**P1 – Different types of animation**

Animation is a form of media, in which a series of still images are displayed one after the other in rapid sequence to create the illusion of a moving image. This is the same principal as recorded footage, such as films and videos, but in animation, each frame is created individually, either by a human or computer. There are many different methods of creating these images.

**Stop-motion**  
Stop-motion is the process of making each frame of an animation by taking a picture of the scene, adjusting the scene for the next frame, and then repeating the process. The final animation is made by playing the images in sequence to produce a video.  
This effect is used in movies and TV series such as *Pingu, Morph,* and *Wallace and Gromit*. All three use clay or playdough models, as it is an inexpensive and easy modelling material. Almost any material can be used to create a scene for a stop-motion animation, such as Blu-tack, LEGO®, toys or paper.

**Hand-drawn animation**In hand-drawn animation, each frame of the video is drawn by an artist. They could be pencil, ink or paintings, and may be in colour. This process takes a long time, particularly for long animations, so often shortcuts are used, such as layering parts of the image – such as making the background and characters separate, so not everything has to be re-drawn every time. The most common example of this type of animation is early Disney movies, such as *Beauty and the Beast* or *Cinderella*.

**Digital animation**In digital animation, frames are drawn on a computer. This is quicker than drawing by hand, as the computer has many tools to speed up the process, such as creating lines and shapes, filling in areas and shape or motion tweens. A tween is a part of the animation in which the artist creates the start and end point of a short piece of animation, and the computer fills in the frames in-between. This is useful for having objects move around the screen or change shape – such as a cloud moving across the sky or something being squashed. It also possible to add things such as ‘skeletons’, which determine how different objects in a scene move relative to one another.

**3D modelling**3D modelling is another form of digital animation. It is very similar to digital animation, Although instead of making 2D drawings, the artist uses modelling software to create 3D models. The models can be very simple and cartoon-like, or very complex and photo-realistic. This technique is used for most animated movies, as it is a relatively inexpensive way of producing visually high-quality video.  
The complexity of the animation determines how long it takes to produce. Simple animations can be rendered in real-time (for example, most modern PC’s could animate *Toy Story* at a watchable speed), whereas a very high-quality video will take much more computer time to render. For example, the 4K IMAX version of Disney’s *Zootopia* would take a day or more to render a few frames of the image.

**CGI and Digital FX**This is the process of combining recorded footage with animation. Early examples include films like *Mary Poppins* and *Who Framed Roger Rabbit?* which made use of hand-drawn animation to add in non-human characters that would be difficult to produce with practical effects.   
Today, CGI is used in live-action movies to add all kinds of effects – creating huge sets would be too difficult or expensive to create any other way, adding in wild animals, anthropomorphic characters, monsters or locations such as space. It is also used for effects, such as superpowers, magic, explosions and wide-scale destruction, or sometimes to change the way an actor looks.  
When animating human characters, a common method of making them look realistic is to use ‘motion capture’. This is the technique of using special software to film an actor, then copying it in CGI. This results in natural-looking movement and expressions.  
Without this technique, poor animation or effects can exhibit an effect known as ‘the uncanny valley’. This is when the animation looks life-like, but there is a subtle problem with it, usually the way it moves or interacts with the live-action footage. For humanoid characters, this makes them appear unsettling, and for other characters or effects it makes it obvious to the viewer that they are CGI.