



# Year 7

## Computing

### 4. Introduction to databases

STUDENT	
TEACHER	
CLASS	

WORKING AT GRADE	
TERM TARGET	
YEAR TARGET	

GRADE FOR THIS TOPIC	
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The long answer questions in this booklet are designed to stretch and challenge you. It is important that you understand how they should be answered. You should structure your answer like this:

**1<sup>st</sup> Paragraph** – should explain the key term e.g. give a definition.

**2<sup>nd</sup> Paragraph** – should make a point (could be an advantage or disadvantage) and explain the point fully giving an example where necessary.

**3<sup>rd</sup> Paragraph** – should make another point (could be an advantage or disadvantage) and explain the point fully giving an example where necessary.

**4<sup>th</sup> Paragraph** – should make a point (could be an advantage or disadvantage) and explain the point fully giving an example where necessary.

You should have at least 1 advantage and 1 disadvantage.

Progress against termly target												
ABOVE												
ON												
BELOW												
TERM	1		2		3		4		5		6	

Learning Outcomes			
	Levels		
Lesson	3	4	5
1 Introduction to databases	I can use filters or can perform single criteria searches for information.	I can perform more complex searches for information e.g. using Boolean and relational operators.	I can define data types: real numbers and Boolean
2 Collecting data	I can create digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience	I know the audience when I am designing and creating digital content.	I can evaluate the appropriateness of digital devices, internet services and application software to achieve given goals.
3 Creating a database	I can collect, organise and present data and information in digital content.	Analyses and evaluates data and information, and I know that poor quality data leads to unreliable results, and inaccurate conclusions.	I can recognise ethical issues surrounding the application of information technology beyond school.
4 Solving the crime	I know why sorting data in a flat file can improve searching for information.	I can perform more complex searches for information e.g. using Boolean and relational operators.	I can query data on one table using a typical query language.
5 Making reports	I can collect, organise and present data and information in digital content.	I can make judgements about digital content when evaluating and repurposing it for a given audience.	I can evaluate the appropriateness of digital devices, internet services and application software to achieve given goals.
6 Assessment	Achieves a level 3 in the end of term assessment	Achieves a level 4 in the end of term assessment	Achieves a level 5 in the end of term assessment

# 1. Introduction to databases



What are 4 bits known as?

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What is a byte?

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How many bytes in a kilobyte?

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When you're stuck with a lot of information you need to organise well, one of the best things you can do is use a database.

What is a set of information about a person stored in a database called?

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Your school will have information about you on a database!

What sort of information do you think the school database has about you?

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Because information which is stored in a database can be **sensitive** not everyone can get access to it.

What law protects data held about you?

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In a murder investigation it is really important that the data collected about a suspect is accurate.

What is the name given to incorrect data?

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What dirty data can you identify in the spreadsheet?

Four horizontal lines for writing.

What might happen if the information that is given by witnesses is wrong?

Four horizontal lines for writing.

How could the police stop people from giving wrong information ?

Five horizontal lines for writing.

Using filters find out how many people meet the following criteria:



Have brown hair

Are female

Have brown hair AND brown eyes

Are female AND have blue eyes

Databases use lots of different data types to store information.

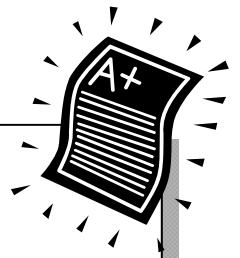


Can you identify where each of these data types have been used in the database?

Boolean

String

Integer



Self Assessment: <b>R A G</b>	Exit Ticket: What did you use to search for information in your database?
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## 2. Collecting data



Can you work out the following information without leaving your chair or shouting across the room,?

How many students:

Have brown hair?

Have white socks?

Supports a football team that wears red?

Has a pet who's name begins with M?



One way that people collect information is through the use of a ...

Dear Detective Turner,

We have now collected all the evidence from the crime scene. We have discovered the following:

- The murder took place on the stage at the school. Please see attached documents for photographs of the crime scene.
- Time of death is judged to be between 10.00am and 10.30am.
- The victim was a PE teacher at the school called John Magnum.
- He was 34 years old and 5ft 11" tall and 12 stone in weight.
- The cause of death was massive haemorrhaging in the brain and blood loss caused by several blows to the head with a sharp implement.
- A meat cleaver was found close to the victim's body, and this has been identified as the murder weapon.
- A bloody footprint was found close to the scene of the crime (size 10).

We will keep you informed of any other evidence as it comes to light.

Regards,  
Sarah Jackson  
Chief Crime Scene Investigator

You have received this email from Sarah Jackson. Highlight or underline anything that you think will be important when creating your questionnaire.

Detective Turner needs you to write a list of questions that his officers can use when they interview witnesses. Write your questions in the table below. **Do not fill in the answers yet!** The first one has been done for you.

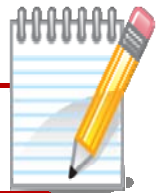


<b>Question 1:</b> Where were you at the time of the murder?
<b>Answer:</b>
<b>Question 2:</b>
<b>Answer:</b>
<b>Question 3:</b>
<b>Answer:</b>
<b>Question 4:</b>
<b>Answer:</b>
<b>Question 5:</b>
<b>Answer:</b>

Find a partner, and ask them your questions. Write their answers under the questions.

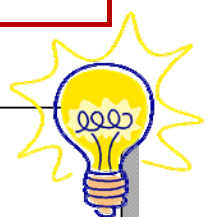
The answers to the questions you have written will need to be added to a database. Each question should be stored under a one or two word field name.

Can you think of a field name for each question which could be used to store the responses to your questionnaire?

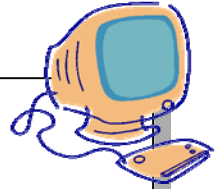



When creating any digital content it is important that you are aware of who your audience is.

Who is your questionnaire for?



Create a questionnaire using your choice of software.



Stick your completed questionnaire here.

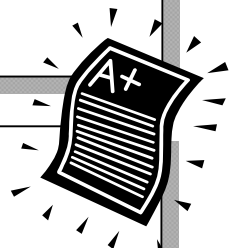
What software did you choose to create your questionnaire in?

Explain why you chose this software.



Self Assessment:  
**R A G**

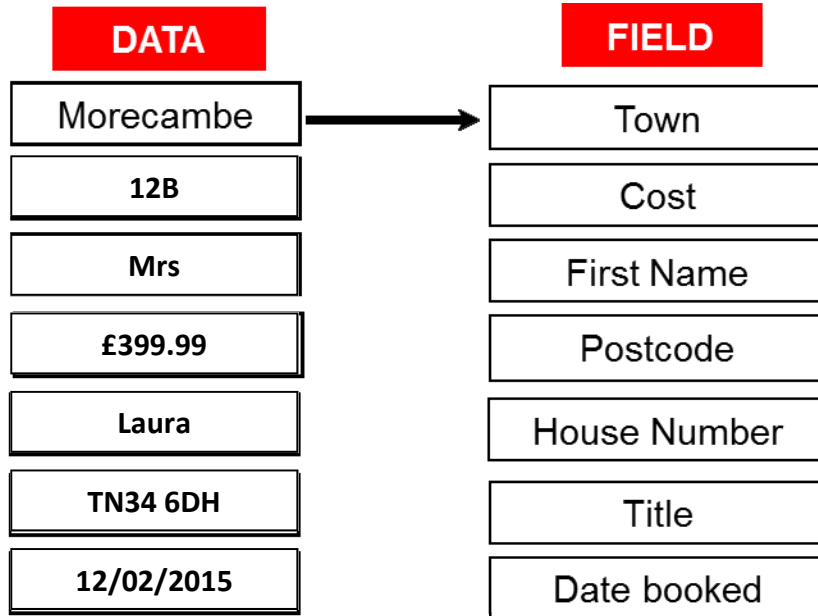
Exit Ticket: What do we mean by 'the audience of something'?



### 3. Creating a database



Look at the information below, then match each **Data** box to the correct **Field** box. For example, the **Data** 'Morecambe' matches the **Field** 'Town'.



When you store data in a database it has to be stored using different datatypes so the computer knows how to display it to you.



Based on your own database write the Field Name in the first column and the Data Type in the second column. The first one has been done for you.

Field Name	Data Type
<i>Surname</i>	<i>Text</i>

**Data Types**

- Text
- Memo
- Number
- Date/Time
- Currency
- AutoNumber
- Yes/No

There are a few more Data Types but you won't need them right now!



Can you describe what a field, record and field name is?



Field

Field name

Record

What might happen if you store data under the wrong field name?



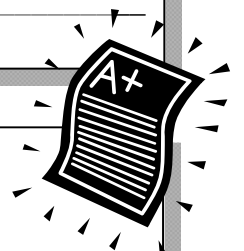
Research the data protection act. What does this say about how data should be stored and maintained (looked after)?



Self Assessment:

**R A G**

Exit Ticket: What is a record?



## 4. Solving the crime

Can you identify where the field, record and field name is?



Surname	Forename	Date of birth
Bailey	Mark	08/02/68
Garvey	Francis	06/05/48

Now that all the information is in the database and the first interviews have been conducted, Detective Turner would like to interview some suspects again.



### Search 1

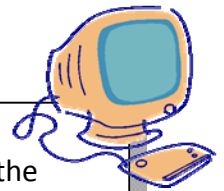
A bloody footprint was found at the scene of the crime. It was a size 10. Detective Turner would like to find all the people who have size 10 feet.

Use a **SORT** to do this, and write their names in the table below. The first has been done for you.

Barry Gillingham	

Explain how sorting data in a flat file helped you to search for the information you needed.





### Search 2

A witness has come forward to say that they saw a man or woman with blonde hair leaving the murder scene around the time of the murder. Detective Turner would like to interview people with blonde hair again (but only those with size 10 feet).

Using a **query** again, find all of the people with blonde hair and size 10 feet in the database. Write their surname and forenames below.


**DO NOT REMOVE THE CRITERION**

### Search 3

After looking at a plan of the school, Detective Turner would like to speak to those people who were in the English and Maths Departments at the time of the murder, as these departments are next to the hall. You will need to use a **query** for this task.

Names below, please – now you are getting closer ...


**DO NOT REMOVE THE CRITERION**

### Search 4

One of the dinner ladies, who was working in the kitchen near the hall at the time of the murder, has come forward to say that she saw a man who was about 6 feet tall leaving the hall at about 10.15am.

Add to the query to find all of the men left who are 6 feet tall.

Write their names below:

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**DO NOT REMOVE THE CRITERION**

### Search 5

A man with a tattoo on his arm was seen leaving the scene at about 10.15am.

Use the filter to find this person and write their name and address below:

Name:

Address:

**Congratulations** – you have caught the murderer! Detective Turner would like to thank you for all your help on this tricky case.

Although you can be designing your queries in Access the software actually writes these in a special programming language called SQL.

A query to search for all the forenames and surnames of people in the database with blonde hair and shoe size 10 whose alibi was that they were in the Maths or English department looks like this:

```
SELECT tblsuspects.Surname, tblsuspects.Forename
FROM tblsuspects
WHERE (((tblsuspects.[Hair Colour])="Blonde") AND ((tblsuspects.[Shoe Size])=10) AND
(tblsuspects.Alibi)="English Department")) OR (((tblsuspects.Alibi)="Maths Department"));
```

Can you fill in the box to change the SQL so it searches for people with brown hair instead?

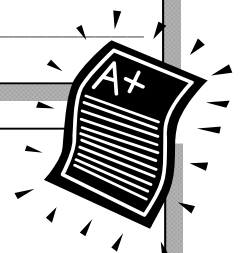
```
SELECT tblsuspects.Surname, tblsuspects.Forename
FROM tblsuspects
WHERE (  AND ((tblsuspects.[Shoe Size])=10) AND
(tblsuspects.Alibi)="English Department")) OR (((tblsuspects.Alibi)="Maths Department"));
```

Now test your query, who fits these criteria?

Self Assessment:

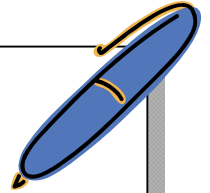
**R A G**

Exit Ticket: What do we mean by a query?

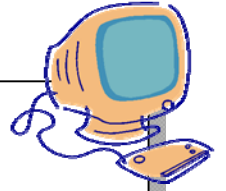


STRENGTH	TARGET	ACTION	EFFORT

*Green Pen Activity:*







STICK YOUR REPORT HERE

What software did you choose to create your report in?

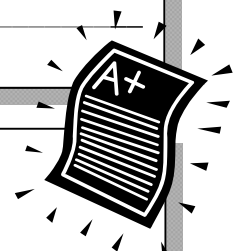
Explain why you chose this software.



Self Assessment:

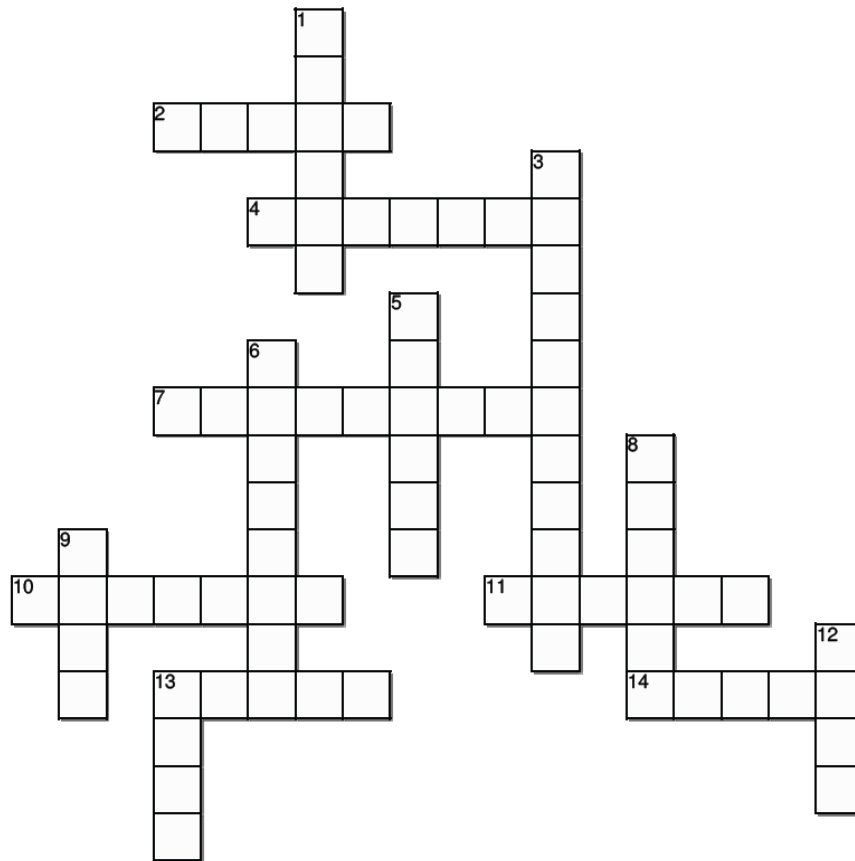
Exit Ticket: What is a report?

**R A G**





# Database keywords



Created on [TheTeachersCorner.net](http://TheTeachersCorner.net) Crossword Maker

## Across

- 2. A request for information from a database.
- 4. Whole number values, positive or negative.
- 7. Data type that stores a single character.
- 10. Variables that store just two values, e.g. TRUE or FALSE.
- 11. A database report presents information from a database. Information is displayed simply and efficiently.
- 13. A field is one piece of data or information about a person or thing.
- 14. A table stores all of the records for a particular category.

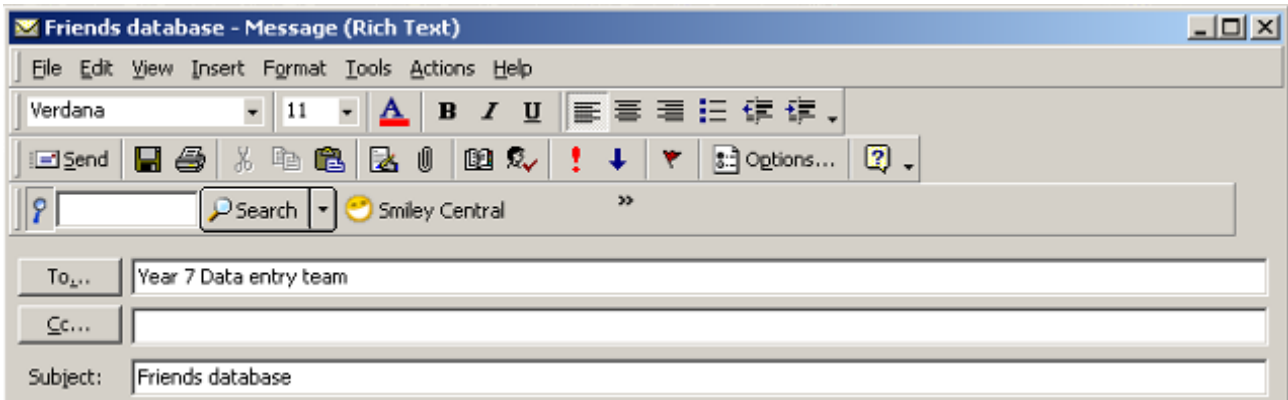
## Down

- 1. Data type used to store a string of characters.
- 3. A primary key is data that is unique to each record in a database or file
- 5. A record is all of the data or information about one person or one thing.
- 6. A structured set of data held in a computer, especially one that is accessible in various ways.
- 8. Adding data to the database from an external source
- 9. A form is a window or screen that contains numerous fields, or spaces to enter data
- 12. Data type that will store decimal (or fractional) values.
- 13. A collection of records, for example a school database



# End of term assessment

Read the email message below before starting your unit assessment.



Dear Data entry team

I was wondering if you could help me? I have loads of friends and I am finding it hard to keep track of their names and addresses. I also keep forgetting their birthdays, which means that soon I probably won't have ANY friends at all! I've got a computer, and I would really like an electronic method of storing and searching for these.

My brother started to create a database for me, but at the moment he has so much homework to do that he doesn't have time to finish it. I was hoping that you would be able to finish building the database for me, and also start to put some of my friends' information into it.

The database is called 'Friends', and my brother has written some instructions to go with it so you can see what you need to do. I have attached the instructions to this email.

I look forward to seeing the end result!

Thanks  
Jasmine

Who is the audience for your database assessment?



## Database instructions (attachment)

A copy of Jasmine's unfinished database is saved on the assignment for this assessment on Edmodo. Save this database into **My Documents** and open it.

Set up a word processing document, and type in your name at the top. Save the document as **Database Unit assessment**.

Open the table named **Contacts** and add the following fields:

**Email**

**Birthday**

**Birth month**

(You will need to make sure that you are in 'Design View', not 'Datasheet View', and that you choose the correct data types.)

When you have done this, take a screenshot showing Field Names and Data Types and paste this into your word processing document.

Now enter your data into the database. You will need to save the table first then change the view to 'Datasheet View'.

**Enter the following records:**

<b>Name</b>	<b>Phone</b>	<b>Email</b>	<b>Birthday</b>	<b>Birth month</b>
Kaylie	01724 788889	kyc@yipee.com	23 <sup>rd</sup>	August
Brad	01709 672211	brad@buzz.com	2 <sup>nd</sup>	August
Maria	01709 564889	maz-	9 <sup>th</sup>	January
Sam	07988 112345	sam@yeeha.co.uk	18 <sup>th</sup>	March

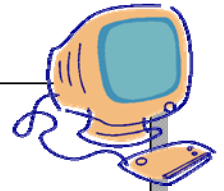
Take a screenshot showing the data that you have entered and paste it into the word processing document.

Make a query that will allow Jasmine to find all her friends whose birthdays are in a certain month. You need to add all the fields to the query. Take a screenshot of the query in 'Design View' *before* you run it.

Now run the query, and enter **August** in the search box. Save the query as **birth month query**.

Make a report of friends whose birthdays are in August, based on the birth month query. Take a screenshot of this and paste it into your word-processing document.

Finally, annotate your screenshots to explain what you did at each stage, and why you did it.



STICK YOUR ASSESSMENT HERE

3	4	5
uses filters or can perform single criteria searches for information.	performs more complex searches for information	Can query data on one table using a typical query language.
creates digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience	knows the audience when designing and creating digital content.	evaluates the appropriateness of digital devices, internet services and application software to achieve given goals.
Collects , organises and presents data and information in digital content.	Analyses and evaluates data and information, and knows that poor quality data leads to unreliable results, and inaccurate conclusions.	Can recognise ethical issues surrounding the application of information technology beyond school.
Knows why sorting data in a flat file can improve searching for information.	Performs more complex searches for information e.g. using Boolean and relational operators.	Defines data types: real numbers and Boolean
	Makes judgements about digital content when evaluating and repurposing it for a given audience.	

# Keywords



Conceptual view	How the data is organised in a database.
External view	What the user sees of a database application.
Flat-file database	A database of only one table.
Hierarchical database	A database organised on a tree structure.
Physical view	How the data is stored on the secondary storage.
SQL	QL Structured Query Language – a way to program queries to interrogate, maintain and set up a database.
Boolean	Variables that store just two values, e.g. TRUE or FALSE.
Character	Data type that stores a single character.
Integer	Whole number values, positive or negative.
Real	Data type that will store decimal (or fractional) values.
String	Data type used to store a string of characters.
Record	A record is all of the data or information about one person or one thing.
Field	A field is one piece of data or information about a person or thing.
Table	A table stores all of the records for a particular category.
Form	A form is a window or screen that contains numerous fields, or spaces to enter data
Database	A structured set of data held in a computer, especially one that is accessible in various ways.
Report	A database report presents information from a database. Information is displayed simply and efficiently.
Query	A request for information from a database.
Primary Key	A primary key is data that is unique to each record in a database or file
File	A collection of records, for example a school database
Import	Adding data to the database from an external source