Edexcel A-Level Coursework (NEA) Guide

Split into 4 parts (Parts 1 - 4) this piece of work is worth 50% of your grade and is crucial to getting a good grade in Design & Technology.

General Advice for Edexcel DT Coursework (NEA)

- **Keep the mark scheme open at all times** → The NEA is assessed against specific criteria. If you don't have the mark scheme in front of you, it's easy to miss marks. Constantly check: *"Have I shown evidence for this?"*. Start by looking at the top-band description and think: "Have I covered all of these points?"
- **Don't fall behind deadlines** → Catching up is much harder than staying on track. Break the NEA into smaller milestones and stick to them. Little and often is better than last-minute panics.
- **Back up your work** → Keep a copy on cloud storage (Google Drive, OneDrive, Dropbox, etc.). Never rely only on a USB or school computer. A regular backup could save your grade.
- **Work in PowerPoint (A3 page size)** → PowerPoint is easy to use for layout, images, and text boxes. Set the slide size to A3 (420mm × 297mm) from the start so pages export neatly for printing.

Advice – Part 1 - Identification and investigation of a design possibility (9 marks)

- **Back up your design contexts with *numbers (quantitative data)*, not just words**
  - Instead of saying: *"Lots of elderly people struggle with arthritis."*, say: *"Arthritis affects over 10 million people in the UK (Arthritis Research UK, 2023). This highlights the need to design kitchen utensils with larger, ergonomic grips to support those with reduced dexterity."*

Example Page Checklist:

- ✓ Initial design contexts with research (3 different ones usually set by teacher)
- ✓ Mind maps (use LucidSpark software)
- ✓ Initial client interview
- ✓ Needs, wants and values of the client/end user to inform design requirements
- ✓ Preliminary design brief

Advice – Part 1 - Investigation of needs and research (15 marks)

- **Triangulate your research (use multiple methods)**
  - Combine **primary research** (surveys, interviews, user testing, measuring existing products) with **secondary research** (market trends, sustainability reports, government standards).

- **Do real testing & disassembly**
  - Take apart an old product, test joints, measure wall thickness, weigh components.
  - This gives you practical data that's *gold dust* compared to generic internet research.
- **Link research back to user & constraints**
  - After each research point, write one line: *"This means my product must…"*.
  - E.g. *"Survey data shows 65% prefer eco-friendly materials → my design must prioritise recyclable or biodegradable options."*

Example Page Checklist:

- ✓ In-depth client interview
- ✓ Survey (10 questions asked)
- ✓ Anthropometrics, Ergonomics and Standards (e.g. BSI) research
- ✓ Site Investigation & Measurements
- ✓ Existing products (investigate 4 minimum usually)
- ✓ Disassembly (try find real life products)
- ✓ Product specific research
- ✓ Consideration of levels of production
- ✓ Potential methods to improve the sustainability of the prototype across its life cycle.

Advice – Part 1 - Specification (9 marks)

- **Design brief is often lacking**
  - Design briefs should be technical, try to cover the following when creating one:
    - **Overview** (what is your project / what is the scope)
    - **Objectives** (why is this project important / what are you trying to achieve)
    - **Target audience** (who is this for? Be specific with age range)
    - **Budget** (don't say cheap, based on research set a target budget)
    - **Deliverables** (what are you creating -> final prototype, technical drawings etc)
    - **Timeline** (project management technique should go here)
- **Specification points must be measurable**
  - e.g. *"The product should be lightweight."* (what does lightweight mean? 1kg? 10kg?). Be specific!

Example Page Checklist:

- ✓ Refined Design brief
- ✓ Project management (Gannt chart / CPA or similar)
- ✓ Specification (usually 1.5 pages)

*Top tip – code your specification so you can easily refer to it in further sections (e.g. Form point 1 is FM1)

Advice – Part 2 – Design ideas (9 marks)

- **Creativity is often lacking**
  • Students play it safe with boxy, basic designs. To score top marks, show risk-taking and originality:
    - Explore *radically different* concepts before refining.
    - Use inspiration (biomimicry, architecture, other products) to push creativity.
    - Try features like **moving parts, folding, adjustability, modularity**.
    - Document even failed risky ideas → shows experimentation.
- **Annotations often lack reference to specification**
  • Students annotate sketches/models but don't explain *why* design decisions were made in relation to their spec:
    - Always link every annotation to the **design brief or specification**.
    - Example: *"I've increased the handle diameter to 35mm to match ergonomic data in spec point 3, making it easier for users with reduced grip strength."*
    - Explain material, size, mechanism, or form choices in context of measurable spec points.
    - This justifies design thinking and scores higher marks for reasoning.
    - Use spec coding if you have it when annotating

Example Page Checklist:

- ✓ Design idea pages (5 design ideas)
- ✓ Client feedback on design ideas
- ✓ Review of design ideas against specification

Advice – Part 2 – Development of design ideas (9 marks)

- **Model things even if you think you know the solution already**
  • Don't treat modelling as making a neat version of an idea you've already chosen. The point is to explore different possibilities and test them against the spec.
    - Create several rough models (foam, card, CAD mock-ups, etc.) to trial different forms, sizes, mechanisms, or materials.
    - Annotate every model in relation to the **specification**: *"This 3D-print hinge matches spec point 5: durability, but it increases cost (spec point 8)."*
    - Comparing multiple models shows you're working towards the best solution through **iteration**, not design fixation.
    - Final models should then be justified as the *result* of this testing process, not the starting point.

Example Page Checklist:

- ✓ Design idea developments
- ✓ Modelling pages (3 minimum)

Advice – Part 2 – Final design solution (9 marks)

- **Students often rush this section and miss all the required pages**
  - Study the mark scheme carefully here and don't miss any pages
    - Final design idea in isometric (can be on CAD or sketched)
    - Orthographic and exploded drawings (use CAD for simplicity)
    - Manufacturing specification with QC checks
    - Project management page (including a Gantt Chart or CPA)(use online software for this)
    - Material cost and quantity page

Example Page Checklist:

- ✓ Final design idea in isometric
- ✓ Orthographic and exploded drawings
- ✓ Manufacturing specification with QC checks
- ✓ Project management page / plan of production (including a Gantt Chart or CPA)
- ✓ Material cost and quantity page

Advice – Part 2 – Review of development and final idea (12 marks)

- **When reviewing your developments, you need to say why changes were made from the original idea**
  - Don't just show the final design — make it clear why each change happened.
    - Original handle design was 30mm diameter, but user testing showed it was uncomfortable for smaller hands, so it was increased to 35mm (spec point 3: ergonomics).
    - Initial hinge mechanism was metal, but prototyping revealed it was too heavy, so a lightweight polymer hinge was used (spec point 5: portability).
    - Overall form was squared off, but sketches and feedback suggested a rounded edge improved safety and aesthetics (spec point 7: user safety).
    - Each refinement links directly back to the specification or feedback, showing your design thinking rather than just producing a neat final idea.

Example Page Checklist:

- ✓ Evaluation and analysis of development
- ✓ Client feedback after product development

Advice – Part 2 – Communication of design ideas (6 marks)

This is a general point which should be evidenced through development and design ideas. Essentially use the following techniques throughout all of Part 2:

- Traditional/manual graphical techniques to communicate design proposals.
- Use of computer-aided design (CAD) techniques to communicate design proposals.
- Use of written techniques (e.g. annotations) to communicate design proposals.

Advice – Part 3 – Tools and equipment (12 marks)

- This is the fun section – the making.

Before making I would recommend making templates for these pages and completing them as you go:

- ✓ Risk assessment of machines used
- ✓ Modifying, testing and improving during manufacture
- ✓ Photographic evidence of making

- For this section, all I recommend is to record the following with images:

    - Record evidence of **Health & Safety (H&S) precautions** being considered and used.

Advice – Part 3 – Quality and accuracy (18 marks)

- For this part, all I recommend is to record the following with images:

    - Record of **modifications made** following **user testing, third-party feedback, or evaluation**.
    - Record evidence of **Quality Control (QC) checks** applied throughout the process.

***Part 3 General tips**

- High-quality prototype – take photos or sketches of the finished product; show it fully assembled, clean, and functioning.
- Selection and technical skill – include annotated photos or notes showing the tools, techniques, fixtures, and finishes used; e.g., "Used a tenon saw to cut precise joints, then sanded edges to 0.5mm tolerance."
- Safe working practice – brief notes, photos, or a checklist highlighting safety precautions taken (goggles, gloves, clamps, clear workspace).
- Iterative approach – document any small prototypes, trial pieces, or step-by-step refinements with notes on changes and reasoning.
- Accuracy and precision – include measurements, marked templates, or comparison tables showing that dimensions meet spec requirements; e.g., calliper readings, tolerances achieved, or test results.

Advice – Part 4 – Testing and evaluation (12 marks)

- **When evaluating its okay to admit design flaws**
  • Many students are afraid to say what didn't work well etc, this is the first prototype, its not perfect! Say what didn't work and why, then show modifications as a result of testing
    - The handle was too thin, making it uncomfortable to grip - increased diameter by 5mm in the next version to match ergonomic specs.
    - Hinge mechanism was stiff and hard to open - replaced with a smoother polymer hinge to reduce friction and improve usability.
    - Base was unstable on uneven surfaces - added wider feet to improve balance and stability.
    - Paint finish chipped easily during handling - switched to a more durable coating and tested adhesion before final assembly.

Example Page Checklist:

- ✓ Evaluation of final prototype (general comments)
- ✓ Evaluation of prototype against specification
- ✓ Testing against specification
- ✓ Modifications based on client feedback and evaluation
- ✓ Analysis of the social, moral, ethical and environmental impact of materials and manufacturing processes of the prototype
- ✓ Evaluation of the social, moral, ethical and environmental impact of the prototype