

OBJECTIVE

understand game design 1.5

UNDERSTAND COMPONENTS

SCENARIO: The students in Karel Florian's class have just completed an artificial intelligence (AI) game design project. Blast Master is a side-scrolling shooter game in which the player pilots a spaceship that is armed with missiles. The goal of the game is to get to the end of each level and destroy the level boss. The spaceship must either avoid or shoot space debris. There are also enemy ships that will shoot at the player. Enemy ships will track the player's movement and move towards the player. Whenever debris or an enemy ship gets hit with a missile, a coin appears. Picking up the coin earns the player points.

- 1. Which aspect of the game is an example of AI?**
 - a. Debris explodes when hit with a missile.
 - b. Coins increase the score of the player when touched.
 - c. Enemies move where the player moves.
- 2. What is an aspect of a game enemy's AI that must be curtailed purposefully?**
 - a. Reaction time
 - b. Sensing
 - c. Both
- 3. What is a negative consequence of a predictable AI?**
 - a. The AI's knowledge of the game world is restricted, such as its vision and hearing.
 - b. It can interact with the player's character.
 - c. The same technique can be used to defeat the AI for every interaction.

HINT

AI within a game world suffers from perfect knowledge of the game world and must be flawed purposefully in order to provide a surmountable challenge to the player.

Answers

1. Which aspect of the game is an example of AI?
 - c. **Enemies move where the player moves.** The enemy movement responds to the player's position and shows intelligence by sensing, planning, and acting.
2. What is an aspect of a game enemy's AI that must be curtailed purposefully?
 - c. **Both.** If reaction time and the enemy's hearing and vision are perfect, the challenge to the player would be overwhelming.
3. What is a negative consequence of a predictable AI?
 - c. **The same technique can be used to defeat the AI for every interaction.** In this case, the game would be too easy and the idea of an AI would not make the game sufficiently challenging.

Essential details

- AI is a subfield of computer science and can be seen as an attempt to model aspects of human thought on computers. It often is used in games to reflect the algorithms that control enemy behavior.
- AIs sense the game world, plan, and act.
- A tool is a specialized application used to make an aspect of a game, such as a map or level. A tool is programmed mainly for content creation and used in conjunction with existing programming tools and environments.

FAST TRACK HELP

- **Video Games and Artificial Intelligence**
<http://research.microsoft.com/en-us/projects/ijcaiigames>
- Millington, Ian, and John Funge. **Artificial Intelligence for Games** (Burlington: Morgan Kauffman, 2009)
- Rogers, Scott. **Level Up: The Guide to Great Video Game Design** (West Sussex, UK: John Wiley & Sons, 2010)
- Schell, Jesse. **The Art of Game Design: A Book of Lenses** (Burlington: Morgan Kauffman, 2008)

