Environmental Impact

	2-3	4-6	7-9
Carbon Footprint	❑ Describe what a carbon footprint and ecological footprint is.	❑ Explain how a person's carbon footprint contributes to global warming.	❑ Explain how designers and manufactures contribute to global warming.
Ecological Footprint		❑ Explain how the ecological footprint for an area is calculated.	
	❑ Identify what increases your carbon footprint.	❑ Explain how a person could reduce their carbon footprint.	❑ Explain how a designer and manufacturer could reduce their carbon footprint
	❑ Identify how you could reduce your carbon footprint.	❑ Explain why it is important to reduce your carbon footprint.	❑ Explain why it is important for everyone to be aware of their carbon footprint and explain the impacts of global warming.
6Rs	❑ Identify the 6Rs	❑ Explain what each of the 6Rs mean.	❑ Apply the 6Rs to a design in order to make it more eco-friendly
Sustainable Forest	❑ Identify what sustainable design is	❑ Explain what sustainable design and sustainable forest is.	❑ Create a sustainable design
Sustainable Design	❑ Identify the FSC logo and what it stands for.	❑ Explain what the FSC do as an organisation.	
		❑ Create design ideas that show a clear understanding of how a product could be made eco-friendly using the 6Rs	❑ Create a sustainable design ideas that show a clear understanding of how a product could be made eco-friendly using the 6Rs.
Life Cycle Analysis	❑ Identify the 6 stages of the LCA	❑ Explain what each of the LCA stages involves	❑ Carry out a LCA on your design and modify in response to this analysis.

Smart Materials

	2-3	4-6	7-9
Smart Materials	❑ Identify what a smart material is.	❑ Describe what a smart material is.	❑ Explain what a smart material is.
	❑ Identify a range of uses for smart materials in design.	❑ Describe the different uses for smart materials in design.	❑ Explain the different uses for smart materials in design.
	❑ Identify a range of smart materials.	❑ Describe how a range of smart materials work.	❑ Explain how a range of smart materials work.
	❑ Identify the advantages and disadvantages of smart materials.	❑ Describe the advantages and disadvantages of a range of smart materials.	❑ Explain the advantages and disadvantages smart materials.
	❑ Create a design that includes a smart material.	❑ Create a design that includes an appropriate smart material with a clear description of how it would function.	❑ Create a design that includes an appropriate smart material with a detailed description of how it would function and justification for its choice.

Task Analysis

Unit	2-3	4-6	7-9
Identifying & investigating design opportunities.	❑ I can identify a design problem and can analyse this problem using the 5Ws.	❑ I can identify several design problems or opportunities based on the design context.	❑ I can identify and explain several design problems or opportunities based on the design context.
	❑ I can identify the needs and wants of the user.	❑ I can identify the needs and wants of the user and have described the cultural and socio-economic factors of the user.	❑ I can identify the needs and wants of the user and have described the cultural and socio-economic factors of the user and how these might influence my design.
	❑ I can identify the moral, social and economic factors that need to be considered when designing a new product.	❑ I can identify the moral, social and economic factors that need to be considered when designing for the potential user and the constraints of these.	❑ I can explain the moral, social and economic factors that need to be considered when designing for the potential user and the constraints of these.

Target	Below (R)	Emerging (A)	On (G)	Exceeding (E)

Design Specification

Unit	2-3	4-6	7-9
Design Specification	❑ I can write a design specification based on ACCESS FM.	❑ I can write a design specification based on ACCESS FMM and the end users needs and wants being met.	❑ I can write a detailed design specification based on ACCESS FMM and the end users needs and wants being met.
	❑ I can identify measurable criteria to inform my design.	❑ I can identify measurable criteria such as ergonomics how the product could be manufactured in industry in terms of quantities.	❑ I can identify measurable criteria such as ergonomics how the product could be manufactured in industry in terms of quantities and its impact on cost and the environment.
	❑ I can explain **how** I will meet each of my specification points.	❑ I can explain **how** I will meet each of my specification points. ❑ I can **justify** and give reasons for each of my design specification points linking to my research.	❑ I can explain **how** I will meet each of my specification points. ❑ I can **justify** and give reasons for each of my design specification points linking to my research.
		❑ I can identify how each of my points meet the needs of my user. ❑ I can prioritise each of my speciation points.	❑ I can explain how each of my points meet the needs of my user ❑ I can prioritise each of my specification points and explain why I have put them in this order of importance.

Target	Below (R)	Emerging (A)	On (G)	Exceeding (E)

Unit	2-3	4-6	7-9
Developing Ideas	❑ I can draw out 2-3 design ideas and label using ACCESS FM	❑ I can draw out 4-5 design ideas and label using ACCESS FMM.	❑ I can draw 4-5 design ideas and label using ACCESS FMM. These designs are creative, innovative and appealing.
	❑ I can identify social, moral and economic factors.	❑ I can identify social, moral and economic factors relevant to the user	❑ I can explain how social, moral and economic factors relevant to the user and how these have informed my design ideas.
	❑ I can generate ideas that meet most of my specification points.	❑ I can generate ideas that meet all of my specification points.	❑ I can generate ideas that meet all of my specification points and I can explain how I have met them.
	❑ I can evaluate my design ideas identifying advantages and disadvantages for each idea.	❑ I can evaluate my design ideas explaining the advantages and disadvantages for each idea linking back to ACCESS FM and the needs and wants of the user.	❑ I can evaluate my design ideas explaining the advantages and disadvantages for each idea linking back to ACCESS FM and the needs and wants of the user.
	❑ I can identify 2-3 ways of improving my designs based on my evaluations.	❑ I can identify 4-6 improvements and can explain how these could be made.	❑ I can identify 6-8 improvements and can explain how these could be made.
	❑ I can test and evaluate my designs through 3D prototyping.	❑ I can explain how each prototype could be tested and evaluated against my design specification.	❑ I can explain how each prototype could be tested and evaluated against my design specification. ❑ I can explain how each of my prototypes could be improved.
	❑ I can show improvements through drawings and prototypes. (2-3 improvements)	❑ I can show improvements through drawings and prototypes. (4-6 improvements)	❑ I can show improvements through drawings and prototypes. (6-8 improvements)

Target	Below (R)	Emerging (A)	On (G)	Exceeding (E)

Evaluation

Unit	2-3	4-6	7-9
Analysing & evaluating design decisions & prototypes.	❑ I can test and evaluate my prototypes against my specification using a template. ❑ I can record my findings and identify some improvements and modifications as a result of my findings. ❑ I can use the Life Cycle Analysis to evaluate the impact of each of my prototypes on the environment. ❑ I can identify the positives and negatives of my prototypes and suggest 1-2 improvements for each. ❑ I can show these improvements through further drawings and prototypes. (1-2)	❑ I can test and evaluate my prototypes against my specification and the views of my client and user in an extended writing piece. ❑ I can record the views of my user and client and explain how I could improve the design further based on their negative points ❑ I can record my findings and can explain what improvements, modifications and refinements have been made at every stage of developing and making. ❑ I can use the Life Cycle Analysis to evaluate the impact of each of my prototypes on the environment and explain how I could reduce impact further. ❑ I can identify the positives and negatives of my prototypes and suggest 3-4 improvements for each. ❑ I can show these improvements through further drawings and prototypes. (3-4) ❑ I can explain how these improvements have been made and why they have been made.	❑ I can test and evaluate my prototypes against my specification and the views of my client and user in an extended writing piece. ❑ I can record the views of my user and client and explain how I could improve the design further based on their negative points ❑ I can record my findings and can explain what improvements, modifications and refinements have been made at every stage of developing and making. ❑ I can use the Life Cycle Analysis to evaluate the impact of each of my prototypes on the environment and explain how I could reduce impact further. ❑ I can identify the positives and negatives of my prototypes and suggest 5-7 improvements for each. ❑ I can show these improvements through further drawings and prototypes. (5-7) ❑ I can explain how these improvements have been made and why they have been made referring to technical knowledge of materials and components.

Target	Below (R)	Emerging (A)	On (G)	Exceeding (E)

Making

Unit	2-3	4-6	7-9
Making	❑ I can select and safely use specialist tools, techniques, processes, equipment and machinery.	❑ I can select and safely use specialist tools, techniques, processes, equipment and machinery.	❑ I can select and safely use specialist tools, techniques, processes, equipment and machinery including CAD/CAM.
	❑ I can make a final prototype that is accurate in parts.	❑ I can make a final prototype that is accurate in most parts due to accurate marking out.	❑ I can make a final prototype that is accurate all parts due to accurate marking out and construction.
	❑ I can make a final prototype that meets some of the needs, wants and values of the user	❑ I can make a final prototype that meets most of the needs, wants and values of the user.	❑ I can make a final prototype that meets all of the needs, wants and values of the user.
	❑ I can make a prototype that meets some of my specification points.	❑ I can make a prototype that meets most of my specification points.	❑ I can make a prototype that meets all of my specification points.
	❑ I can make a prototype that uses more than one skill.	❑ I can make a prototype that uses a range of skills and techniques.	❑ I can make a prototype that uses a range of skills and techniques including CAD/CAM.

Target	Below (R)	Emerging (A)	On (G)	Exceeding (E)