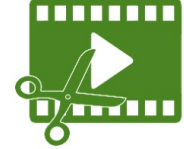




{ Autumn }

ICT Creativity



ICT - Year 9

Topic: Digital Graphics and Advanced Databases

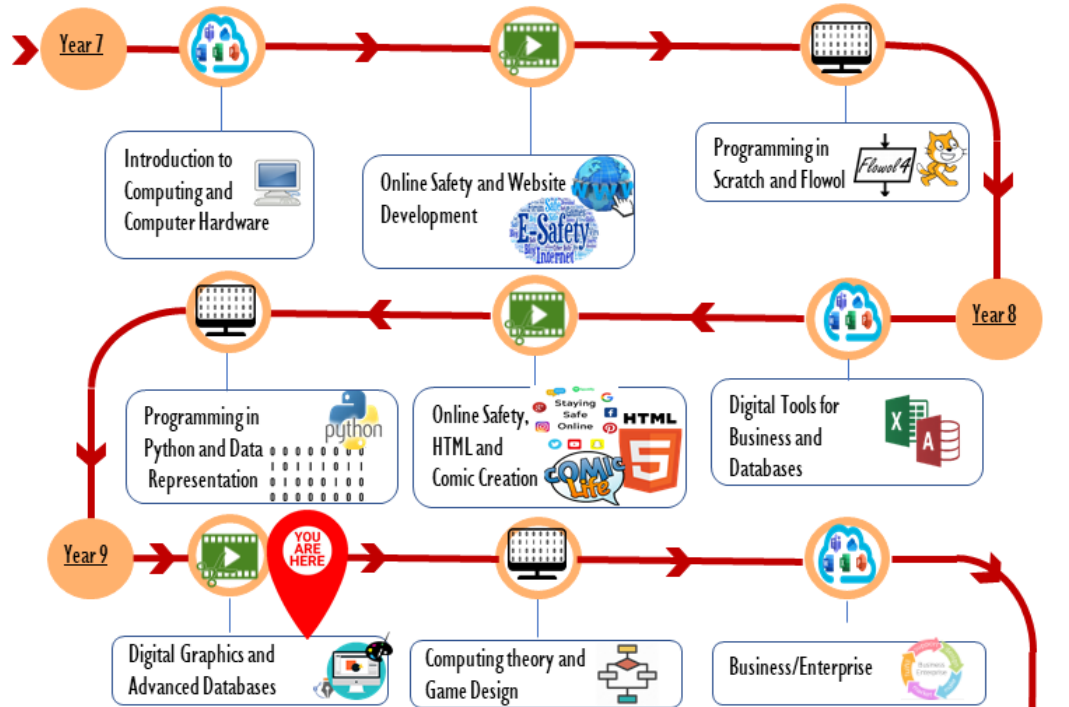
Name: _____



ICT, Business and Computer Science

Digital Literacy Computer Science ICT Creativity

Curriculum Pathway



GCSE Computer Science

Systems Architecture, Memory and Storage, Networks and Protocols, Network Security, Systems Software, Ethical, Legal & Environmental, Algorithms & Logic

Eduqas Level 1/2 ICT

Unit 1 – ICT In Society, Unit 2 – ICT in Context

BTEC Enterprise Level 1/2

Component 1: Exploring enterprise, Component 2: Planning an Enterprise Idea, Component 3: Marketing and Finance

A Level Computer Science

- Theory of Computer Science
- Programming and Algorithms
- Computing Practical Project

BTEC Level 3 ICT

- Information Technology Systems
- Using Social Media in Business
- Website Development

BTEC Level 3 Business

- Exploring Business
- Developing a Marketing Campaign
- Personal and Business Finance

A Level Economics

- Microeconomics
- Macroeconomics
- Globalisation

KNOWLEDGE ORGANISER
BIG IDEA: ICT Creativity
TOPIC: Digital Graphics and Databases

Key Word	Definition
Digital graphic	Images made or seen in an electronic format. Used to entertain, inform, persuade etc.
Purpose	What the product is intended to be used for or the reason the product has been made
Target audience	a particular group at which a product such as a film or advertisement is aimed.
Typography	The style and appearance of text
Pixel	The smallest part of an image. Each pixel has its own allocated colour
Database	A database is a collection of data or information which is stored in a sensible (logical) way
Query	A question... that requests information.
Parameter query	A question for a database using rules

Typography

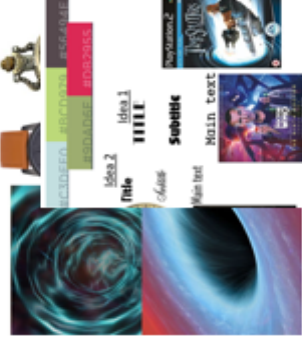
Serif fonts - Flicks on letters	Sans-serif No flicks on letters	Decorative - Used for titles
Century Times New Roman Georgia	Calibri Arial Gill sans MT	ALPHABET <i>Aristocrat Script</i> Bauhaus 93

Colour



Mood Boards

- Consist of:
- Images
 - Fonts
 - Colours
 - Materials/fabrics



Mind Maps

Used to collate ideas, made of a central idea, nodes and sub-nodes



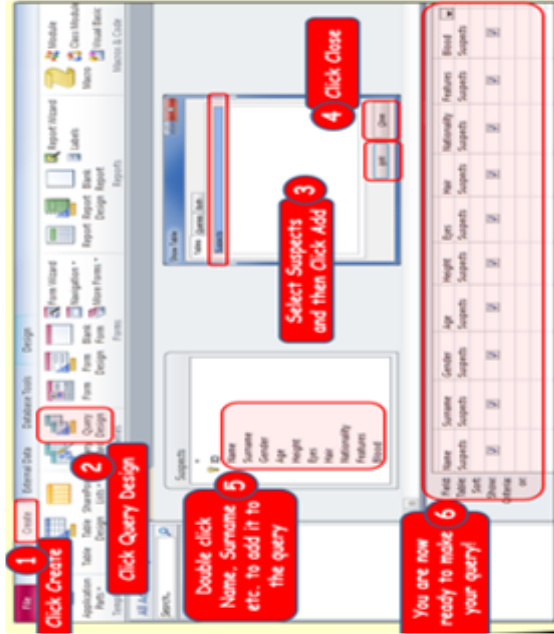
Databases

This is called a **Field**. It is a column for specific information. Such as Customer Name, Age, Date of Birth etc...

Category	Age	Web	Year	Usage	Website	Accession	Zone
Product	10/10/2000	2000	2000	2000	2000	2000	2000
Product	10/11/2001	2001	2001	2001	2001	2001	2001
Product	10/12/2002	2002	2002	2002	2002	2002	2002
Product	10/13/2003	2003	2003	2003	2003	2003	2003
Product	10/14/2004	2004	2004	2004	2004	2004	2004
Product	10/15/2005	2005	2005	2005	2005	2005	2005
Product	10/16/2006	2006	2006	2006	2006	2006	2006
Product	10/17/2007	2007	2007	2007	2007	2007	2007
Product	10/18/2008	2008	2008	2008	2008	2008	2008
Product	10/19/2009	2009	2009	2009	2009	2009	2009
Product	10/20/2010	2010	2010	2010	2010	2010	2010
Product	10/21/2011	2011	2011	2011	2011	2011	2011
Product	10/22/2012	2012	2012	2012	2012	2012	2012
Product	10/23/2013	2013	2013	2013	2013	2013	2013
Product	10/24/2014	2014	2014	2014	2014	2014	2014
Product	10/25/2015	2015	2015	2015	2015	2015	2015
Product	10/26/2016	2016	2016	2016	2016	2016	2016
Product	10/27/2017	2017	2017	2017	2017	2017	2017
Product	10/28/2018	2018	2018	2018	2018	2018	2018
Product	10/29/2019	2019	2019	2019	2019	2019	2019
Product	10/30/2020	2020	2020	2020	2020	2020	2020
Product	10/31/2021	2021	2021	2021	2021	2021	2021

This is called a **Record**. It is all the information for 1 product in a row. For example all the information about 1 of your customers.

Databases - Creating a query



Draw Plus Tools





Lesson 1: Purpose and Audiences of Digital Graphics

Objective: Understand how and why digital graphics are used for different purposes and explain how graphics appeal to different audiences

Do Now:

- Create a Y9 ICT folder in your user area
- In this folder create 3 more folders:
 - ICT Creativity
 - Business
 - Computer Science
- In ICT create a Powerpoint called “Digital Graphics”
- Open the Powerpoint title it “Digital Graphics”

Task 1: Graphics Analysis


1. Add 4 slides to your PowerPoint titled:
 - Entertain
 - Inform
 - Advertise
 - Educate
2. Find 4 pictures on the internet that fit into the categories. E.g.
 - Inform – NHS leaflet
 - Advertise – e.g. special offers/ new album advert etc.
3. Put the pictures on each slide and create 4 text boxes to go around it.
4. For each image, use one of the boxes to briefly describe the image and explain the purpose of it.

Example:



Microsoft Word ribbon showing Font, Paragraph, Drawing, and Editing tabs.

Advertise



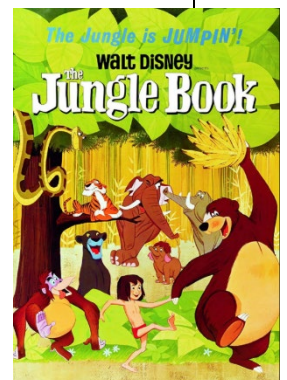
Task 2: Target audiences

For each of your 4 images (inform, entertain etc.), use one of the boxes to discuss the **target audience**. What is the audience of the graphic and how does the graphic appeal to that audience

Plenary: Give me 5...

Disney are making a new film and need to make a poster to appeal to. Give me 5 things you would include in a poster to advertise a new movie to **children**

1	
2	
3	
4	
5	

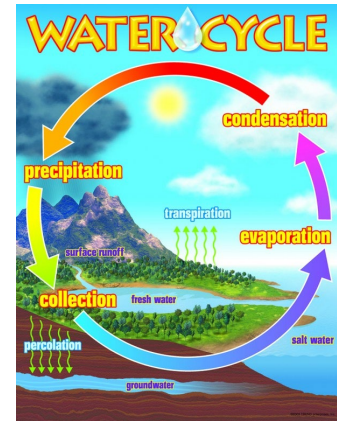




Lesson 2: Colour

Objective: Understand the role of colour in digital graphics, and why they are used

DO NOW: What is the purpose and target audience of these graphics? What is your justification?



Purpose:

Target audience:



Task 1: Colour theory

- Pick three colours from the colour wheel. In your PowerPoint, create a slide for each of the colours.
- Discuss the various meanings for the colour
- Find some company logos that demonstrate the meanings. What is the company trying to say by choosing that colour?

Task 2: Four Images

For each of your 4 images (inform, entertain etc.), use one of the boxes to discuss the colours used.

Plenary: Quick recall quiz

Food companies typically use which colour? _____ _____	Which colour is considered relaxing and environmental? _____ _____	Which colour is used a lot by banks and tech companies? _____ _____
--	--	---



Lesson 3: Typography

Objective: Understand the role of typography in digital graphics and the different styles

DO NOW: What is wrong with these logos? Give a brief explanation of why each of the font choices is inappropriate for the graphic



Task 1: Typography in practice

You need to complete each of the mini tasks below, adding the information to new slides on your Powerpoint. Tick the tasks off as you complete them.

Write a paragraph explaining what typography is and	
Explain why fonts are important in graphic design	

Choose three fonts of different styles and do this for each:

Font 1: _____ (Serif)	Font 2: _____ (Sans-serif)	Font 3: _____ (Decorative)
Name (write it in the actual font)	Name (write it in the actual font)	Name (write it in the actual font)
Explain when this font might be used	Explain when this font might be used	Explain when this font might be used
Who is the target audience of the font	Who is the target audience of the font	Who is the target audience of the font
Find a logo that demonstrates use of the font	Find a logo that demonstrates use of the font	Find a logo that demonstrates use of the font

Task 2: Four images

For each of your 4 images (inform, entertain etc.), use one of the boxes to discuss the **font**. What style of font have they used and why do you think they've used it

Extension: Create a logo in powerpoint or draw plus in the style of a famous company with different fonts. Can you come up with something better than the original?





Lesson 4: Mindmap and Moodboard

Objective: Be able to identify requirements from a project brief. Create a mind map and mood board to generate ideas for the brief.

DO NOW: Book cover scenario

Here is your scenario for making your digital graphic. Read the scenario and **highlight/ underline** the key information in the scenario that you are going to have to take into account when designing and making your book cover.

Scenario for the assignment

New book cover

A book publisher requires a cover jacket for a new fiction book. The storyline of the book is based on a mission to the planet Saturn in our own solar system.

Title: Saturn Explorer
Author: Carotin Jacob
Genre: Science fiction
Publisher: 2020 World

The cover jacket will wrap around the front and back of the book. The dimensions of the cover jacket to include front, back and spine are:

Width: 12.0 inches (305mm) based on the front cover alone being 5.5 inches with a 1 inch spine
Height: 8.5 inches (216 mm)

A single piece of digital graphic artwork should be produced for the front, back and spine, which will need to be print quality. A second version of the cover jacket will be needed for the publisher website and online book retailers. The graphic should be resized to 500 pixels in height and saved as a separate file. The website version can be for the entire front/back artwork or just the front cover but must be 500 pixels high whichever approach you take. The target audience for the book will be quite broad but you can select a more specific audience group in your planning and explain why the content will appeal to them.

Task 1: Create a mind map


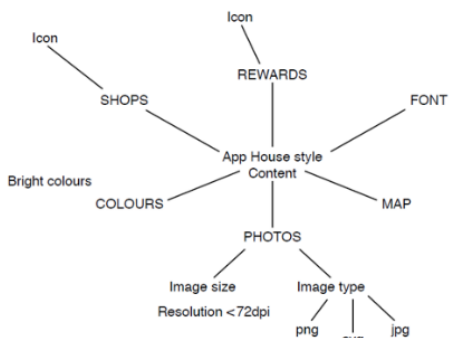
You need to create a mind map for the Saturn Explorer brief. Break down your ideas into different categories; make sure you discuss things like the fonts, colours and images you will use.



Task 2: Create a mood board

You need to create a mood board for the Saturn Explorer brief. Your mood board should include the kinds of images you want to use, colour scheme ideas, font ideas and anything else you can come up with!

Plenary: Recall task

<p>What is a moodboard?</p>	<p>Identify three purposes of digital graphics</p>	<p>Which is the correct spelling? Typogrraphy Tipography Typography</p>
	<ul style="list-style-type: none"> • • • 	
<p>What is the target audience for this digital graphic?</p> 	<p>Which colour represents wealth?</p>	<p>What is this?</p> 



Lesson 5-8: Graphic design project

Objective: Create a digital graphic to fulfil the criteria in the client brief and to meet the target audience requirements

Draw Plus – Page Setup

1. Open Draw Plus X8. Desktop -> Subject Software -> ICT -> Serif -> X8 -> DrawPlus

2. Select:
• New Drawing
• Custom

3. Change:
Units -> Inches
Width -> 12 inches
Height -> 8.5 inches

4. Click "OK". Save the document as "Saturn Explorer"

Draw Plus Tools

Brightness & contrast

Brush

Shape

Text

Fill

Crop

Filter effects

Photolab – image enhancement effects

Remove backgrounds from images

Line colour

Fill colour

Opacity – how much you can see through an object

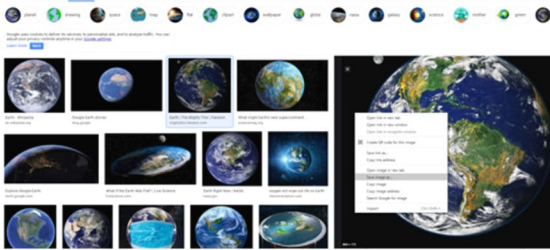
Colour wheel

Layers



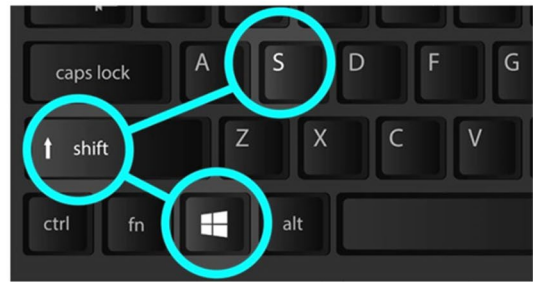
Sourcing your assets

1. Go to Google Images and find an image you want to use



EITHER: Right click -> Copy
Then paste on your document

OR: Use Windows + Shift + S to take a screenprint
Then paste on your document



Draw Plus – Create a barcode



1. Draw a rectangle



2. Draw another rectangle, fill it in black



3. Copy & paste the rectangle. Change the widths



4. Do this across the whole original rectangle



5. Write random numbers underneath



6. Delete the original rectangle

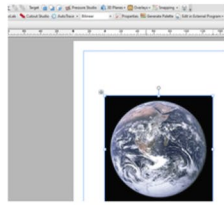


7. Save your project!

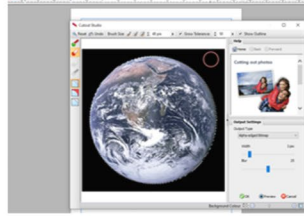


Draw Plus – Create a logo

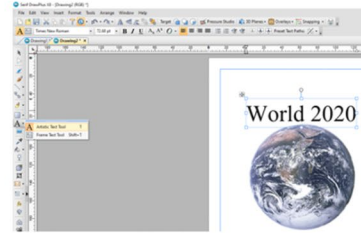
1. Save a picture, add it to your draw plus page



2. Use cutout studio to remove the background



3. Add the publisher name "2020 World"



4. Use tools such as fonts, curve text, filter effects



5. Save your project!

Examples:





Book Cover

<Stick your digital graphic book cover in here>



Task: Reviewing the graphic

1. Describe how you think the title Saturn Explorer is effective/not effective. (Discuss where it is placed, fonts, colours and effects used)

2. Describe how you think the author name is effective/not effective. (Discuss where it is placed, fonts, colours and effects used)

3. Describe how you think the 2020 World logo and your blurb is effective/not effective. (What pictures did you use, what font, is it eye-catching etc).

4. Think about your whole project. How could it be improved? (Location of pictures, size, colour, font, language used) Give three improvements.



Assessment PRIDE

Effort

1

2

3

4

Strength



- You've created an effective mind map and mood board with appropriate content
- You've created a logo and a barcode that are fit for purpose
- You've created a book cover with appropriately edited pictures and text
- You have included a suitable blurb that appeals to the target audience
- You've used advanced draw plus techniques including filter effects, photolab etc.
- You've written an effective review, identifying good strengths and areas for improvement

Target



- Add more nodes to your mind map, you could have nodes about: resources, colour, images, fonts, target audience
- Add a colour scheme/ fonts to your mood board
- Add _____ to your digital graphic
- Create a new blurb to try and appeal to the audience
- Add more to your evaluation, giving strengths and weaknesses and answer all the questions
- Come up with three improvements for your work
- Pick two Draw Plus tools and explain the benefits of

Presentation and

- Correct any missing capital letters
- Correct your spellings
- Add in missing full stops/ apostrophes
- Write in black pen
- Draw diagrams in pencil

Student Improvement:



Lesson 9: Introduction to databases

Objective: To get an overview of what a database is and why it is useful in many different applications

Your task is to use the database of suspects compiled by the Grunge Hill Constabulary to help you identify a likely culprit for a particular crime. Sample entries from this database are shown below:

Firstname	Surname	Sex	Age	Height	Hair colour	Build	Facial features	Other features
Bernard	Atkinson	M	70	1.82	Bald	Overweight	Beard	
Paul	Barnes	M	50	1.75	Other	Thin		
Elliot	Bell	M	45	1.9	Brown	Overweight		
Tiny	Brockbank	M	24	1.95	Ginger	Medium		
Peter	Brooks	M	21	1.76	Black	Medium		
Fergal	Burdick	M	22	1.7	Other	Medium	Piercings, Beard	
Mark	Butter	M	30	1.8	Brown	Medium	Piercings	Limp
Jasmine	Choudury	F	18	1.5	Black	Medium		
Sara	Clay	F	18	1.57	Brown	Medium		Tattoo
Ian	Clements	M	21	1.9	Brown	Medium	Glasses	
Jason	Cooper	M	40	1.68	Ginger	Thin	Glasses	
Terry	Corbett	M	18	1.69	Fair	Thin		

You can find the crime scenarios in **K:\ICT\Year 9\1. ICT Creativity Gotcha Crime Scenarios**

There are 9 different fields in the **Suspects** table. When you are searching for a particular characteristic, you must be careful to spell correctly – e.g. “tattoo” not “tatoo”, “Piercings” not “Pearcings”.

Field name	Valid entries
Firstname	Bernard, Paul etc.
Surname	Bell, Clay etc
Sex	M or F
Age	18, 35, 67 etc
Height	1.5, 1.72 etc
Hair colour	Black, Brown, Fair, Ginger, Bald, Other
Build	Slim, Thin, Medium, Overweight
Facial Features	Beard, Moustache, Piercings, Glasses
Other features	Limp, Tattoo

Sample clues:

“Approximately 1.8 metres tall”

“Initials T.C.”

“He was just a teenager”

“She had long blonde hair”

“She wasn’t overweight”

“He had a ring through his lip”



Using query operators

Operator	Meaning	Example
<	Less than	<1.65
<=	Less than or equal to	<=40
>	Greater than	>1.9
>=	Greater than or equal to	>=30
=	Equal to	= "M"
BETWEEN	Tests for a range of values	BETWEEN 18 AND 25
AND	All criteria must be satisfied	
OR	At least one of the criteria must be satisfied	"medium" OR "overweight"
NOT	All criteria are satisfied except for the ones specified	NOT "bald" AND NOT "fair"

You can also use a wildcard, *. The criterion **Firstname = "B*"** will find all those whose first name begins with **B**. **Other Features = *T*** will find, for example, **Tattoo, Limp** or **Tattoo**

Case	Title	Culprit(s)
1.1	Data theft	
1.2	Mobile phone theft	
1.3	Pickpocketing incident	
1.4	Causing damage to vehicles	
1.5	Forgery!	
1.6	Attempted robbery at drive-through	
1.7	School arson attack	
1.8	Graffiti on school wall	
1.9	Property stolen on beach	
1.10	Unwanted house guest	
2.1	Impersonating a police officer	
2.2	Fake bomb scare	
2.3	Fly tipping	
2.4	Shoplifting incident	
2.5	Car break-in	
2.6	Stolen trees	
2.7	Stolen rucksack	



2.8	Computer theft	
2.9	Lead stolen from church roof	
2.10	Fake jewellery	
2.11	Hijacked lorry	
2.12	Vegetable theft	
3.1	Stolen rabbit	
3.2	Snatched handbag	
3.3	Restaurant bill unpaid	
3.4	Joyriding incident	
3.5	Copper cable theft	
3.6	Snake	
3.7	Manhole covers stolen	
3.8	Assault on bus driver	
3.9	House break-ins	
3.10	Bank holdup	

Plenary: Database terminology recap

This is called a column.
It is a column for specific information. Such as Customer Name, Age, Date of Birth etc...

This is called a table it is where all of your information is going to be stored.

Registration	Make	Model	Year	Mileage	Net Selling Price	Transmission	Do
AV60HES	Peugot	1.0 Urban	2010	33156	£5,400.00	Manual	
AX11UHY	Toyota	Aygo	2011	26875	£5,200.00	Manual	
BH61LWZ	Hyundai	i10 1.2	2011	1741		Manual	
CF11YHK	Peugot	207	2011	35			
FF11CT7	Peugot	107	2011	50			

This is called a row. It is all the information for 1 product in a row. For example all the information about 1 of your customers.



Lesson 10: Creating a database table

Objective: To get an overview of what a database is and why it is useful in many different applications

Do Now:

- Data in a database is stored in tables
- Tables have rows and columns

Make	Model	Class	Seats	Price	Date
Kia	Picanto	Mini	4	£29.80	18/01/2013
Vauxhall	Corsa	Economy	4	£31.50	24/04/2013
Peugeot	308 Estate	Compact	5	£94.79	20/11/2013
BMW	E-Class	Luxury	5	£150.56	22/11/2013

- How many fields are there in table?
- _____
What type of data is held in each field? (e.g. text, integer, etc.)
 - Make –
 - Model –
 - Seats –
 - Price –
 - Date –

Task 1: Database design

Table name: _____

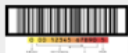



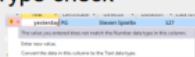
Purpose: _____



Field name	Field description	Data type	Validation

Plenary: Fill in the blanks

Below is a set of validation methods for databases. Fill in the missing sections.

Validation type	How it works	Example usage
Check digit 	The last one or two digits in a code are used to check the other digits are correct	
Format check <code>^[A-Z]+\$</code>	Checks the data is in the right format	A National Insurance number is in the form LL 99 99 99 L where L is any letter and 9 is any number
Length check 		A password which needs to be six letters long
Lookup table 	Looks up acceptable values in a table	There are only seven possible days of the week
Presence check 	Checks that data has been entered into a field	
Range check <code><50 AND >0</code>		Number of hours worked must be less than 50 and more than 0
Type check 	Checks the data type	



Lesson 11: Queries

Objective: Use your knowledge and skills to create two suitable queries for your database

Do Now: What is a query?

Go online and find a definition of a database query and write it below. Be prepared to discuss this with the class!

Task 1: Parameterised SQL Statements

- Use your database
- Create a parameterised query which lets the user specify the criteria when the query is run
- Sort the data by a particular field
- Select which fields to show
- Test the query by running it

Task 2: Adding a calculated field

- There are two new calculated fields in the query below: **VAT** and **Price**
- In the new field definitions, what goes to the left of the colon becomes the new field's name and what goes to the right becomes the calculation
 - Make sure you spell the names of the calculated fields correctly and remember to enclose field names in square brackets

Field:	Make	Model	Net Selling Price	VAT: 0.2*[Net Selling Price]	Price: [Net selling Price] +[VAT]
Table:	Car	Car	Car		
Sort:					
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:					<6000
or:					

- Load your own database
- Create a new query and insert a calculated field
- Test the query and check it works
- Save your query with a meaningful name



Lesson 12: Input Forms

Objective: Make user-friendly database forms by adding help text, combo boxes, etc.

Do Now:

A library lets people who want to borrow books apply online for a library card. Part of the online form looks like this:

Join Online

Tip: Lost your card? [Visit your local library](#) with proof of ID to get a replacement (there is a charge for this).

Fields marked * are mandatory.

Personal Details

*Surname:

*First Names:

Title:

*Nearest Branch:

*PIN:

*Confirm PIN:

Your PIN must contain only numbers and must be 4 digits in length.

Identify **five** features of this form which are helpful to users completing the application form for a library card. [5]

Task 1: Creating your own form

- First, create a new query or use one you have already created
- Sort the data if you want to
- Test the query by running it
- Save it when you are happy with it
 - Use the Forms Wizard to specify where the data is to come from (your new query) and create the form



Task 2: Customising your form

Task	✓ when complete
Give the form a heading	
Change the background colour	
Add some useful command buttons	
Add a combo box	
Add help text to one of the text boxes	
Change the width and depth of the fields to reflect the amount of space required for entering data in the field	
Make sure all the fields are nicely lined up	
Add a logo or graphic to the form	

Plenary: Recall Quiz Game

- Go to this website and complete the quiz game

tinyurl.com/Y9DatabasesQuiz

WARNING! - game is intended for GCSE level... can you handle it???



Lesson 13: Creating a report

Objective: Create reports from the database

Task 1: Creating your own report

Your teacher will show you how to use the wizard in Microsoft Access to create your own report.

Use the wizard to create your report, with a query as the source of the data
In Design view, make adjustments to improve the appearance of your report.

Task 2: Customising your report

Task	✓ when complete
• Adding a title	
• Changing colours	
• Adjusting field widths	
• Setting orientation	
• Adding a company logo, name and address	
• Adding a title	
• Changing colours	
• Adjusting field widths	

Extension: Company branding

Use your recently acquired Draw Plus skills to design a logo for your business. Go through your forms and reports and achieve a professional look with a consistent style throughout your database system.



Plenary: Reports recap

The following report on cars for sale was produced by a wizard.

Car					
Net Selling Price	CarRegistration	Make	Model	Year	Mileage
£7,600.00	GY11JKG	Vauxhall	Corsa	2011	34200
£7,600.00	FD50GHK	Citroen	C4	2010	50766
£7,500.00	SD59UYF	Seat	Ibiza	2009	47656
£6,500.00	GR12JUK	Vauxhall	Corsa	2012	40612
£6,200.00	VR50SDN	Vauxhall	Zafira	2010	53988
£5,900.00	GF52KLU	Renault	Megane	2012	31876
£5,600.00	YB11GDF	Vauxhall	Corsa	2011	47966
£5,600.00	BH61LWZ	Hyundai	I10 1.2	2011	17411

(a) Which field is the report sorted on, and in which order? [1]

(b) Give **four** ways in which the appearance of the report could be improved.[4]



Lesson 14: Assessment

Objective: Complete an end of topic assessment

Task: Database Assessment

Today you will be completing an assessment Powerpoint to demonstrate the things you have learnt on this topic. Your teacher will show you how to access the Powerpoint on K Drive.

There are 3 slides to complete. You should open your database, take screen prints of the relevant sections and answer the questions as you go. This is also an opportunity to catch up on any sections you have missed.



Databases Assessment Booklet

<Stick your databases assessment diary in here>



Assessment PRIDE

Effort

1

2

3

4

Strength



- You've created a flat-file databases
- You can create a multi-table relational database
- You have created suitable queries, parameterised queries and reports
- You can create simple database forms
- You can create effective forms suitable for a target audience using techniques such as combo boxes

Target



- Explain the difference between a flat-file database and a relational database
- Give three fields that could be in a table of zoo animals
- Explain what a query does
- Give an example of a parameter query
- Give three users for a database
- Explain why reports are used in databases
- On the back of the booklet design a simple form for users to enter personal details

Presentation and



- Correct any missing capital letters
- Correct your spellings
- Add in missing full stops/ apostrophes
- Write in black pen
- Draw diagrams in pencil

Student Improvement:



Unit Review - Self Reflection

Beginner	Progressing	Embedded
I am still learning this and don't feel confident about my knowledge of the topic	I am getting there but don't understand everything about the topic	I have a really good knowledge of this topic and can answer questions confidently

Assessment Criteria	Beginning	Progressing	Embedded
You can understand the purpose and properties of digital graphics.			
You can plan, create and review digital graphic using a range of standard tools and techniques			
Can create a relational database			
Be able to use database techniques such as searching, validation, forms and reports.			

Things that I have done well in this unit are:

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Things I need to improve in the next unit are:

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