

REVIEW LESSON

MTA Course: 10754 Microsoft .NET Fundamentals

Lesson name: Microsoft .NET Fundamentals 7.1

Topic: Understand resource allocation (One 50-minute class period)

File name: 10754_Msft.NET_RL_7.1

Lesson Objective

7.1: Understand resource allocation. *This objective may include but is not limited to:* understanding garbage collection and memory allocation, understanding stack versus heap.

Preparation Details

Prerequisite student experiences and knowledge:

This MTA Certification Exam Review lesson is written for students who have learned about application programming with the Microsoft® .NET Framework. Students who do not have the prerequisite knowledge and experiences cited in the objective will find additional learning opportunities using resources such as those listed in the “Resources” section at the end of this review lesson.

Instructor preparation activities:

- If students do not have web access, make copies of the Example source code at <http://msdn.microsoft.com/en-us/library/system.gc.aspx>.

Resources, software, and additional files needed for this lesson:

- 10754_Msft.NET_PPT_7.1.
- Web access to <http://msdn.microsoft.com/en-us/library/system.gc.aspx>.

Teaching Guide

Essential Vocabulary

garbage collector—the .NET mechanism that manages the allocation and release of memory for an application.

heap—a region of memory used for reference data, such as object instances.

managed heap—in .NET-managed code, the region of memory used for reference data and managed by the garbage collector.

stack—a region of memory used for method overhead and value data.

Lesson Sequence

Activating prior knowledge/lesson staging (10 minutes):

1. Pair students up to discuss how a typical student might make decisions about cleaning up his or her school binder or backpack.
2. Direct students share their ideas with the class, pointing out similarities.

Lesson activity (25 minutes):

1. Review resource (memory) allocation in managed .NET applications, guided by the Microsoft PowerPoint® presentation.

Assessment/lesson reflection (15 minutes):

1. Direct students to create the program shown in the Example section of the following website: <http://msdn.microsoft.com/en-us/library/system.gc.aspx>
2. The program will output information about available memory (in bytes). Direct students to discuss their findings with a partner.

Resources:

- **MSDN®: Fundamentals of Garbage Collection**
<http://msdn.microsoft.com/en-us/library/ee787088.aspx>
- **MSDN: GC Class**
<http://msdn.microsoft.com/en-us/library/system.gc.aspx>
- **MSDN: Garbage Collection**
<http://msdn.microsoft.com/en-us/library/0xy59wtx.aspx>
<http://msdn.microsoft.com/en-us/library/25zf0ze8.aspx>