3D CHARACTER DESIGN

Introduction
The design of characters is key to creating a digital model - or animation - that immediately communicates to your audience what is going on in the scene. A protagonist (hero character) who doesn’t appeal to the audience will not be able to carry the plot. A character who doesn’t behave like your audience expects from their appearance will confuse them. Let’s look at a few examples and principles.

General considerations
Will your character be handed off to someone else in your team or elsewhere? How basic can it be? Does it need to be exported from Blender to another environment, such as Unity? Are there limits to mesh size and UV map size? Does the topology need to be optimized? Can you reuse a previous character with some editing? What kind of shots will the character be in - close up, mid range, or background? Will lip sync audio be needed? If so, pay more attention to the mouth and mouth topology. What style of rendering will be used? What’s the mood of the animation?

Character design considerations
Whether you’re working alone or in a team, there are many practical considerations that need to be taken account of in designing a character.

Is the character a hero, villain, comical, minor? How will they emote (show emotions)? By expression, voice, gesture, posture? What is their age, sex, weight? What historic period is the animation set in, if any? Timeless animation has its own constraints. What actions will the character perform? Will these be easier to animate if they are a particular shape? What clothing and props will they need to do their job in the animation?

Clothing and assets
Will they be wearing tight or loose fitting clothing? Remember loose clothing needs cloth simulation, which is harder to animate and takes longer to render. What assets will the character use - rigid, such as weapons and armor - semi rigid, such as backpacks and leather - fully flexible, such as soft clothing
Will loose clothing, if you choose that, be simulated or separately rigged? How will the character interact with their assets?

**The use of assumptions**

Whether you’re creating a character for a game or an animation, the audience isn’t going to wait around for a lot of backstory. As soon as they look at the character, they’re going to make assumptions based on its appearance. These assumptions will include occupation, historical context, age, and character.

Gather reference material - photos or cartoon drawings by others - to guide you in this process and then proceed to pick out the options that are most suitable. Remember that assumptions may not be identical across all possible audience groups. A character wearing a hoodie, for example, may appear threatening to an older audience, but relaxed and companionable to a younger one. Replacing the hoodie with a T-shirt solves the problem.

**Outline**

In non-realistic animation, giving a character a distinctive outline separates it from the scene as well as from other characters. This technique evolved in 1930s Hollywood animation, when the black and white film stock of that times could only show shades of gray. As a result backgrounds were drawn in lighter
colors and the animated characters and props in darker colors with higher contrast. A black line was also drawn around them, and the arms and legs were shown in profile as much as possible. The best known example of a character designed for outline is Mickey Mouse, whose ears appear side by side on his head no matter which way he is looking.

Pixar uses hair color and outline to make the family characters distinct in The Incredibles. Note that in order to show the boy as younger his head is drawn twice the size of the other characters.

**Expressive features**

The most expressive parts of the face are the eyes and eyebrows, even in non-human characters.
It’s not essential to give your characters eyebrows - they may emote in other ways than expression - but they help.

**Monsters and aliens**

Monsters have to emote too. An audience is going to find it hard to gauge an alien character’s character, intentions, and state of mind if it’s presented as a shapeless blob with tentacles (of course this may be what the plot requires). So character designers tend to either give them a head, two eyes, a mouth, and two arms or build them from familiar animals that trigger the required assumptions.
Anatomy

Get to know how the human body is put together; how the muscles are connected to the skeleton, the range of motion of each joint, and how the proportions change as it ages. This will help your design; there is plenty of material on the web or in any good art class.