Study guide for Exam PL-300: Microsoft Power BI Data Analyst

Purpose of this document

This study guide should help you understand what to expect on the exam and includes a summary of the topics the exam might cover and links to additional resources. The information and materials in this document should help you focus your studies as you prepare for the exam.

Useful links	Description
Review the skills measured as of January 31, 2023	This list represents the skills measured AFTER the date provided. Study this list if you plan to take the exam AFTER that date.
Review the skills measured prior to January 31, 2023	Study this list of skills if you take your exam PRIOR to the date provided.
Change log	You can go directly to the change log if you want to see the changes that will be made on the date provided.
How to earn the certification	Some certifications only require passing one exam, while others require passing multiple exams.
Certification renewal	Microsoft associate, expert, and specialty certifications expire annually. You can renew by passing a **free** online assessment on Microsoft Learn.
Your Microsoft Learn profile	Connecting your certification profile to Microsoft Learn allows you to schedule and renew exams and share and print certificates.
Exam scoring and score reports	A score of 700 or greater is required to pass.
Exam sandbox	You can explore the exam environment by visiting our exam sandbox.
Request accommodations	If you use assistive devices, require extra time, or need modification to any part of the exam experience, you can request an accommodation.

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Useful links	Description
Take a free Practice Assessment	Test your skills with practice questions to help you prepare for the exam.

Updates to the exam

Our exams are updated periodically to reflect skills that are required to perform a role. We have included two versions of the Skills Measured objectives depending on when you are taking the exam.

We always update the English language version of the exam first. Some exams are localized into other languages, and those are updated approximately eight weeks after the English version is updated. Although Microsoft makes every effort to update localized versions as noted, there may be times when the localized versions of an exam are not updated on this schedule. Other available languages are listed in the **Schedule Exam** section of the **Exam Details** webpage. If the exam isn't available in your preferred language, you can request an additional 30 minutes to complete the exam.

Note

The bullets that follow each of the skills measured are intended to illustrate how we are assessing that skill. Related topics may be covered in the exam.

Note

Most questions cover features that are general availability (GA). The exam may contain questions on Preview features if those features are commonly used.

Skills measured as of January 31, 2023

Audience profile

Candidates for this exam deliver actionable insights by working with available data and applying domain expertise. They provide meaningful business value through easy-to-comprehend data visualizations, enable others to perform self-service analytics, and deploy and configure solutions for consumption.

The Power BI data analyst works closely with business stakeholders to identify business requirements. They collaborate with enterprise data analysts and data engineers to identify and acquire data. They also transform the data, create data models, visualize data, and share assets by using Power BI.

Candidates for this exam should be proficient at using Power Query and writing expressions by using Data Analysis Expressions (DAX). These professionals know how to assess data quality. Plus, they understand data security, including row-level security and data sensitivity.

- Prepare the data (25–30%)
- Model the data (25–30%)
- Visualize and analyze the data (25–30%)

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- Deploy and maintain assets (15–20%)

Prepare the data (25–30%)

Get data from data sources

- Identify and connect to a data source
- Change data source settings, including credentials, privacy levels, and data source locations
- Select a shared dataset, or create a local dataset
- Choose between DirectQuery, Import, and Dual mode
- Change the value in a parameter

Clean the data

- Evaluate data, including data statistics and column properties
- Resolve inconsistencies, unexpected or null values, and data quality issues
- Resolve data import errors

Transform and load the data

- Select appropriate column data types
- Create and transform columns
- Transform a query
- Design a star schema that contains facts and dimensions
- Identify when to use reference or duplicate queries and the resulting impact
- Merge and append queries
- Identify and create appropriate keys for relationships
- Configure data loading for queries

Model the data (25–30%)

Design and implement a data model

- Configure table and column properties
- Implement role-playing dimensions
- Define a relationship's cardinality and cross-filter direction
- Create a common date table
- Implement row-level security roles

Create model calculations by using DAX

- Create single aggregation measures
- Use CALCULATE to manipulate filters
- Implement time intelligence measures
- Identify implicit measures and replace with explicit measures
- Use basic statistical functions
- Create semi-additive measures

Microsoft

- Create a measure by using quick measures
- Create calculated tables

Optimize model performance

- Improve performance by identifying and removing unnecessary rows and columns
- Identify poorly performing measures, relationships, and visuals by using Performance Analyzer
- Improve performance by choosing optimal data types
- Improve performance by summarizing data

Visualize and analyze the data (25–30%)

Create reports

- Identify and implement appropriate visualizations
- Format and configure visualizations
- Use a custom visual
- Apply and customize a theme
- Configure conditional formatting
- Apply slicing and filtering
- Configure the report page
- Use the Analyze in Excel feature
- Choose when to use a paginated report

Enhance reports for usability and storytelling

- Configure bookmarks
- Create custom tooltips
- Edit and configure interactions between visuals
- Configure navigation for a report
- Apply sorting
- Configure sync slicers
- Group and layer visuals by using the Selection pane
- Drill down into data using interactive visuals
- Configure export of report content, and perform an export
- Design reports for mobile devices
- Incorporate the Q&A feature in a report

Identify patterns and trends

- Use the Analyze feature in Power BI
- Use grouping, binning, and clustering
- Use AI visuals
- Use reference lines, error bars, and forecasting
- Detect outliers and anomalies

Microsoft

- Create and share scorecards and metrics

Deploy and maintain assets (15–20%)

Create and manage workspaces and assets

- Create and configure a workspace
- Assign workspace roles
- Configure and update a workspace app
- Publish, import, or update assets in a workspace
- Create dashboards
- Choose a distribution method
- Apply sensitivity labels to workspace content
- Configure subscriptions and data alerts
- Promote or certify Power BI content
- Manage global options for files

Manage datasets

- Identify when a gateway is required
- Configure a dataset scheduled refresh
- Configure row-level security group membership
- Provide access to datasets

Study resources

We recommend that you train and get hands-on experience before you take the exam. We offer self-study options and classroom training as well as links to documentation, community sites, and videos.

Study resources	Links to learning and documentation
Get trained	[Choose from self-paced learning paths and modules or take an instructor led course](#)
Find documentation	[Power BI documentation](#)
	[Microsoft Power Apps documentation](#)
Ask a question	[Microsoft Q&A | Microsoft Docs](#)
Get community support	[Power Apps - Power Platform Community](#)
	[Power Query - Power Platform Community](#)
	[Building Power Apps - Power Platform Community](#)

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Study resources	Links to learning and documentation
Follow Microsoft Learn	Microsoft Learn - Microsoft Tech Community
Find a video	Exam Readiness Zone | Microsoft Learn #LessCodeMorePower | Shows Browse other Microsoft Learn shows

Change log

Key to understanding the table: The topic groups (also known as functional groups) are in bold typeface followed by the objectives within each group. The table is a comparison between the two versions of the exam skills measured and the third column describes the extent of the changes.

Skill area prior to January 31, 2023	Skill area as of January 31, 2023	Changes
Audience profile		Major
Prepare the data	**Prepare the data**	% of exam increased
Get data from different data sources	Get data from data sources	Major
Clean, transform, and load the data	Clean the data	Major
	Transform and load the data	Added
Model the data	**Model the data**	% of exam decreased
Design a data model	Design and implement a data model	Minor
Develop a data model		Removed
Create model calculations using DAX	Create model calculations by using DAX	Minor
Optimize model performance	Optimize model performance	Minor
Visualize and analyze the data	**Visualize and analyze the data**	% of exam decreased
Create reports	Create reports	Minor
Create dashboards		Removed

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Skill area prior to January 31, 2023	Skill area as of January 31, 2023	Changes
Enhance reports for useability and storytelling	Enhance reports for usability and storytelling	Minor
Identify patterns and trends	Identify patterns and trends	Major
Deploy and maintain assets	**Deploy and maintain assets**	% of exam increased
Manage files and datasets	Manage datasets	Minor, reordered
Create and manage workspaces	Create and manage workspaces and assets	Major, reordered

Skills measured prior to January 31, 2023

- Prepare the data (15–20%)
- Model the data (30–35%)
- Visualize and analyze the data (30–35%)
- Deploy and maintain assets (10–15%)

Prepare the data (15–20%)

Get data from different data sources

- Identify and connect to a data source
- Change data source settings
- Select a shared dataset or create a local dataset
- Select a storage mode
- Use Microsoft Dataverse
- Change the value in a parameter
- Connect to a data flow

Clean, transform, and load the data

- Profile the data
- Resolve inconsistencies, unexpected or null values, and data quality issues
- Identify and create appropriate keys for joins
- Evaluate and transform column data types
- Shape and transform tables
- Combine queries
- Apply user-friendly naming conventions to columns and queries

Microsoft

- Configure data loading
- Resolve data import errors

Model the data (30–35%)

Design a data model

- Define the tables
- Configure table and column properties
- Design and implement role-playing dimensions
- Define a relationship's cardinality and cross-filter direction
- Design a data model that uses a star schema
- Create a common date table

Develop a data model

- Create calculated tables
- Create hierarchies
- Create calculated columns
- Implement row-level security roles
- Use the Q&A feature

Create model calculations by using DAX

- Create basic measures by using DAX
- Use CALCULATE to manipulate filters
- Implement Time Intelligence using DAX
- Replace implicit measures with explicit measures
- Use basic statistical functions
- Create semi-additive measures
- Use quick measures

Optimize model performance

- Remove unnecessary rows and columns
- Identify poorly performing measures, relationships, and visuals
- Reduce cardinality levels to improve performance

Visualize and analyze the data (30–35%)

Create reports

- Add visualization items to reports
- Choose an appropriate visualization type
- Format and configure visualizations
- Use a custom visual
- Apply and customize a theme

Microsoft

- Configure conditional formatting
- Apply slicing and filtering
- Configure the report page
- Use the Analyze in Excel feature
- Choose when to use a paginated report

Create dashboards

- Manage tiles on a dashboard
- Configure mobile view
- Use the Q&A feature
- Add a Quick Insights result to a dashboard
- Apply a dashboard theme
- Pin a live report page to a dashboard

Enhance reports for usability and storytelling

- Configure bookmarks
- Create custom tooltips
- Edit and configure interactions between visuals
- Configure navigation for a report
- Apply sorting
- Configure Sync Slicers
- Group and layer visuals by using the selection pane
- Drilldown into data using interactive visuals
- Export report data
- Design reports for mobile devices

Identify patterns and trends

- Use the Analyze feature in Power BI
- Identify outliers
- Choose between continuous and categorical axes
- Use groupings, binnings, and clustering
- Use AI visuals
- Use the Forecast feature
- Create reference lines by using the Analytics pane

Deploy and maintain assets (10–15%)

Manage files and datasets

- Identify when a gateway is required
- Configure a dataset scheduled refresh
- Configure row-level security group membership

- Provide access to datasets
- Manage global options for files

Manage workspaces

- Create and configure a workspace
- Assign workspace roles
- Configure and update a workspace app
- Publish, import, or update assets in a workspace
- Apply sensitivity labels to workspace content
- Configure subscriptions and data alerts
- Promote or certify Power BI content

Microsoft