

KEY IN-CLASS STUDENT ACTIVITY 3.1: UNDERSTAND RENDERING ENGINES

Lesson Objective 3.1:

Understand rendering engines. *Topic:* DirectX®

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

1. A workstation with Windows 7®, Windows Vista®, or Windows XP®
2. Microsoft Visual Studio® or Microsoft Visual C# Express® (2008 or 2010)
3. XNA® Game Studio 2.0, 3.0, 3.1, or 4.0
4. DirectX 11: <http://msdn.microsoft.com/en-us/directx/default.aspx>
5. Internet connectivity

Guiding questions:

1. **What is DirectX and how do you use it?** DirectX is a collection of application programming interfaces (APIs) from Microsoft® for handling tasks related to multimedia, especially programming games and high-performance multimedia applications, including 2-D and 3-D graphics.
2. **How can audio and video be compressed?** Audio and video can be compressed with codecs, which is software used to compress audio and video. Windows Media Player, which copies a song from a CD and makes it playable on your computer, is an example of a codec.
3. **When is VSync used?** VSync, which stands for vertical synchronization, is used to synchronize the frames per second with the monitor's refresh rate to prevent tearing.

Student Activity:

Directions to the student:

Read the following scenario. Select three samples to explore. Follow the directions to download and build the DirectX samples. Answer the questions below. Share with a classmate by demonstrating the code sample and discussing how it could be used in a game design project.

Scenario:

Kim has been transferred to the animation department at Adventure Works. Everyone on the entire team is required to know and use DirectX in the production of the current project, Adventures in Space. DirectX is a powerful technology that is designed to make Microsoft Windows®-based computers an ideal platform for running and displaying applications rich in multimedia elements such as full-color graphics, video, 3-D animation, and rich audio. Kim is excited to learn more about the potential power of DirectX. His supervisor suggested that he look at the MSDN® Library collection of samples.

Content:

Samples and Code Examples in the MSDN Library

[http://msdn.microsoft.com/en-us/library/dd368187\(v=VS.85\).aspx](http://msdn.microsoft.com/en-us/library/dd368187(v=VS.85).aspx)

- The following hyperlinks to samples do not work at the above-referenced Uniform Resource Locator (URL) for SDK 7.1:
 - Direct 3D Interop
 - MSAA Rendering
 - SaveAs ImageFileSample

Respond to the following questions.

1. Did you have any problems building the sample projects? If so, how did you solve them?
Answers will vary.
2. What did you learn through each sample in this exploration that can be applied to a game design project?
 - a. Answers will vary.
 - b. Answers will vary.
 - c. Answers will vary.
3. How does what you learned relate to the objective of this lesson?
Answers will vary.