purple mash

Computing
Scheme of Work

Unit 5.4 – Databases

Year Group: 5
Number of Lessons: 4

From 2simple

Contents

Introduction

For these two sessions, the children will need to have their own individual logins to Purple Mash.

If you are currently using a single login per class or group and would like to set up individual logins yourself, then please see our guide to doing so at Create and Manage Users. Alternatively, please contact support at support@2simple.com or 0208 203 1781.

Children will be using the database program 2Investigate to learn about the functions of databases.

Medium-term Plan

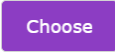| Lesson	Aims	Success Criteria
1	To learn how to search for information in a database.	• Children understand the different ways to search a database. • Children can search a database in order to answer questions correctly.
2	To contribute to a class database.	• Children have designed an avatar for a class database. • Children have successfully entered information into a class database.
3 & 4	To create a database around a chosen topic.	• Children can create their own database on a chosen topic. • Children can add records to their database. • Children know what a database field is and can correctly add field information. • Children understand how to word questions so that they can be effectively answered using a search of their database.

Lesson 1

Aims

- To learn how to search for information in a database.

Success criteria

- Children understand the different ways to search a database.
- Children can search a database in order to answer questions correctly.

Resources

Unless otherwise stated, all resources can be found on the main unit 5.4 page. From here, click on the icon to set a resource as a 2do for your class. Use the links below to preview the resources; right-click on the link and 'open in new tab' so you don't lose this page.

- 2Investigate 'Aliens' database: this is accessed by opening the 2Investigate tool and clicking ![green alien icon] on the first screen then **Choose** .

- Lesson 1 – Supporting Information (at the end of this document). This is a teacher guide to the functions that you will be showing the children.
  There are two differentiated versions of the following worksheet and a sheet on which children create their own questions. Select the appropriate sheets to print for your children. *Alternatively*, you can use the 2Quiz files with the same questions as the worksheets. Set these as 2dos for the class and children's scores will appear in the scores report.
- Alien Simple Questions sheet
- Alien Advanced Questions sheet
- Aliens Database Simple Quiz
- Aliens Database Advanced Quiz
- Your Own Questions
- Answers

Activities

1. Share the learning objectives and success criteria.

2. Explain that a database is a tool that allows us to store and then sort information. On Purple Mash the database tool we will be using is 2Investigate.

3. Recap the learning from previous years: children who have followed the scheme of work will have done work on binary trees (branching databases) using 2Question.

4. 2Question was limited in that children could only sort information using YES/NO questions. 2Investigate allows us to sort information using more than one field.

5. Open the 2Investigate database 'Aliens'.

6. Click on one of the records, e.g. Doom Lord.
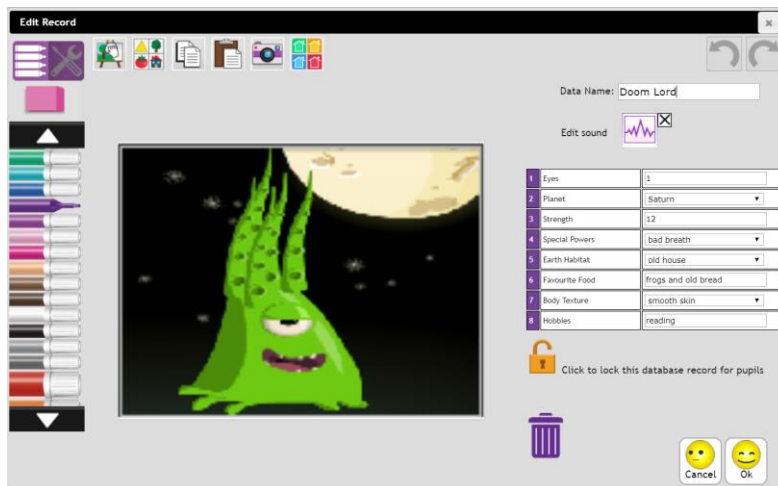
7. Look at how the information is entered on a database:

- Some fields are entered with the names typed in (Favourite Food, Hobbies)
- Some fields have the data entered in numbers (Strength, Eyes)
- Other fields are entered using drop-down menus (Planet, Special Powers, Earth Habitat and Body Texture).
- Why do the children think that drop-down entries are useful (saves time typing, stops typing errors etc.)?

8. For the next part of the lesson we are going to look at the different ways that information in the database can be sorted. Lesson 1 – Supporting Information will provide you with more information about these different functions so you can introduce them to the children.

Table	
Find	
Sort, Group, Arrange	
Statistics and Reports	
Charts	

9. Introduce the simple question sheet (or quiz). Give the children time to use the database to answer the questions and create some of their own.

10. Ask the children to read out questions of their own and the class to search for the answers.

Lesson 2

Aims

- To contribute to a class database.

Success criteria

- Children have designed an avatar for a class database.
- Children have successfully entered information into a class database.

### Resources

Unless otherwise stated, all resources can be found on the main unit 5.4 page.. From here, click on the icon to set a resource as a 2do for your class. Use the links below to preview the resources; right-click on the link and 'open in new tab' so you don't lose this page.

- Lesson 2 – Supporting Information; Creating and saving an avatar(at the end of this document).
- Lesson 2 – Supporting Information; Creating a collaborative database(at the end of this document).
- Purple Mash avatar creator; this is accessed by logging on to Purple Mash and clicking on the avatar image in the top right corner.
- Either prior to the lesson or as part of it, the children will need to create their own Purple Mash Avatar and then **save it to their device**. Information about how to do this is in the Supporting Information; Creating and saving an avatar

Activities

1. Share the learning objectives and success criteria. Recap the learning from the last lesson.

2. Display your avatar. Discuss what information we could record about the images as database fields. For example, gender, hair colour, glasses, headwear, number of eyes, eye colour and colour of clothing. Which of these could be drop-down icons, which numbers and which typed in? You could also add fields that are not associated with the image but with the person such as birthday month, number of siblings, favourite food etc …

3. Set up a collaborative class database on the whiteboard. Select the database type 'Select a class'
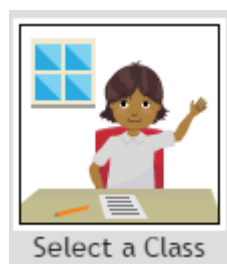
This will add a record for each pupil in the class.

4. Next add the required fields as discussed in step 2. Below is an example record:

5. Save this database and make it a collaborative class database. This means that children will be able to edit the records. Instructions for this can be found in Lesson 2 – Supporting Information Creating a collaborative database.

6. Children can then complete their records from their computers by opening the collaborative database.

7. Once all the records are complete, the children can write three questions for their partner to solve about the class database.

Lessons 3 and 4

Aims

- To create a database around a chosen topic.

Success criteria

- Children can create their own database on a chosen topic.
- Children can add records to their database.
- Children know what a database field is and can correctly add field information.
- Children understand how to word questions so that they can be effectively answered using a search of their database.

Resources

- Lesson 3 and 4 – Worksheet 1

Activities

1. Share the learning objectives and success criteria. Recap the learning from the last lesson.

2. The content of the databases that the children will create can be linked to either a curriculum topic or a topic chosen by the children.

3. Set the children a challenge. Over the next two lessons, the children need to:

   - create a database
   - complete minimum of eight records
   - ensure each record has a minimum of six fields
   - ask five questions about their database for another pupil to answer.

4. Some of the topics that the children could choose are football teams, countries and animals. If the children are stuck for an idea, they could use information from a game of Top Trumps. This could also be used to speed up the research time.

5. Some of the lesson time will need to be used for the children to research and gather information for their database.

6. **Alternatively,** you could have the children open an existing database ('Countries' is a good choice) and add eight records of their own to this database. They would then need to save it in their own work folder.
   The children complete their database. When it is finished, they can share it in their class folder so that their classmates can access it. Finished databases can also be shared via a display board or on a blog.

7. The children then write questions for their classmates to answer.

Supporting Infomation

Using the Table Function

1. When the user loads a database, the information is displayed in graphical form.

2. The Table View icon at the top of the screen allows the user to sort the information in the database into a table.
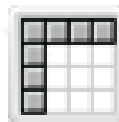

3. The user can sort the information in the table in several different ways.

4. Clicking on the column headings will sort the information alphabetically or in numerical order.

   In this case, the user has sorted the database according to the planet where they come from.

5. The Find icon allows the user to search for information in a record. Here, the user is sorting all aliens with two eyes.

6. Clicking the Show All icon resets the information in the table after you have completed a search.

7. Clicking this icon will print your database in Table View.

Using the Find Tool

This uses the sample database 'Aliens'.

1. When the user loads a database, the information is displayed in graphical form. All the records are displayed.

2. The Find icon allows the user to search the information in a database. Here we are sorting records for all aliens with two eyes.

3. Now all the records showing aliens with two eyes are displayed in the middle of the screen, with the remaining records at the bottom of the screen.
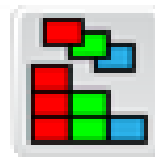
Using Sort, Group and Arrange

This uses the sample database 'Aliens'.

1. When the user loads a database, the information is displayed in graphical form. All the records are displayed.
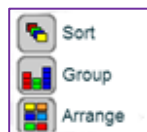

2. The Sort, Group, Arrange icon allows the user to sort the information in a number of different ways

SORT

3. Allows the user to sort by different fields. The information can be displayed in ascending or descending order. Here the user is sorting by number of eyes.
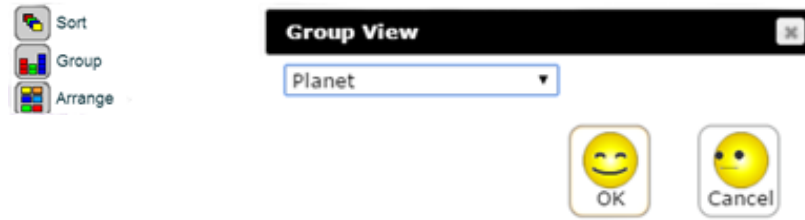

4. The information is displayed from the smallest number of eyes to the largest.

GROUP

5. Group allows the user to group records together according to shared information. Here the user is sorting the aliens according to the planet they come from.

6. The information is displayed according to where the aliens come from.
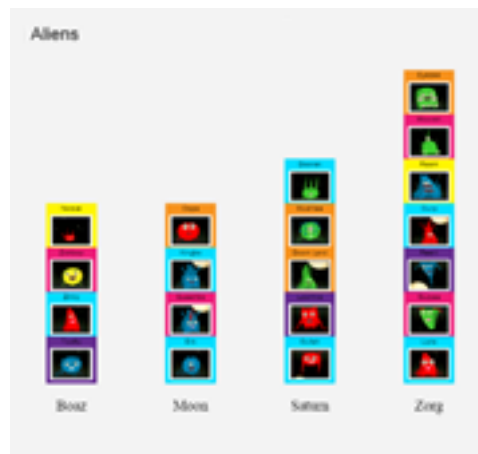
ARRANGE

7. The Arrange icon allows the user to show the information in several different ways.

8. Arrange – Tiled

9. Arrange – Top

10. Arrange – Bottom

11. Arrange – Left
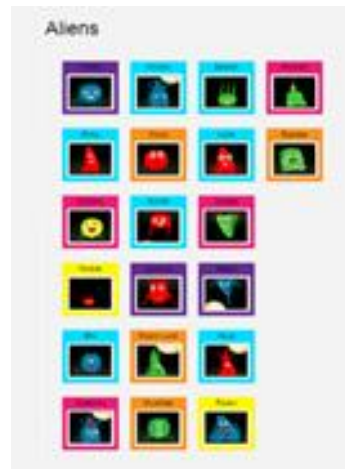
12. Arrange – Right
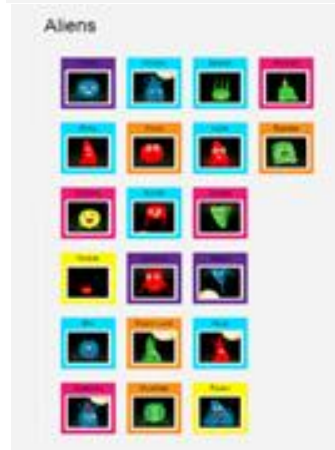
13. Arrange – Random

Using Statistics and Reports

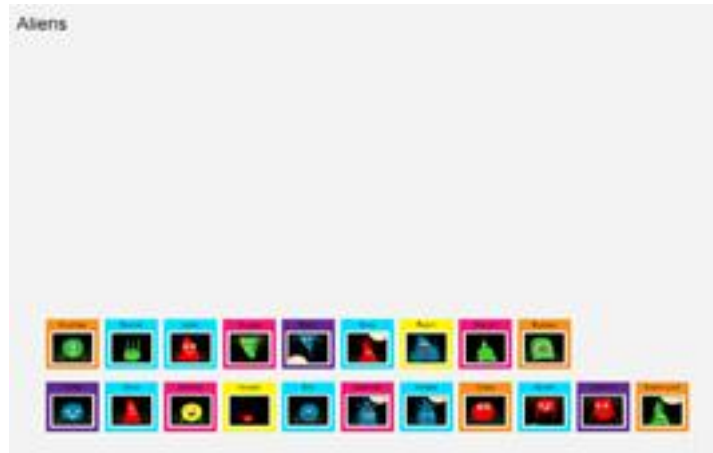## This uses the sample database 'Aliens'.

1. When the user loads a database, the information is displayed in graphical form. All the records are displayed.

2. The Statistics and Report icon allows the user to find statistical information in a database. The information the user can display will depend on the type of field. In this instance, the user is finding statistical information about eyes.
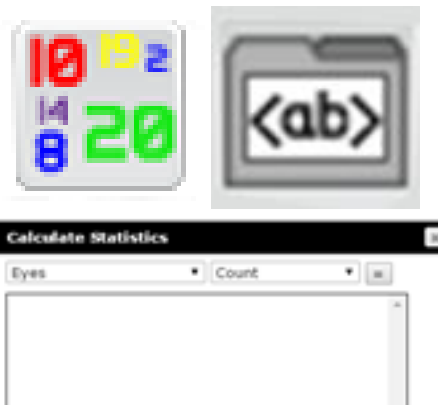
3. Statistics and Report – Count

4. Statistics and Report – Percentages

5. Statistics and Report – Maximum

Calculate Statistics

Eyes ▼ Maximum ▼ =

Eyes Maximum = 11

6. Statistics and Report – Minimum

Calculate Statistics

Eyes ▼ Minimum ▼ =

Eyes Minimum = 1

7. Statistics and Report – Mean

Calculate Statistics

Eyes ▼ Mean ▼ =

Eyes Mean = 1.95

8. Statistics and Report – Range

Calculate Statistics

Eyes ▼ Range ▼ =

Eyes Range = 10

9. Statistics and Report – Total

Calculate Statistics

Eyes ▼ Total ▼ =

Eyes Total = 39

Calculate Statistics

Eyes ▾ | Range ▾ | =

Eyes Maximum = 11
Eyes Minimum = 1
Eyes Mean = 1.95
Eyes Range = 10

10. The user can display multiple pieces of statistical information at the same time. Here all the information about maximum, minimum, mean and range of alien eyes is displayed.
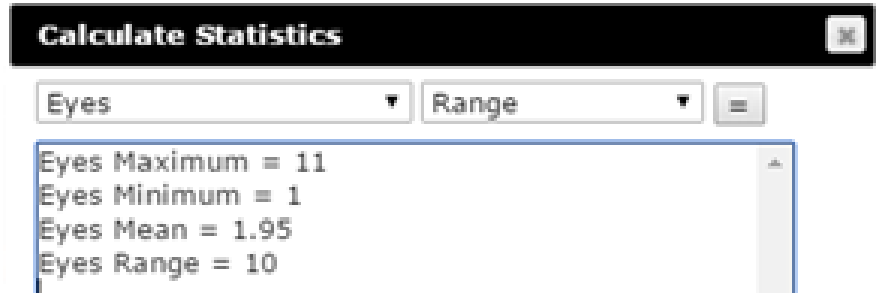
11. The user can also print a report showing specific information from the database. In this example a report showing the alien names is shown.

Reports

Design | View

Name ▾ | Insert

<<Name>>

12. Press View to see the report. This information can then be copied.

Reports

Design | View

Copy

Eyezee
Woorah
Loomva
Tooftu
Kingbo
Oopa
Zickboy
Queenbo
Norzak
Lipta
Reeni
Gulpee
Gullah
Zinky

13. The user can produce a report with more than one field. Here is a report with name, number of eyes and home planet.

Reports

Design | View

Planet ▾ | Insert

<<Name>> with <<Eyes>> eyes and comes from the planet <<Planet>>

Reports

Design | View

Copy

Eyezee with 7 eyes and comes from the planet Zorg
Woorah with 3 eyes and comes from the planet Zorg
Loomva with 2 eyes and comes from the planet Saturn
Tooftu with 2 eyes and comes from the planet Boaz
Kingbo with 2 eyes and comes from the

Using Charts

This uses the sample database 'Aliens'.

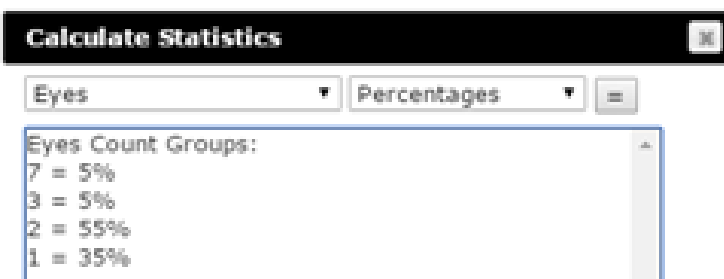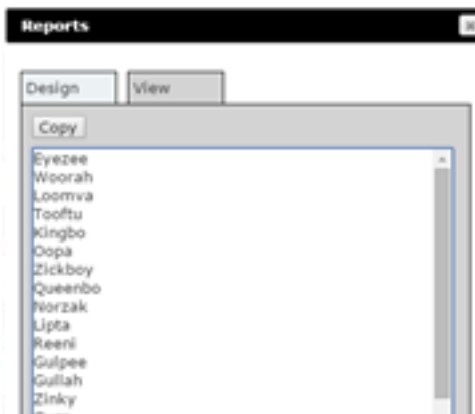1. When the user loads a database, the information is portrayed in graphical form. All the records are displayed.
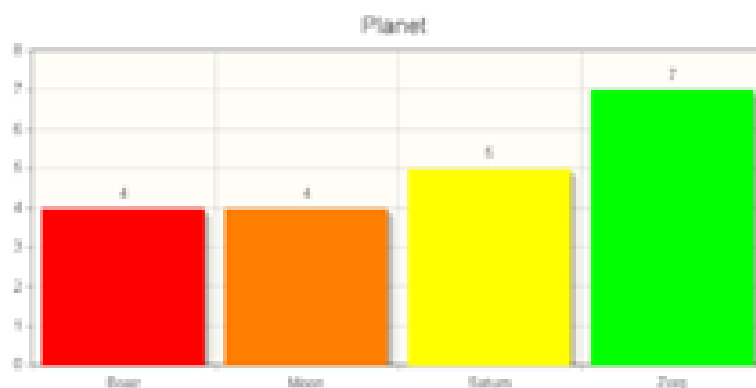
2. The Graph icon allows the user to show the information in graph form. Here the user is going to show a graph according to the planet the alien comes from.

3. The information can be displayed in a range of different graphs. Click on the different graphs at the top of the screen to choose the appropriate graph form.
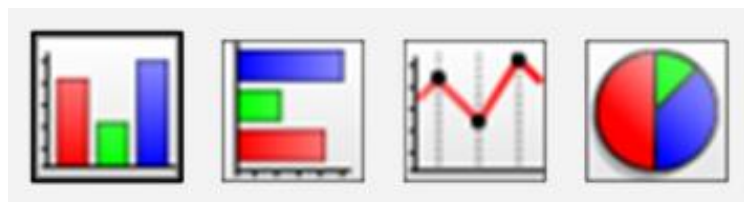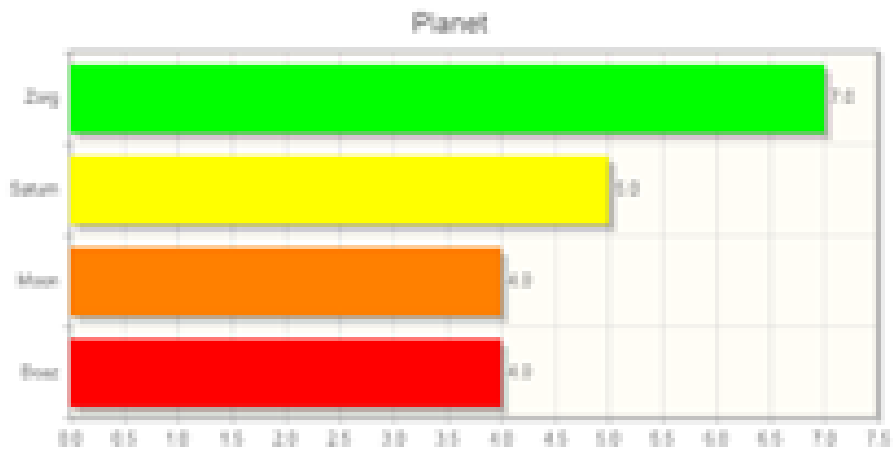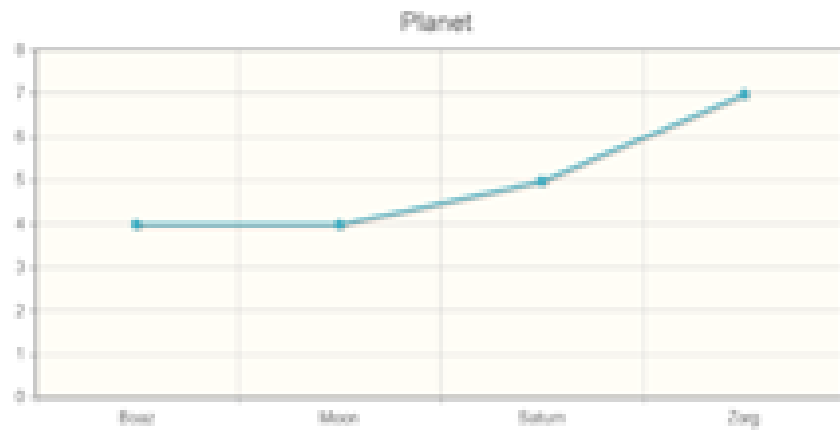
4. Graph – vertical bar chart.

5. Graph – horizontal bar chart.

6. Graph – line chart.

7. Graph – pie chart.
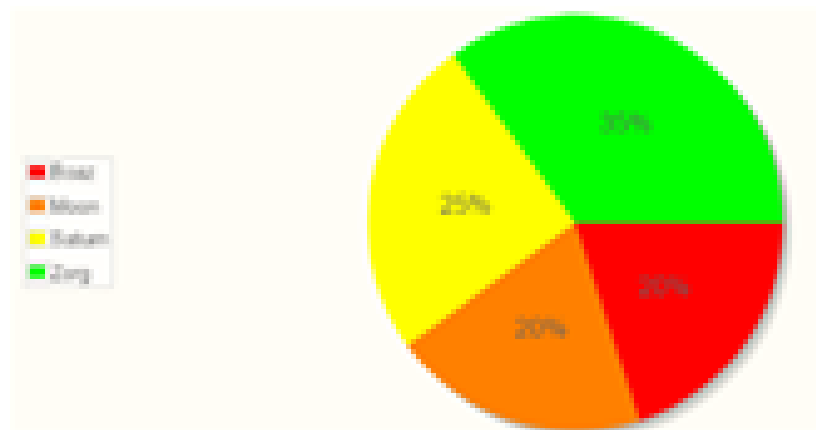
Creating and Saving a Purple Mash Avatar

To start the avatar, click on the Avatar icon at the top of the Purple Mash screen.

The children can then start to make their avatar using a range of designs.
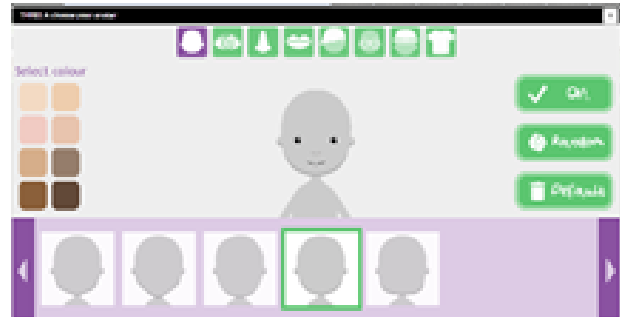
When the children are happy with their avatar, they click OK.

The computer will then ask them if they are happy with their picture. **BEFORE** clicking OK, they should right click on the image and save it as they will need this for the database.

How to Design a New Collaborative Database

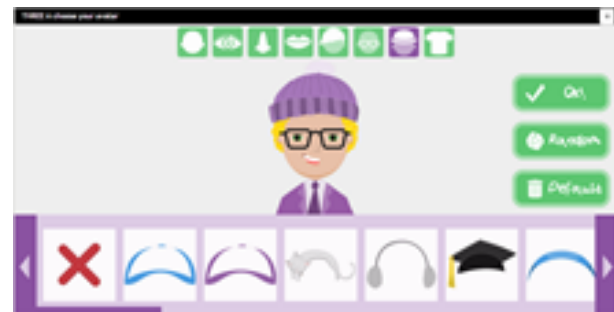1. There are two ways to start a new database. The user can either click on Blank when 2Investigate opens or click on New on the toolbar at the top of the screen.

2. Click at the top of the screen and give the database a title. In this example, we will create a database about capital cities.
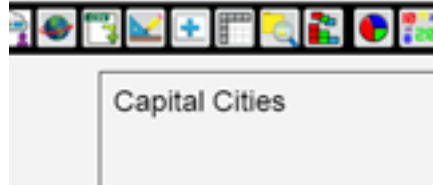
3. Click on the Design Database icon. The Pencil icon allows the user to edit the database. Start to add in the different fields and the type of answers.

4. It is possible to add a list of answers for the user to select. In this case we have added the continents.

5. Press OK and the database is ready to be used.

6. To make the database collaborative, select the Collaborate button. This will prompt you to save the database in a shared folder.

Collaboration

Please save this document to a shared folder to start collaborating.
once saved in collaboration mode you will no longer be able to edit the database design.
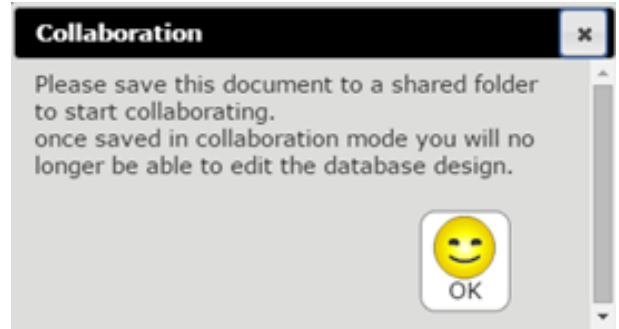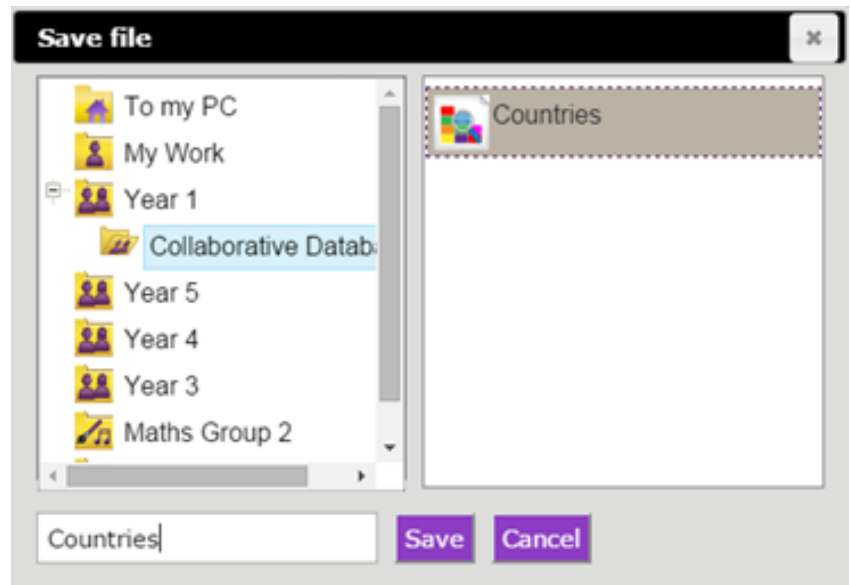
OK

7. As this is a collaborative database, rather than saving the database in My Work, it is saved in the appropriate class or group. Here we have saved the database to Year 1.

   This means all users in Year 1 can access and add records.

   Not all databases in a shared folder will be collaborative, so it is a good idea either to add Collaborative to the name or to create a specific folder and save them there.

Save file

To my PC
My Work
Year 1
    Collaborative Datab
Year 5
Year 4
Year 3
Maths Group 2

Countries

Countries   Save   Cancel

8. Once a database becomes collaborative, its design cannot be changed.

9. Users with access to the shared folder can now add their own records and the record will appear on all collaborators' screens.

10. When all the records have been added, each child can save the database to their own work.

Questions about my _____ database

Q1

A1

Q2

A2

Q3

A3

Q4

A4

Q5

A5

Assessment Guidance

The unit overview for year 5 contains details of national curricula mapped to the Purple Mash Units. The following information is an exemplar of what a child at an expected level would be able to demonstrate when completing this unit with additional exemplars to demonstrate how this would vary for a child with emerging or exceeding achievements.

Assessment Guidance	
Emerging	With support, children can contribute to the design of a collaborative (Unit 5.4 Lesson 2) and individual database, although this may be with limited success (Unit 5.4 Lesson 3 and 4).
	They can design and enter information accurately into their own simple database and create basic questions about their database for their classmates to answer. Furthermore, they can use the search functionalities to answer simple questions (Unit 5.4 Lesson 1. Point 9 and Unit 5.4 Lesson 3 and 4. Point 8).
Expected	Children can contribute to the design of a collaborative (Unit 5.4 Lesson 2) and individual database (Unit 5.4 Lesson 3 and 4).
	They can design and enter information accurately into their own database and create questions about their database for their classmates to answer. Furthermore, they can use the search functionalities to answer questions (Unit 5.4 Lesson 1. Point 9 and Unit 5.4 Lesson 3 and 4. Point 8).
	Most children will be able to create a database within 2Investigate which contains contextualised information relating to a topic. They can add fields which are appropriate for the topic choice and present data using graphical tools, table views, and search for appropriate content to be displayed to answer a question (Unit 5.4. Lessons 3 & 4).
	Throughout this unit, children will be learning how to effectively utilise a database. They will respond to feedback from peers and the class teacher.
	Most children can interrogate a database, including the different ways the data can be sorted and displayed – Table view, Find, Sort, Charts (Unit 5.4 Lesson 1 Point 8). They can use more advanced features such as the 'statistics tool' to display multiple pieces of statistical information at the same time and produce reports on specific criterion (Unit 5.4 Lesson 1 & 2).
Exceeding	Children demonstrating greater depth will lead a small group in the design and creation of a collaborative (Unit 5.4 Lesson 2) database. They can create an individual database with a greater number of fields and create complex search questions about their database for their classmates to answer (Questions using and/or statements). Furthermore, they can seamlessly use the search functionalities to answer complex questions (Unit 5.4 Lesson 1. Point 9 and Unit 5.4 Lesson 3 and 4. Point 8).