# Exam 98-364
MTA: Database Fundamentals

Exam Design

The Basics

This is a Microsoft Technology Associate (MTA) exam designed to assess candidates' fundamental knowledge of database administration. MTA is a new certification under the Microsoft Certification Program that validates the foundational knowledge needed to begin building a career in Microsoft technologies. It can also serve as a stepping stone to the Microsoft Certified Technology Specialist exams. Successful candidates for this exam will earn an MTA certification as well as access to benefits of the Microsoft Certification Program.

We are specifying an item pool of 75 unique multiple-choice items, which will be used on 1 form. Approximately 70 percent of the items should be written to the knowledge/comprehension level and about 30 percent to the application level. For more information about cognitive levels, refer to the Cognitive Domain in Bloom's Taxonomy.
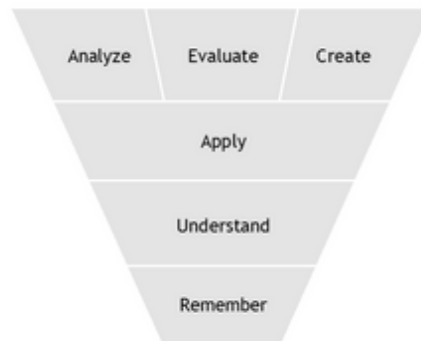
Categories in the cognitive domain of Bloom's Taxonomy (Anderson & Krathwohl, 2001)

The following anatomy is required of each knowledge-level item in this exam:

Question Statement (ex: What should you do?)
Answer Choices (Preferably Multiple Choice, choose 1, with 3 distracters)
- o Ex: Which of the following is a valid ASP.NET variable name? A. _foo; B. &foo; C. foo#; D. foo 1

The following anatomy is required of each application-level item in this exam:

Concise scenario, including any constraints/requirements necessary to make distracter answers 100% incorrect
Goal Statement (You need to …)

Question Statement (ex: What should you do?)

Answer Choices (Preferably Multiple Choice, choose 1, with 3 distracters)

Target Audience

Candidates for this exam are seeking to prove introductory knowledge of and skills with databases, including relational databases such as Microsoft® SQL Server®. It is recommended that candidates be familiar with the concepts of and have hands-on experience with the technologies described here either by taking relevant training courses or by working with tutorials and samples available on MSDN® and in Microsoft Visual Studio®. Although minimal hands-on experience with the technologies is recommended, job experience is not assumed for these exams.

Candidates for this exam are in the process of expanding their knowledge and skills in the following areas:

> core database concepts
> relational database concepts
> security requirements for databases and the data stored in them
> database objects, such as tables and views
> graphical tools and T-SQL scripts
> database queries
> stored procedures

Objective Domain

1. **Understanding Core Database Concepts**

    1.1. Understand how data is stored in tables.
    This objective may include but is not limited to: understanding what a table is and how it relates to the data that will be stored in the database; columns/fields, rows/records

    1.2. Understand relational database concepts.
    This objective may include but is not limited to: understanding what a relational database is, the need for relational database management systems (RDBMS), and how relations are established

    1.3. Understand data manipulation language (DML).
    This objective may include but is not limited to: understanding what DML is and its role in databases

    1.4. Understand data definition language (DDL).
    This objective may include but is not limited to: understanding how T-SQL can be used to create database objects such as tables and views

2. **Creating Database Objects**

   2.1. Choose data types.

   This objective may include but is not limited to: understanding what data types are, why they are important, and how they affect storage requirements

   2.2. Understand tables and how to create them.

   This objective may include but is not limited to: purpose of tables; creating tables in a database by using proper ANSI SQL syntax

   2.3. Create views.

   This objective may include but is not limited to: understanding when to use views and how to create a view by using T-SQL or a graphical designer.

   2.4. Create stored procedures and functions.

   This objective may include but is not limited to: selecting, inserting, updating, or deleting data

3. **Manipulating Data**

   3.1. Select data.

   This objective may include but is not limited to: utilizing SELECT queries to extract data from one table; extracting data by using joins; combining result sets by using UNION and INTERSECT

   3.2. Insert data.

   This objective may include but is not limited to: understanding how data is inserted into a database; how to use INSERT statements

   3.3. Update data.

   This objective may include but is not limited to: understanding how data is updated in a database and how to write the update data to the database by using the appropriate UPDATE statements; update by using a table

   3.4. Delete data.

   This objective may include but is not limited to: deleting data from single or multiple tables; ensuring data and referential integrity by using transactions

4. **Understanding Data Storage**

   4.1. Understand normalization.

This objective may include but is not limited to: understanding the reasons for normalization, the five most common levels of normalization, how to normalize a database to third normal form

    4.2. Understand primary, foreign, and composite keys.
This objective may include but is not limited to: understanding the reason for keys in a database, choosing appropriate primary keys, selecting appropriate data type for keys, selecting appropriate fields for composite keys, understanding the relationship between foreign and primary keys

    4.3. Understand indexes.
This objective may include but is not limited to: understanding clustered and non-clustered indexes and their purpose in a database

5. Administering a Database

    5.1. Understand database security concepts.
This objective may include but is not limited to: understanding the need to secure a database, what objects can be secured, what objects should be secured, user accounts, and roles

    5.2. Understand database backups and restore.
This objective may include but is not limited to: understanding various backup types, such as full and incremental, importance of backups, how to restore a database