purple mash

Computing

Scheme of Work

Unit 2.4 – Questioning

Year Group: 2
Number of Lessons: 3

From 2simple

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Introduction

This unit is designed to help children learn about the importance of phrasing questions and that certain data-handling resources are limited in the answers they can provide.

The lessons assume that children are logged on to Purple Mash with their own individual usernames and passwords so their work will be saved in their own folders automatically and can be easily reviewed and assessed by the class teacher. These lesson plans make use of the facility within Purple Mash to set activities for pupils which they can then complete and hand in online (2Dos). If children have not opened 2Dos before, then they will need more detailed instructions about how to do this. A teacher's guide to 2Dos can be found in the Teacher section: 2Dos Guide.

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.

If children have not used and logged on to Purple Mash before, then they will need to spend some time learning how to do this before starting these lessons. Young children can be supported by having their printed logon cards (produced using Create and Manage Users) to hand.

Year 2 – Medium-term Plan

Lesson	Aims	Success Criteria
1	To show that the information provided on pictograms is of limited use beyond answering simple questions.	• Children understand that the information on pictograms cannot be used to answer more complicated questions.
2	To use yes/no questions to separate information.	• Children have used a range of yes/no questions to separate different items.
3	To construct a binary tree to separate different items.	• Children understand what is meant by a binary tree. • Children have designed a binary tree to sort pictures of children.
4	To use 2Question (a binary tree) to answer questions.	• Children understand that questions are limited to 'yes' and 'no' in a binary tree. • Children understand that the user cannot use 2Question to find out answers to more complicated questions. • Children have matched the 2Simple Avatar pictures to names using a binary tree.
5	To use a database to answer more complex search questions. To use the Search tool to find information.	• Children understand what is meant by a database. • Children have used a database to answer simple and more complex search questions.

Lesson 1

Aims

- To show that the information provided on pictograms is of limited use beyond answering simple questions.

Success criteria

- Children understand that the information on pictograms cannot be used to answer more complicated questions.

Resources

Unless otherwise stated, all resources can be found on the main unit 2.4 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 1 – Worksheet 1 – All About My Home. (at the end of this document).
- 2Publish Presentation – Types of Homes.
- Types of Homes Spreadsheet.
- Example Pictograms – Types of home people live in / Number of people in our homes / Number of rooms in our homes; an example can be found at Types of Homes Pictogram. If you wish children to use the example pictogram, then it can be set as a 2Do for the class.

Activities

1. Share the learning objectives and success criteria with the children.

2. For this lesson, we will be thinking about the houses that the children live in and producing simple pictograms of the data.

3. Show the children the presentation – Types of Houses. Discuss the features of each house type.

4. Give out Lesson 1 – Worksheet 1 – All About My Home and encourage children to draw what their home looks like, what it is made from, how many rooms it has and how many people live there.

5. On the whiteboard, collate some of the information from the children's pictures. You could collate the results in the 2Calculate file Types of Homes or on the whiteboard.

6. We are going to design a simple pictogram using the information collected from the children. You can use the sample 2Count pictogram 'Houses' or create one of your own. Explain to the children data can be entered by:
   - Clicking in the rectangle
   - Clinking on the + or –

7. The children can then fill in the data in their own 2Count pictogram. They can either create their own or use the sample:
   - Number of people in our homes.
   - Number of rooms in our homes.

8. Ask the children to use the pictogram to answer some simple questions whose answer can be ascertained from the pictograms or the results collected in step 5.

- How many people live in semi-detached houses?
- Do more people live in flats than bungalows?
- How many houses have four people living in them?

9. With the class, look at what information the pictograms can't provide you with. For instance:
    - How many semi-detached houses have four people living in them?
    - How many people living in bungalows have four or more rooms?

10. Can the children think of any questions of their own that the pictograms cannot answer?

Lesson 2

Aims

- To use yes/no questions to separate information.

Success criteria

- Children have used a range of yes/no questions to separate different items.

Resources

Unless otherwise stated, all resources can be found on the main unit 2.4 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.

- Guess Who? board game.
- Purple Mash Avatar Game (at the end of this document).
- Purple Mash Large Avatars Pictures (at the end of this document).
- Blu-Tack might be useful if you wish to stick the picture up when using them.

Activities

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

2. Show the children two different objects and show how we can use simple questions with a yes/no answer to separate them, e.g. cube and sphere – has the shape got straight edges?

3. Show the children four characters from the Purple Mash avatars. Choose one. Explain how we can use a range of yes/no questions to separate the avatars so we can select one. Discuss how we can ask questions relating to hair colour, gender, glasses etc.

4. Hand the children a copy of the Lesson 2 – Purple Mash Avatar Game. The children cut up the 12 images and then they play a game like Guess Who? Remind the children they can only use questions with a yes/no answer.

Lesson 3

Aims

- To construct a binary tree to separate different items.

Success criteria

- Children understand what is meant by a binary tree.
- Children have designed a binary tree to sort pictures of children.

Resources

- Lesson 3 – 'yes' and 'no' arrows (at the end of this document). You will need several copies in order to construct a paper binary tree on either the floor or the wall (depending on your classroom layout).
- Whiteboard/paper.
- Large avatar pictures from the last lesson.
- Lesson 3 – Worksheet 1 – Purple Mash Avatar Binary Tree. (at the end of this document). One copy per child/pair.
- Lesson 3 – Purple Mash Avatar Binary Tree Outline. (at the end of this document). These will need to be enlarged to A3 size and printed for each child/pair.
- Glue, scissors and Blu-Tack.

Activities

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

2. Look at the Purple Mash large avatar pictures.

3. With the class, discuss a yes/no question that could split the avatars into two groups. The ideal question will divide the avatars into approximately equal groups. This will result in the fewest (average) number of steps to the solution for all of the avatars. Write the question onto paper/whiteboard and then put 'yes'/'no' arrows on the floor or Blu-Tack them to the board. It is advisable to enlarge the arrows onto A3 paper.

4. Separate the avatars into the two groups, choose one group and then think of what question could be used to split this group into a smaller group?

5. Repeat until all the children are sorted individually. Select one child and check that the binary tree works and leads to the correct child.

6. The children should complete their own binary tree using the Purple Mash Avatars and outline sheet.

Lesson 4

Aims

- Use 2Question (a binary tree) to answer questions.

Success criteria

- Children understand that answers are limited to 'yes' and 'no' in a binary tree.
- Children understand that the user cannot use 2Question to answer more complicated questions.
- Children have matched the 2Simple avatar pictures to names, using a binary tree.

Resources

Unless otherwise stated, all resources can be found on the main unit 2.4 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.

- 2Question database – Avatars. Set this as a 2Do for your class.
- Lesson 4 – Worksheet 1 (at the end of this document).

Activities

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

2. Open the 2Question database – Avatars.

3. Handout Lesson 4 – Worksheet 1. Choose a child and then work through 2Question – Avatars and see if you can find out the name of the child.

4. The children use 2Question – Avatars and work out the names of the different children.

5. Collect the children together and discuss the correct answers. A copy of the answers is provided for you.

6. Discuss with the class the limitations of the information in 2Question (questions are limited to 'yes' and 'no' answers; we are unable to ask questions such as 'children wearing a sweater and glasses'). What other questions couldn't be answered using 2Question?

Lesson 5

Aims

- To use a database to answer more complex search questions.
- To use the Search tool to find information.

Success criteria

- Children understand what is meant by a database.
- Children have used a database to answer simple and more complex search questions.

Resources

Unless otherwise stated, all resources can be found on the main unit 2.4 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 – Avatars Database set this as a 2Do for the class.
- Lesson 5 – Worksheet 1 – Avatars Database Questions (at the end of this document) one copy per child. There are two sets of questions. Sheet 1 is simple searches and Sheet 2 involves multiple searches. An answer sheet is also included.

Activities

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

2. With the class, recap the limitations of the questions we can ask about information stored in a binary tree.

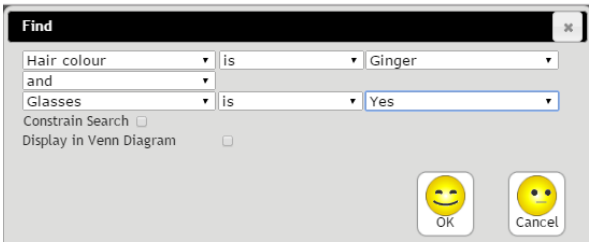
3. Explain that, this time, we are going to look at a database that allows us to ask more than one question.

4. Open the database – 2Investigate – Avatars.

5. Click on one of the children and look at how the information is stored

7. Show the children how to use the Find tool.

8. This tool can be used to allow us to search using multiple questions, e.g.



Gives the answer

9. Hand out the worksheet – Lesson 5 – Worksheet 1 – Avatar Database Questions. Children should open the database from their 2Dos and use it to answer the questions.

Lesson 1 – Worksheet 1 – All about my home

Name _____ Date _____

My home is a _____	My home is made out of_____
My home has _____ rooms	_____ people live in my home
Other information about my home.	

Lesson 2 – Purple Mash Avatar Game

Lesson 2 & 3 – Purple Mash Avatars – Large Version

Lesson 2 & 3 – Purple Mash Avatars – Large Version

Lesson 2 & 3 – Purple Mash Avatars – Large Version

Lesson 2 & 3 – Purple Mash Avatars – Large Version

Lesson 2 & 3 – Purple Mash Avatars – Large Version

Lesson 2 & 3 – Purple Mash Avatars – Large Version

Lesson 2 & 3 – Purple Mash Avatars – Large Version

Lesson 2 & 3 – Purple Mash Avatars – Large Version

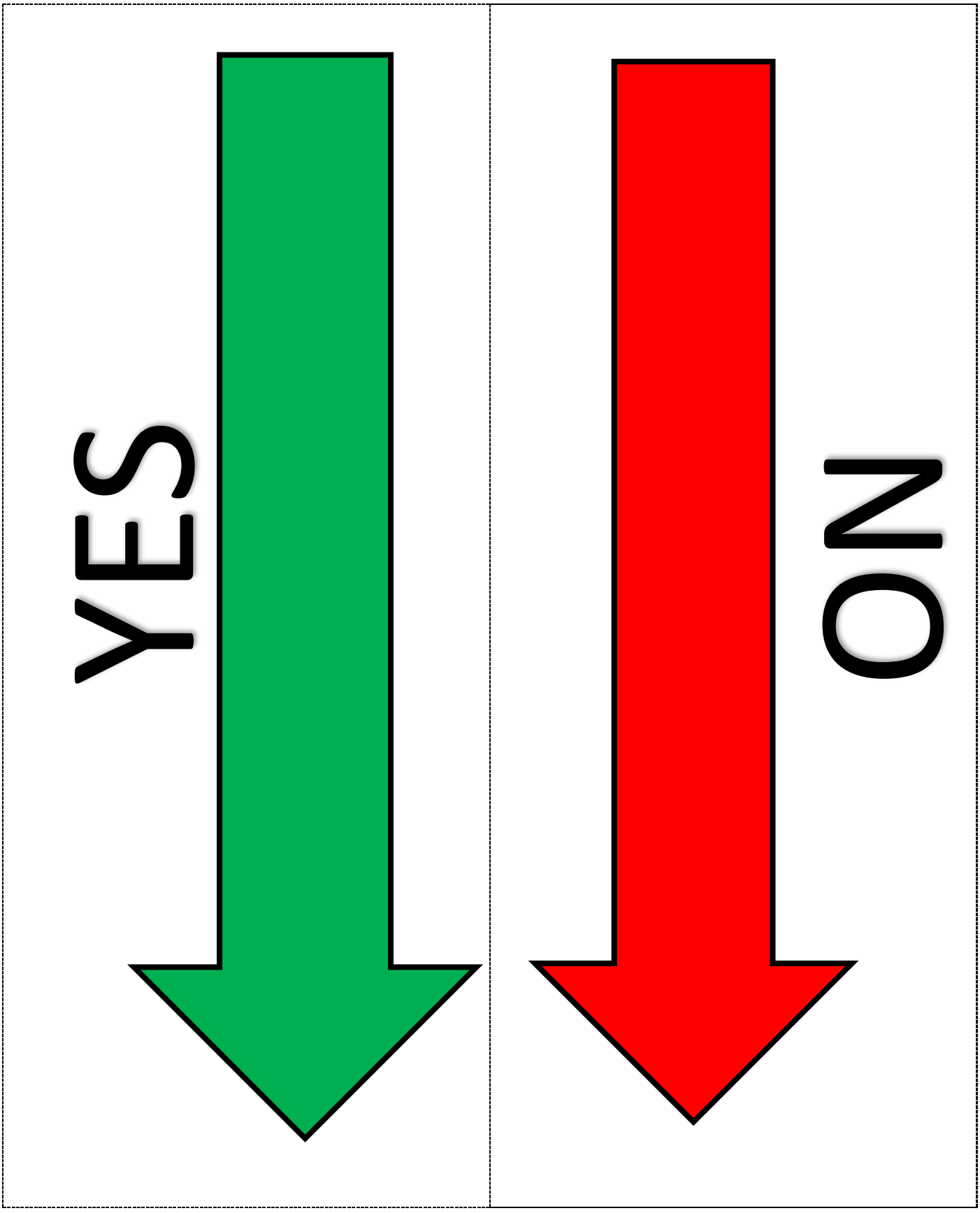
Lesson 2 & 3 – Purple Mash Avatars – Large Version

Lesson 2 & 3 – Purple Mash Avatars – Large Version

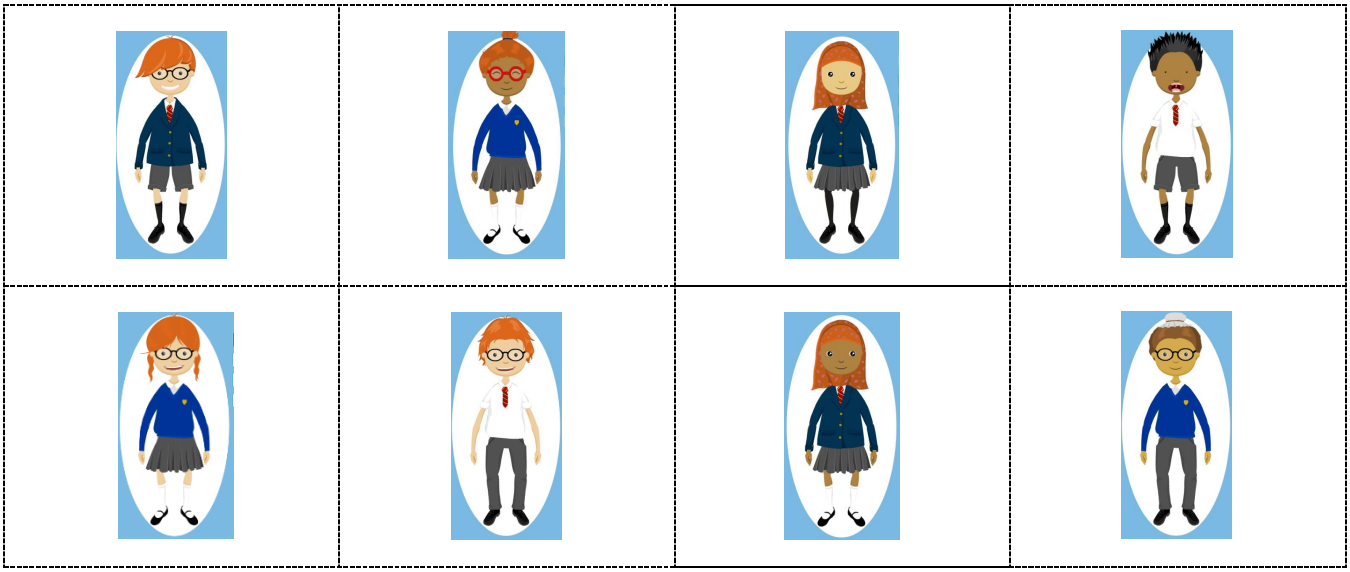
Lesson 2 & 3 – Purple Mash Avatars – Large Version

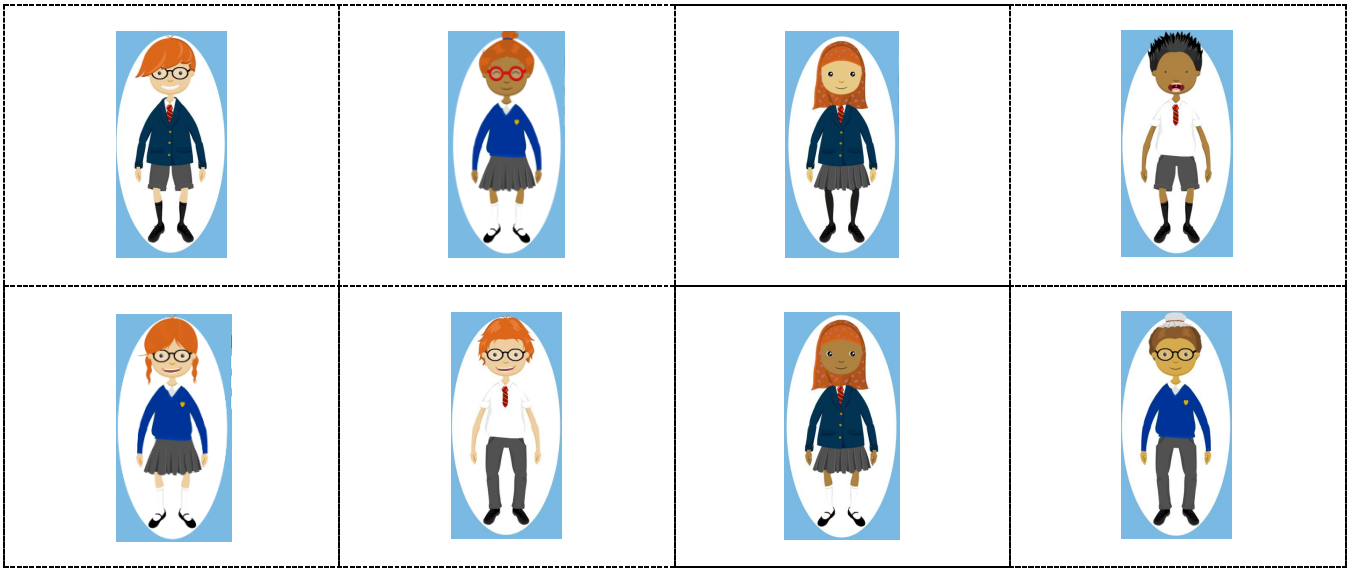
Lesson 2 & 3 – Purple Mash Avatars – Large Version

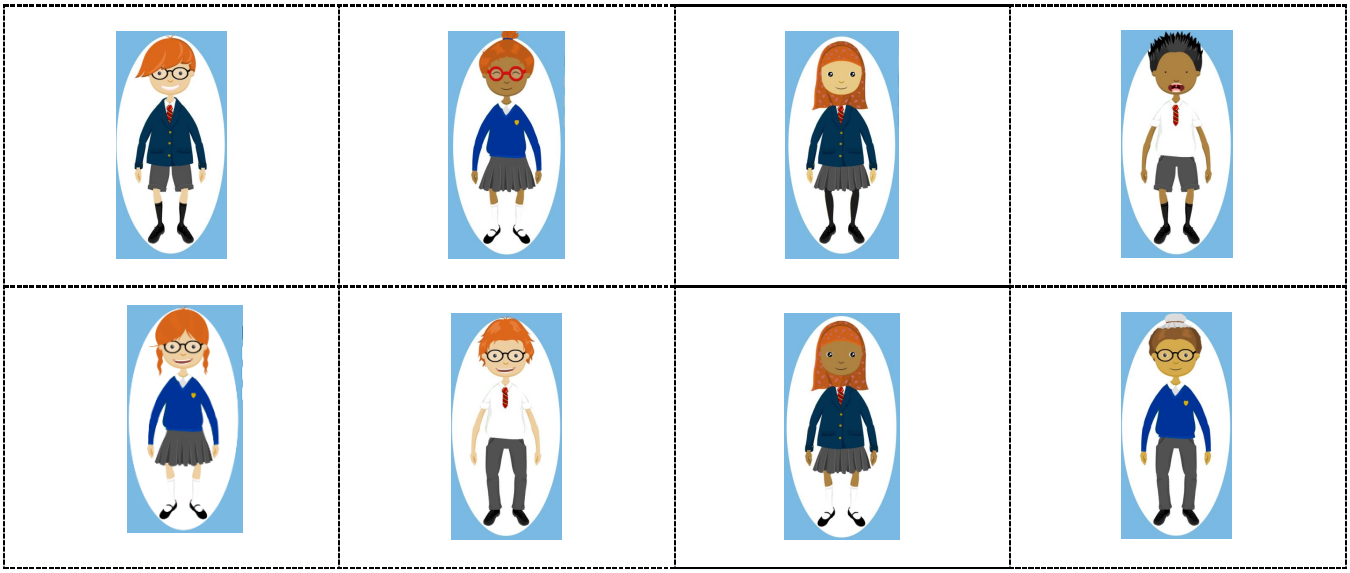
Lesson 3 – YES / NO arrows



Lesson 3 – Work Sheet 1 - Purple Mash Avatar Binary Tree

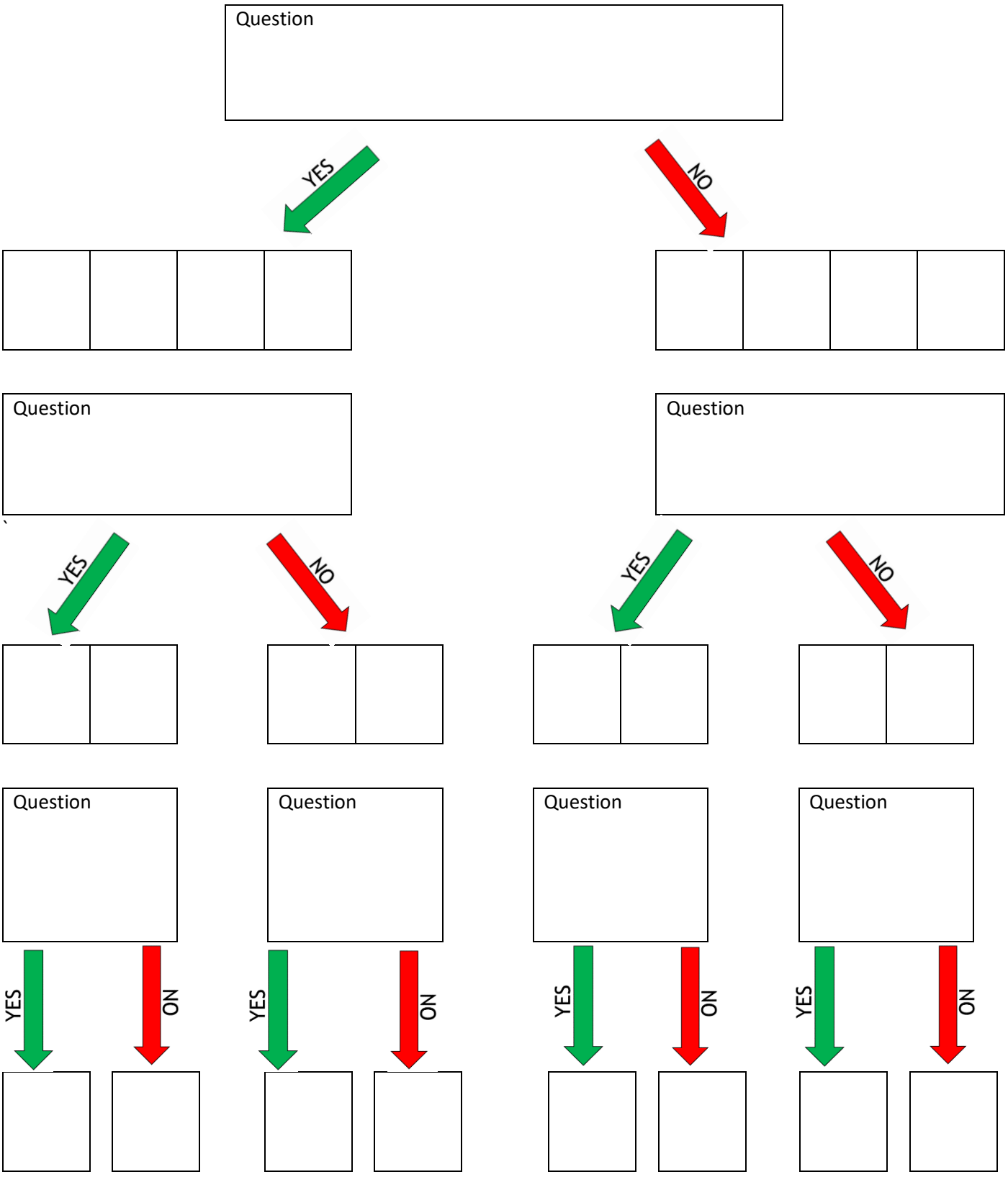






Lesson 3 – Purple Mash Avatar Binary Tree Outline

Name _____ Date _____



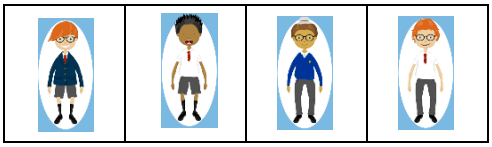
Lesson 4 – Name the Avatars Binary Tree

Name _____ Date _____

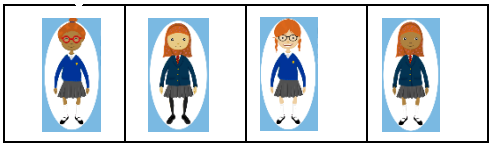
Question

Is the child a boy?

YES



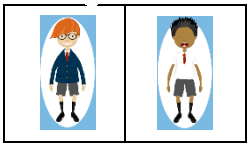
NO



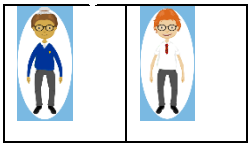
Question

Is he wearing shorts?

YES



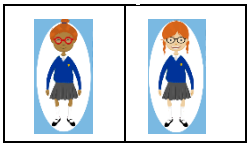
NO



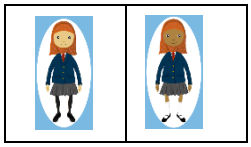
Question

Is she wearing glasses?

YES



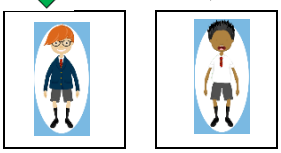
NO



Question

Is he wearing glasses?

YES



NO

Question

Does he have ginger hair?

YES

NO

Question

Are the glasses red?

YES

NO

Question

Is she wearing white socks?

YES

NO

Name _____ Date _____

Use 2Question to find the names of these pupils.

Lesson 4 – Worksheet 1 - Answers

Name _____ Date _____

Use 2Question to find the names of these pupils.

Jasper

Chantelle

Fatima

Daniel

Matty

Philip

Karisha

Raj

Katie

Sammy

Sarah

Molly

Lesson 5 – Work Sheet 1 – Avatars Database Questions

Name _____ Date _____

Avatars Database Questions
QUESTIONS (1)
Getting started with simple searches

1. How many boys are there in the class?

2. Which children in our class have blonde hair?

3. How many children are wearing a tie?

4. How many children are wearing a blazer?

5. How many children have glasses on?

6. How many children are wearing shorts?

7. Which child is wearing a T-shirt?

Lesson 5 – Work Sheet 1 – Avatars Database Questions

Name _____ Date _____

Avatars Database Questions
QUESTIONS (2)
Moving on with more complicated searches

1. What are the names of the boys wearing glasses?

2. Which children are wearing a tie and a blazer?

3. How many blonde children are wearing glasses?

4. How many children are wearing a blazer or a shirt?

5. How many children have ginger or brown hair?

6. Who is wearing a shirt and glasses?

7. Which children are wearing a blazer and are not wearing glasses?

Lesson 5 – Work Sheet 1 – Avatars Database Questions

Name _____ Date _____

Avatars Database Questions
QUESTIONS (1)
Getting started with simple searches
Answers

1. How many boys are there in the class?

   6

2. Which children in our class have blonde hair?

   2

3. How many children are wearing a tie?

   6

4. How many children are wearing a blazer?

   4

5. How many children have glasses on?

   7

6. How many children are wearing shorts?

   3

7. Which child is wearing a T-shirt?

   Matty

Lesson 5 – Work Sheet 1 – Avatars Database Questions

Name _____ Date _____

Avatars Database Questions
QUESTIONS (2)
Moving on with more complicated searches
Answers

1. What are the names of the boys wearing glasses?

Jasper, Philip, Raj and Sammy

2. Which children are wearing a tie and a blazer?

Jasper, Fatima, Karisha and Sammy

3. How many blonde children are wearing glasses?

1

4. How many children are wearing a blazer or a shirt?

7

5. How many children have ginger or brown hair?

6

6. Who is wearing a shirt and glasses?

Philip

7. Which children are wearing a blazer and are not wearing glasses?

Fatima and Karisha

Assessment Guidance

The unit overview for year 2 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 create basic pictograms using 2Count to represent a simple data set (Unit 2.4 Lesson 1. Point 7). Children may need concrete representation to understand how to organise and search for data. With support, this physical representation can then be transferred into 2Investigate and used to answer simple questions on a data set (Unit 2.4 Lesson 5. Point 9 and Worksheet 1 Questions 1). Using 2Question, children use a binary tree to sort information and can manipulate their data, answering questions relating to this (Unit 2.4 Lesson 4. Point 4). With support, children can store and retrieve data throughout Unit 2.4.
Expected	Using 2Count, children can create pictograms to represent data (Unit 2.4 Lesson 1. Point 7). Children demonstrate their ability to organise data using a database in 2Investigate and can run simple searches on their data set (Unit 2.4 Lesson 5. Point 9 Worksheet 1 Questions 1 and 2). Using 2Question, children use a binary tree to sort information and can manipulate their data, answering questions relating to this (Unit 2.4 Lesson 4. Point 4). Children will store and retrieve data throughout Unit 2.4. Most children will be able to design their own physical binary tree to sort pictures of children (Unit 2.4 Lesson 3). They will be able to apply this skill into using 2Question to answer questions. Most children can design a binary tree using 2Question to sort pictures (Unit 2.4. Lesson 3). They can use their own created binary trees to support the answering of related questions to the data (Unit 2.4. Lesson 5).
Exceeding	Using 2Count, children can create pictograms to represent data (Unit 2.4 Lesson 1. Point 7). Children demonstrate their ability to organise data using a database in 2Investigate and can run complex searches on their data set (Unit 2.4 Lesson 5. Point 9 Worksheet 1 Questions 1 and 2). Using 2Question, children use a binary tree to sort information and can manipulate their data, answering questions relating to this (Unit 2.4 Lesson 4. Point 4). Children will store and retrieve data throughout Unit 2.4. Children demonstrating greater depth can create their own questions using the data and will use skills covered in other units to assist with this.