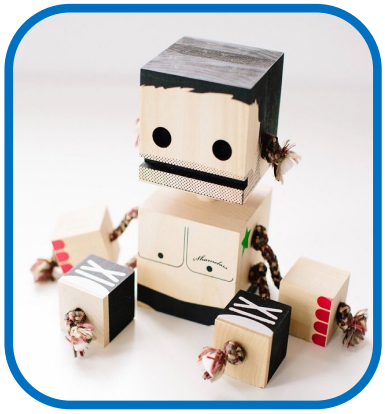
Technology Faculty

Aspire Believe Achieve
Stockland Green School

Year 7 Design and Technology

Block Bots



Year 7 Target Grades

End of year 11 grade

End of year 7 grade

Skills & Assessment Focus
Designing Making

Name:_____

DT Group:_____

Teacher:_____

Year 7 Design and Technology Keywords

In the table, list the words that you will use in this electronics project.

- Learn how to spell the words
- Find the meaning
- Produce examples

Keywords/ Phrases	Meanings	Examples
Aesthetics		
Function		
Specification		
Perspective		
Tennon Saw		
Steel Rule		
Bench Hook		

Date:

LO: To explore workshop hazards and suggest ways to work safely.

Health and Safety in the workshop

DO IT NOW

Do it now task: Identify and list all the hazards in the picture

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Challenge Task: Choose 5 hazards you have identified and explain why they are dangerous

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Date: _____

LO: To explore workshop hazards and suggest ways to work safely.

Health and Safety in the workshop

Identify the health and safety signs

Bronze: Identify the names of the health and safety signs

Silver: Describe where each sign may be used

Gold: Explain why these health and safety signs are important in Design and Technology

Identify the health and safety signs task

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Challenge Task: What do the different coloured signs mean?

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Date:

LO: To explore workshop hazards and suggest ways to work safely.

What is a risk assessment?

A risk assessment is required in any workshop to maintain the health and safety of the workers and the machine. Risk assessments need to be completed to ensure no one comes to any harm.

A risk assessment should:-
identify the hazards that pose a risk to any worker
Evaluate the risk
Control the risks by putting preventative methods in place

Create a risk assessment for the workshop
Bronze: Identify dangerous activities and the hazards they cause
Silver: Describe who may be harmed and the control measures needed
Gold: Explain if it's a high medium or low risk

Activity	Hazard	Who might be harmed and how	Control measures	Risk rating

Challenge Task: Explain why it is important to produce a risk assessment in the design and technology industry.

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Date:

LO: To explore workshop hazards and suggest ways to work safely.

REVIEW IT NOW

Explain why is it important to follow health and safety rules in a school workshop environment.

Date:

LO: To identify the materials.

Materials

DO IT NOW

Do it now task: Identify the materials for each of the above products

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Challenge Task: What material will you be using in year 7? Why?

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Date: _____

LO: To identify the materials.

Materials

Do you know all the key words
Bronze: Find the key words
Silver: Find the key words that are associated with wood
Gold: Explain what material the other key words are associated with

c	m	l	w	p	s	o	f	t	w	o	o	d
d	u	a	n	i	s	e	r	i	f	d	m	e
p	i	r	t	n	i	e	c	e	r	l	n	r
m	n	u	h	e	p	i	y	a	p	e	m	u
c	i	t	s	a	l	p	o	m	r	e	h	t
f	m	a	p	y	r	b	l	y	h	t	c	c
e	u	n	r	o	e	d	t	e	p	s	c	a
r	l	c	a	r	o	s	w	t	w	w	a	f
r	a	k	b	o	y	n	l	o	f	o	r	u
o	a	i	c	l	p	l	y	w	o	o	d	n
u	f	f	o	a	m	b	o	a	r	d	a	a
s	o	p	l	a	s	t	i	c	s	c	t	m
h	s	i	n	r	a	v	a	o	a	e	a	s

mdf
fibreboard
pine
oak
ash
acrylic
polystyrene
foam
foamboard
card
paper
steel
aluminium
dowel
plastic
plywood
resin
thermoplastic
hardwood
softwood
manufactured
natural
ferrous
varnish

Challenge Task: explain what material the other key words are associated

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Date: _____

LO: To identify the materials.

What is a property?

The way to describe a materials is called a **property**. It is like the characteristics of the material.

This can be used to describe
Appearance
Behaviour
Structure
Colour
Composition

Identify the materials and their properties
Bronze: Highlight all the names of the material
Silver: Circle all the properties of the material
Gold: Underline all the applications of the material

Date:

LO: To identify the materials.

Softwood

Softwoods often come from coniferous trees keeping their foliage throughout the year. Because of the speed with which softwoods grow, they are often considered a more sustainable source of timber than hardwoods.

Parana Pine – This wood takes paint well, glues easily, and is free from resin ducts. This is used for furniture and for wood turning

Scots Pine – This wood is easy to work with and glues and finishes well used for furniture and interior work

Red Cedar – This wood resists weather and a great thermal insulator and used for decking furniture and roof shingles

Hardwoods

Hardwood usually come from deciduous trees (they lose their leaves in winter) and often take much longer to grow than softwoods. They are used for their superior strength and aesthetic qualities over softwoods. Many hardwoods come from Africa and South America. Sustainable farming methods need to employed if harvesting these slow growing trees is not to damage our planet.

Oak – A very strong wood, light brown in colour. This wood is quite difficult to work with Used for high quality furniture.

Teak – often used for garden furniture. This is an oily, hardwood that does not rot easily. Left untreated outside it goes silver-grey in colour

Beech – Straight and closed grained wood. This hard wood is idea for work tops, chopping boards and children's toys

Man-Made Board

Block board – Strips of softwood are laid side by side and then a veneer is placed on the top and bottom surfaces. This is a strong and lightweight board. Cut edges need finishing all though as they can look untidy. A common way of doing this is to glue a veneer or solid baton along the exposed sawn edge.

MDF – Medium Density Fibreboard is made by compressing and gluing tiny wood fibres together. MDF is a dense and heavy material. It has a uniform texture though and it's surfaces take paint and other finishes very well. However, this also means that it absorbs water well.

Plywood – Made by gluing thin layers (veneers) of wood on top of each other. Each veneer is positioned at 90° to the previous layer. Strength and dimensional stability is gained from the bi-directional grain that is created. The outside faces of the board may be a different timber to the internal layers. Expensive hardwood veneers might me used to "Face" the to give aesthetic appeal.

Date: _____

LO: To identify the materials.

Summarising:
- What do you remember from the text?

Connecting?
- What other information do we learn about wood?

Questioning:
- What are the 2 types of wood?
- Which wood grows more quickly?
- What is the type of tree that keeps its leaves throughout the year?
- Give an example of this type of tree?
- Which wood is considered more sustainable?

Softwood

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Key words

- **Coniferous** – a type of tree that does not loose its leaves in winter and they stay green.
- **Sustainable** – something which can be re made/ re-grown easily

Date:

LO: To identify materials.

REVIEW IT NOW

Give two properties of wood that would make them suitable for children's toys. Explain your answer giving reasons why.

Date:

LO: To identify the tools and equipment.

Tools and Equipment

DO IT NOW

Do it now task: name 3 types of wood and identify their properties

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Challenge Task: Name a tool or equipment that can be used to cut wood. Explain how that equipment works.

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Date: _____

LO: To identify the tools and equipment.

Tools and Equipment

Name the tools and the equipment and their uses.
Bronze: Name each tools and equipment
Silver: Describe what each tool and equipment is used for
Gold: Explain the safety measures needed with each tool and equipment

Name the tool
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What is the tool used for?
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Explain the safety measures needed when using this tool.
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Name the tool
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What is the tool used for?
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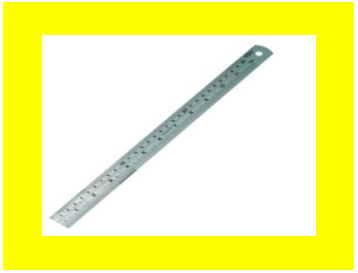

What is the tool used for?

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Explain the safety measures needed when using this tool.

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Date: _____

LO: To identify the tools and equipment.

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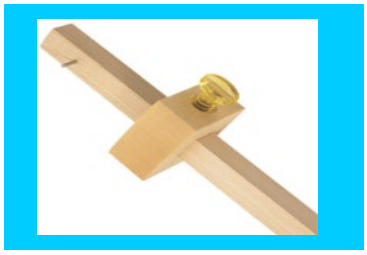

Name the tool

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What is the tool used for?

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What is the tool used for?
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Explain the safety measures needed when using this tool.
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Date:

LO:

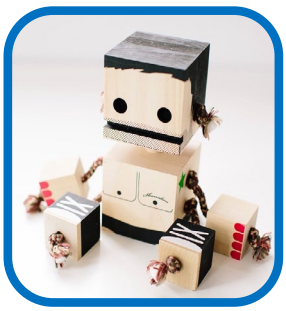
Your block bot

Situation
You are creating a children's toy as a gift for somebody you know. The gift must reflect your personality as much as possible and be unique.

What is a design brief?
A design brief is a detailed statement describing what must be done.

Design Brief
You must design and make a wooden block bot toy which can be given as a gift. It should reflect your personality or something which you are interested in.





My favourite TV character is…

My favourite film character is…

My favourite book character is…

My favourite film is…

My design ideas

My favourite book is…

My favourite TV program is…

My favourite animal is…

My favourite sport is…

My favourite music is…

What is a specification?
A specification is a list of criteria which your design must meet (A little bit like a list of rules you must follow when designing).

Because it is like rules, sentences can start with:

'My design must' or 'My design should'.

COMPLETE THIS ROW AFTER YOU HAVE DESIGNED YOUR BLOCK BOT

Topic	Specification point	Does your design meet this point?
Aesthetics	My design must be designed to look like _____.	
Customer	The people my design is aimed at is _____.	
Environment	My design will not harm the environment because _____.	
Size	My design will be approximately 100mm high.	
Safety	My design will be safe because the rough parts of the wood will be smoothed out using a file and glass paper.	
Function	My design should be used as a toy or decorative item.	
Material	My design will be made out of _____.	

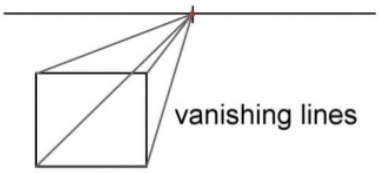
Date:

LO: To be able to draw in perspective.

Perspective Drawing

Create a perspective drawing of your block bots
Bronze: Draw a cube in 1 point perspective and 2 point perspective
Silver: Create a block bot design in 1 point perspective
Gold: Create a design of a block bot with added features in 2 point perspective

1 point perspective



Date:

LO: To be able to draw in perspective.

Perspective Drawing

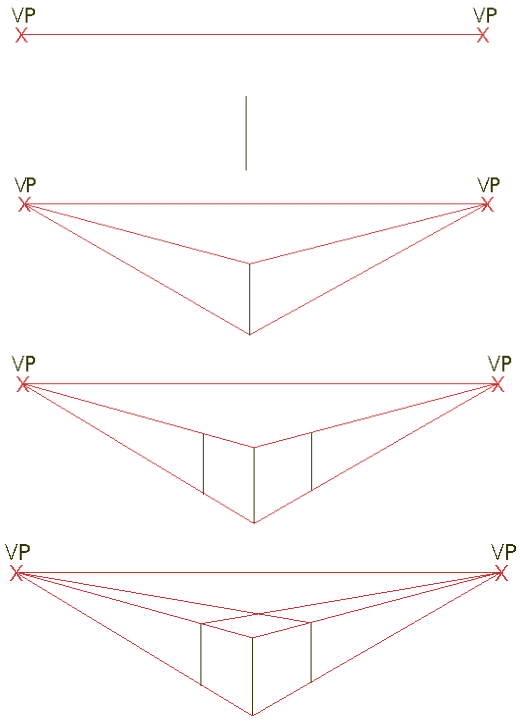
Create a perspective drawing of your block bots

Bronze: Draw a cube in 1 point perspective and 2 point perspective

Silver: Create a block bot design in 1 point perspective

Gold: Create a design of a block bot with added features in 2 point perspective

2 point perspective



Date:

LO: To be able to draw in perspective.

Perspective Drawing

Create a perspective drawing of your block bots

Bronze: Draw a cube in 1 point perspective and 2 point perspective

Silver: Create a block bot design in 1 point perspective

Gold: Create a design of a block bot with added features in 2 point perspective

Challenge task: Annotate your design ideas explaining the features

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Date:

LO: To be able to draw in perspective.

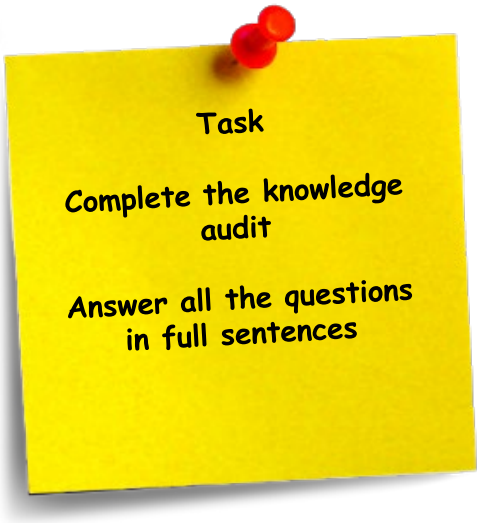
REVIEW IT NOW

Explain why we needs to draw in perspective in Design and Technology

Date:

LO: To understand about the materials

Assessment



1.What is a hardwood?
2.Name a hardwood
3.Give a property of a hardwood
4.What is softwood?
5.Name a soft wood
6.Give a property of a softwood
7.What is manufactured board?
8.Name a manufactured board
9.Name a property of a manufactured board
10.Give 3 advantages of manufactured boards
11.Give 2 properties of beech which makes it suitable for cooking utensils
12.Suggest why chipboard can't be used for bathroom fittings
13.What is sustainability?
14.Why are forest and woodlands seen as precious resource?
15.Why are forests slowly declining?
16.Michael is making a small cupboard, what type of hinge would he use? Why?
17.Give one advantage and one disadvantage of knock down fitting
18.Rob want to remove a thin layer of wood from the bottom of the door he is fitting. Which is the best hand tool to remove this wood? Why?
19.Susan is making a door. Suggest the best power tool she should use to cut it down to the correct height. Why?
20.Flat pack furniture is often made from MDF. Give 2 properties of MDF which make it a good material for flat pack furniture.

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Date:

LO: To understand about the materials

Assessment continued

Date:

LO: To be able to estimate measurements

Measuring and Marking out

DO IT NOW

Do it now task: hat units of measurement do you think is used in Design and Technology

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Challenge Task: What maths formulas do you know that may need in DT?

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Date:

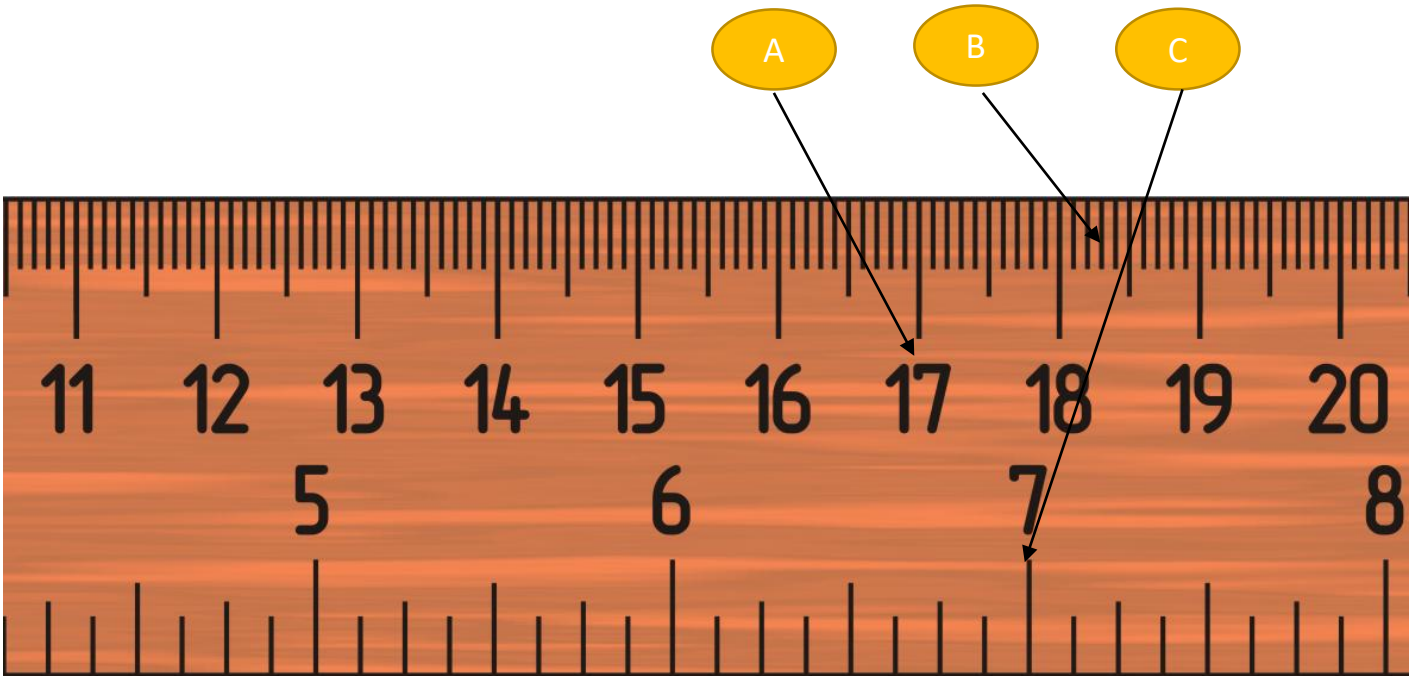
LO: To develop accurate marking out skills and apply them to the block bot.

Can you identify the measurement and unit of measurement

Bronze: Name the measurement labelled A, B and C

Silver: Identify the unit of measurement

Gold: Which measurement is the most accurate and why?



Challenge task: can you convert the measurements A, B and C to a different unit.

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Date:

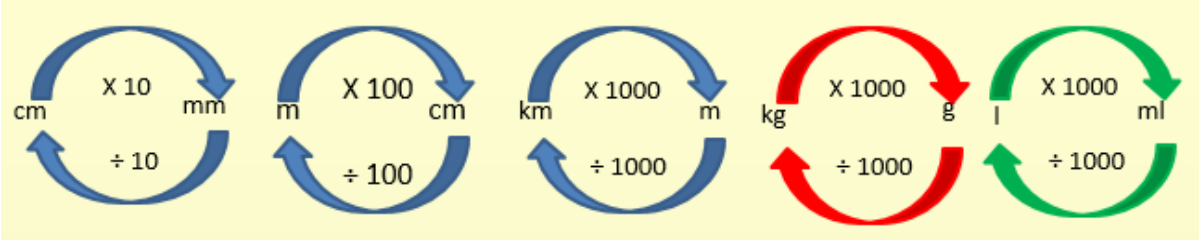
LO: To develop accurate marking out skills and apply them to the block bot.

Can you convert to different unit measurements?

Bronze: Identify if the number will be bigger or smaller when converting

Silver: Use the number lines and convert the first 10 units of measurements

Gold: Convert all the numbers into different units



1. 5.9m = ….cm
2. 43mm = ….cm
3. 2.4kg = ….g
4. 7.4 litres = ….ml
5. 9.5kg = ….g
6. 70cm = ….m
7. 300mm = ….m
8. 600ml = ….l
9. 3g = ….kg
10. 700g = ….kg
11. 4 litres = ….ml
12. 509g = ….kg
13. 63 litres = ….ml
14. 1400ml = …. litres
15. 3.5km = ….m
16. 2500kg = ….t
17. 0.3m = ….cm
18. 3.7m = ….mm
19. 5.02kg = ….g
20. 10.3cm = ….mm

- 10mm = 1cm
- 100cm = 1m
- 1000m = 1km
- 1000g = 1kg
- 1000kg = 1 tonne
- 1000ml = 1 litre
- 100cl = 1 litre

Show any calculations that you do to work out the answer.

Date:

LO: To develop accurate marking out skills and apply them to the block bot.

What can you find to measure?
Bronze: Find an object and estimate its measurement
Silver: Identify the most appropriate unit of measurement
Gold: Measure the object accurately

Object	Most appropriate unit of measurement	Estimate	Measurement

Challenge task: Explain what measurements you may use in Design and Technology and why.

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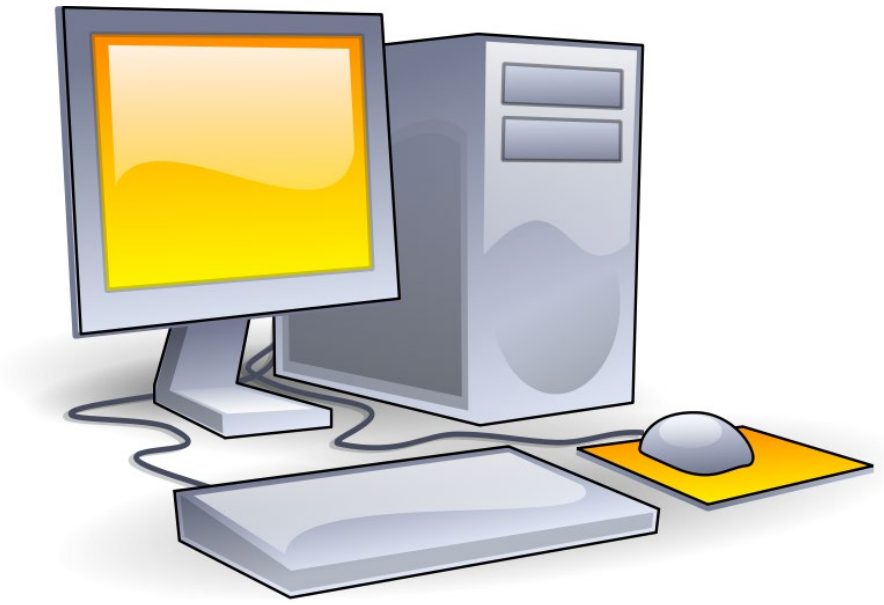
Date:

LO: To be able to measure and mark accurately

REVIEW IT NOW

Explain why is it important to ensure all measurements are accurate

C.A.D.



CAD Ladder of Learning

Very accurate

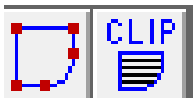
Accurate

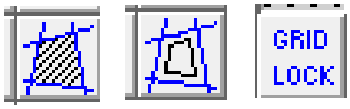
Sometimes neat

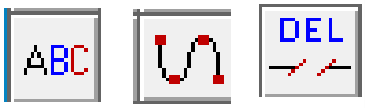
Step 4

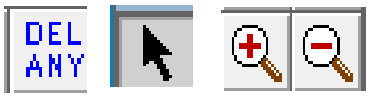
Step 3

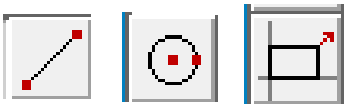
Step 1-2











I understand what C.A.D stands for.

My previous knowledge of CAD or 2D design.

How have you used these tools in your work?

Date: Time:

How have you used these tools in your work?

Date: Time:

How have you used these tools in your work?

Date: Time:

How have you used these tools in your work?

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Date: Time:

How have you used these tools in your work?

Date: Time:

What does CAD stand for?

Date: Time:

Explain what you already know about 2D design or CAD?

Date: Time:

Date:

LO:

What is CAD?

Introduction to CAD

Designers use many tools to help them create better products and one of the most important tools currently is CAD. C.A.D is an acronym. What does it stand for?

C.A.D is an acronym. What does it stand for?

C:_____
A:_____
D:_____

Why would a designer use a computer to help them to design a product?

In the space below, list as many types of products **as possible** which may use CAD to help create them. (This may be the final design or when developing design ideas).

What would a designer use instead of a computer? Why would they use it?

Pros and cons...

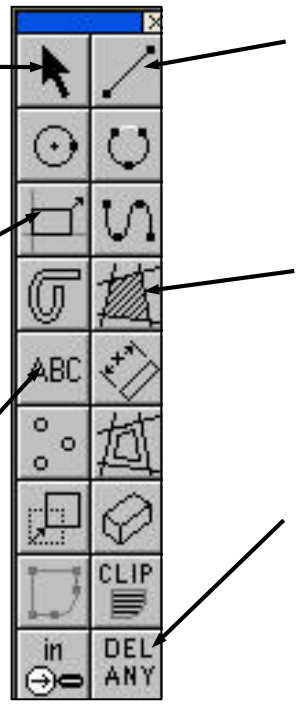
Think about the positives and negatives of using CAD in design technology. Write a short summary to explain whether you think it is a good thing or a bad thing.

Date: _____

LO: _____

2D design: the basics

Label the tools and **explain** what it is able to do?



1. _____

2. _____

3. _____

4. _____

5. _____

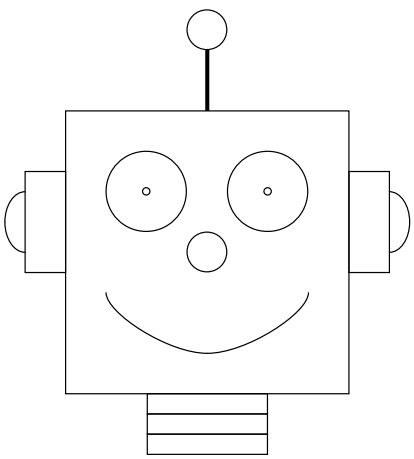
6. _____

How do you locate the extra functions of each tool?

_____

Robot face

Using some of the tool above, draw the robot face below as accurately as possible. Then choose from the bronze, silver and gold tasks.



Bronze task

Use the help sheet if needed to create the robot face. Then label the tools you used on the robot face here.

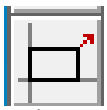
Silver task

Create the robot face and add colour to your robot when you are done, experimenting with the different options.

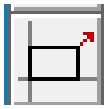
Gold task

Create the robot face. Add then use the following tools in your work: boundfill, contour and text tool. Help others who are struggling.

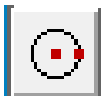
Robot face help!



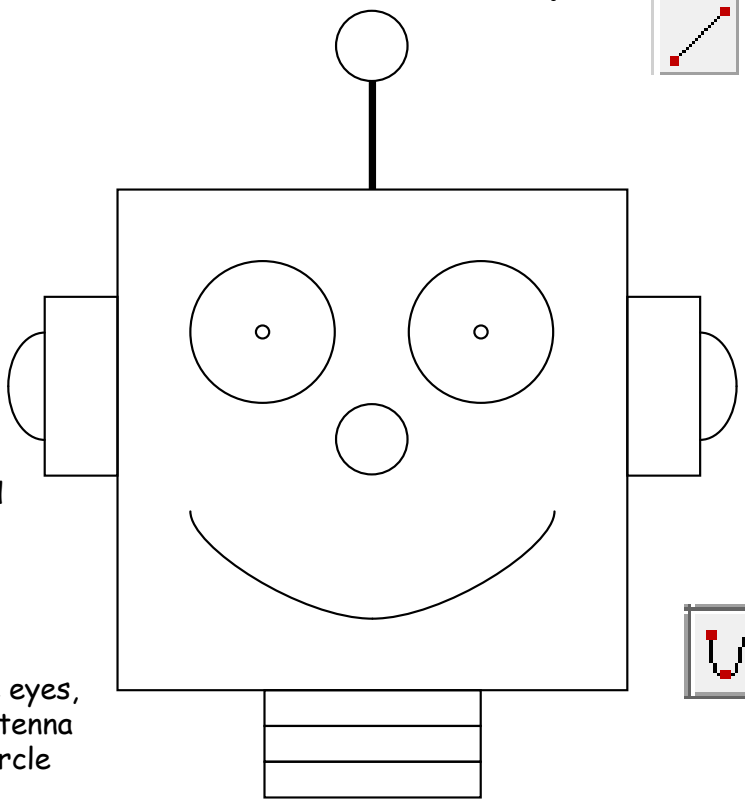
1. Draw the head shape using the square tool.



2. Draw the square part of the ears and the square part of the neck using the square tool.

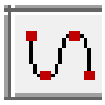


3. Draw the eyes, nose and antenna using the circle tool.



4. Draw the antenna and the neck lines using the line tool.

5. Draw the round part of the ears using the arc tool.



6. Draw the mouth with the curved path tool. (Right click to de select it)

If you make any mistakes, select the part using the select tool and then press delete.