Monster Hunt Tutorial 2: Matrix

Create a Matrix

```
#include "DarkGDK.h"

void DarkGDK ( void )
{
	dbSyncOn   ( );
	dbSyncRate ( 60 );
	dbMakeMatrix(1,2000,2000,50,50);
	float mY=100;
	dbPositionCamera(0,1000,0);
	while ( LoopGDK ( ) )
	{
		if(dbUpKey()==1) dbMoveCamera(10);
		if(dbDownKey()==1) dbMoveCamera(-10);

		if(dbSpaceKey()==1) {
			dbRandomizeMatrix(1,mY);
			dbUpdateMatrix(1); //Must have
		}

		if(dbLeftKey()==1) mY=mY-1;
		if(dbRightKey()==1) mY=mY+1;
		if(mY<1) mY=1;

		dbPointCamera(1000,0,1000);
		dbSync();
	}
	return;
}
```

Texturing a Matrix

```
void DarkGDK ( void )
{
	dbSyncOn   ( );
	dbSyncRate ( 60 );
	dbMakeMatrix(1,10000,10000,20,20);
    dbLoadImage("grass.bmp",1);
	dbPrepareMatrixTexture(1,1,2,2);
	dbRandomizeMatrix(1,250);

	for(int x=0;x<=19;x++){
		for(int z=0;z<=19;z++){
			int t=dbRnd(3)+1;
			dbSetMatrixTile(1,x,z,t);
		}
	}
	dbUpdateMatrix(1); //Must have
	while ( LoopGDK ( ) )
	{
		float CameraAngleY=dbCameraAngleY();
		if(dbUpKey()==1) dbMoveCamera(10);
		if(dbLeftKey()==1) dbYRotateCamera(dbWrapValue(CameraAngleY-5));
		if(dbRightKey()==1) dbYRotateCamera(dbWrapValue(CameraAngleY+5));
		if(dbSpaceKey()==1){
			dbFillMatrix(1,dbRnd(50),dbRnd(3)+1);
			dbRandomizeMatrix(1,250);
			dbUpdateMatrix(1); //Must have
		}
		float X=dbCameraPositionX();
		float Z=dbCameraPositionZ();
		dbPositionCamera(X,250,Z);
		dbSync();
	}
	return;
}
```

Walking in the Terrain

```
#include "DarkGDK.h"

void DarkGDK ( void )
{
	float X=5000,Y=0,Z=5000,CameraAngleY=0,XTest=10,ZTest=10;
	dbSyncOn   ( );
	dbSyncRate ( 60 );
	dbMakeMatrix(1,10000,10000,20,20);
	dbLoadImage("grass.bmp",1);
	dbPrepareMatrixTexture(1,1,1,1);
	dbFillMatrix(1,0,1);
	dbRandomizeMatrix(1,125);
	dbUpdateMatrix(1);
	dbPositionCamera(X,Y+35,Z);
	while ( LoopGDK ( ) )
	{
		dbSetCursor(0,0);
		dbPrint(X);
		dbPrint(Y);
		dbPrint(Z);
		CameraAngleY=dbCameraAngleY();
		if(dbUpKey()==1){
			XTest=dbNewXValue(X,CameraAngleY,20);
			ZTest=dbNewZValue(Z,CameraAngleY,20);
			if((XTest>500 && XTest<9500) &&
				(ZTest>500 && ZTest<9500)){
					dbMoveCamera(10);
			}
		}
		if(dbLeftKey()==1) dbYRotateCamera(dbWrapValue(CameraAngleY-5));
		if(dbRightKey()==1) dbYRotateCamera(dbWrapValue(CameraAngleY+5));
		X=dbCameraPositionX();
		Z=dbCameraPositionZ();
		Y=dbGetGroundHeight(1,X,Z);
		dbPositionCamera(X,Y+35,Z);

		dbSync();
	}
	return;
}
```

Third Person Perspective on a Matrix

```
void DarkGDK ( void )
{
	float X=5000,Y=0,Z=5000,AngleY=0,XTest=10,ZTest=10;int fps;
	dbSyncOn   ( );
	dbSyncRate ( 60 );
	dbMakeMatrix(1,10000,10000,20,20);
	dbLoadImage("grass.bmp",1);
	dbPrepareMatrixTexture(1,1,1,1);
	dbFillMatrix(1,0,1);
	dbRandomizeMatrix(1,125);
	dbUpdateMatrix(1);
	dbLoadImage("barry.bmp",2);
	dbMakeObjectSphere(10,25);
	dbTextureObject(10,2);
	dbPositionObject(10,5000,0,5000);

	while ( LoopGDK ( ) )
	{
		dbSetCursor(0,0);
		char fps[8];
		sprintf(fps,"FPS: %d",dbScreenFPS());
		dbPrint(fps);
		dbPrint(X);
		dbPrint(Y);
		dbPrint(Z);
		AngleY=dbObjectAngleY(10);
		if(dbUpKey()==1){
			XTest=dbNewXValue(X,AngleY,20);
			ZTest=dbNewZValue(Z,AngleY,20);
			if((XTest>500 && XTest<9500) &&
				(ZTest>500 && ZTest<9500)){
					dbMoveObject(10,10);
			}
		}
		if(dbLeftKey()==1) dbYRotateObject(10,dbWrapValue(AngleY-5));
		if(dbRightKey()==1) dbYRotateObject(10,dbWrapValue(AngleY+5));
		X=dbObjectPositionX(10);
		Z=dbObjectPositionZ(10);
		Y=dbGetGroundHeight(1,X,Z);
		dbPositionObject(10,X,Y+12.5,Z);
		float CameraZ=dbNewZValue(Z,AngleY-180,100);
		float CameraX=dbNewXValue(X,AngleY-180,100);
		float CameraY=dbGetGroundHeight(1,CameraX,CameraZ);
		dbPositionCamera(CameraX,CameraY+50,CameraZ);
		dbPointCamera(X,Y+25,Z);

		dbSync();
	}
	return;
}
```

Fog and Backdrop

```
void DarkGDK ( void )
{
	float X=5000,Y=0,Z=5000,AngleY=0,XTest=10,ZTest=10;
	dbSyncOn   ( );
	dbSyncRate ( 60 );
	dbBackdropOn();
	dbSetCameraRange(1,5000);
	dbFogOn();
	dbFogDistance(4000);
	dbFogColor(dbRGB(128,128,128));
	dbColorBackdrop(dbRGB(128,128,128));
	dbMakeMatrix(1,10000,10000,20,20);
	dbLoadImage("grass.bmp",1);
	dbPrepareMatrixTexture(1,1,1,1);
	dbFillMatrix(1,0,1);
	dbRandomizeMatrix(1,125);
	dbUpdateMatrix(1);
	dbLoadImage("barry.bmp",2);
	dbMakeObjectSphere(10,25);
	dbTextureObject(10,2);
	dbPositionObject(10,5000,0,5000);
	while ( LoopGDK ( ) )
	{
		dbSetCursor(0,0);
		char fps[8];
		sprintf(fps,"FPS: %d",dbScreenFPS());
		dbPrint(fps);
		dbPrint(X);
		dbPrint(Y);
		dbPrint(Z);
		AngleY=dbObjectAngleY(10);
		if(dbUpKey()==1){
			XTest=dbNewXValue(X,AngleY,20);
			ZTest=dbNewZValue(Z,AngleY,20);
			if((XTest>500 && XTest<9500) &&(ZTest>500 && ZTest<9500)){
				dbMoveObject(10,10);
			}
		}
		if(dbLeftKey()==1) dbYRotateObject(10,dbWrapValue(AngleY-5));
		if(dbRightKey()==1) dbYRotateObject(10,dbWrapValue(AngleY+5));
		X=dbObjectPositionX(10);
		Z=dbObjectPositionZ(10);
		Y=dbGetGroundHeight(1,X,Z);
		dbPositionObject(10,X,Y+12.5,Z);
		float CameraZ=dbNewZValue(Z,AngleY-180,100);
		float CameraX=dbNewXValue(X,AngleY-180,100);
		float CameraY=dbGetGroundHeight(1,CameraX,CameraZ);
		dbPositionCamera(CameraX,CameraY+50,CameraZ);
		dbPointCamera(X,Y+25,Z);
		dbSync();
	}
	return;
}
```

References

The Game Creators (2010). Monster Hunt Tutorial . Retrieved, Feb 8, 2010, from: http://developer.thegamecreators.com/?f=t01/3d_tutorial_index