

DESIGN AND TECHNOLOGY 50 things..

Section One: New and Emerging Technologies:

Chapter 1A. Industry and Enterprise:

Objective: Beware of how new and emerging technologies have changed the way we live and how they continue to shape the modern world.

Computers and automation have impacted upon the design.

1a. When did the industrial revolution begin?

1760

2a. What was the main automation invention of the industrial revolution?

The steam engine—how to harness water power to drive machinery

3a. Who was the inventor of the steam engine?

James Watt

4a. Which inventions do you feel have significantly changed the way we live our lives?

The discovery of electricity, invention of the light bulb, the telephone, internal combustion engine, the computer and the internet?

5a. CAD, CAM, CNC, CAT and RPT and abbreviations for?

CAD—computer aided design, CAM—computer aided manufacturing, CNC—computer numerical control, CAT—computer aided testing and RPT—rapid prototyping

6a. Despite the advances in computer aided design, why is the ability to sketch designs on paper still considered so important by many designers?

To quickly sketch and get ideas down on paper. CAD takes too long and you need to be trained. Good for finalising ideas and making ideas realistic whereas sketching by hand can stimulate the thought process.

7a. What are the positive and negative effects that fully automated robotic production lines have had on employment?

Advantages commonly attributed to automation include higher production rates and increased productivity, more efficient use of materials, better product quality, improved safety,. Disadvantages: people moved away from country sides and towns to find work where factory work flourished. A society based on consumerism and enterprise developed. Manual labourers lost jobs and however, machines needed operators and engineers to keep them running. More recently intelligent machines and robotic lines have meant the reduction in low skilled people being employed. Require high skilled engineers which need training, degrees—more wages.

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8a. Explain the term Crowdfunding?

The practice of funding a project or venture by raising money from a large number of people who each contribute a relatively small amount, typically via the Internet

9a. What is Virtual Marketing and Virtual Retail?

Virtual retail is retailing on the Internet. Many traditional retailers are entering the virtual retail market in support of their physical stores. To enter the virtual retail market, you will need a website, and a reliable means of processing customer payments. Virtual retail is retailing on the Internet.

10a. Explain how Fairtrade is beneficial to workers and the environment?

Better prices, decent working conditions, fair terms of trade for farmers and workers in less economically developed countries.

Supports farming communities, protects the environment in which they live and work.

Products produced by a small-scale farmer organisation or plantation that must meet Fairtrade social, economic and environment, payment of the minimum price and invest in business and community projects.

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Section One: New and Emerging Technologies:

Chapter Two: Sustainability and the environment

Objective: Understand that new technologies need to be developed and produced in a sustainable way.

Impact that the resources has on the planet.

Waste can be disposed of with the least impact on the planet.

1b. Give two examples of finite resources?

Oil and coal

2b Explain the term Non-finite resources?

A renewable resource is a resource which can be used repeatedly and replaced naturally. Examples include oxygen, fresh water, solar energy and biomass. New resources may include goods or commodities such as paper and leather

3b. What does LCA stand for?

Life Cycle Assessment

4B. What are the five stages of LCA?

Extraction and processing, Manufacturing and production, Distribution, Use, End of life.

5b. Explain the term Carbon offsetting?

The counteracting of carbon dioxide emissions with an equivalent reduction of carbon dioxide in the atmosphere.

Plant trees to reduce carbon. Their product will create carbon emissions during manufacturing etc. so to balance things off they will

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Section One: New and Emerging Technologies:

Chapter Three: People, Culture and Society

Objective: Understand how technology push and market pull affect consumer choice and employment.

Changes in fashion and trends and how they affect designers and manufacturers.

How products can have a positive and negative impact on society.

1c. Describe the positive and negative factors of a global market place for the Manufacturer?

2c. Describe the positive and negative factors of a global market place for the Consumer?

Globalization has brought benefits in developed countries as well as negative effects. The positive effects include a number of factors which are education, trade, technology, competition, investments and capital flows, employment, culture and organization structure

Some argue that globalization is a positive development as it will give rise to new industries and more jobs in developing countries. Others say globalization is negative in that it will force poorer countries of the world to do whatever the big developed countries tell them to do.

Economies of scale in production and distribution.

Lower marketing costs.

Power and scope.

Consistency in brand image.

Ability to leverage good ideas quickly and efficiently.

Uniformity of marketing practices.

Exploitation of workers and markets and influencing societal values. ... This promotes a homogeneous set of values and beliefs.

3c. Technology Push—explain why being the first to market a new product gives a company a competitive advantage?

Being the first to market with a new technology can be the difference between success and failure.

Drives forward thinking and creates new and exciting developments. P13 and 14

4c. Why does Market pull put pressure on companies?

Understanding human needs and desires, improve products through brand loyalty as well as attracting new customers.

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3C

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How products can have a positive and negative impact on society.

5c. Give an example of a product that uses Market Pull?

Smart phone—consumers once carried numerous bits of electronic equipment with them: a phone, pager, diary, camera, M3P player, Satnav....

6c. Why should cultures be considered when designing new products?

Cultural influences on design. Culture is the way that history and beliefs influence society. This varies a lot between countries or even between different groups within the same society. ... The designer has to investigate each cultural group that might be affected by a product to ensure that the design is suitable

7c. Why was the manufacturing of the new £5 note controversial to some cultures?

Follow a vegetarian diet—Hindu and Sikh. Vegans etc. the note contains tallow, an animal fat-based substance which upset a number of communities.

8c. Explain why companies are now consider 'Responsible Design'?

Renewable materials, reduce carbon emissions, recycled materials, 100% recyclable, promote Fairtrade, reduce pollution

9c. Why should designers consider the disabled and elderly when creating a new product?

To improve lives. Maximise the number of people a product will appeal to, accessible to all.

10c. Why should religious groups be considered when design new products?

Not to offend or have a negative impact. Communicate openly with members at the development stages to reduce potentially tricky issues, products that can cause offence: alcohol, symbols, relationships, gambling law and beliefs vary from different country to country.

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