Year 9 Computer Science Animation Knowledge Organiser

Key Word	Definition
Object	Can range from lights to illuminate your scene, basic 2D and 3D shapes to fill it with models, armatures to animate those models, to cameras to take pictures or make video of it all.
Sphere	A polyhedral sphere made up of triangles.
Cone	A three-dimensional shape that narrows smoothly from a flat base (usually circular) to a point called the apex.
Add	Put in a new element.
Move	To change the position of an item.
Rotate	To move an object around on an axis.
Scale	To change the shape of an object.
Colour (material)	To add a rendering effect to an object.
Animation	The process of giving the illusion of movement to drawings, models, or inanimate objects.
Stop Motion	A type of animation where you have to manually animate every frame.
Keyframe	A type of animation which only requires you to pick the important locations, the keyframes and the computer works out the rest.
Tweening	The process of creating the in-betweens, which are the images that go between keyframes.
Timeline	The sequence of events to make an animation, where the keyframes are stored.
Location	The siting of an object.
Parenting	A method of grouping a number of objects together in a hierarchy where one object is superior to the others in the group.

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Edit Mode	Allows changing the geometry of the objects.
Extrude	An edit mode tool that pulls out new geometry from a selection in our mesh.
Loop Cut	This tool splits a loop of faces by inserting new edge loops intersecting the chosen edge.
Face	A surface made up of three or more sides.
Vertex	A point where one or more edges meet.
Edge	A line connecting two vertices.
Proportional Editing	A way of transforming selected elements while also affecting the nearby unselected elements. The farther away an unselected element is, the less it will be affected (hence the "proportional").
Knife Tool	Can be used to interactively cut up geometry by drawing lines or closed loops to create holes.
Organic	Objects that involve mainly curves, as nature has a thing against straight lines.
Subdivision	The process of cutting a model's polygons into more polygons while retaining the shape of the model.
Lights	Illuminating the 3D scene to make it more realistic.
Camera	An object that provides a means of rendering images. It defines which portion of a scene is visible in the rendered image.
Focus	Used to either zero in on a selection of mesh parts or objects, or to isolate a selection of objects.
Render	The process of turning a 3D scene into a 2D image.
Ray Tracing	Simulates the realistic behaviour of light rays, creating accurate reflections, refractions, shadows, and caustics.

Assessment Rubric

	Emerging [1-3]	Expected [4-7]	Exceeding [8-10]	Score
Modelling	☐ Basic shapes joined together ☐ Use of rotate, scale, and move	☐ Use of edit mode ☐ Extrude tools ☐ Loop cut ☐ Some named objects	☐ Knife tool ☐ Subdivision ☐ Use of proportional editing ☐ Use of parenting	
Colours	☐ One or more materials made	☐ Different colours on the same object	☐ Named materials used on multiple objects	
Animation	☐ Keyframes to move one or more objects	☐ Keyframes used on attributes scale and rotation of objects ☐ Length of animation adjusted on the timeline	☐ Animated different parts of a parented object	
Camera	☐ Camera moved to focus on a shot	☐ Use of f-stop	☐ Animated camera or camera setting	
Lighting	☐ Point lights	☐ Sunlight or spotlight ☐ Animated moving light	☐ Animated attributes of a light, e.g. strength	
			Total Score:	

Teacher Feedback:	Student Response to Feedback:

Learning Graph

Lesson 1

- Add, delete, and move objects
- Scale and rotate objects
- Use a material to add colour to objects

Lesson 2

- Add, move, and delete keyframes to make basic animations
- Play, pause, and move through the animation using the timeline
- Create useful names for objects
- Join multiple objects together using parenting

Lesson 3

- Use edit mode and extrude
- Use loop cut and face editing
- Apply different colours to different parts of the same model

Lesson 4

- Use proportional editing
- Use the knife tool
- Use subdivision

Lesson 5

- Add and edit set lighting
- Set up the camera
- Compare the differences between render modes

Lesson 6

- Create a 3-10 second animation
- Render out an animation