1 - Investigate

1.1 Investigation of needs and research (AO1 8 marks)

Exemplars of 1.1 Investigation of needs and research
Use this live link to view the latest exemplar materials for this assessment grid.

Stage	What students need to do:
1.1 Investigation of needs and research	1.1a Identify the needs of the end user. 1.1b Outline a design problem from the context provided and identify a need for a product that could solve the problem. 1.1c Investigate existing products to inform the product specification for the prototype, from past and present designers. 1.1d Carry out a range of research strategies to gather relevant information, to inform the design specification for the prototype, including: a market research b research into the context in which the prototype will be used c research into other possible materials d any sustainability issues that will be considered relevant to the intended prototype.

What the NEA content requires students to do:

1.1a Identify the needs of the end user

Students should identify an end user/client or group of users associated with their chosen contextual challenge and may be able to do so at the start of the project, or after other investigation work has taken place. They should be people with whom the student can work with throughout the NEA. The role of the user/client is to influence the decisions made throughout the project. This may include when the student is designing, developing, testing, and evaluating. Each is an opportunity for real people to provide their preferences, requirements, or priorities in order to influence the final outcome.

1.1b Outline a design problem from the context provided and identify a need for a product that could solve the problem.

Students should identify a need for a problem they can solve. The teacher is permitted to support students in order that this problem is of a suitable level of demand. It must relate to the chosen contextual challenge. The problem, which will be formalised into a design brief in 1.2 evidence, should represent a problem that is not too open and broad that it cannot be solved, but not too closed that the solution either already exists or is clearly stated in the wording of the brief.

1.1c Investigate existing products to inform the product specification for the prototype, from past and present designers.

The investigation evidenced by the student will inform the writing of a list of specification criteria, against which design ideas will be generated. Students will need to analyse relevant existing products associated with the problem and contextual challenge and do so with a set of key terms to focus their analysis. These could include:

Point to Analyse	Question
Form	Why is the product shaped or styled as it is?
Function	What does it do?
Client and user	How does it meet the needs?
Performance	How does it work? How does it do the job it was designed to do?
Materials and Components	What materials/components / parts have they used and why
Scale of Production and Cost	What scale of production has been used? How does this affect the overall cost?
Sustainability	How has sustainability been taken into consideration?
Aesthetics	How is it made to be aesthetically pleasing?
Marketability	What makes this product different from anything else on the market?
Consideration of Innovation	What elements of the product are innovative or move the product forward compared to other versions available on the market?

Students may choose to include research into past or present designers and will benefit from a teachers guidance as to the relevance of their intentions for this research activity. This activity done well is useful when it relates to the problem and supports students to write specification criteria. Without this link to the context, evidence of this nature is typically not credit worthy.

1.1d Carry out a range of research strategies to gather relevant information…

Including existing products, user research and (only if appropriate) past and present designer research, it will be suitably demanding for students to have:

- Produced a total of 4-5 detailed pieces of relevant research.
- Carried out and evidenced primary research activities such as an interview, a group survey, the observation of a task being carried out, or an environment analysis.
- Ensured material and sustainability research are not specific yet and are only early-stage activities relating to a yet to be designed solution.

A research summary is a useful way to draw together the various insights students have gathered, into a single reflective statement.

Advice for scaled outcome projects

If the student has committed to a project where the making will be a scaled outcome (e.g. architecture), research should relate to scale model approaches. This will lead to the writing of technical and measurable specification criteria associated with a scaled outcome, and a brief which states the intention to work to a scale.

Level	Mark	1.1 Investigation of needs and research (AO1 8 marks)
	0	No rewardable material.
Level 1	1–3	• Evidence of limited investigation and identification of partially relevant design possibilities, which are partially justified in relation to the contextual challenge. • Basic assessment of user needs and wants and the requirements of the prototype in response to the contextual challenge, with limited appropriate reference to form and function. • Superficial evidence of links between the design requirements and the research undertaken in relation to the contextual challenge.
Level 2	4–6	• Evidence of adequate investigation and identification of some relevant design possibilities, which are mostly justified in relation to the contextual challenge. • Mostly developed assessment of user needs and wants and the requirements of the prototype in response to the contextual challenge, with some appropriate reference to form and function. • Some developed evidence of links between the design requirements and the research undertaken in relation to the contextual challenge.
Level 3	7–8	• Evidence of developed investigation and identification of relevant design possibilities, which are fully justified in relation to the contextual challenge. • Developed assessment of user needs and wants and the requirements of the prototype in response to the contextual challenge, with fully appropriate reference to form and function. • Fully developed evidence of links between the design requirements and the research undertaken in relation to the contextual challenge.

How this assessment grid differentiates student evidence of Investigation

Student evidence for investigation differentiates based upon the following factors, which should be accounted for in how students approach the activities in their research. Good research will help students come up with a range of design opportunities, and with engagement with a user/client or group of users, help to design a solution that will solve a genuine problem. Potential materials, sustainability factors, and any considerations that will result in the writing of a suitable design brief and design specification are also useful research activities. What to consider when differentiating the quality of investigation work:

1. Whether the research is relevant to the contextual challenge and/or the emerging problem. (i.e. If evidence is not relevant to the chosen contextual challenge, it will not receive any credit)
2. Whether user/client engagement is authentic (i.e. a real person external to the school, or a school based peer/teacher acting as a real user or roleplaying as a user) or fictitious (i.e. a completely hypothetical person neither real or roleplay). A real person is capable of providing authentic feedback during the project than the student artificially creating feedback.

3. Whether research supports iteration or presents specific and premature identification of the solution. (e.g. “I am going to design” statements, specific material and process data, the inclusion of generic anthropometric data, are all examples where evidence suggests that the student has already decided upon the solution, and is prematurely able to state what it is, how it will be made, and that it will involve a specific demographic data set of generic measurements).

How to avoid double crediting

Evidence in relation to any research that occurs after design ideas (i.e. research that takes place after the review of initial ideas 2.2) cannot be credited in grid 1.1 Investigation. This is because this evidence will be credited in grid 2.3, Development of design ideas into a chosen design, for which there are 4 marks available for research (AO1).

When completing the CAB, the assessor should avoid crediting evidence of investigation that appears after the specification has been written for grid 1.1, and instead credit this work in grid 2.3.