

photon factor

minimalist lamp design

Name: _____ Class: _____

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Denotes work sheet

Denotes information sheet

Collate all sheets according to this contents page and place this page on the front for presentation.

assessment

Design Catalyst

Lighting

Materials

Generating Ideas

Making

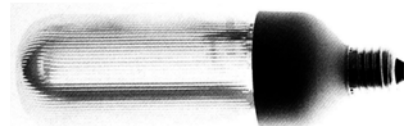
Artificial lighting has been around for many years. Without some sort of lighting our species would have no other option but to stop what ever they were doing when darkness fell. The harnessing of lighting was principally what allowed ancient man to unshackle himself from the routine imposed by nature. Until the twentieth century, after dark the world was largely lit by fire. Although electric lighting had been around as a scientific curiosity since the early 1800s it wasn't until 1879 that a commercially viable electric globe was developed. This was the incandescent globe with a tungsten filament that glows when electricity is passed through it. You will also know that it can get very hot.



Incandescent globe



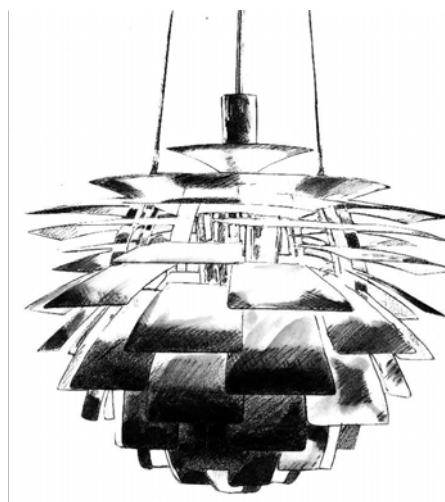
Halogen globe



Fluorescent globe

Since then a range of different electric globes has been developed. Halogen globes are very bright and most of the energy they consume dissipates in heat. They are very directional and are used as small spots or downlights. Fluorescent tubes offer a low cost lighting, which glows with a slightly bluer light. They can last much longer than any other form of globe. Unfortunately they flicker at around 25 flashes per second. We can't normally see that, but it can still have an unsettling effect to some.

Many designers are attracted to the possibilities of designing with light because of its power to manipulate our emotions and define spaces. The nature of light determines how we perceive and what we think of our environment. A small space can be made to look inviting, a large space can become minimalist, an object can blend in with its surrounds, or it can stand out as a point of interest. Perhaps this power which light holds has something to do with our connectedness to the patterns of light in nature.



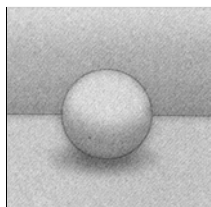
Artichoke Lamp, Poul Henningson

It has determined our daily activity and it delineates seasons and years. To our early ancestors light meant security from the unknown and therefore survival. Light has also come to symbolise truth, knowledge, and power. It is a very potent symbol. A lamp seems to take on a very different character when it is on. Philip Starck says that it becomes alive.

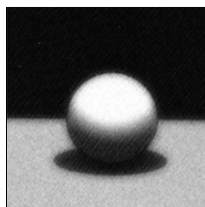


Cluster lamps, Craig Harris, 2000

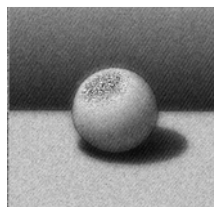
When designing with light, designers have at their disposal a range of possibilities for creating the mood or effect they are after. Ambient lighting is soft lighting which fills a room and casts no strong shadows. Down lighting casts a strong shadow directly under objects; task lighting provides a bright pool of light over the given area making it easier to see and concentrate, occasional lights tend to draw attention to themselves and don't necessarily provide useful light.



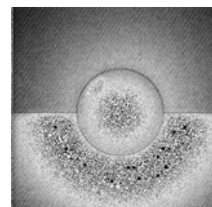
Ambient light is when there is no one source of light. There are almost no shadows, or only soft ones



Down lighting usually casts hard shadows because it is bright and comes from just a few sources



Task lighting is designed to help you perform a task, and therefore are only intended to light a small area



Occasional lights tend to attract attention to themselves. They work best when the ambient light is low.

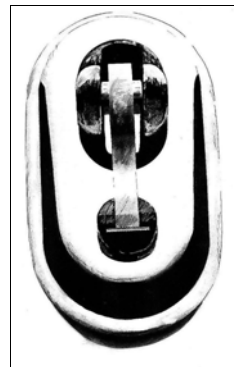
Minimalism is not really a design style or a design movement. It is an idea. It is about saying more by doing less, or as Mies Van Der Rohe put it: 'less is more'. People look for meaning in their built environment. They want objects to remind them of feelings or of stories. Some design styles such as Memphis exploit this tendency, however the minimalist approach doesn't seem to want to give too much away. There is mystery in its subtlety, and as people look for meaning in the minimalist object they are compelled to think beyond the object itself.

Minimalist designers are mostly concerned with the concepts of geometry, space, subtlety, simplicity, and purity which give their objects timeless qualities. This evokes emotional responses such as feelings of peace, security, harmony and equilibrium. Minimalism holds that beauty is most manifest in the purity of simplicity. This is why colour is often avoided.

Importantly minimalism is not just an idea found in the world of design. It has come and gone in many other fields. The writer Ernest Hemingway explained that he wanted his reader to think 'beyond what is printed on the page', and he did this by leaving things out. Philip Glass (who wrote the sound track to *Kundun*) is a contemporary minimalist composer, but his minimalism is more to do with repetition than it is to do with leaving things out. Andy Warhol made a truly forgettable 'art-house' movie called *Man Sleeping*. It ran for nine hours and it consisted solely of a man sleeping. In the 1970s American artist Gotthard Graubner painted huge canvases in just one colour. This was at the height of Modernism, which has strong parallels with architecture at the time. Minimalism is also manifest in fashion design, choreography and even cuisine.

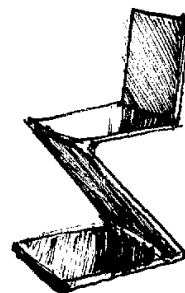
As a design idea, minimalism has appeared in many different places and continues today in the work of many prominent designers.

Masayuki Kurokawa loves designing small objects in black and stainless steel. The geometry is so strong that it is not always obvious what the object is.



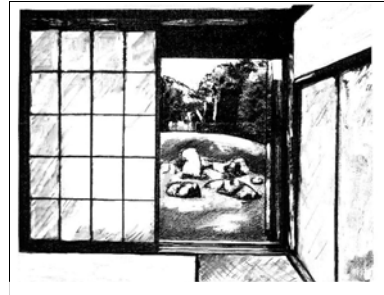
Sticky tape dispenser. Kurokawa

Dutch designer Gerrit Rietveld's 'Zig-Zag' chair exhibits a functionalist version of minimalism which is not only anti-ornament, but also reconsiders materials use and construction techniques.



Zig Zag Chair,
Rietveldt

Sukiya architecture in Japan extols the virtue of 'pure' materials and traditional craftsmanship. It is highly detailed, but incredibly restrained.



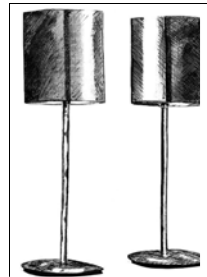
Sukiya architecture – interior/exterior

There is a stark beauty in the buildings of the 'International Style', but people thought they were too boxy.



Savoye House, 1930, Le Corbusier

Bang & Olufsen have turned minimalism into a marketing statement. This is not out of keeping with the heritage of Scandinavian design.



Beolab 4000, Bang & Olufsen

There is no doubt that minimalism is alive and well. We can't expect to pin it down historically (although Modernism is a definite manifestation), but we can see minimalism in its many forms in the work of a range of designers from many design heritages.

We don't always want complicated designs. If some is good, more is not always better. Minimalism reminds us that simple things are often the best. The challenge to designers is to make something simple but at the same time interesting. One idea done well is much better than including many competing ideas. The trick is to make sure that the one idea is done very well. When designing in a minimalist style remember that what you leave out is just as important as what you choose to include.

1. Why do designers like designing with light?

2. Give meanings for the following words:

Diffuser

Ambient light

Point source

Translucent

3. What are some of the environmental issues raised by using plastic?

4. Describe 4 properties of Polypropylene

5. What does minimalism set out to do?

6. Why do you think people like minimalist designs?

7. What do you think is the greatest challenge for a minimalist designer?

8. Can minimalism be taken to extremes? Explain.

9. What do you think the future is for minimalism?

Background

Designers from many backgrounds have been attracted to the notion of minimalism, that is, saying more by doing less. This is not to say that a minimalist approach means that a designer takes the easiest option, just that their ideas are restrained and well considered. A good idea does not become better when it is magnified, repeated or coupled with another good idea. A good idea with a minimalist approach is understated and stands alone. This seems to give designed objects a sense of mystery which can be very alluring.

Designers are also attracted to the many possibilities of designing with light. We know that the world around us is mostly perceivable through the sense of sight, and this is dependent on light. If light can be manipulated then so can our perception of the world around us. In this way light is a very powerful tool, capable of evoking a range of emotional responses.

Brief

Design and make a free-standing table luminaire (lamp) which could be considered minimalist.

Parameters:

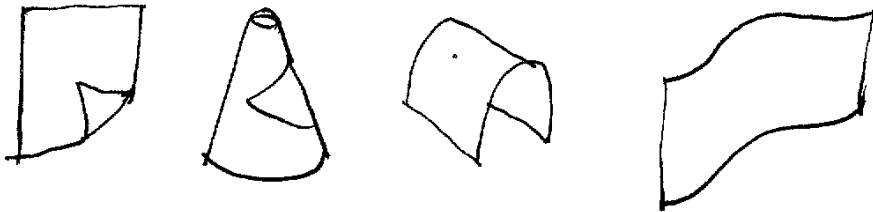
- Your lamp will house a 40Watt globe. No material is to be within 20mm of the globe;
- It will use the cord, plug and globe holder provided;
- You will use white polypropylene (supplied)
- All joins are to be riveted
- Ensure that your design is minimalist (remember more is not always better);
- Your lamp will not have a separate base, stand, and diffuser. Integrate these elements as much as possible.

Submission:

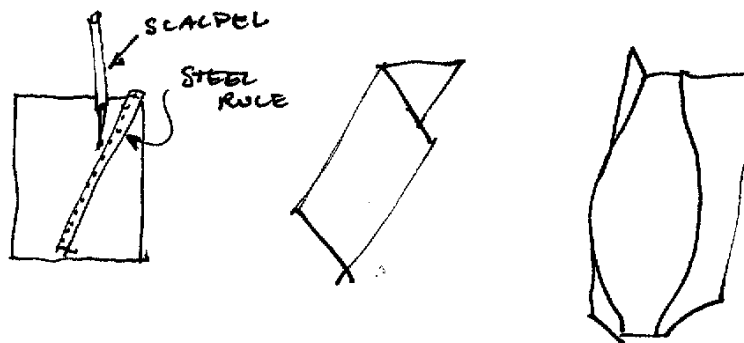
- A set of concept sketches (on design sheets and in fineliner) Explain all your ideas;
- A flow diagram explaining the processes you will need to make your lamp (see flow diagram information sheet).
- A final product.
- An evaluation.

Extension: A presentation rendering with title and background

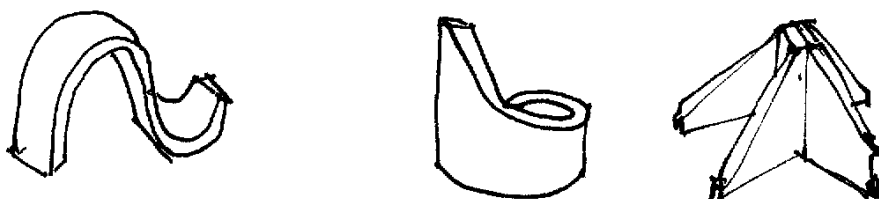
Polypropylene behaves very similarly to card. It can be cut and twisted and rolled in much the same way.



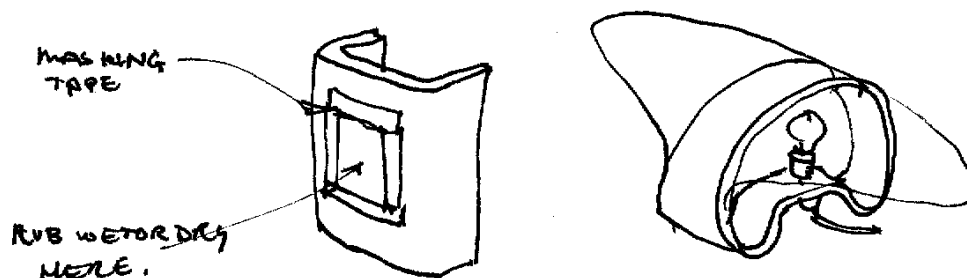
If it is scored (cut with a knife, but not all the way through) it can then be folded very cleanly. Explore the possibilities of scoring straight lines and curved lines before folding.



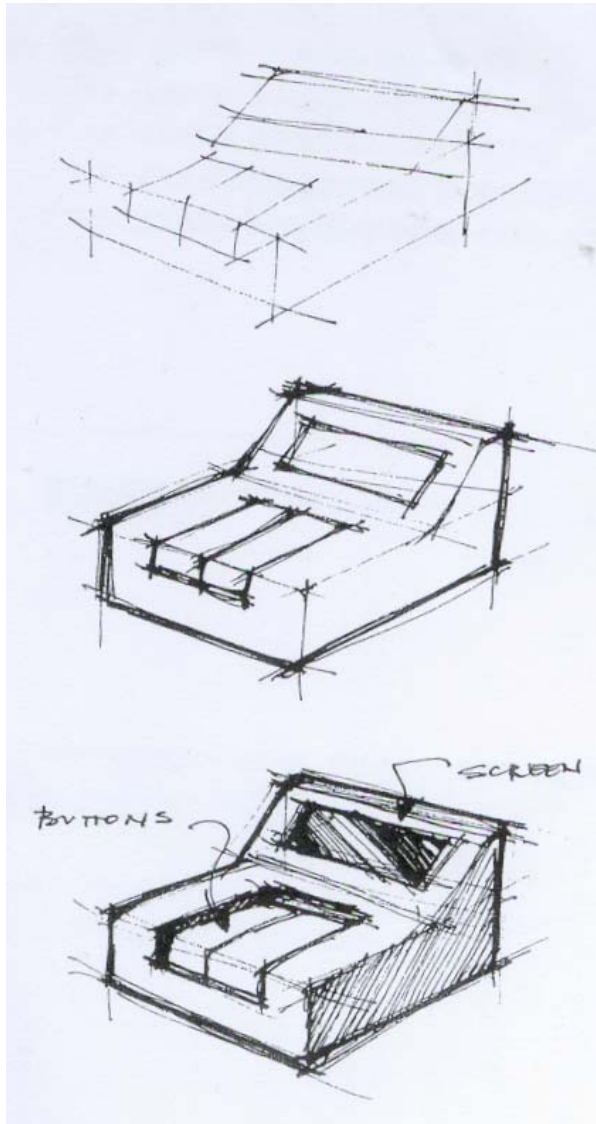
Polycarbonate is highly flexible. It returns to its original shape very readily after bending. A permanent bend can be achieved by heating. This can create very interesting shapes to explore for your design.



Polycarbonate can be used to diffuse light. A translucent effect can be achieved by scratching the surface with 'wet or dry'.



Design concepts should be drawn using a fineliner with a construct, firm and shade method. Remember to make long fast lines rather than a series of short scratchy ones. Include quick notes explaining materials, fabrication and joining methods.



1. **Construct** your overall shape,
 - Light lines are drawn quickly
 - Start with a box and then modify it
 - Lines are long
 - Some lines will be incorrect

2. **Firm** in the correct lines
 - Go over them more slowly
 - Lines are long
 - Make an outline extra dark

3. **Shade** in a chosen vertical face
 - Use light, fast diagonal lines

4. **Annotate** by adding notes on various aspects of your design
 - Words help people understand your ideas



PROJECT NAME:

CLASS:

NAME:

THIS SHEET

DESIGN STAGE:

DATE:

Complete the following table (You will need to do some research).

Material	Chemical formula	Max working temp.	Specific Gravity (density compared to water)	Available colours
Polypropylene				

Name one thing Polypropylene is used for (apart from lamps)?

Provide 4 reasons explaining why Polypropylene has been chosen as the best material for this purpose.

1

2

3

4



design&technology

PHOTON FACTOR

PROJECT NAME:

THIS SHEET

DESIGN DEVELOPMENTS - drawings of card models

CLASS:

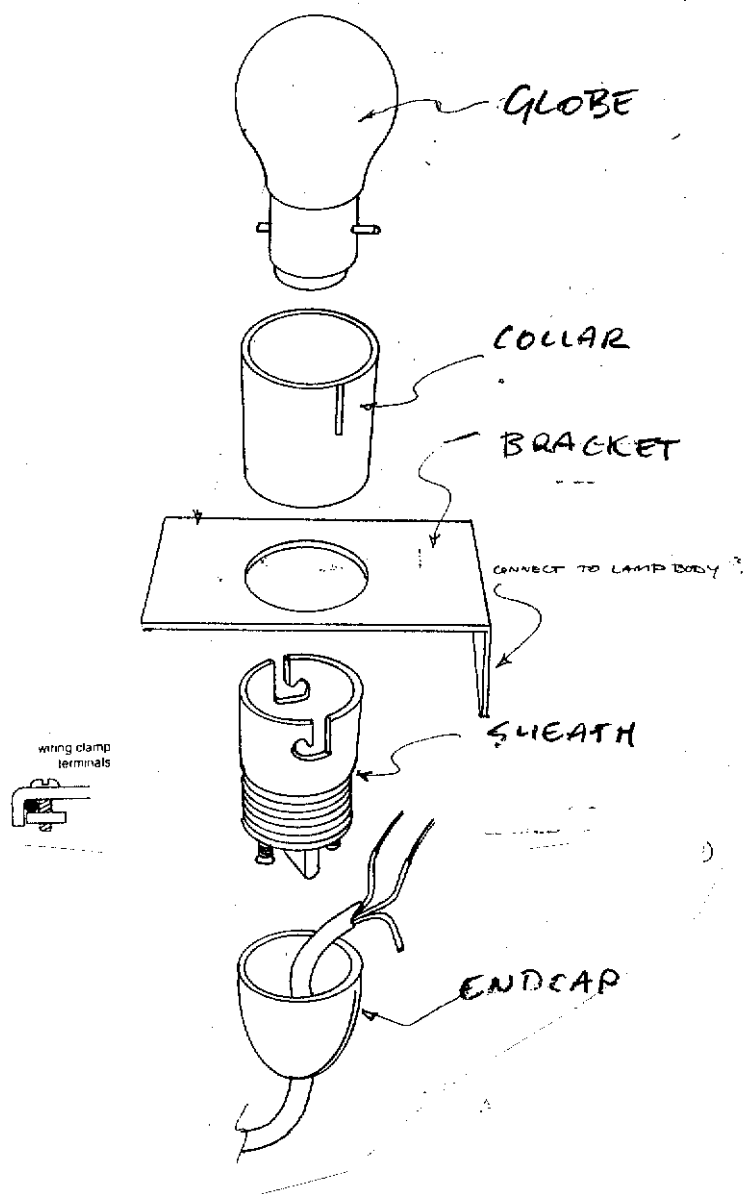
NAME:

DESIGN STAGE:

DATE:

- Referring to your concept sketches, make card models of your favourite ideas. Three models would be helpful. Use staples or masking tape for joins. Make them to scale considering the location of the globe.
- Referring to your models, draw your best idea from a range of views. Draw on the design sheets provided and show where the globe is situated and how it is held.

Globe assembly information



From the information in the demonstration fill in the following table

	Equipment	Use	Safety
Marking			
Cutting			
Making			
Shaping			
Joining			

Insert Class test

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Product Analysis

Choose a lamp already on the market, perhaps something at home. Make a series of sketches of it on the design sheet.

Comment on the lamp under the following headings:

1. Name of the lamp and name of the designer

2. Overall dimensions

3. Type of light source

4. Materials it is made from

5. Processes used in manufacture

6. Kind of light it produces

7. Market – who would buy it?



design & technology

PHOTON FACTOR

PROJECT NAME:

CUTTING PLAN

THIS SHEET

CLASS:

DESIGN STAGE:

NAME:

DATE:



design & technology

PHOTON FACTOR

PROJECT NAME:

CLASS:

NAME:

PRODUCT ANALYSIS

THIS SHEET

DESIGN STAGE:

DATE:



PHOTON FACTOR

PRODUCT ANALYSIS

PROJECT NAME:

THIS SHEET

CLASS:

NAME:

DESIGN STAGE:

DATE:

product reference 1

homework

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Find pictures of five items designed in a minimalist style. Photocopy them (may need reduction) and cut and paste them below. Indicate what they are and who designed them.

product reference 2

homework

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Find pictures of five lamps designed using sheet materials. Photocopy them (may need reduction) and cut and paste them below. Indicate what they are and who designed them.

Flow diagram

Number	Name of making stage
Illustration showing all equipment you will use. Label all equipment.	
Draw what your object looks like at each stage.	
Use fineliner and colour.	
Explanation of making stage	

1	
---	--

2	
---	--

5	
---	--

4	
---	--

3	24
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Evaluation

Upon completion of your product, answer the following questions:

1. Explain the lighting effect you aimed to achieve.

2. What were the main challenges/difficulties you faced when trying to achieve the desired effect?

3. How would you make your product if you had to do it again? What changes would you make?

4. Is your product easy to mass produce? What modifications would you make if you had to make 100? (use the space provided to draw your changes)

5. What kind of people would like your design most?

6. What other materials could be used for the diffuser or for the structure other than polypropylene and polycarbonate?
