KS3 Yr7/8 Design and Technology & Information and Communication Technology 7/8

About me

Name:

Tutor group:

Primary School:

What will I be studying?

GRAPHIC DESIGN
TEXTILES
RESISTANT MATERIALS
FOOD & NUTRITION
ELECTRONICS
ICT

What will I need to bring with me to each lesson?

Pencil
Black Pen
Ruler
Eraser
Calculator

Optional:
Colour pencils
Fine Liner

For Food & Nutrition:
Ingredients
Tupperware
Carrier bag

Project 1
SPECIALISM:

FOCUS:

Project 2
SPECIALISM:

FOCUS:

Project 3
SPECIALISM:

FOCUS:

Project 4
SPECIALISM:

FOCUS:

Project 5
SPECIALISM:

FOCUS:

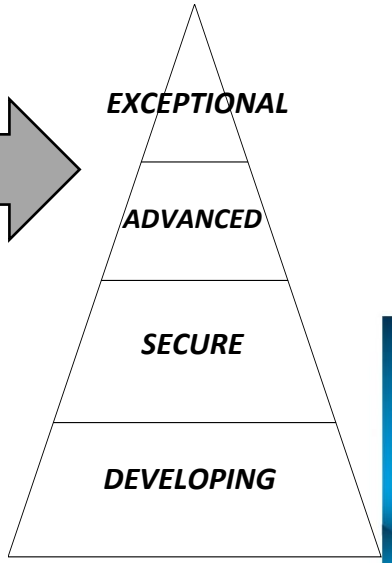
Project 6
SPECIALISM:

FOCUS:

Contents in this booklet:

Assessment

When working in Design and Technology and ICT you will be assessed using a triangle. It will be shaded to indicate where you are working at.
Book work will be marked in PINK (Progressive work) and Green (Target set)



My Flight Paths

TARGET LEVEL *Shaded below.*	My Projects in DT/ICT					
Exceptional						
Advanced						
Secure						
Developing						
Specialism	1	2	3	4	5	6
Focus						
	YEAR 7			YEAR 8		

My Homework in DT/ICT

Exceptional						
Advanced						
Secure						
Developing						
	1. *Designer research*	2. *Product Analysis*	3. *Food & Nutrition*	4. Inspirational Design	5. Smart Materials	6. ICT

My Literacy in DT/ICT

Exceptional						
Advanced						
Secure						
Developing						
	Test 1 *Date:*	*Test 2* *Date:*	*Test 3* *Date:*	*Test 4* *Date:*	*Test 5* *Date:*	*Test 6* *Date:*

My Numeracy in DT/ICT

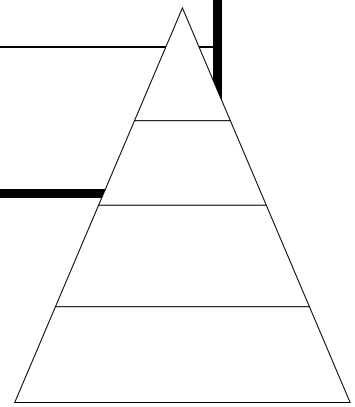
Exceptional						
Advanced						
Secure						
Developing						
	Test 1 *Date:*	*Test 2* *Date:*	*Test 3* *Date:*	*Test 4* *Date:*	*Test 5* *Date:*	*Test 6* *Date:*

Homework 1: *Designer Research*

Name of designer	About the Designer
Harry Beck	
Marcel Breuer	
Coco Chanel	
Norman Foster	
Sir Alec Issigonis	
Alexander McQueen	
William Morris	
Mary Quant	

Name of designer	About the Designer
Charles Rene Mackintosh	
Gerrit Rietveld	
Aldo Rossi	
Ettore Sottsass	
Philippe Starck	
Raymond Templier	
Louis Comfort Tiffany	
Vivienne Westwood	

Find out about each of these designers and fill in the tables.
Name the field that they worked in and an iconic product that they are associated with.



Homework 2: *Product Analysis*

The product shown is a pair of headphones for listening to music. They are to be worn while exercising. The target market is middle-aged adults.

Q1.State 4 factors that should be considered when evaluating the headphones

1. *Aesthetics*

2.

3.

4.

Q2. Evaluate the headphones against 3 of the factors given in question 1.

1.

2.

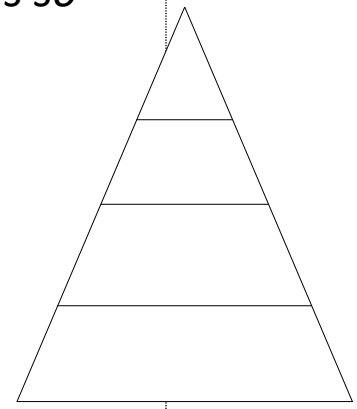
3.

Q3. The headphones are going to be redesigned for children aged 6-8 years. Write a 3-point design specification for the new product.

1.*The product must have images on the ear pieces so that it would be visually appealing to the child.*

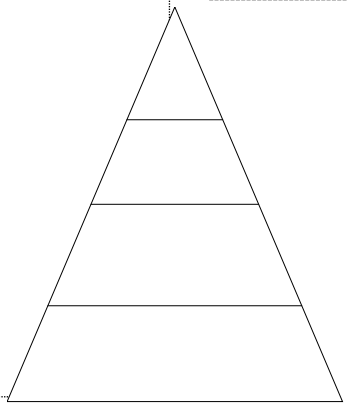
2.

3.



Q4. Redesign the headphones for the new target market. Remember to annotate your design.

Homework 2: *Product Analysis*



Homework 3: *Food & Nutrition*

- Take 6 items of food from your kitchen. They must have nutrition labels.
- Study the food labels.
- Record the mass of each nutrient in ***100g*** of the food in the table below.

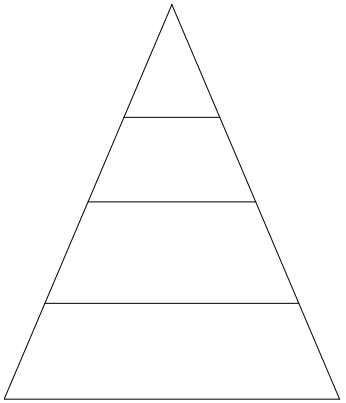
Food	Nutrient in 100g of food			
	Protein	Carbohydrate	Fat	Energy(kJ)

1. Which food had the highest amount of protein?
2. Which food had the highest amount of fat?
3. Which food had the highest amount of carbohydrate?
4. Can you see a link between the type of nutrient in a food and the amount of energy it contains?

5. What is the function of protein in your diet?

6. What is the function of fat in your diet?

7. What is the function of carbohydrate in your diet?

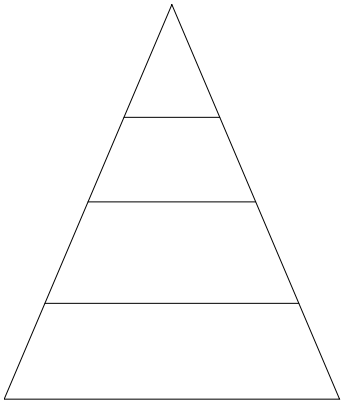


Homework 4: *Inspirational design*

You have been asked to design a **CLOCK** inspired by one of the following designers. Firstly, you will need to investigate their work – include images. Then on a following page create a clock design.

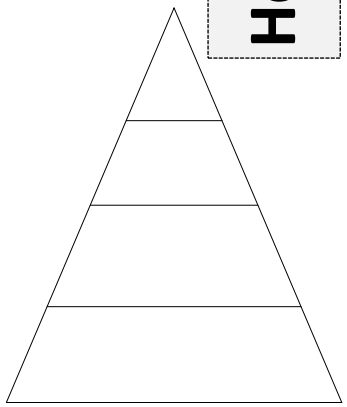
Harry Beck
Marcel Breuer
Coco Chanel
Norman Foster
Charles Rene Mackintosh
Philippe Starck
William Morris
Mary Quant

I have chosen to investigate:



Clock Design (remember to annotate)

Homework 4: *Inspirational design*



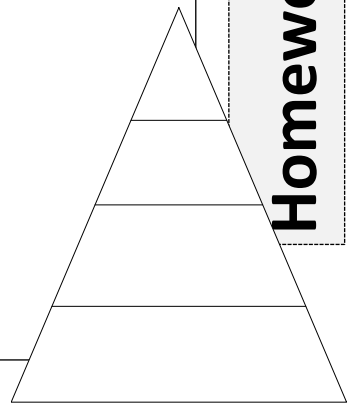
You will need to investigate into Smart Materials in order to do this work.

Name a Smart Material:

Describe the Smart property of this material:

Give a typical application for this material:

Design a new product that uses a smart material



Homework 5: *Smart Materials*

Evaluate a computer game

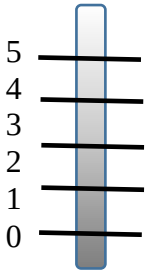
Find a computer game/s you like to play and answer the following questions about it / them. **Name of Game/s**:

1. Why did you choose this game?

2. What is the objective of the game?

3. How do you gain points etc. in the game?

4. Indicate your level of enjoyment of the game out of 5:
   - (0 being 'Rubbish', 5 being 'Great fun'.)

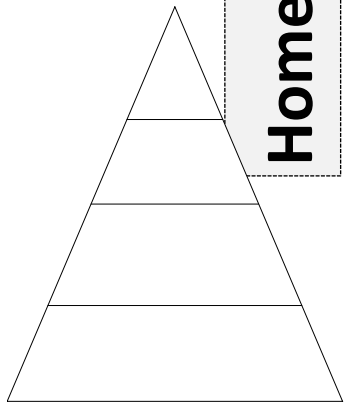


5. What was right/wrong with the game?

Right with the game

Wrong with the game

Homework 6: *ICT*



Design your own game

Theme: Look and feel of the game (Space, jungle, underwater, Pirate, Princes…..)

Objective (of the game):

Main Character:

- Who
- Movement
- Anything else

Scoring: How do you get lose points

- What can happen and what points?

Other Characters

- Who
- Movement
- Anything else

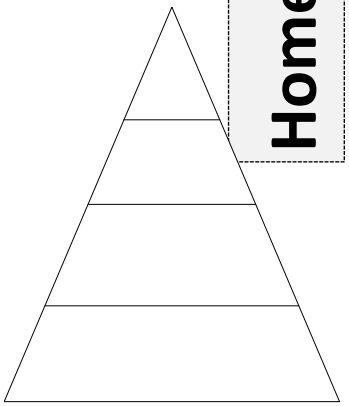
Other Objects (collectables, barriers, traps etc.)

- .
- .
- .

How Does the game get harder / provide a challenge to play again? (Levels, faster etc…)

The End: How do you win / Lose

Homework 6: *ICT*

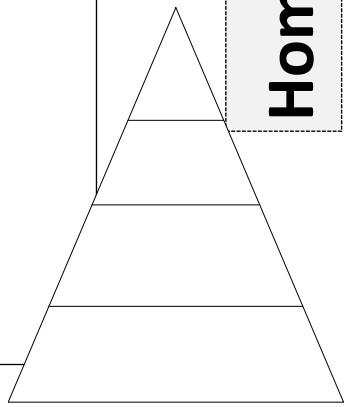


Now design your hero and baddie

HERO

BADDIE

Homework 6: *ICT*



GRAPHIC DESIGN

DESIGN BRIEF:

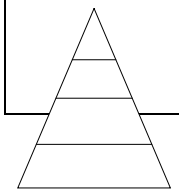
ASSESSMENT FOCUS: **DESIGNING AND DEVELOPING**

DEVELOPING	SECURE	ADVANCED	EXCEPTIONAL
An Idea has been generated with little consideration of use, user, materials.	Simple ideas have been generated with obvious design fixation and limited consideration of functionality.	Basic ideas have been generated with clear design fixation and limited consideration of functionality, aesthetics and innovation.	Imaginative ideas have been generated with a degree of design fixation and having some consideration of functionality, aesthetics and innovation.
No evidence of modelling to test design ideas	Modelling is very basic or non-existent, using a one (or none) method to test their design ideas meeting requirements only superficially	Modelling is basic, using a limited number of methods to test their design ideas meeting requirements only superficially	Modelling is sufficient, using a variety of methods to test their design ideas, meeting some requirements.
Communication is difficult to understand or has little relevance to the subject matter.	Communication is poor.	Basic experimentation and communication is evident, using a limited number of techniques.	Experimentation is sufficient to generate a range of ideas. Communication is evident, using a range of techniques.
Manufacturing specification is not evident.	Very basic teacher led manufacturing specification.	Basic manufacturing specification that lacks detail and has minimal justification to inform manufacture.	Adequate manufacturing specification contains sufficient detail with some justification to inform manufacture.

WWW

EBI

TEACHER COMMENT



STUDENTS THOUGHTS

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PHOTO

TEXTILES DESIGN

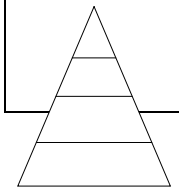
DESIGN BRIEF:

ASSESSMENT FOCUS: **EVALUATING**	**DEVELOPING**	**SECURE**	**ADVANCED**	**EXCEPTIONAL**
	Limited evidence of design iterations.	Limited evidence of design iterations as a result of evaluating.	Limited evidence that various iterations are as a result of considerations linked to testing, analysis and evaluation of the prototype.	Some evidence that various iterations are as a result of considerations linked to testing, analysis and evaluation of the prototype, including basic consideration of feedback from third parties.
	Very limited if any testing of some aspects of the final prototype with no regard to specification.	Basic testing of some aspects of the final prototype with no regard to specification.	Basic testing of some aspects of the final prototype against the design brief and specification.	Adequate testing of some aspects of the final prototype against the design brief and specification.
	Very superficial evidence of any modifications either proposed or undertaken.	Superficial evidence of any modifications either proposed or undertaken.	Little reference is made to any modifications either proposed or undertaken.	Some reference is made to modifications either proposed or undertaken.
	Very teacher led when analysing and evaluating. Very minimal evidence of evaluation to influence the design and manufacturing specifications.	Lacking independence when analysing and evaluating. Minimal evidence of evaluation influencing the design and manufacturing specifications.	Superficial analysis and evaluation. Little influence on the design brief and the design and manufacturing specifications.	Adequate analysis and evaluation is present at some stages of the project but does not have sufficient influence on the design brief and the design and manufacturing specifications.

WWW

EBI

TEACHER COMMENT



STUDENTS THOUGHTS

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PHOTO

RESISTANT MATERIALS

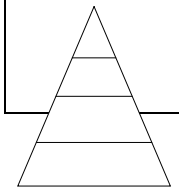
DESIGN BRIEF:

ASSESSMENT FOCUS: **MAKING**	DEVELOPING	SECURE	ADVANCED	EXCEPTIONAL
	Materials, ingredients, simple tools and equipment have been used or operated safely at a low level, requiring some teacher guidance.	Tools, materials, ingredients and equipment have been used or operated safely at a basic level, requiring a minimum of teacher input.	Tools, materials, ingredients and equipment (including CAM where appropriate) have been used or operated safely at a basic level.	The correct tools, materials, ingredients and equipment (including CAM where appropriate) have been used or operated safely with an adequate level of skill.
	The lack of Quality control is evident in the outcome.	Quality control is evident through outcome though little evidence is available.	Basic quality control is evident through measurement only.	Some quality control is evident through measurement and testing.
	Outcome shows a low level of making/finishing skills.	Outcome shows a minimal level of making/finishing skills.	Outcome shows a basic level of making/finishing skills which may not be appropriate for the desired outcome.	Outcome shows an adequate level of making/finishing skills that are mostly appropriate to the desired outcome.
	A outcome of poor quality has been produced.	A outcome of low quality has been produced which has not considered the needs of the client/user.	A outcome of basic quality has been produced with little or no potential to be commercially viable and does not meet the needs of the client/user.	A outcome of sufficient quality has been produced that may have potential to be commercially viable, although further developments would be required, and only partially meets the needs of the client/user.

WWW

EBI

TEACHER COMMENT



STUDENTS THOUGHTS

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PHOTO

ELECTRONICS

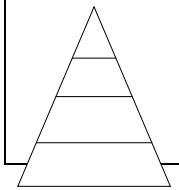
DESIGN BRIEF:

ASSESSMENT FOCUS: **DESIGNING & DEVELOPING**	**DEVELOPING**	**SECURE**	**ADVANCED**	**EXCEPTIONAL**
	An Idea has been generated with little consideration of use, user, materials.	Simple ideas have been generated with obvious design fixation and limited consideration of functionality.	Basic ideas have been generated with clear design fixation and limited consideration of functionality, aesthetics and innovation.	Imaginative ideas have been generated with a degree of design fixation and having some consideration of functionality, aesthetics and innovation.
	No evidence of modelling to test design ideas	Modelling is very basic or non-existent, using a one (or none) method to test their design ideas meeting requirements only superficially	Modelling is basic, using a limited number of methods to test their design ideas meeting requirements only superficially	Modelling is sufficient, using a variety of methods to test their design ideas, meeting some requirements.
	Communication is difficult to understand or has little relevance to the subject matter.	Communication is poor.	Basic experimentation and communication is evident, using a limited number of techniques.	Experimentation is sufficient to generate a range of ideas. Communication is evident, using a range of techniques.
	Manufacturing specification is not evident.	Very basic teacher led manufacturing specification.	Basic manufacturing specification that lacks detail and has minimal justification to inform manufacture.	Adequate manufacturing specification contains sufficient detail with some justification to inform manufacture.

WWW

EBI

TEACHER COMMENT



STUDENTS THOUGHTS

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PHOTO

ICT / CS
FOOD & NUTRITION

DESIGN BRIEF:

DESIGN BRIEF:

ASSESSMENT FOCUS: PLANNING WITH MAKING & EVALUATION

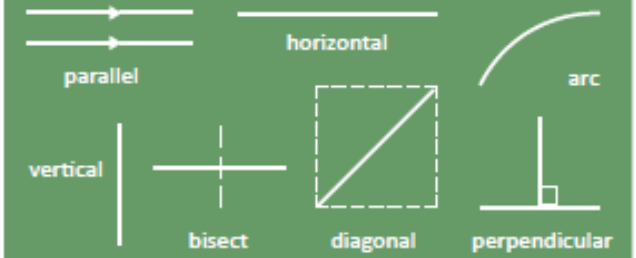
DEVELOPING	SECURE	ADVANCED	EXCEPTIONAL
An Idea has been generated with little consideration of planning of user, resources and functionality.	Simple ideas have been generated with clear planning for the user, resources and some consideration of functionality.	Basic ideas have been generated and refined, planning shows consideration of the user, functionality and resources.	Imaginative ideas have been generated, evaluated and refined. Planning shows detailed consideration of the user, resources and functionality.
Materials, ingredients, simple tools and	Tools, materials, ingredients and	Tools, materials, ingredients and	The correct tools, materials, ingredients
Communication is difficult to understand or has little relevance to the subject matter.	Ideas have been communicated clearly so the audience understand some of the features of what has been developed	Clear communication is evident, so the audience understand the benefit of features that have been developed	High quality communication is evident, showing how the ideas evolved, the full justification of features included and omitted. A range of tools and techniques.
The lack of Quality control is evident in the outcome.	Quality control is evident through outcome though little evidence is available.	Basic quality control is evident through measurement only.	Some quality control is evident through measurement and testing.
The final product is very basic or incomplete. Was heavily supported by teacher. Does not satisfy the user needs.	The final product works and meets some of the user needs, shows the application of new skills learnt.	The final product works well, has a complexity and meets most of the user needs. It shows the application of new skills which may not be appropriate for the desired outcome.	The developed product is innovative, has complexity and fully meets the user needs. It shows the application of
Outcome shows a low level of making/finishing skills.	Outcome shows a minimal level of making/finishing skills.	Outcome shows a basic level of making/finishing skills.	Outcome shows an adequate level of making/finishing skills that are mostly appropriate to the desired outcome.
No or little evidence of reflection and evaluation.	Review of product and evaluation identifies both good areas and further areas for development.	Detailed review of product and evaluation identifies both good areas and further areas for development.	Detailed review of product, including 3rd party feedback, with high quality
A outcome of poor quality has been produced.	A outcome of low quality has been produced which has not considered the needs of the client/user.	A outcome of basic quality has been produced with little potential to be commercially viable and does not meet the needs of the client/user.	A outcome of sufficient quality has been evaluated which have potential to be commercially viable, although further developments would be required and only partially meets the needs of the client/user.

WWW			STUDENTS THOUGHTS	PHOTO
WWW			☺ STUDENTS THOUGHTS	PHOTO
EBI			☺	
EBI			☹	
TEACHER COMMENT			☹	
TEACHER COMMENT				

NUMERACY SUPPORT IN D&T

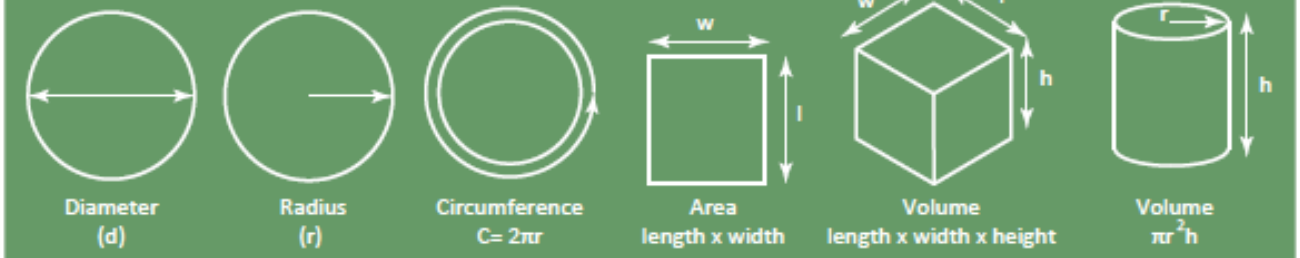
LINES

What do each of following lines mean



SHAPES

How to measure different shapes



Diameter (d)

Radius (r)

Circumference $C = 2\pi r$

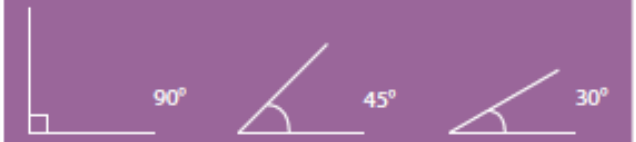
Area length x width

Volume length x width x height

Volume $\pi r^2 h$

ANGLES

Use the right tool to get the right angle



A **try square** is used to mark a 90° angle.

A **mitre square** is used to mark a 45° angle.

A **sliding bevel** is used to mark irregular angles.

MEASURES OF AVERAGES

This help you draw conclusions from data

The **mean** is the most common measure of average. To calculate the mean add the numbers together and divide the total by the amount of numbers:
Mean = sum of numbers ÷ amount of numbers

If you place a set of numbers in order, the **median** number is the middle one.

The **mode** is the value that occurs most often.

MEASURING

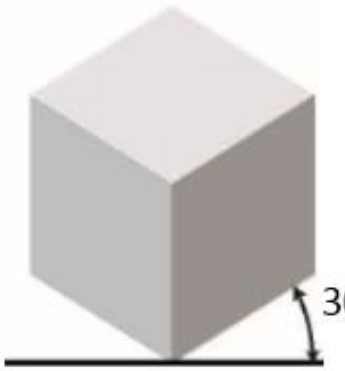
Measuring in millimetres is more accuarate than measuring in centimetres. In the workshop you will frequently use the steel rule.

1mm = 0.1cm
10mm = 1cm
50mm = 5cm
57mm = 5.7cm
100mm = 10cm

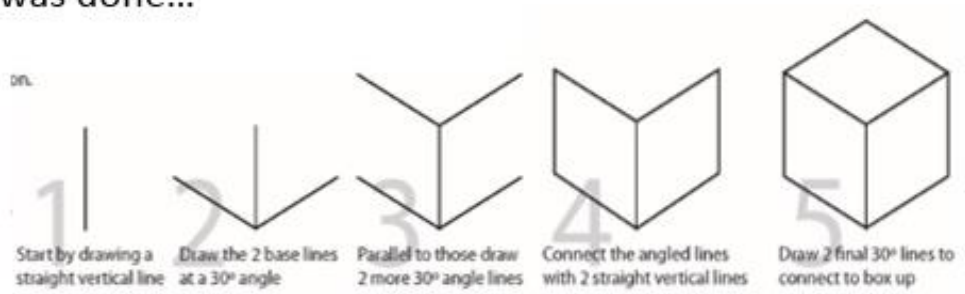
To convert mm to cm ÷ 10
To covert cm to mm x 10

Numeracy 1: *Isometric drawing*

Isometric drawings are a way of presenting designs and drawings in three dimensions. Designs are drawn at 30°. You can do this using a 30° angle set square or Isometric paper.

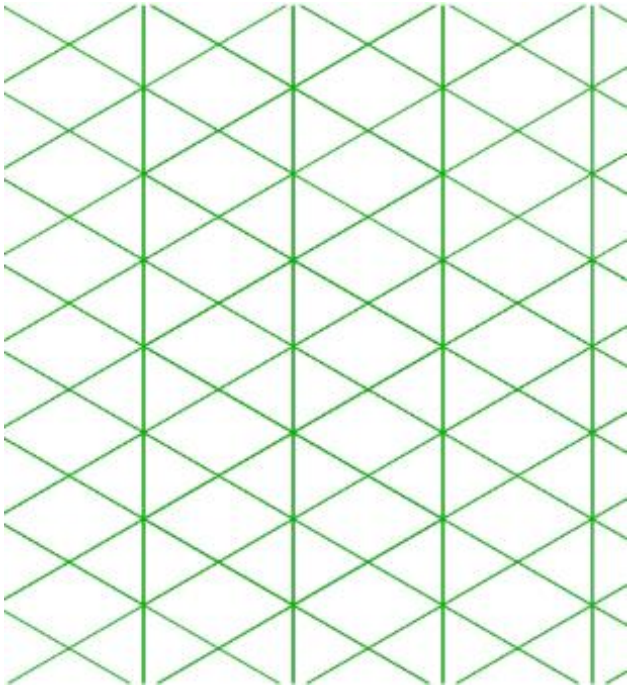


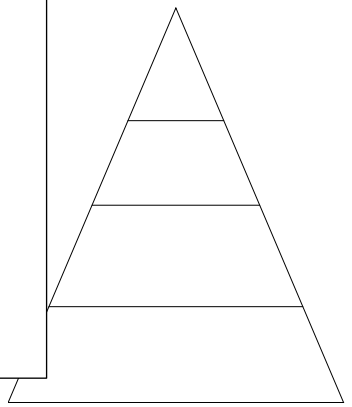
and this was how it was done...



Draw a cube using a set square

Draw a cube using isometric paper





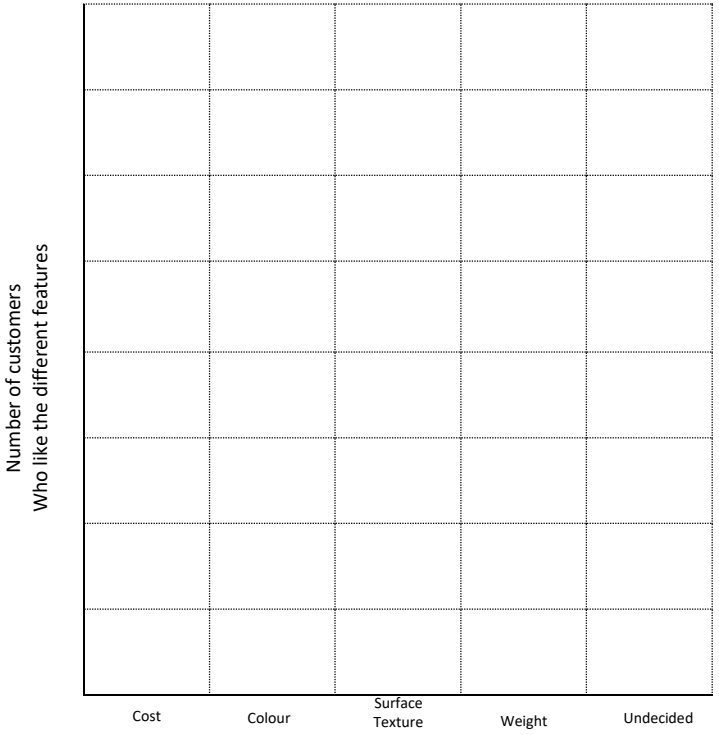
Numeracy 2: *Bar charts*

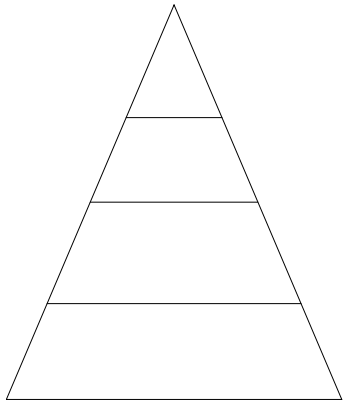
A group of 80 customers was asked to identify the most important characteristic in a new product. Their responses are given in the table:

Response	**No of customers**	**% of total**
Cost	36	45
Colour		25
Surface Texture	8	
Weight	4	5
Undecided/no preference	12	15
Total	**80**	**100**

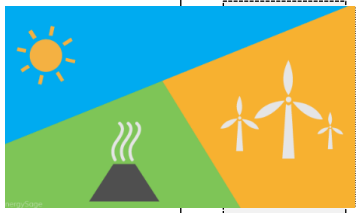
Insert the missing values above

Use the information in the table to create a bar chart. Label your axis with the scale of your graph.





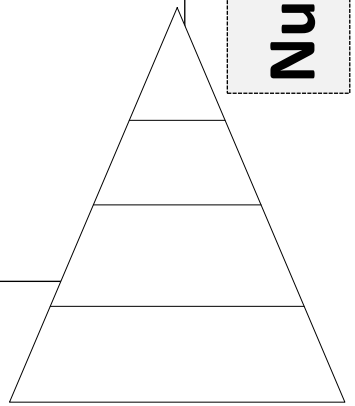
In 2010 the use of renewable energy in the UK accounted for 6.5% of total energy usage. By 2015 this figure had increased to 25%.
Give **two** reasons for the increase in the use of renewable energy sources.



Explain why some people are opposed to the use of renewable energy sources.

The amount of renewable energy generated in 2015 was 83.3 Terawatt hours (TWh).
The ratio of solar power to other forms of renewable energy was 1:10.
What amount of energy was attributed to solar power?
Give your answer to 1 decimal point.

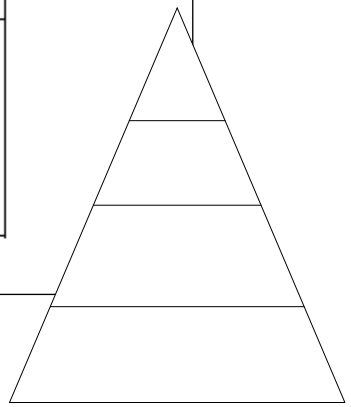
Numeracy 3: *% & ratio*

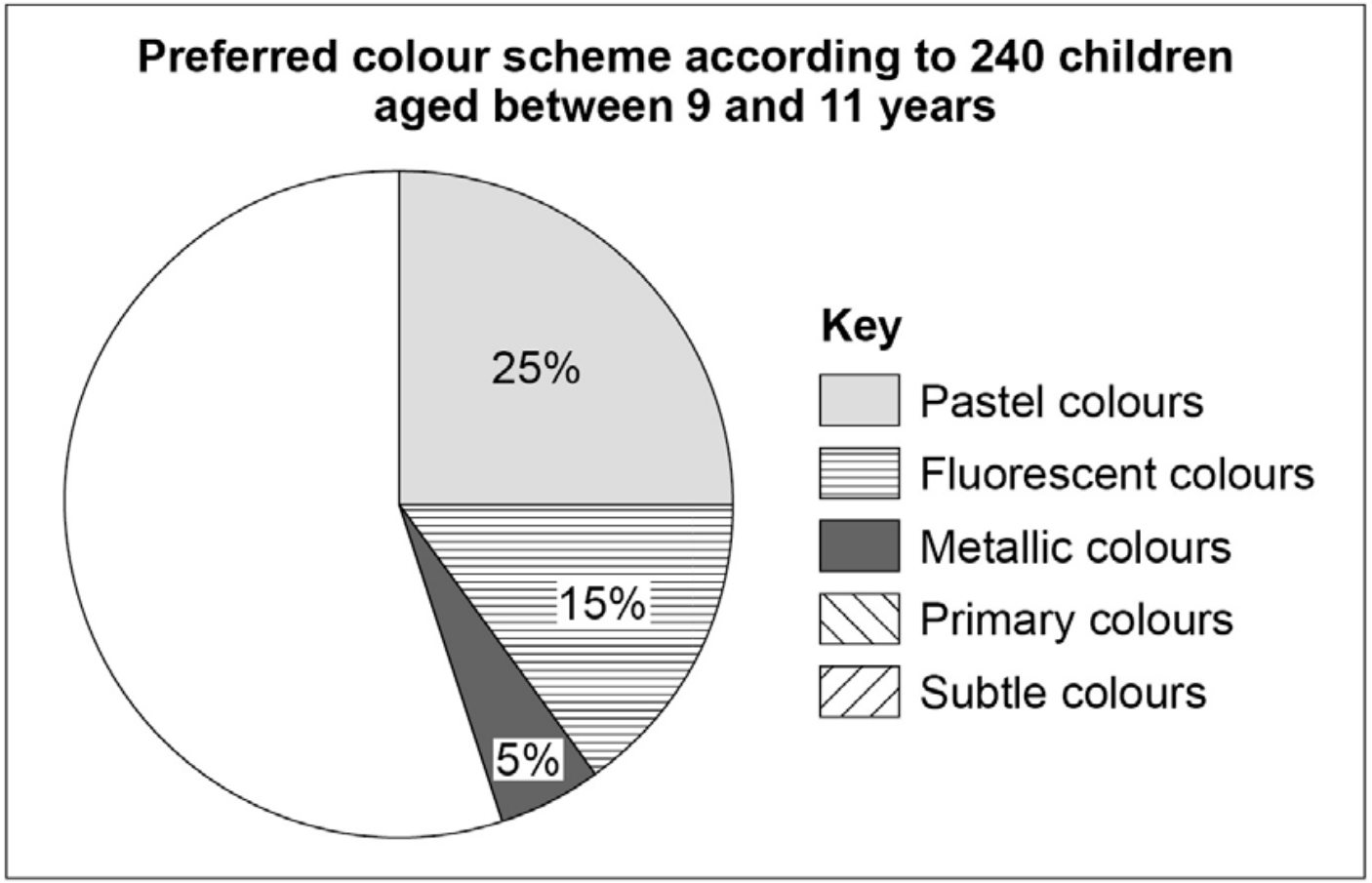


Numeracy 4: *Converting data*

The data in the table below shows the preferred colour scheme according to 240 children aged between 9 and 11 years old.
Complete the table by calculating the missing percentage of children who like different colours

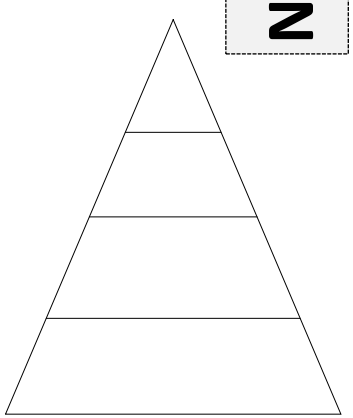
Colour Scheme	Number of children	Percentage of total
Pastel colours	60	25%
Primary colours	102	
Fluorescent colours	36	15%
Subtle colours	30	
Metallic colours	12	5%
Total	240	





Using the information from the table on the previous page complete the pie chart below showing the **percentages** of children who like different colours.
You must show your calculations.

Numeracy 4: *% & pie-charts*



*A company have to produce a **SCALE DRAWING** of a table for a client*

The table will have a width of 1.25m. The scale drawing of the table has a width of 25cm.
Calculate the scale of the drawing. Give your answer as a ration in its simplest form:

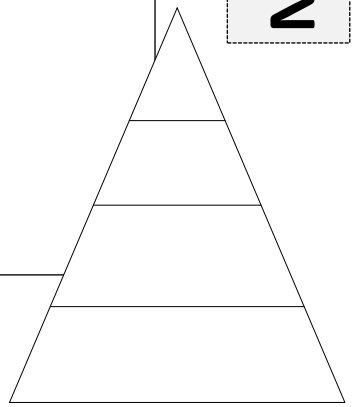
The scale drawing of the table has a height of 18cm. What will the real height be?

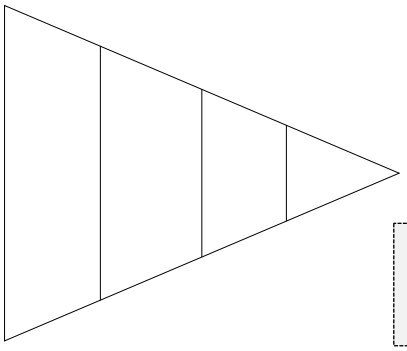
A fashion company have to create a scale drawing for a shirt

The shirt will have a sleeve length of 45cm. The scale drawing of the sleeve will be 45mm.
Calculate the scale of the drawing. Give your answer as a ration in its simplest form:

The scale drawing of the collar will measure 22mm. What is the true size of the collar in mm?

Numeracy 5: *Scale & ratio*



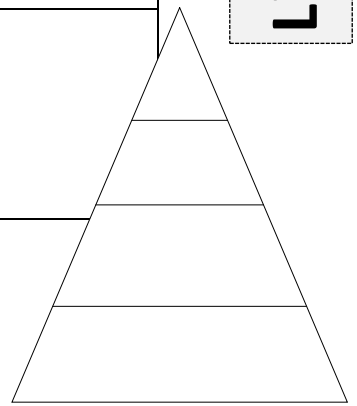


Numeracy 6: *orthographic view*


iterative
control
consumer
designer
brief
research
prototype
specification
software
ergonomics
development
algorithm
quality
information
modelling
planning
components
technology
properties
design
annotations
analysis
initial
aesthetics
bitmap
manufacture
communication
ideas
selection
sketch
evaluation

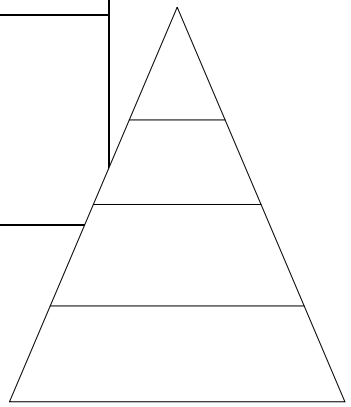
Keyword	Meaning	In a sentence
DESIGN		
TECHNOLOGY		
BRIEF		
ANALYSIS		
COMMUNICATION		

Literacy 1:



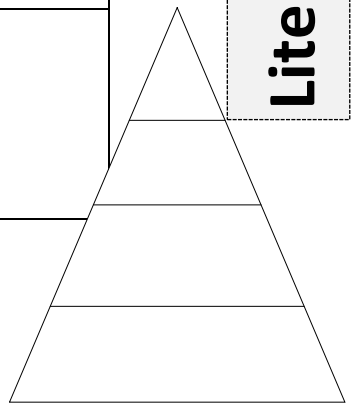
Keyword	Meaning	In a sentence
IDEAS		
RESEARCH		
SPECIFICATION		
DESIGNER		
SELECTION		

Literacy 2:



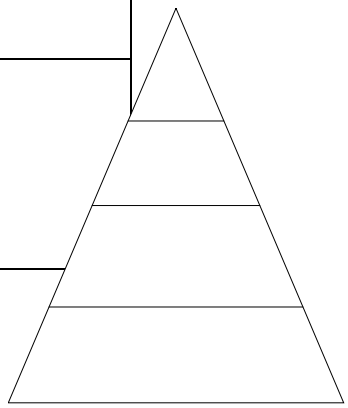
Keyword	Meaning	In a sentence
ALGORITHM		
EVALUATION		
PROTOTYPE		
PLANNING		
SKETCH		

Literacy 3:



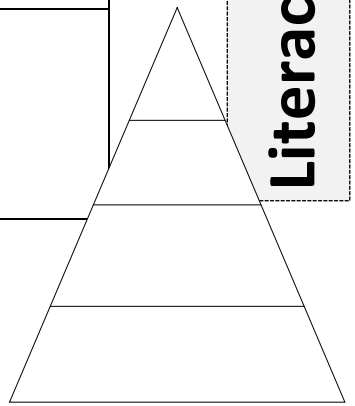
Literacy 4:

Keyword	Meaning	In a sentence
SOFTWARE		
ANNOTATIONS		
MANUFACTURE		
ERGONOMICS		
COMPONENTS		



Keyword	Meaning	In a sentence
BITMAP		
PROPERTIES		
CONSUMER		
INITIAL IDEAS		
DEVELOPMENT		

Literacy 5:



Literacy 6:

Keyword	Meaning	In a sentence
INFORMATION		
ITERATIVE		
AESTHETICS		
MODELLING		
QUALITY CONTROL