6.

Human Responsibility

RISK ASSESSMENT

Risk assessment is nothing more than a careful examination of what, in your work, could cause harm to people, so that you can weigh up whether you have taken enough precautions or should do more to prevent harm to human beings.

The aim is to make sure that no one gets hurt or becomes ill.

The important things you need to decide are whether a HAZARD IS SIGNIFICANT and whether you have it covered by satisfactory precautions so that the risk is small.

Designers have to consider Risk Assessments on two accounts:-

1. **Risks involved to the user when the product is being used.**
2. **Risks involved when manufacturing the product.**

Risk Assessments are carried out in 5 STEPS.

STEP 1: Look for the hazards

You can analyse the workplace or a product and look at areas that can cause harm. Machinery, tools. etc.

STEP 2: Decide who might be harmed and how

Think about the user, workers, members of the public etc.

STEP 3: Evaluate the risks and decide whether the existing precautions are adequate or whether more should be done

Consider how likely it is that each hazard could cause harm. Even after all precautions have been taken, some risk usually remains. You have to decide if the remaining risk is HIGH, MEDIUM or LOW. Your aim is to make all risks as small as possible.

STEP 4: Record your findings

This means writing down the hazards and the conclusions. You must also tell your employees about your findings .

STEP 5: Review your assessment and revise it if necessary

Sooner or later you will bring in new equipment, or new procedures which could lead to new hazards. Then you will have to carry out a new Risk Assessment.

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RISK ASSESSMENT

A Mobile Phone manufacturer would carry out a Risk Assessment on every process used to manufacture the phone.

They would also carry out a Risk Assessment to evaluate risks to the user when using

Risk assessments are carried out on machinery in schools to minimise the likelihood of accidents

A school would carry out a 5 Step Risk Assessment when pupils would be using a Pillar Drill in the Workshop

	STEP	EXPLANATION
1	Look for the hazard	What are the dangers?- Loose clothing/long hair catching in the drill. Particles of metal/wood getting in the eye. Work not secured causing injury to hand.
2	Who might be harmed	Who will be using the drill?- Risk will vary from Year 7 pupils to Year 13. Depending on experience and ability.
3	Evaluate Risks if they are HIGH, MEDIUM or LOW, and consider precautions	How likely are the dangers to happen?- would depend on the type of material being drilled and the size of hole to be drilled. Consider methods of reducing these risks- wearing goggles to protect eyes. Clamp work down securely. Tie back hair.
4	Record findings	This would be a written report of the above issues. People using the Pillar Drill must be made aware of these issues and risks and how to reduce them.
5	Review and revise	If the Pillar Drill was used to drill a larger hole with a Hole Saw then the Initial Risk Assessment would have to be revised.

BUILD QUALITY

Every manufacturer needs to sell their products. So build quality is an important factor. These are some factors for consideration:

- The product needs to sell, so the price must suit the target audience.
- How does it compare with competition? Bild quality will have to be superior.
- How reliable is the product, will it work for a long time?
- What attributes or features should the product have, based on market research intelligence aimed at the target audience?
- Does it meet the expectations/desires of the market segment?
- Is there product differentiation, is there a plan for diffusion of the product that meets the anticipated product life cycle?
- Is there an attempt to sustain brand loyalty?
- If the product lasts for a long time - better for the environment - NO NEED TO BUY ANOTHER.

Dacia ***Mercedes***

Which of these cars have a good reputation of being well built?

Which of these products have a good reputation of being well built?

Alcatel Mobile Phone or Samsung Galaxy?

Environmental Design

How designers have designed products with consideration for green issues.

- Greenpeace have commented on the impact computer manufacturers have had on the environment. Use of plastics PVC and Polycarbonates for casings, use of arsenic in glass production.
- MacBook Air has attempted to answer some of these issues.
- Car designers have reacted to the challenge - electronic or hybrid cars. Cars with less carbon emissions and better fuel consumption.
- Consumers (normal people like us) are more aware of environmental issues and are more likely to look for products that have been designed with the environment in mind. (Market Pull) - designers have reacted to this when producing products.
- Companies like to advertise that their cars have low emissions etc.
- Products - using materials that does not affect the environment - recyclable, aluminium can be easily re-cycled.
- Think of old plastic polythene bags in supermarkets.
- Designers reacted to this and designed biodegradable plastic bags. Now using bags that last for ever. Some bags are made from cotton - can be used over and over.
- Furniture made from wood sourced from FSC logo.
- Using manufacturers that do not mistreat workers. Less pollution when producing.
- Development of solar panels in lamps, lights, calculators, wind up radios etc.
- Washing machines have economy cycles and use less water and heating when washing clothes.
- Detergents are bio-degradable.

PLANNED OBSOLESENCE

Planned obsolescence or **built-in obsolescence** in design is a concept of planning or designing a product with a limited useful life, so it will become obsolete or of no use, unfashionable or no longer functional after a certain period of time.

Planned obsolescence has potential advantages for a producer because the consumer is under pressure to purchase again, whether from the same manufacturer (a replacement part or a newer model), or from a competitor which might also rely on planned obsolescence.

For an industry, planned obsolescence encourages demand by encouraging purchasers to buy sooner if they still want a functioning product before the original product breaks down. Planned obsolescence is common in many different products, such as, ear phones, ear buds, shoes, batteries, light bulbs, nappies and bicycle tyres. There is however the potential backlash of consumers who learn that the manufacturer invested money to make the product obsolete faster; such consumers might turn to a producer (if any exists) that offers a more durable alternative or a product that will last longer.

Most of the products you buy are designed with limited life

Estimates of planned obsolescence can influence a company's decisions about how the product is made. The company can use the least expensive components that will do the job for the life of the product.

The design of most consumer products includes an expected average lifetime. Designers must decide early in the design of a product how long it is designed to last so that each component can be made to those specifications.

Planned obsolescence is made more likely by making the cost of repairs comparable to the replacement cost, or by refusing to provide service or parts any longer. A product might even never have been serviceable. Creating new lines of products that do not interoperate with older products can also make an older model quickly obsolete, forcing replacement. Examples include change of formats and peripheral devices in computers, change of formats in home audio recordings and movies (gramophone record to Magnetic tape sound recordings to CDs and VHS video to DVDs to Blu-ray).

Some Apps on newer mobile phones will not work on older

6. HUMAN RESPONSIBILITY

versions.

Some products are powered by a battery that is soldered into the circuitry or enclosed in a sealed housing, instead of being easily replaceable by a new battery. Although the product owner could re-solder in a new battery, most owners will not bother or do not have the required skills. Some products contain rechargeable batteries that are not user-replaceable after they have worn down, so that consumers are required to pay for a service of battery replacement or to buy a new product.

Planned functional obsolescence is a type of technical obsolescence in which companies introduce new technology which replaces the old. The old products do not have the same capabilities or functionality as the new ones. For example a company that sold consumer video tape decks while they were developing DVD recorders was engaging in planned obsolescence. They were actively planning to make their existing product (video tape) obsolete by developing a substitute product (recordable DVD) with greater functionality (better recording quality). Associated products that are complements to the old products also become obsolete with the introduction of new products. For example, video tape holders saw the same fate as video tapes and video tape decks.

By now even DVDs and DVD players are quickly becoming obsolete. The development of on-line Film Services, where films can be purchased and downloaded without the need for buying, makes buying DVD disks a thing of the past.

Computer Games

Games consoles change every three to four years. This usually results in the older games not playing on new machines. New games would include features and effects that the older type of machines have not been designed to play. New machines would have more powerful processors so that the new effects and 3D graphic technology can be used. With a few exceptions, most computer game systems have been designed to prevent backwards compatibility (new games cannot be played on older machines). This has been done to improve sales of the newer machines and new games (and new copies of the same old games).

New Apps cannot be used on older Mobile phones

Technology has changed how consumers are able to watch Films—making DVDs, Video etc obsolete

New Computer Games cannot be used on older machines

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MP3 Players

Unlike other consumer electronics, MP3 players are rarely able to be upgraded with more memory. That means the space you have is what you've got to work with. Once you fill it up, your only option is to buy another player with more memory available. Also, the lithium-ion batteries are sometimes impossible for the average person to replace on their own. Once the battery will not hold charge then the product will have to be replaced. In the worst case, such as with Apple iPods, the battery can't be removed easily by consumers, forcing an expensive replacement when it runs out and encouraging a throwaway mentality.

Light Bulbs

In a few museums, some of Thomas Edison's early light bulbs still glow, after more than 100 years. Yet contemporary bulbs seem lucky to last a year or two. Clearly, the technology exists to make light bulbs last longer, but that isn't exactly a profit motivator for manufacturers.

Mobile Phones

Consumers have complained that mobile phones seem to follow planned obsolescence, although it is also true that handsets endure heavy daily use, and often do wear out. Plus, mobile phone technology has been proceeding at a rapid rate.

The newer Apps on mobile phones will not work on older handsets, therefore making it necessary for the consumer to purchase a newer phone if they want to be able to use the newer Applications.

But perhaps even more aggravating is planned obsolescence of the products batteries, typically lithium-ion that are found in mobile phones have a limited life.

Cars

2014 VW Golf

2017 VW Golf

Car makers are often accused of planned obsolescence for a variety of reasons. They routinely discontinue parts that could otherwise be made available for repairs. And they adhere to a strict yearly cycle of model releases, often introducing purely cosmetic changes from one year to the next.

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Cars today are partly seen as fashion accessories, and a whole culture has arisen of keeping vehicles for only a few years, when it wouldn't be very difficult to extend the life. Cars take a lot of resources to produce, so adding a few years to every model's lifespan could have a big impact.

Ink Cartridges

A set of new inkjet cartridges can cost more than the printer itself... yet you may be prevented from using every expensive drop of pigment. Many ink cartridges come with smart chips on them that disable printing when one of the colors falls to a certain level, even if there's really enough ink to do the job. Plus, the smart chips can discourage refilling or use of third-party ink.