

Milford Public Schools Curriculum Map

Department: Technology Education

Course Number and Name: 3D Modeling & Animation 1

Course Description: Students will explore the techniques used to create 3D models using Autodesk 3DS Max software, used by industry professionals. Students will begin with learning the Autodesk interface and its capabilities. Students will then progress to basic shape modeling and learn how to apply textures and materials to make their work realistic. Projects may include creating a 3D model of their favorite cartoon or gaming character, reproducing a room in their house, as well as designing an original 3D character. Some time outside of the classroom period may be required.

STANDARDS	3D Modeling & Animation 1 Curriculum Map	DURATION	SCHOOL WEEK	
Module 0: Welcome Week			1	
UNIT 1:	Welcome			
CONTENT STANDARD 1.0 : DEMONSTRATE UNDERSTANDING OF THE ANIMATION FIELD	CAREERS in Animation (BASELINE ASSESSMENT)	1 WEEK		
PERFORMANCE STANDARD 1.1 : PURPOSES AND USES OF ANIMATION	Students will research careers that utilize Animation			
PERFORMANCE STANDARD 1.2 : COMMUNICATE IDEAS USING APPROPRIATE INDUSTRY TERMINOLOGY	After choosing a career, students will create a presentation describing the occupation.			
PERFORMANCE STANDARD 1.3 : IDENTIFY AND APPLY ANIMATION PRODUCTION PROCESS				
	Can be accomplished with written, oral, or visual presentation			
	Students will be scored using the District Communication Rubric			

UNIT 2:	What is 3D?		2	
CONTENT STANDARD 2.0 : DEMONSTRATE KNOWLEDGE OF LEGAL AND ETHICAL ISSUES RELATED TO ANIMATION	History & structure of the 3D Motion Graphics & Animation Legal and ethical issues related to animation Good design vs. bad design Concept, content, & context Readability Color schemes Font choices Image choices Animation Styles	2 DAYS		
PERFORMANCE STANDARD 2.1 : DEMONSTRATE KNOWLEDGE OF COPYRIGHT AND INTELLECTUAL PROPERTY LAWS				
PERFORMANCE STANDARD 2.2 : DEMONSTRATE ETHICAL BEHAVIOR AS IT RELATES TO THE INDUSTRY				
PERFORMANCE STANDARD 6.2 : DEMONSTRATE THE PROCESS OF EVALUATING PORTFOLIOS				
Module 1: Introduction to Autodesk 3DS Max Design				
UNIT 3:	Interface Overview			
CONTENT STANDARD 4.0 : DEMONSTRATE KNOWLEDGE OF PRODUCTION	Interface Overview Viewpoints Command Panel Viewpoint UI Elements Visualization Workflow	1 DAY		
UNIT 4:	Assembling Project Files			
PERFORMANCE STANDARD 3.5 : UNDERSTAND PRODUCTION MANAGEMENT	Data Linking and Importing DWG Link and Import Options Layer and Object Properties	2 DAYS		
UNIT 5:	Design Interface		3	
PERFORMANCE STANDARD 3.5 : UNDERSTAND PRODUCTION MANAGEMENT	Menus and Toolbars Status Bar The Command Panel Setting the Project Folder and Configuring User Paths Viewport Configuration and Navigation Object Selection	1 DAYS		

Module 2: Manipulating Objects				
UNIT 6:	Basic Functions			
CONTENT STANDARD 4.0 : DEMONSTRATE KNOWLEDGE OF PRODUCTION	<i>Modeling with Primitives</i> <i>Applying Transforms</i> <i>Sub-Object Mode</i> <i>Reference Coordinate Systems</i> <i>and Transform Centers</i> <i>Cloning and Grouping</i> <i>Box Modeling (Optional)</i> <i>Statistics in Viewport</i>	4 Days		
PERFORMANCE STANDARD 4.1 : DEMONSTRATE MODELING TECHNIQUES				
Module 3: 3D Environments & Materials				
UNIT 7:	Introduction to Materials 1			
PERFORMANCE STANDARD 4.2 : APPLY SURFACE AND TEXTURE	How Materials Work Understanding Maps and Materials Materials and Material Libraries Managing Materials	3 Days	4	
UNIT 8:	Introduction to Materials 2			
PERFORMANCE STANDARD 4.2 : APPLY SURFACE AND TEXTURE	Standard Materials Architectural Materials (Optional) Multi/Sub-Object Materials Opacity, Bump, and Reflection Mapping	2 Days		
PERFORMANCE STANDARD 4.2 : APPLY SURFACE AND TEXTURE	mental ray Shaders and Materials Arch & Design Materials ProMaterials Other Material Types Creating a Decal Texture	2 Days	5	
PERFORMANCE STANDARD 4.8 : DEMONSTRATE AN UNDERSTANDING OF RENDERING TECHNIQUES				
UNIT 9:	Solar Systems			

PERFORMANCE STANDARD 4.1 : DEMONSTRATE MODELING TECHNIQUES	Creating Our Solar System	5 Days			
PERFORMANCE STANDARD 4.2 : APPLY SURFACE AND TEXTURE					
PERFORMANCE STANDARD 4.8 : DEMONSTRATE AN UNDERSTANDING OF RENDERING TECHNIQUES					
UNIT 10:	Balls of Fury		7		
PERFORMANCE STANDARD 4.1 : DEMONSTRATE MODELING TECHNIQUES	Mental Ray Basics Intro to texturing Intro to lighting	5 Days			
UNIT 11:	Modeling Rocks		8		
PERFORMANCE STANDARD 4.1 : DEMONSTRATE MODELING TECHNIQUES	Modeling Rocks Texture Rocks	2 Days			
PERFORMANCE STANDARD 4.2 : APPLY SURFACE AND TEXTURE					
PERFORMANCE STANDARD 4.3 : CREATE AND APPLY LIGHTING					
UNIT 12:	Zen Garden				
PERFORMANCE STANDARD 4.1 : DEMONSTRATE MODELING TECHNIQUES	Intro to Modeling Continued texturing Continued lighting	3 Days			
PERFORMANCE STANDARD 4.2 : APPLY SURFACE AND TEXTURE					
PERFORMANCE STANDARD 4.3 : CREATE AND APPLY LIGHTING					
UNIT 13:	Dinner Time		9		
PERFORMANCE STANDARD 4.1 : DEMONSTRATE MODELING TECHNIQUES	Modeling Basics: Wine Glass Plate Cup	5 Days			
PERFORMANCE STANDARD 4.2 : APPLY SURFACE AND TEXTURE					
PERFORMANCE STANDARD 4.3 : CREATE AND APPLY LIGHTING					

UNIT 14:	Chess			
PERFORMANCE STANDARD 4.1 : DEMONSTRATE MODELING TECHNIQUES	Modeling Basics: Pawn Tower Bishop Queen King	5 Days	10	
PERFORMANCE STANDARD 4.2 : APPLY SURFACE AND TEXTURE				
PERFORMANCE STANDARD 4.3 : CREATE AND APPLY LIGHTING				
PERFORMANCE STANDARD 4.1 : DEMONSTRATE MODELING TECHNIQUES	Knight	5 Days	11	
PERFORMANCE STANDARD 4.2 : APPLY SURFACE AND TEXTURE				
PERFORMANCE STANDARD 4.3 : CREATE AND APPLY LIGHTING				
UNIT 15:	3D Logos			
PERFORMANCE STANDARD 4.1 : DEMONSTRATE MODELING TECHNIQUES	Mental Ray Basics Intro to Fonts Intro to Setup and Design	5 Days	12	
PERFORMANCE STANDARD 4.2 : APPLY SURFACE AND TEXTURE				
PERFORMANCE STANDARD 4.3 : CREATE AND APPLY LIGHTING				
PERFORMANCE STANDARD 4.4 : UTILIZE CINEMATOGRAPHY IN ANIMATION				
UNIT 16:	Monster Mash			
PERFORMANCE STANDARD 4.1 : DEMONSTRATE MODELING TECHNIQUES	Mental Ray Basics Intro to Fonts Intro to Setup and Design	5 Days	13	
PERFORMANCE STANDARD 4.2 : APPLY SURFACE AND TEXTURE				
PERFORMANCE STANDARD 4.3 : CREATE AND APPLY LIGHTING				
PERFORMANCE STANDARD 4.5 : APPLY RIGGING TO MODELS				

Module 4:	MidTerm		14	
UNIT 17:	Modeling Skills (Vitamin Bottle)			
PERFORMANCE STANDARD 4.1 : DEMONSTRATE MODELING TECHNIQUES	Basic tools "Move, Rotate, Scale" Inseting, Beveling & Extruding Materials Editor - (Mental Ray turned on if needed) Basic Scene Setup and Lighting.	2 Days		
PERFORMANCE STANDARD 4.2 : APPLY SURFACE AND TEXTURE				
PERFORMANCE STANDARD 4.3 : CREATE AND APPLY LIGHTING				