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Handout 1: What is an artefact?

A dictionary definition of an artefact is 'something given shape by man' and comes from the Latin phrase 'arte factum' (*ars* skill + *facere* make). People have, from prehistoric times, created objects and images that were practical, spiritual, or magical to help them to survive in changing environments. People have always made things either for themselves or for others. In contemporary society, we use objects and images for practical use, to solve problems, to decorate, to communicate ideas, to entertain, to express emotion and create atmosphere.

Table 1 lists some possible ideas for an Artefact project, to start you thinking. However, it is much better if you can find and develop your own project, perhaps in response to a specific need you know about, so that there is a real focus to your project, leading to a worthwhile outcome.

Table 1 Possible Artefact projects

MEDIA	*2D ARTEFACT*
Interactive web-site for school visitors	Artwork or mural
Promotional School Video	Set of posters/ leaflets for a school event
Software to collate & display sports day results	Themed study/common room decoration
Creating a digital soundtrack for a play	Interactive children's picture panel
Producing a TV advert	Surface design for furniture and fabric
Creating a data-base to run the library	A photographic display
Interactive instructional video	A range of stamps
3D ARTEFACT	*TECHNICAL*
Sculpture (kinetic?) for a school	Digital score-board for sports/quiz
Model of proposed building or theatre set	Interactive learning toy
Furniture or household items	Labour-saving gadget
Sports equipment or accessories	Data-logger for sports activities
Fashion or jewellery range	Aids for the disabled
Ceramics articles	Electronic weather station
Concept models e.g. car	Security device or alarm

Getting started

Table 2 lists some possible starting points for Artefact projects. These are only suggestions, and there are many other possibilities.

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Table 2 Possible starting points for Artefact projects

Starting point	*Possible outcomes*
Interest in a particular subject matter, media, materials and processes; the use of 2D and/or 3D visual language or the expression of personal feelings or opinions	Painting, printmaking, sculpture, installation, photography, film, multimedia or mixed media work.
The communication of ideas, opinions, information, feelings or mood and atmosphere	2D or 3D design, use of typography, images, layout, corporate identity, symbols, logos, stationery, vehicle livery, advertising, illustration, posters, leaflets, packaging, promotional animation or interactive/multimedia products, theatre set and costume design.
Narrative imagery – visual story telling	Possible outcomes; illustration, printmaking, storyboard sequence, film, animation, photographic essay, figurative painting.
Work that exploits the characteristics and properties of media and materials or the decorative potential of visual language, materials and techniques.	Sculpture, 3D structures, painting, collage, mixed media work, jewellery, ceramics, textiles, surface pattern design, weaving, constructed textiles, fashion, costume design, fashion accessories.
Design and problem solving in 2D and 3D dealing with functional objects or the design and use of spaces and environments. Design or craftwork that has a problem solving intention and functional outcome.	Architecture, engineering, construction, landscape design, product design, functional ceramics, furniture, display, set or interior design, fashion/garment design.

Extending yourself

When you choose your project objective, remember that an impressive Extended Project will look different from coursework pieces you may do for your other subjects. It may be tempting to 'play safe' and carry out your Extended Project using similar techniques and ideas to those you have already used elsewhere. However, that means you may be missing out on an opportunity to do something really creative. When planning your project, look for opportunities to bring in ideas and skills from a wide range of subject areas and to develop new skills.

It is worth bearing in mind that you may well find yourself wanting to use your Extended Project work as part of a portfolio when you are being interviewed in the future. A potential employer or admissions officer for a Higher Education course will be more impressed by evidence that you have extended yourself in new directions than by a portfolio containing two very similar pieces of work.

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Handout 2: The Design Framework

Designing and making something can be broken down into the well-defined stages shown in Table 3. You will need to follow this framework when doing your Artefact project, but note that it is flexible.

If you hit difficulties, you will need to go back and modify an earlier idea, or re-define your plan in the light of later knowledge. 'Back to the drawing-board' is an unfortunate but possible option, though if you plan well, and learn from a practice 'mini project', you should manage.

Table 3 The design framework

Brief	A single sentence describing the requirement
Analysis and research	Refining the brief, analysing the task, researching solutions
Specification	A detailed list of points the artefact should satisfy
Ideas and development	Exploration of different approaches, and decision-making
Production plan	Materials, techniques & processes, time-scale
Realisation	The actual making of the product
Testing and evaluation	A report of your work. Does it meet the specification? How could it be improved?

Information and issues

Ideally, you will have an opportunity to visit or talk to people working in the field you wish to explore, so you can get first-hand experience of the issues and processes involved.

In addition, you will need to research and analyse your chosen topic using books, magazines, the media and the internet so that you have the required knowledge to make informed decisions.

You need to consider potential materials and processes, as well as the ethical, social, economic and environmental issues relating to your project.

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Handout 3: Design and communication

Clear communication

In order to communicate your ideas, it is likely you will need to produce sketches or layouts of your design. Activity 1 is designed to show the value of this.

Your graphic work will need to communicate your ideas effectively, and may range from artistic sketches through detailed technical diagrams to computer-aided designs. The important thing is to show the development and relevant detail of your designs.

There are various techniques for drawing, particularly for showing 3D graphics, and you should consult a textbook or expert if you need to develop your skills in this area.

Visual Communication

There is a direct relationship between the content of art or design work and the form/use of visual language.

We know that all forms of language have the power to communicate. We are aware that written and spoken language can be used effectively to argue, explain and persuade, the way that mathematics can create models to interpret and analyse data, the way that music can touch our emotions and dance and theatre can make us laugh or cry.

We use the term **visual communication** to explain the way that ideas, opinions, emotions and atmosphere are communicated using our visual sense. When making artefacts it is important to understand the way that materials, colours and shapes can convey information to others through the use of the senses. We react to the things we see and touch - to sombre or bright colours, to smooth or jagged shapes, to soft and furry materials or hard and shiny reflective metals. The use of this visual and tactile language is an important aspect of the production of an effective artefact.

Computer-Aided design

Computer-aided design (CAD) is useful for precision drawing and neat layout, developing and visualising 3D objects, and exploring possibilities without having to re-draw. There are two areas to consider.

2D design

Useful for surface designs, artwork and graphic designs, room layouts and circuit boards.

Software includes *Word Draw, CorelDraw, SmartDraw, Techsoft 2D design*, and specialist layout programmes for architecture, garden, engineering and electronic circuits. With the addition of suitable hardware, these programmes may be used to cut out shapes in soft materials (vinyl cutter) or rigid materials (laser cutter), greatly speeding up the production process.

Circuit software such as *Crocodile Clips* or *Circuit Wizard* is able to simulate the workings of a proposed circuit, and can then produce a mask for the printed circuit board layout for production.

3D design

Traditionally, artefact design involved drawing in 2D to show the various views of an object, which was then made in 3D.

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Design is often done by modelling the object directly in 3D on the computer by building up shapes, which can be viewed from any angle, and the computer can then produce the engineering drawings or create the actual product directly by rapid prototyping or **computer-aided manufacture (CAM)** using a suitable machine.

CAD programs take longer to learn, but can be very effective at 3D 'modelling' of your design. Examples include the free *Google Sketchup* software, *Pro-desktop* design, and *AutoCAD*.

A good example of the use of 3D CAD is the national stadium in Beijing, the 'Birds Nest' Olympic stadium, which could not have been designed or built without computers.

In your project, you should use the computer as a tool to assist the work where appropriate, and you will have to explore and decide when it is better to use CAD and when to use pencil and paper.

Resource reference
The AQA Extended Project Companion has some specific advice on Artefact projects in chapter 3. There is advice on planning (chapter 1) researching information (chapter 2), and presentation chapter 4).

The Edexcel Level 3 Extended Project Guide has guidance on researching information (chapter 1) analysis and critical thinking (chapter 2), organisation and planning (chapter 3), and on evaluation and presentation (chapter 4 and 5).

The OCR Extended Project Guide gives some specific advice on Artefact projects in the section on Project Formats. There is advice on planning (Managing a Project), researching information (Using Resources) on producing an artefact (Developing and Realising) and on evaluation (Reviewing).

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Handout 4: 3D Production

Model Making

If you are making a 3D artefact or a working device, you are likely to need to model your design before making the final version. Models have many uses, and may be built to various scales to show some the following things:

- to present ideas to others, perhaps inviting feedback
- to show the detail of workings that might be hidden
- to explore the feasibility of a design in terms of materials or structure
- to test the ergonomics or layout of parts, etc.

There are many modelling materials, depending on the project you choose, and you may use soft materials (fabric, plastic etc), sheet materials (card, plywood etc.), framework materials (straws, wire etc.), or solid forms (papier-mache, clay etc.)

The making of the model is a major step in your artefact project, and a well-constructed model can be a great help in progressing towards the final realisation of your design.

Construction techniques

Because of the large range of possible artefacts, it is impossible to detail all the construction techniques you might need. Some of you may be familiar with standard studio or workshop techniques and equipment from GCSE, or you might not have experienced them at all. In this case you will have to discuss your needs with the experts available, and learn how your project can best be created, using the available resources.

The important thing is to remain flexible, willing to try different solutions, and to detail all the stages and decisions in your write-up. A photographic record of the realisation stages is very useful, and you should ensure you take clear pictures at appropriate stages of the project.

It would be a good idea for you undertake a practice project along the lines of your final piece, including making a model or small prototype, to explore and develop your skills in this area. Remember that things always take a long time at first, but will be considerably quicker the second time round.

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1. At the museum

Case study: At the museum

This is a case study of an integrated project that contains visual and academic research into other cultures or forms of design, development of design ideas to prototype and craft skills involved in making an artefact. There is also the requirement to review, refine, evaluate and present work.

The steps below illustrate how you might carry out the project according to the design framework. Notice that there are plenty of opportunities to explore issues around the brief. In your project, you should aim to bring in ideas from a wide range of subject areas and demonstrate that you have developed new skills.

Design brief

You have been commissioned to design and produce prototypes for a 3D artefact that will be launched to accompany either;

- an exhibition of work from a past civilisation to be held at the British Museum (or other similar major museum)

or

- a period in world art to be held in the Victoria and Albert Museum (or other similar major museum).

Specification

The range of artefacts to be produced includes: jewellery or other body adornment, souvenir gifts, children's toys, paper sculptures, packaging etc. Your designs need to be based on a combination of:

- natural forms (animals, plants, shells, insects, flowers, seed pods etc) or geometric forms.
- the influence of the culture and the artefacts that will be present in the exhibition.

Your work must also be appropriate for sale to visitors to the exhibitions.

Analysis and research

Select a period or art movement from the past that you will use as the inspiration for your design work. Research the chosen period and where possible make studies of artefacts and designs from primary sources including direct observation.

- Visit local museums and galleries and if possible look at the major collections of archaeological and ethnographic work in places like the British Museum and the Victoria and Albert Museum.
- Use library and other sources for secondary source material.
- Choose a range of natural and/or geometric forms and make studies from observation to show their form, colour, texture, shape etc.
- Make annotated comments to show your thought processes and clarify your ideas.
- On design sheets or in sketchbooks analyse the visual character of the work and identify its general visual characteristics, typical shapes, colours, linear design, textures etc.

This analysis should be both visual and written. This design analysis will inform the character of your own designs.

Ideas and development

- Inspired by your initial studies, produce a range of design ideas for your artefact, body adornment, jewellery, clasps or buckles, headwear, toys etc. These ideas should be in the form of design drawings and 3D maquettes and include tests with materials that you might use.

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- Initial maquettes can be made using low technology; cutting and folding card or wire but you should have in mind the materials that you will use to make the prototype designs and final artefact.

- Consider the target group for your work. This may be children who are visiting the exhibition and would like a 'pocket money souvenir', adults who would also buy a relatively cheap present for a friend or someone who would purchase an expensive designer product.

Production plan

Review your design ideas and select those that you think are most appropriate for further development or refinement. At this stage, you may want to revisit the original source material and the design brief when evaluating your ideas.

- Produce drawings and/or maquettes to show your preferred design(s) for the prototype.
- Look at the work of contemporary designers working in fashion, jewellery, millinery, accessory design, product design or areas of design related to your own project.
- Compare the way that these designers work and the things they make with your own work.

Realisation

- Produce your artefact using appropriate materials and processes.
- Make notes on how the item would be made commercially or for mass production

Evaluation

- Produce a written evaluation of the process and final product indicating strengths and weaknesses, how well you think you have met the original brief and what you might do to improve your work.
- Present your work to an audience.

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On the market

The Museum project illustrates an important aspect of may Artefact projects: the need to satisfy a client who may have commercial interests. Activity 1 explores this further.

Activity 1: On the market

Look at a range of artefacts and identify the artists, craftspersons and designers intention. Who do you think is the intended client? What is the market that that the work is designed or made for?

Find out what you can about the professional practice involved in the making and selling of a range of artefacts.

Project springboard

A good starting point for an Artefact project would be a commission to make designs and artefacts for a specific environment or to celebrate a specific event. This might be in the form of mural designs or site-specific sculpture, wall hangings or textiles, graphic design. The project might include making live briefs for your clients.

Look for opportunities to produce artworks to be located in a hospital, sports centre, village hall, school or college etc. to enhance the visual quality of the environment in such a way as to improve the wellbeing of users of the facilities.

Project springboard

A useful approach to an Artefact project is to redesign an existing commercial object that you consider to be out of fashion or no longer effective. Produce a prototype of your final design. Consider the ways you might make the object:

- More stylish, contemporary and fashionable
- Exploit a new technology
- More environmentally friendly
- More marketable
- More functional

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2. Stadium

Stadium
This is a case study of an integrated project that contains research and understanding of different disciplines including Design, Building and Construction, the development of design ideas to prototype and craft skills involved in making an artefact. There is also the requirement to review, refine, evaluate and present work.

The steps below illustrate how you might carry out the project according to the design framework, and Figure 1 shows how one learner carrying out a similar project identified opportunities to bring in ideas from a wide range of subject areas, and to develop relevant skills and knowledge. In your own project, look for similar opportunities to show that you are genuinely 'extending yourself'.

Design brief
You have been commissioned to produce designs and a prototype model for a sports facility or stadium.

Analysis and research
Research the criteria and facilities required in a stadium or sports complex for a sport or group of sports of your choice. The building/s should be set in a specific location.

Decide upon the nature of the sports facility that you will design. This could be a multi-sport facility to be located on a village recreation ground, a new stadium for a league football club or anything in between.

Note down all the factors that you will have to take into account when designing the building/s.

What kind of facilities do you think should be included in the design? This will be related to the budget allocated for the project. You may decide on a nominal budget for the project as a basis for the work.

Analysis of the brief is an important component of the work produced on a design project.

Specification, ideas and development
Consider in more detail some of the aspects of the design process. Depending on your areas of interest this could include:

- construction methods, building systems, materials, scale
- environmental considerations, planning, impact on local area, transport links parking etc.
- health and safety, evacuation procedures
- aesthetics and design considerations
- sporting facilities, pitches, training facilities, physiotherapy and medical services
- retail potential, sports shops, catering, hospitality
- research into other sports facilities e.g. the Beijing Bird's Nest, village green cricket pitches, non-league football grounds, leisure complexes etc.

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Extended Project route:

Complementary to principal learning

Project proposal: Artefact
Design a stadium or sports facility (By extension this could be any building which serves a particular purpose)

Evidence: design ideas, drawings, development of design, tests of materials and structures, models of proposed design solutions, photographs

Learners need to ensure they have adequate knowledge and skills to complete the project

Extended Project route:

Progression: not linked to current study, but providing a basis for future work/study

Alternative routes might be playing football at a high level, sports science, design, etc. architecture etc.

Areas of research:	Complementary disciplines:
Construction methods (building systems, materials, scale)	Building and construction
Environmental considerations (planning, impact on local area, travel to the stadium, transport links, parking)	Geography, social science
Health and safety (evacuation planning, lighting)	Legal and planning regulations
Aesthetics and design (study of other designs, both contemporary and historical)	Art, craft and design/architecture, history and appreciation of art and design
Sporting facilities (grounds, training facilities, physiotherapy and medical)	Sports science, physiotherapy
Retail potential (sports shops, food outlets, hospitality)	Marketing
History of football and other sports stadiums (their role in politics, propaganda and power, e.g. Olympics, Hitler)	History, politics

Figure 1: Outline plan of a project to design a stadium

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Production plan

Produce drawing and models to develop ideas for your facility. Think about the arrangement of forms and space and the functions of the various parts of the building or complex. Select materials that you think would be used in the construction of the building. Find out about the properties of the materials, strength, surface, durability, insulation, soundproofing etc.

Consider the structural components of the building and the engineering and construction processes to be used. Also, consider environmental and green issues, energy conservation, sustainability etc.

Realisation

Produce a scale model to show the form of your design.
Present any relevant drawings or designs that support your work. These might be freehand sketches or visualisations, small models or maquettes or computer generated 3D visualisations.

Present the results of your researches into related issues that would affect the design, construction and location of your building.

Testing and evaluation

Produce a written evaluation of your design process and final product indicating strengths and weaknesses, how well you think you have met the original brief and what you might do to improve your work.
Present your work to an audience.

Communication

The Stadium project illustrates the importance of communication – in this case, to the client and to the local community. Clear communication is an important aspect of many Artefact projects, which often involve a variety of communication techniques.

Activity 2: The journey home

Imagine you have to tell your friend the way to your home from school/college.

- Write a set of directions using words only
- Draw a sketch-map of the route, with suitable labels
- Share your directions with the class, and discuss their merits

Activity 3: Looking at graphics

Study some examples of graphic design, e.g. technical drawings, maps, presentation material, adverts, food packaging, and discuss how the techniques used convey the information effectively. When giving your opinion on the effectiveness of the graphic design, try to support your opinion with a reasoned argument.

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Project springboard

Your local community can be a good source of ideas for Artefact projects. For example, you could:

- Produce designs and models for a facility that caters for the needs of young people.
- Create a photographic essay to be displayed at an exhibition or a booklet that celebrates the character of an area of your environment that is threatened with redevelopment. Take a point of view as to whether the development will be an improvement on the existing area or whether it will destroy the area's character and/or heritage value.
- Produce a photographic survey of teenage culture in your locality, what young people do, how they dress, how they entertain themselves.

Project springboard

A starting point for an Artefact project focusing on graphics could be an issue that you feel strongly about. Produce designs for promotional materials to communicate something on; the plight of the homeless, the dangers of smoking or alcohol abuse, eating disorders, or size zero fashion.

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3—6. Mini projects

Before starting your main Artefact project it is a good idea to carry out one or more shorter projects for practice. This will help you to develop a range of skills that you can later put into practice with your project.

The following briefs and outlines are some possible suggestions. It is likely that you and your teacher/tutor will generate other ideas.

Project 1: Al design

The brief
Design a three-dimensional form to be made from a 15 cm square of soft aluminium.

Specification
You must not remove any of the material, but should achieve an aesthetically pleasing and well-made form by cutting and folding the material.

- Produce a minimum of six distinctly different maquettes from stiff card.
- Select the best design and translate this form into aluminium.
- Consider the strengths and weaknesses of this piece (in terms of variety of interest, three-dimensional form, modulation of light and surface etc.).
- Make further developments of this piece in card to explore alternative design ideas, (a minimum of six developmental maquettes).
- Select the best design and translate into aluminium to produce a final piece for submission.
- A high quality of craft skill is important in the making of all pieces.
- Make sure you receive instruction in the use of any tools and materials that are unfamiliar.
- Submit for review
    - The finished piece
    - All maquettes made in card and aluminium
    - Other relevant research including exploratory drawings, tests etc.

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Project 2: Space frame

The brief

Produce a 'space frame' that contains interesting and aesthetically pleasing divisions of space.

Specification

- Construct a rectangular space from twelve lengths of rigid, linear material. Divide this space internally by adding further rods and plane surfaces, placing the emphasis on horizontal and vertical divisions. Use your intuition to create a pleasing sense of harmony and balance in your space frame. Consider carefully how many rods and surfaces you will use in the design.

- Explore the possibility of employing some system, (e.g. a unit of proportion) in your solution. Avoid complexity for its own sake.

- Add three diagonal elements, (either line or plane) to complete the design.

- Your work should include:
  - Basic examination and creative exploration of the problem by drawing and sketch designs
  - Development of the more promising schemes as maquettes.
  - Construction of the finished 'space frame' from the best maquette. Consider your use of materials carefully and plan ahead.

- A high quality of craft skill is important in the making of all pieces.

- Make sure you receive instruction in the use of any tools and materials that are unfamiliar.

- Submit for review:
  - The finished piece
  - All maquettes
  - Other relevant research including exploratory drawings, tests etc.

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Project 3: Packaging

The brief

You are to produce a package in the form of a geometric solid with appropriate designs for one of the products listed, following the stages outlined.

- An expensive black drawing ink
- A sophisticated perfume called "X"
- A seriously luxurious chocolate sculpture
- A finely engineered piece of design, (instrument, jewellery etc.)

Development and production

- Make a study of a selection of geometric solids and the 'nets' used to construct them from plane surfaces. (e.g. Square or rectangular blocks, square or triangular pyramids, dodecahedrons, tetrahedrons etc.

- Select one of these to act as the form of your package and produce the net for its construction. Think about the size you will need for the finished package. Include tabs for joining the sides in your net.

- Produce a series of design ideas for your chosen object using freehand perspective visualisations. Use clear graphic shapes that you think will convey the quality of the object to be packaged. You may use some letterforms to add variety to your design.

- Draw up the designs that you will apply to the package using only black, mid grey and white to make your designs. The shapes you use should be visually strong and the designs should be dynamic.

- Think carefully about the way the designs will fit onto the surface of the package, either separately or linking across the different faces. Use design sheets and maquettes to test your ideas.

- Produce a finished net in card and apply your finished designs to this.

- Make up the box (carefully) for presentation.

- Make sure you receive instruction in the use of any tools and materials that are unfamiliar.

- Submit for review:
    - The finished piece, the constructed package with applied designs
    - All maquettes and design sheets including nets of geometric solids.
    - Other relevant research including exploratory drawings, tests etc.

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Project 4: Photographic essay

The brief

You are to produce a photographic essay, to be displayed in the form of an exhibition or booklet that explores the visual and physical character of an area in your local environment. This may be an historic area of your town or city, a farm or industrial complex.

Development and production

- Select an area of your local environment that has a strong visual character.
- Make a series of initial studies by taking photographs and by making drawings that convey something of the character that you wish to convey.
- Consider carefully which images you would want to select to develop further.
- Return to make further photographs and drawings that refine the images, perhaps using different viewpoints, different lighting conditions, different times of the day or night and different settings on the camera to exploit the potential of the subject.
- Select the photographs that best convey the visual quality and atmosphere that you want to communicate. Make adjustments in composition, contrast etc. in the processing of the images
- Carefully arrange the images to produce an effective narrative or documentary to be displayed as an exhibition or as a booklet.
- Submit for review:
    - The finished series of photographs in exhibition or booklet form.
    - All contact strips, photographic experiments drawings and design sheets.
    - Other relevant research including exploratory drawings, records of tests etc.
    - Design sheets showing alternative arrangements of photographic images.