storytelling, and explains trade-offs in visual simplification, accuracy, and audience understanding	The learner: • critiques visualisations for cognitive load, ethical clarity, and inclusivity, and adapts visuals to avoid bias and support accessibility and transparency

Criterion 4 guidance

This competence relates to the professional knowledge and skills required by a data science practitioner to visualise data and produce compelling narratives around the key messages. This competence can be evidenced in the following units:

Data Science (J6C5 48)

- Demonstrating:
  - visualisation outputs aligned with data types
  - evidence of choice of plots and charts suitable to different stakeholders
  - use of tools and code to create charts and graphics within exploratory data analysis
  - narrative structure within reports and visualisation tasks to highlight patterns and guide interpretation
  - identification of appropriate versus misleading visuals
  - discussions on ethical presentation of insights

Professional Practice in Data Science (J6C6 48)

- Producing a project presentation and reporting on application of suitable visuals to communicate analysis outcomes, and using presentation slides and reports containing original visuals embedded in conclusions and recommendations.
- Producing a final team presentation and report structured to convey findings and reasoning clearly to a client audience, with reflections on how data was presented and adapted for audience understanding during project work.

Data Visualisation (J6CF 48)

- Completing assessment tasks involving justification for visual choices, critiques of poor or misleading visuals, and a portfolio of visualisations including interactive dashboards and visual stories built from complex datasets.
- A presentation assignment that builds a story from a dataset using multiple visual elements and commentary, critiques of misleading visualisations, and written justifications for design choices that avoid bias or distortion.

Probability and Statistics for Data Science (J6CK 48)

- Producing graphical outputs such as histograms, box plots, and scatter plots, with an explanation of the data structure.

Big Data (J6CB 48)

- Providing screenshots of dashboards and a presentation of visual outputs created from processed datasets.
- An analytical summary that links statistical findings to conclusions, supported by structured narrative and charts.

Artificial Intelligence (J6CA 48)

- Discussing model interpretability and visual communication of classification results or outcomes.

Criterion 5 descriptors

Criterion 5	Achieved	Merit	Distinction
Demonstrate ethical, legal, and responsible data practice	The learner: • recognises obvious ethical issues (for example consent, bias), and avoids unethical practices such as misuse of personal data or manipulation of findings • demonstrates awareness of data protection laws and follows basic practices for safe storage, access control, and confidentiality • identifies potential bias in data or models (for example underrepresentation), and avoids relying on flawed assumptions in analysis	The learner: • applies ethical reasoning to assess data sources and decisions, and explains implications of bias, sampling choices, or misrepresentation of results • applies specific legal requirements to project work (for example anonymisation, third-party data licenses), and identifies compliance needs and risks • tests for and adjusts bias using sampling or algorithmic techniques, and explains fairness limitations and potential impact on users or stakeholders	The learner: • anticipates and reflects on complex ethical challenges (for example automation, model bias, social impact), and proposes well-argued mitigation steps • evaluates legal implications across data lifecycles; makes sound decisions about lawful use, licensing, and protection aligned with current frameworks. • critically examines the origins and impacts of bias, and proposes fair design practices or alternative data strategies to reduce harm or increase inclusivity

Criterion 5	Achieved	Merit	Distinction
Demonstrate ethical, legal, and responsible data practice (continued)	The learner: • reports findings accurately and avoids misleading visuals or statements, and uses appropriate disclaimers or footnotes	The learner: • anticipates how findings could be misinterpreted or misused, and presents data with clear context and caveats	The learner: • identifies societal and stakeholder implications when communicating data findings, and adapts message, tone, and visual framing to support honest and ethical impact

Criterion 5 guidance

This competence relates to the professional knowledge and skills required by a data science practitioner. Learners demonstrate maturity, adaptability, and accountability through the team-based project in the Professional Practice in Data Science unit and the stakeholder-focused reporting in the Data Science unit. This competence can be evidenced in the following units:

Data Science (J6C5 48)

- Demonstrating ETL processes, data transformation methods, and product evidence of cleaned and transformed multivariate datasets from multiple sources.
- Demonstrating exploratory data analysis using statistical tools, summary statistics, correlation, regression, and tests of hypotheses.
- Producing reports and visualisations explaining patterns and conclusions with evidence from analysis, and code for data analysis using programming tools (for example Python, R) and statistical libraries.
- Using IDEs and APIs.

Professional Practice in Data Science (J6C6 48)

- Producing a project portfolio showing:
    - acquisition and preparation of a large dataset, with reflection on challenges and ethics
    - a methodology section of project reports explaining statistical approach used in data investigation
    - a final project report and client presentation outlining conclusions and recommendations
    - documentation of tools and programming languages selected for analysis, including rationale and effectiveness

Data Engineering (J6CD 48)

- Showing evidence of data pipelines, ETL tools usage, and complex data preparation tasks for large, multi-format datasets.

Data Visualisation (J6CF 48)

- Producing narrative-based presentations using data visualisations to communicate insights to an audience.

Machine Learning (J6CN 48)

- Showing model selection and algorithmic reasoning applied to classification, regression, and clustering tasks with interpretation.
- Using code packages to train models and improve performance using programmatic methods.

Probability and Statistics for Data Science (J6CK 48)

- Showing product evidence of applied statistical tests, regression models, pattern recognition algorithms, and visual analysis.
- Showing programming evidence of statistical analysis, model development, and critical interpretation using applied tools.

Big Data (J6CB 48)

- Demonstrating ETL process diagrams, cleansing and transformation rules, screenshots of process stages, and cloud-based data storage output.
- Creating an analytical report of a real-world big data application supported by descriptive statistics and dashboards.

Criterion 6 descriptors

Criterion 6	Achieved	Merit	Distinction
Demonstrate teamworking and professional practice	The learner: • participates in team meetings and contributes to shared goals, completes allocated tasks and communicates progress • uses appropriate tools (for example shared docs, messaging platforms); maintains a respectful and clear tone in written and spoken communication • meets deadlines, responds to feedback, and conducts work ethically and respectfully	The learner: • shares responsibility, supports others, helps manage workflow, and contributes ideas to improve project outcomes and team processes • tailors communication to audience needs, and uses structure and clarity to improve shared understanding and project alignment • reflects on and improves their own performance, gives and receives constructive feedback, and takes responsibility for errors or setbacks	The learner: • demonstrates leadership or facilitation within the group, adapts to team dynamics, and reflects on how collaboration improved the project outcome • anticipates communication challenges and demonstrates emotional intelligence in managing team interactions and stakeholder engagement • shows maturity and self-awareness in professional conduct, and proactively supports team culture and models integrity and high standards • demonstrates deep reflection and honest self-assessment

Criterion 6	Achieved	Merit	Distinction
Demonstrate teamworking and professional practice (continued)	The learner: • completes a basic reflection on what went well and what could be improved, and identifies strengths or challenges	The learner: • analyses performance using feedback or frameworks (for example meta-skills, goal setting), and sets out clear improvement actions	The learner: • links learning to long-term development goals and contributes insightfully to team reflection

Criterion 6 guidance

This competence relates to the professional knowledge and skills required by a data science practitioner when collaborating with other team members to deliver a project in data science. This competence can be evidenced in the following units:

Professional Practice in Data Science (J6C6 48)

- Produce a project portfolio showing:
    - acquisition and preparation of a large dataset, with reflection on challenges and ethics
    - a methodology section of project reports explaining statistical approach used in data investigation
    - a final project report and client presentation outlining conclusions and recommendations
    - documentation of tools and programming languages selected for analysis, including rationale and effectiveness

Data Science (J6C5 48)

- Demonstrate ETL processes, data transformation methods, and product evidence of cleaned and transformed multivariate datasets from multiple sources.
- Show exploratory data analysis using statistical tools, summary statistics, correlation, regression, and tests of hypothesis.
- Produce reports and visualisations explaining patterns and conclusions with evidence from analysis, code for data analysis using programming tools (for example Python, R) and statistical libraries, and use of IDEs and APIs.

Data Engineering (J6CD 48)

- Show evidence of data pipelines, ETL tools usage, and complex data preparation tasks for large, multi-format datasets.

Data Visualisation (J6CF 48)

- Produce narrative-based presentations using data visualisations to communicate insights to an audience.

Criterion 7 descriptors

Criterion 7	Achieved	Merit	Distinction
Develop meta-skills	The learner adequately engages with the process of meta-skills development in the context of the qualification by: • carrying out self-assessment of meta-skills, giving reasons for ratings or judgements made • setting clear and measurable goals, plus action strategies to develop meta-skills in all three categories • using reflective practice strategies to track progress and analyse the links between course activities, experiences and meta-skills development	The learner adequately engages with the process of meta-skills development in the context of the qualification by: • carrying out self-assessment of meta-skills, giving some insightful reasons for ratings or judgements made • setting clear and measurable goals, plus action strategies to develop meta-skills in all three categories • using reflective practice strategies to track progress and demonstrate some insight into the impact of their course activities and experiences on their meta-skills development	The learner adequately engages with the process of meta-skills development in the context of the qualification by: • carrying out self-assessment of meta-skills, giving some insightful reasons for ratings or judgements made • setting clear and measurable goals, plus action strategies to develop meta-skills in all three categories, and updating these as required • using reflective practice strategies very effectively to track progress and demonstrate insight into the impact of their course activities and experiences on their meta-skills development

Criterion 7 guidance

Maps to all units.

You must refer to the meta-skills assessment guidance when grading meta-skills. You can find meta-skills teaching, learning and assessment resources on SQA's meta-skills web page.

Competence in individual meta-skills is not being judged here, for example, the quality of a learner's feeling or creativity. Rather, it is the process of development the learner goes through — planning, developing, and reflecting — that should be evidenced and assessed.

Although a meta-skills outcome is located in one unit, evidence of meta-skills development can be gathered from any activity at any time during the course. For meaningful reflection to take place, the process of meta-skills development should happen continually throughout the course. The range of contexts in which this can happen is very wide, and dependent on the sector, as well as individual preferences. Each unit signposts opportunities for meta-skills development.

Additional grading guidance

Grading model

The competence criteria reflect the academic, technical, and professional skills and behaviours learners should demonstrate in their performance in this qualification. The competence criteria are described in generic terms, so you can apply them regardless of which optional units a learner completes. This allows you to use evidence from any mandatory or optional unit when evaluating the competencies, as indicated in the grading matrix.

Each criterion has a grading matrix entry with performance statements at three levels in the form of a rubric that will help you evaluate and grade consistently. There is separate guidance on grading the meta-skills competence criterion in Meta-skills — assessment and grading information for centres.

When grading an individual criterion, you should refer to the grading matrix, which identifies where you are most likely to find relevant evidence across the course units. You should determine which rubric statement best reflects the quality and depth of the learner's submitted evidence for each contributing unit. Where multiple units contribute to a single criterion (for example 'Demonstrate knowledge and skills in data analysis and insight generation'), you should use the highest level of performance demonstrated in any unit to inform the grade. For instance, if the evidence for Unit A 'Identifies relevant findings and describes them in accessible language, using charts or summaries' while the evidence for Unit B 'Connects findings to the original problem or business need; uses visual and written storytelling to communicate key insights', then the evidence from Unit B should be applied in forming a grade judgement for this criterion. We have provided a more complete example for the criterion below. For this example, you would assign a grade of Merit to the criterion:

Criterion 1	Achieved	Merit	Distinction
Demonstrate knowledge and skills in data analysis and insight generation	The learner: • combines data from more than one source using common joins, applies basic cleaning (for example handling missing values and standardising formats), and structures data appropriately **[Unit A]** • performs exploratory data analysis using summary statistics, frequency distributions, and visual plots to identify trends **[Unit A and Unit C]** • identifies relevant findings and describes them in accessible language, using charts or summaries	The learner: • prepares real-world data from multiple structured and unstructured sources; applies context-specific cleaning and transformation with some automation **[Unit C]** • selects and applies suitable statistical methods (for example correlation, regression, hypothesis tests) matched to the question and data type **[Unit B]** • connects findings to the original problem or business need, and uses visual and written storytelling to communicate key insights **[Unit B]**	The learner: • designs an end-to-end data preparation pipeline, assesses data quality and bias, and adjusts transformation steps to improve performance • uses statistical thinking to test assumptions and generate new lines of enquiry, and interprets results in context, with awareness of limitations and biases • builds a compelling narrative from analysis, offers interpretation and implications, and anticipates follow-up questions

Criterion 1	Achieved	Merit	Distinction
Demonstrate knowledge and skills in data analysis and insight generation (continued)	The learner: • uses appropriate software (for example Python, Excel, R) to run analyses and generate outputs	The learner: • selects tools based on analysis type and expected outputs, and demonstrates fluency in tools by combining them to achieve the result	The learner: • justifies tool selection, and integrates coding, visualisation, and statistical analysis seamlessly **[Unit B]**

In the example above, you would discount the evidence from Unit A, as for each rubric there is evidence at a higher level of performance from either Unit A or Unit B. You would note that the core performance rubrics for this criterion relate to the preparation of real-world data and selecting and applying suitable statistical analysis methods. These are at Merit level, which justifies the allocation of Merit for this criterion.

The table below illustrates the process of moving from the evidence of performance level as described in the individual rubrics to an assigned grade for each criterion. This example is for illustrative purposes only.

The process requires the exercise of your professional judgement, considering the relative contributions that each rubric makes to the key competence expressed in the criterion.

Criterion 1

Achieved	Merit	Distinction
Rubric 1 Achieved	**Rubric 1 Merit**	Rubric 1 Distinction
Rubric 2 Achieved	Rubric 2 Merit	Rubric 2 Distinction
Rubric 3 Achieved	**Rubric 3 Merit**	Rubric 3 Distinction

Assigned grade: Merit

Criterion 2

Achieved	Merit	Distinction
Rubric 1 Achieved	Rubric 1 Merit	**Rubric 1 Distinction**
Rubric 2 Achieved	**Rubric 2 Merit**	Rubric 2 Distinction
Rubric 3 Achieved	**Rubric 3 Merit**	Rubric 3 Distinction
Rubric 4 Achieved	Rubric 4 Merit	Rubric 4 Distinction

Assigned grade: Merit

Criterion 3

Achieved	Merit	Distinction
Rubric 1 Achieved	Rubric 1 Merit	Rubric 1 Distinction
Rubric 2 Achieved	Rubric 2 Merit	Rubric 2 Distinction
Rubric 3 Achieved	**Rubric 3 Merit**	Rubric 3 Distinction

Assigned grade: Achieved

Criterion 4

Achieved	Merit	Distinction
Rubric 1 Achieved	Rubric 1 Merit	Rubric 1 Distinction
Rubric 2 Achieved	Rubric 2 Merit	Rubric 2 Distinction
Rubric 3 Achieved	**Rubric 3 Merit**	Rubric 3 Distinction

Assigned grade: Achieved

Criterion 5

Achieved	Merit	Distinction
Rubric 1 Achieved	**Rubric 1 Merit**	Rubric 1 Distinction
Rubric 2 Achieved	Rubric 2 Merit	**Rubric 2 Distinction**
Rubric 3 Achieved	Rubric 3 Merit	**Rubric 3 Distinction**
Rubric 4 Achieved	**Rubric 4 Merit**	Rubric 4 Distinction

Assigned grade: Distinction

Criterion 6

Achieved	Merit	Distinction
Rubric 1 Achieved	Rubric 1 Merit	Rubric 1 Distinction
Rubric 2 Achieved	**Rubric 2 Merit**	Rubric 2 Distinction
Rubric 3 Achieved	Rubric 3 Merit	Rubric 3 Distinction

Assigned grade: Achieved

After completing the grading matrix for a learner using available evidence, you assign the whole qualification grade holistically. You must consider the relative contribution of each criterion to the overall aims of the qualification. The first two criteria in the grading matrix encapsulate the learner's knowledge and understanding of data science concepts and their knowledge and skills in programming and automation of data analysis processes. The remaining five criteria can be considered as having similar relative importance in grading.

The final grade must reflect how well the learner has demonstrated the expected academic, technical, and professional knowledge, skills and behaviours over the course of their studies and in the work submitted as evidence.

Worked example of grading model

The table below illustrates the process of arriving at a final grade for a learner, adopting a holistic approach to judgement.

Criterion	Achieved	Merit	Distinction
1. Demonstrate knowledge and skills in data analysis and insight generation		Merit	
2. Demonstrate knowledge and skills in programming and automation for data processing		Merit	
3. Demonstrate knowledge and skills in data engineering and infrastructure management		Merit	
4. Demonstrate knowledge and skills in data visualisation and storytelling			Distinction
5. Demonstrate ethical, legal, and responsible data practice	Achieved		
6. Demonstrate teamworking and professional practice	Achieved		
7. Develop meta-skills		Merit	

In arriving at a final grade of Merit for this learner, you would note that the learner does not reach Merit level in demonstrating ethical, legal, and responsible data practice, nor in their contribution to professional practice and teamwork. However, the learner's strengths in programming and automation for data processing, implementing data engineering solutions and demonstrating knowledge and understanding of data analysis concepts are vital competences for a data scientist and support the decision to award a Merit grade.

Administrative information

Published: October 2025 (version 1.0)

History of changes

Version	Description of change	Date

Please check SQA's website to ensure you are using the most up-to-date version of this guide.

If a unit is revised:

- no new centres can be approved to offer the previous version of the unit
- centres should only enter learners for the previous version of the unit if they can complete it before its finish date

For more information on NextGen: HN Qualifications please email nextgen@sqa.org.uk.