

1. Record Nr.	UNINA9910799484703321
Autore	Sung Kelvin
Titolo	Basic Math for Game Development with Unity 3D : A Beginner's Guide to Mathematical Foundations // by Kelvin Sung, Gregory Smith
Pubbl/distr/stampa	Berkeley, CA : , : Apress : , : Imprint : Apress, , 2023
ISBN	1-4842-9885-3
Edizione	[2nd ed. 2023.]
Descrizione fisica	1 online resource (456 pages)
Altri autori (Persone)	SmithGregory
Disciplina	794.815260151
Soggetti	Video games - Programming - Mathematics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Chapter 1: Introduction and Learning Environment -- Chapter 2: Intervals and Bounding Boxes -- Chapter 3: Distances and Bounding Spheres -- Chapter 4: Vectors -- Chapter 5: Vector Dot Products -- Chapter 6: Vector Cross Products and 2D Planes -- Chapter 7: Axis Frames and Vector Components -- Chapter 8: Quaternions and Rotations -- Chapter 9: Conclusion.
Sommario/riassunto	This book will teach you fundamental mathematical concepts using Unity-based custom examples, explaining the implementations and demonstrating how these concepts are applied in building modern video game functionality. You will learn the theoretical foundation of each concept, and then interact, examine, and modify the implementation to inspect the effects. Basic Math for Game Development with Unity 3D begins by explaining points in the 3D Cartesian Coordinate system. From there, you'll gain insight into vectors and details of dot and cross products, quaternions, rotation and decomposition of vectors. These basic mathematical foundations are illustrated through Unity-based example implementations. Associated with these concept presentations are separate examples of how the concepts are applied in creating typical video game functionality, such as collision support, motion simulations, autonomous behaviors, shadow approximations, and reflections off surfaces with arbitrary orientations. After completing this book, you will have a thorough understanding of core mathematical concepts and how they are used to create compelling gameplay. You will: Understand the basic concepts of

points and vectors, and their applications in game development Grasp the details of autonomous behaviors such as facing a target, following and chasing an object, and more Apply mathematical concepts in implementing modern video game functionality such as ray casting, collision, and motion control.
