

REVIEW LESSON

MTA Course: 10754 Microsoft .NET Fundamentals

Lesson name: Microsoft .NET Fundamentals 6.2

Topic: Understand type safety (One 50-minute class period)

File name: 10754_Msft.NET_RL_6.2

Lesson Objective

6.2: Understand type safety. *This objective may include but is not limited to:* understanding memory type safety, type safety in classes, strong types, and security policies.

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.

In particular, this lesson assumes that students have a general understanding of the .NET compilation process, as reviewed in the following lessons:

- 10754_Msft.NET_RL_3.1
- 10754_Msft.NET_RL_3.2
- 10754_Msft.NET_RL_3.3-3.4

Instructor preparation activities:

- None

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

- 10754_Msft.NET_PPT_6.2

Teaching Guide

Essential Vocabulary

Common Language Runtime (CLR)—the run-time environment that executes managed .NET code.

Common Type System (CTS)—a system that defines how types are declared, used, and managed in the Common Language Runtime.

security policy—the configurable set of rules that the Common Language Runtime follows when it decides what it will allow code to do.

strongly typed data—data for which the type has been defined explicitly.

type-safe code—code that accesses only the memory locations that it is authorized to access.

Lesson Sequence

Activating prior knowledge/lesson staging (10 minutes):

1. As indicated in the Microsoft PowerPoint® presentation, direct students to discuss the purpose of encapsulation with a partner.
2. Discuss briefly the role and importance of encapsulation.

Lesson activity (25 minutes):

1. Use the Microsoft PowerPoint presentation to review the basics of type safety in the .NET Framework.

Assessment/lesson reflection (15 minutes):

1. Think-Pair-Share
Use the “Think-Pair-Share” strategy to have students review the questions on the last slide in the presentation.
 - a. Students silently **think** of a response to a question
 - b. Students **pair** up and discuss their responses
 - c. Have each pair **share** their thoughts with the entire group.

Resources:

- **MSDN®: Type Safety and Security**
<http://msdn.microsoft.com/en-us/library/hbzz1a9a.aspx>
- **MSDN: Writing Verifiably Type-Safe Code**
<http://msdn.microsoft.com/en-us/library/01k04eaf.aspx>
- **MSDN: Unsafe Code and Pointers (C# Programming Guide)**
<http://msdn.microsoft.com/en-us/library/t2yzs44b.aspx>
- **MSDN: Implicit and Explicit Declaration (Visual Basic®)**
<http://msdn.microsoft.com/en-us/library/xe53dz5w.aspx>
- **MSDN: Common Type System**
<http://msdn.microsoft.com/en-us/library/zcx1ebl1e.aspx>
- **MSDN: .NET Framework Security Policy**
<http://msdn.microsoft.com/en-us/library/tha13y5z.aspx>